

APRIL 1915

# AMERICAN CARPENTER AND BUILDER

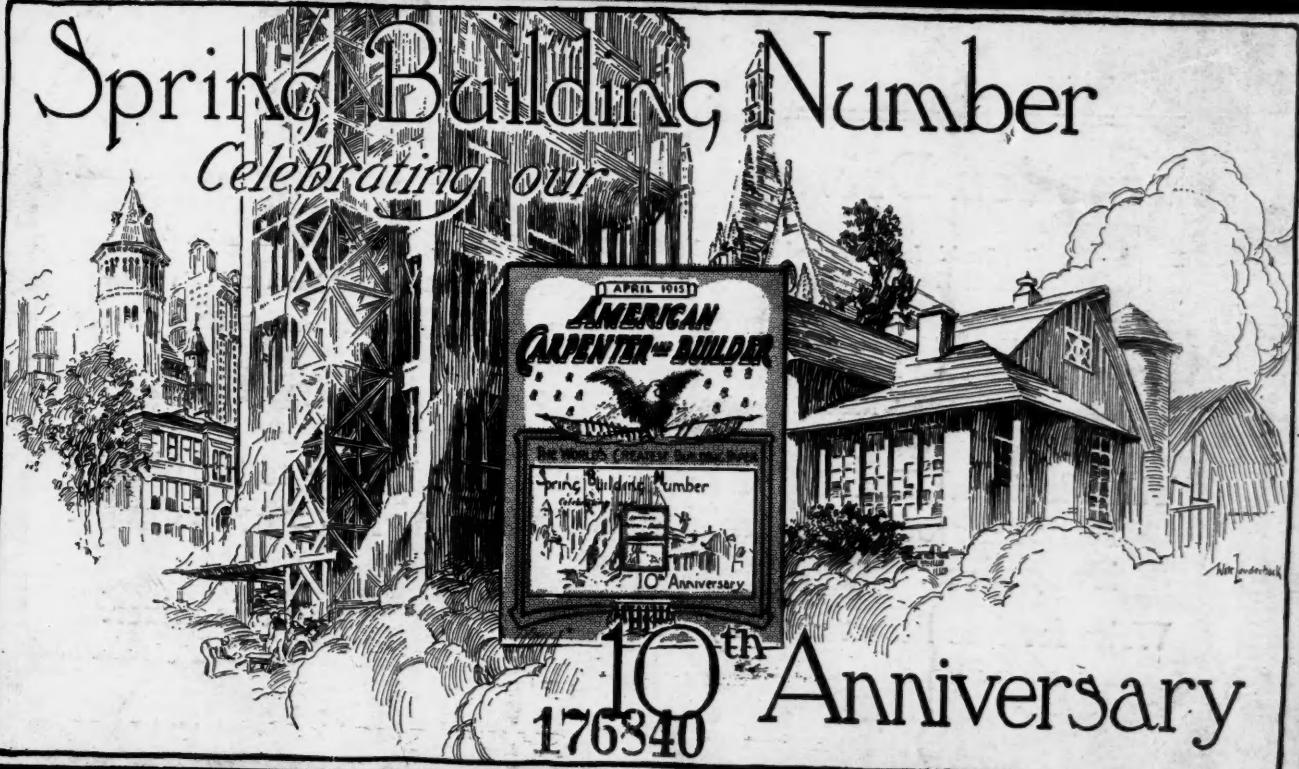
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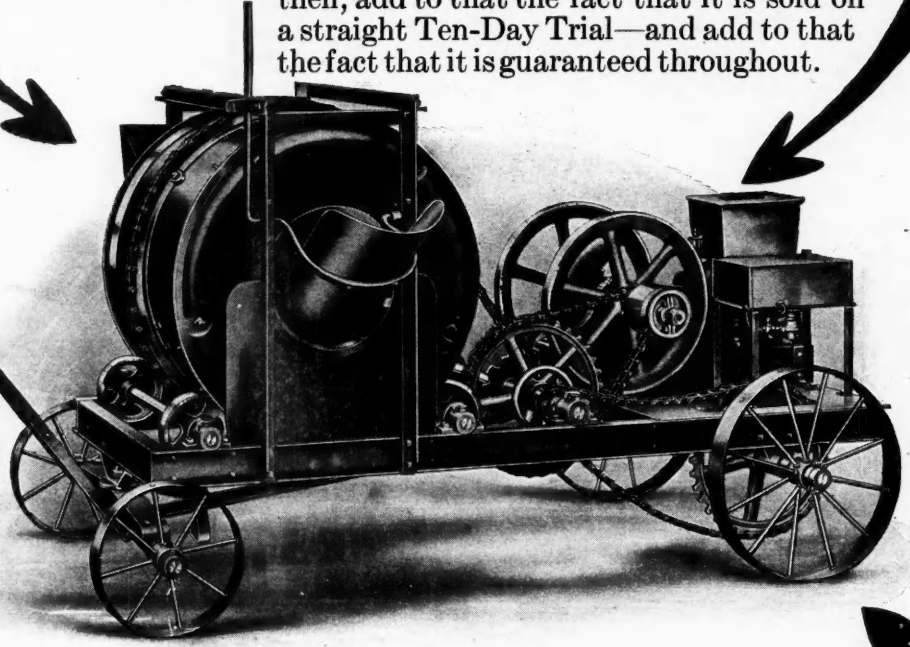
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# SHORT TALKS WITH OUR SUBSCRIBERS

## Ten Years of Progress

NOTABLE DEVELOPMENTS IN BUILDING FIELD MARK CAREER OF THE AMERICAN CARPENTER AND BUILDER

ON the occasion of this Tenth Anniversary it is gratifying to us, looking back, to see how far the art of American home building has progressed since our first number was issued ten years ago. Of course we would not for a moment claim the credit for this—many influences have been at work to bring it about. And yet, in a modest way, we can say that the American Carpenter and Builder has helped.

From our first number we have consistently advocated modern equipment for homes, and have urged builders to get in line with the spirit of American prosperity and progress by providing every one of their buildings with modern conveniences, and designing and finishing them in the modern style that home builders now expect and are ready to pay for. We have placed hundreds of modern building designs in the hands of our readers to help them meet this demand for up-to-date, well built, convenient homes.

### Building Journals Have Worked for Progress

From the start we had faith that carpenters and builders would find a high-grade illustrated magazine helpful and interesting and would respond to it. Time has proved us right—has justified this faith. Not only has the American Carpenter and Builder been able to advance to its present commanding size of over 200 pages each month, and with subscribers numbering more than 40,000 builders, but also through our example other building papers have been spurred on to more aggressive educational work, and have grown in strength and influence.

The result is that today the building field is better served than any other. Much credit is due the building trade journals for the progress made in home planning and in general building construction during the past ten years. We have not stood idly by, and we have not simply followed the procession, but have been far out ahead, inspiring and instructing the carpenters and builders in every state in the Union to bigger things.

In the past ten years the "bungalow idea" has come in. All homes must now be modern in arrangement, design, and equipment for home comfort and convenience. In the past ten years the importance of the suburban and small town builder has come to the front. His interests have broadened, his opportunities multiplied, his influence in the building world increased. The builder now has to be more than ever a business man, and must keep posted on all the new building materials, heating equipment, lighting, plumbing, etc., as these things come onto the market.

### Thanks Due Both Advertisers and Subscribers

WE are proud of the service we have been able to render our readers along the line of keeping them informed on the goods offered in the building field. An average of 350 responsible manufacturers—the best and most representative concerns in the building field—advertise each month in the American Carpenter and Builder. These business men are all at the service of our readers, and it is through the service they have rendered builders—much of it free of charge—that a great deal of the progress in the building world has been

brought about.

In concluding this anniversary talk, we could not, in justice either to ourselves or to our readers, fail to give credit again to our readers themselves for a very large share of the success of the American Carpenter and Builder. Our aim has always been to give you the kind of practical, interesting, helpful articles and plans that YOU REALLY WANT, AND THAT WILL HELP YOU MOST. We are indebted to thousands of our readers for writing us personally, giving words of criticism and encouragement—here a slap and there a boost—all appreciated by YOUR Editorial Staff.

Our first ten years have been useful. With your assistance the next ten will set ten new annual records for wide-awake construction work.

### 80% in Towns of 25,000 or Less.

WE believe it will be interesting to our subscribers as well as to our advertisers to learn just how our circulation of 40,000 copies monthly is distributed—just where our 40,000 builder subscribers do their work. Our subscription manager, therefore, presents the following figures:

DISTRIBUTION OF THE AMERICAN CARPENTER AND BUILDER.

Rural Circulation .....	37%
Towns of 1,000 to 5,000 .....	27%
Towns of 5,000 to 25,000 .....	16%
Towns of 25,000 to 100,000 .....	8%
Towns of 100,000 and over .....	12%

These figures show that 80% of our circulation is in towns of 25,000 or less, 20% in towns of over 25,000.

Very cordially yours,  
Editor AMERICAN CARPENTER AND BUILDER.

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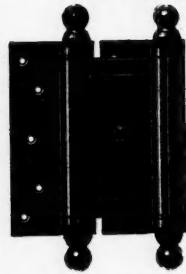
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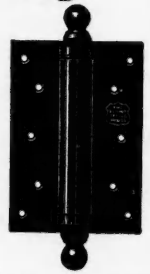


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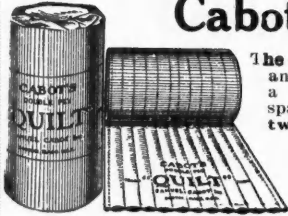
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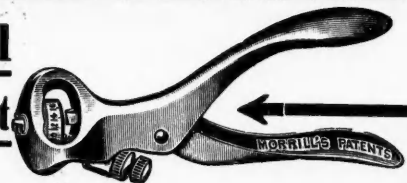
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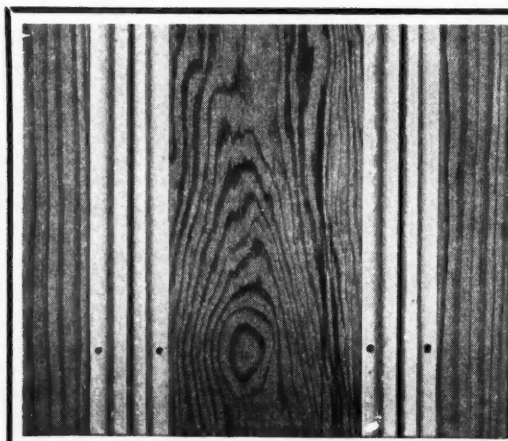
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**American Carpenter and Builder**  
Entered as second-class matter July 1, 1905, at the postoffice at Chicago, Ill., under the act of Congress of March 3, 1879.  
*Published on the first day of each month by*  
**AMERICAN CARPENTER AND BUILDER COMPANY**  
RADFORD BUILDING, 1827 PRAIRIE AVE., CHICAGO  
Member Audit Bureau of Circulations

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We often receive inquiries from readers who desire information about concerns that formerly used the advertising pages of the American Carpenter and Builder, but are no longer doing so. They want to know if these former advertisers are still in business, if they can send them orders with the assurance that they will be filled, and a variety of other questions.  
The American Carpenter and Builder will use every legitimate means to safeguard the interests of its readers and to protect them from fraudulent or unreliable concerns. Where the slightest doubt exists our readers should write the publishers for information. It may save them money, time and worry.  
In all cases in writing to advertisers say: "I saw your advertisement in the American Carpenter and Builder."

VOL. XIX APRIL, 1915. No. 1

**Analysis of Edison Plant Fire**

AT the request of the Boston Manufacturers Mutual Fire Insurance Company, Leonard C. Wason, President of the Aberthaw Construction Company, Boston, made a critical inspection of the gutted buildings of the Thomas A. Edison Plant, with the idea of determining how well the reinforced concrete structures stood up under conflagration conditions. His conclusions bore out what has long been understood to be the fact in these matters. Among other things he says:

"Steel becomes ductile at a comparatively low temperature. The strength of a reinforced concrete structure depends upon the compressive strength of the concrete and the tensile strength of the steel. If the steel stretches, the floors will sag under load. If the stone crumbles under heat it will cause soft pockets to form between the films of mortar which hold the stones in place. These thin films will readily heat and break away.

"Accordingly, in order to secure a fire resisting concrete, it is necessary to select a stone which will not readily crumble under heat, and to bury the steel

so deeply in the concrete that the heat generated by a fire in the contents of the building, cannot raise the temperature of the steel to its softening point, even after some of the concrete surface has been spawled off by the fire or water action.

"It is to be remembered that concrete poured in large sections, after setting and during the hardening process of several months, shrinks, producing internal stresses. It is impossible to anneal the material, or to do anything to relieve these stresses in the material. The steel bars embedded in the concrete cross many of these lines of stress, and tend to hold the whole mass from cracking. If a heavy blow is struck or if heat expansion takes place, cracks are likely to occur at the points of worst stress. Because of this, designers and insurance companies have insisted that no less care should be expended on sprinkler protection, cut-off walls, and all other means of minimizing the extent and intensity of a fire in a reinforced concrete building than has been given to buildings of other types. The wisdom of this course is clearly shown in the fire under consideration, where these principles were not followed."

## Fast Shingling

HOW THEY DO IT OUT WEST—SECRETS AND METHODS DIVULGED BY AN EXPERT—GOOD WORK IN JIG TIME—CAN YOU BEAT IT?

By A. P. Pierce

Carpenter and Shingler, Boise, Idaho

At the risk of "starting so'thin," we ask you, **WHAT DO YOU THINK OF THIS?** Personally, we believe that Bro. Pierce has contributed here the most helpful paper ever offered on modern wood shingling. Everyone—but the professional shinglers—will thank him for the publication of these trade "secrets."—Editor.

I HAVE been working at carpentering for over twenty years, starting in when I was only eleven or twelve years old. When I was a kid I used to like to shingle, and got quite a reputation as a fast and good workman. Out west, here, we have the best shingles in the world, I guess; and it is nothing wonderful to hear them tell of ten or eleven thousand a day. I don't shingle much, but can put on a thousand good shingles an hour on straight work myself, and have often put on one bunch in twelve minutes.

### Use a Gauged Hatchet

I would like to pass on to the brethren a trick about gauges. I see several now that we have discarded out west these seven or eight years. My preference among



Shingler Pierce on the Job—He Puts on a Bundle in 12½ Minutes.

all gauges for sale is what is called, I think, the horse-shoe gauge, made of a piece of round steel with a slot cut in for the blade and a set screw to fasten it on. I believe I was the first to invent that gauge; for I tried to raise money to get it patented in about 1905 in Ft. Collins, Colo., but failed to get it through, and was broke myself (as I have been most of the time since). It came onto the market in Denver about two years later, and is in general use now all over. Some carpenters do not like it because the slot in the screw breaks, and some claim they cannot make it stay on. I will tell my method of using it for the benefit of those who have had trouble.

I screw it on in place lightly, using my thumb nail as a screw driver; then remove and give the

screw about a half turn; then drive the gauge back into place with a hammer. This method never fails with me.

Another gauge on the same principle, and perhaps better than the patented one, can be made from a common nut from a  $\frac{3}{8}$  bolt. Cut out a slot with the hack saw, as large or larger than the blade is thick; then close up with a hammer until it will make a good press fit; then drive onto the blade. This isn't original with me, but I can't tell where it came from.

If you think it will be interesting to your readers I will write of my methods of fast shingling, the knack of running straight courses beside valleys without straight edge or line, how to make roof jacks and shoe calks to start and complete job without scaffolding.

As everyone knows who has tried it, shingling is about as hard work as any branch of carpentering, but with a gauge and roof jack and spiked shoes it is really not tiring at all. I am not a lover of hard work, but would rather put in eight hours shingling with proper equipment than almost any other kind of carpenter work.

### "Some" Loads—They Save Time

I am sending a few photos and drawings that will help to illustrate my method; also a photograph of myself with a lazy man's load. This one was made a few days ago just after a rainy spell, and also just after I had been sick for a week. Believe me, it was some load with the added weight on account of dampness and my weakened condition. From my success under these conditions I have developed an idea that I can go up with six bundles when they are bone dry and I am in good condition. If necessary, I can give proof that I actually climbed the ladder with all five bundles. Perhaps my performance isn't so extraordinary, as Bill Glosser of Fort Collins, Colo. claimed to have carried seven bundles up a 20-foot ladder, and I am inclined to believe it, as he was a very powerful man weighing about 200 pounds, and a very speedy shingler.

I will give you a few of my records to show what can be done by the shingling gauge made as shown by my sketches and attempt at explanation and illustration. Any of these performances can be duplicated by myself easily, and perhaps beaten by many of the shinglers on the coast. I am not following shingling, but am an ordinary carpenter, but I have shingled more than the average because I liked it, and others have always been willing to turn it over to me.

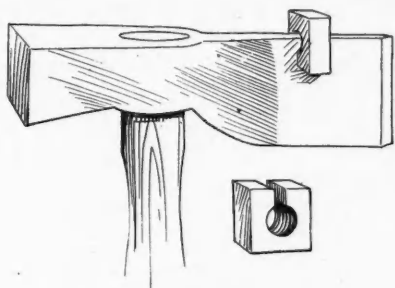


Fig. 1. Shingling Hatchet with Gauge Made of Iron Nut.

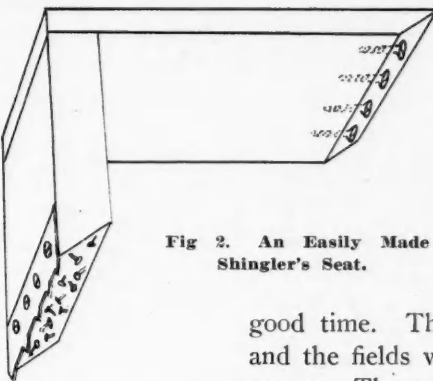


Fig. 2. An Easily Made Shingler's Seat.

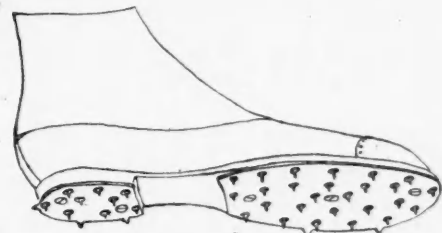


Fig. 3. Safety Shoe for Shinglers.

**Can You Beat Any of These?**

In Boulder, Colo., in 1903, I put on a bundle in 12½ minutes, timing before opening bundle. In Richfield, Idaho, in 1909, I put on a thousand in 48 minutes, D. M. Green, of Boise, timing me, and the contractor and a couple of school trustees watching to see that I did a good job. The shingles were on the roof before timing, but were not opened. In Caldwell, Idaho, the same year, I carried two bundles from the ground up an 18-foot ladder (a distance of about 65 feet all told) and put them on an exceptionally flat roof in 28 minutes. I considered that good, as it is hard work to develop much speed on less than one-third pitch. One other, and we will leave off speed records. This should be called cross-country shingling, and is close to the record for ⅝ mile. We were working on a cow shed and were making

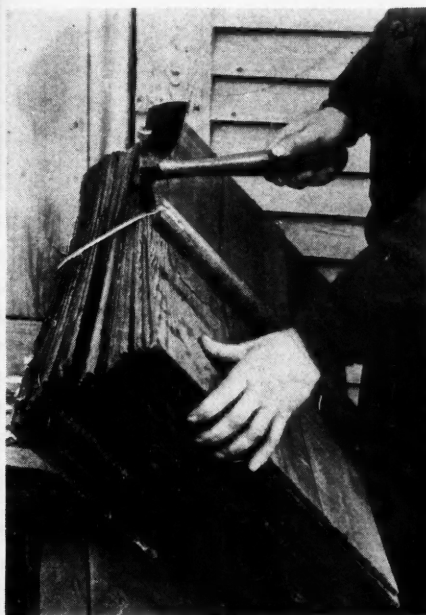
good time. The car line was about ⅝ mile away, and the fields were muddy and the roads very much worse. The cars ran every hour at a quarter after the hour. I asked Green the time at ten to five, and he said he was going to quit. I was just opening a bundle, and I said I would put it on if I had to walk home. I put it on, changed shoes, and caught the car. I always did think that was going some.

**Shingling Tools Needed**

All the tools needed are a hatchet with gauge, as shown in sketch (Fig. 1), a roof jack or stool (Fig. 2-, spiked shoes (Fig. 3), and a saw for valley shingles. I have already described the gauge. The roof jack I always make on the job in about five minutes. I simply make a stool of a piece of 2 by 6 or 2 by 8 and a piece of ⅞-inch soft pine in the shape shown in sketch; drive shingle nails part way in and bend over as shown, on both top and bottom, if the roof is one-third pitch or less. If the roof is steeper I use a plate with points as shown, screwed to bottom part



B. J. Davis (Weight, 140 Lbs.; Age, 19) and the Author. It Takes a Nerve to Stand Below a Load Like This.



Showing How to Open Bundle of Shingles with Head of Hatchet. One Sharp Blow Does the Trick if the Band is Struck Exactly as Shown.



The Author, Shingler Pierce, with a "Lazy Man's Load" (Five Bundles), Taken at Boise, Idaho, Jan. 10, 1915.

and use screws on top part of stool. This is the simplest and best stool I have found, and is much easier to use than any other type.

#### How I Made Spiked Shoes

The plates with spikes for shingling shoes shown in Fig. 3 are the best form of shoe spikes I have been able to figure out. Spikes driven in leather soles will split shingles; but riveted in solid iron they are perfectly rigid and will not split. I have used these spikes for about five years and don't believe I have split a shingle with them, and they are absolutely safe. My favorite method of fastening them on is with stove bolts, flat head inside shoe and nut outside, riveted to prevent it from falling off. I made these plates of steel from old shovels and a box of lumberman's calks. The steel is softened, cut and drilled, then tempered. The calks are hard and the screw end must be cut off, leaving enough to rivet. This can be done by sticking calks into a potato and turning the flame of a blow torch on the screw until softened. They are then cut off long enough to rivet into plates. The calks must be held firmly in a heavy vise while being riveted. In making these plates don't forget the little points on the side which are bent down slightly. This is the feature that makes them better than the patented devices for working on roofs, as they hold the foot easily in any position while at work without bending the ankle uncomfortably.

#### Pointers on Fast Shingling

Speed in shingling is acquired through proper methods and hard work. I will give a few pointers which I think are the most essential to know in order to make fast time.

I find that getting started takes up a great deal of time, so I never put on more than two rows from the scaffold. Sometimes I think it is faster to get right on the roof to start with. I put on one at each end and stretch a line; then put on a patch from the ladder or scaffold at the left end, and get on that with roof jack, and go ahead. If there is no scaffold handy, I sometimes back up with two or three courses, sitting on sheathing, but I believe I prefer a scaffold to start with when the pitch is one-fourth or more.

Opening and placing shingles properly is quite a help to fast work. I have made a photo of my method of bursting the bundle. This is quite an important thing to notice, as one can spend quite a bit of time and knock the gauge off the hatchet trying to open the bundle with the blade unless the metal band is cut, and this is hard on the keen edge of the hatchet. A sharp blow downward with the corner of the hatchet head, striking the end of the wood of the band, will cut the metal strip very easily. I seldom have to strike but once. After the band is broken I separate the bundle into about twelve parts, and place them in front, as shown in photo. If bundle is broken and distributed without moving the feet they will cover

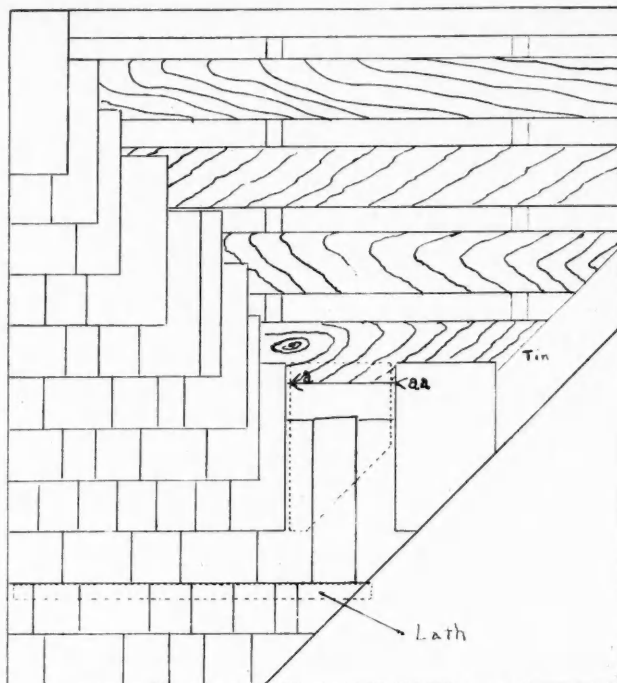


Fig. 4. Keeping Straight Rows Beside Valleys.

about as much as when laid, so if broken close to work already on, they will be in the right place. One should be able to reach a new handful without moving from stool. A bundle can be put on without moving the stool more than four or five times.

#### Keeping Rows Straight When Working Fast

The photo of myself on roof shows how we run up without a line. You will notice some crooked rows, but this was a cheap job and we were not particular about rows. This was the job where I put on a bundle and walked to the car line in 25 minutes. The secret of running straight is in gauging from the far corner of shingle being placed, and being sure to swing the near corner even with the one beside it, carefully avoiding crooked or rough butts with gauge in the row below.

I use two methods of keeping straight rows beside valleys, both shown in Fig. 4. As there isn't anything to gauge the valley shingle from, I put it beside a common shingle near the valley, as shown by dotted line. I mark it near the top of the edge of a sheathing board (a) with the hatchet, then slide it along until it is in place in the valley and the mark is still on the sheathing (aa). You can tell if the sheathing is on straight by sighting over it and lining it up with a joist or plate below. If sheathing is too crooked or there is paper on the roof, I use a short straight edge, as shown in cut. I usually use a lath. Both these methods will work on either side of valley. With the straight edge, while working on opposite side of valley, I run on a few common shingles, then fill in behind. Working by the mark I run up the valley with about a dozen valley shingles, then straighten up and check by measuring to the top. I use a long pole, usually parting stop or quarter round



with a nail driven through to hook over the ridge. This saves climbing to the top and is very accurate. I usually have to line about every 12 or 15 courses while running beside valleys; but on straight roofs I seldom line at all.

#### Mouthing Shingle Nails

The nail bag must be shaped so that you can get your hand in easily, and I find it most convenient to have it in front. It is essential to take two nails from the mouth at once, or three if you want to drive three into a wide shingle. I seldom do this, however, but split the extra wide ones and drive two nails in each.

To place the shingles quickly the best way I have found is to lay them on my leg as shown in the photo. They can be reached quicker here than in any other place.

Never drive nails in bundles of valley shingles while sawing them. They can be held as well without, and the nails are a bother in putting them on, and split

many of them. Use a coarse saw with plenty of set. I never saw hip shingles, as I can trim them much quicker with the hatchet after they are on. One "swipe" with the keen blade usually does the work.

In laying shingles on roof, lay the bands parallel with the cracks and let butts of shingles catch on sheathing. If they are jarred loose from this position the band or butts will catch in the next crack. I prefer to nail shingles high enough so that nail heads are covered with two courses if possible. At least I try never to have a head in sight through a crack or near one.

Flat grain shingles should be split much narrower than vertical grained ones to prevent wrapping, and should be laid right side up or thrown away. That is, the layers of the grain should lap the same as the layers of shingles lap on the roof.

I will be glad to answer any questions not covered by what I have written if anyone is interested enough to want more information.

O. P. PIERCE.

## House Moving—How to Load an Ell-Shaped Building

THIRD ARTICLE—SAFE METHODS EXPLAINED BY AN EXPERT—VALUABLE POINTERS FOR ALL BUILDERS

By E. W. La Plant

(President La Plant-Choate Mfg. Co.)

**I**N the two previous articles I discussed the best methods of raising a house and touched on the proper method of loading square or rectangular houses.

In this article I will briefly explain the best way of loading ell-shaped houses or other odd-shaped buildings the house mover is frequently called upon to handle.

When we stopped last month, the building was raised to the desired height. The next step is to place the running timbers in position and block them up temporarily until you place the cross sills in position.

#### Placing Cross Sills and Running Timbers

The cross sills should be placed about five feet apart, and should be heavy enough to carry the weight of the building. It is best to use either six by six or eight by eight timbers, depending, of course, upon the size and the weight of the building. With a small cottage it will be possible to use four by four for the cross sills.

The first four or five cross sills under the front part of the building should be sprung from an inch to two and one-half inches. The rear end of the running timbers should be sprung about two inches so as to carry

the house properly, keeping it in a straight line so that it will not sag. The reason for springing the sills is to give them the proper tension and spring the sills rather than the building.

After all the cross sills are in position, the next step is to set the jack screws beneath the running timbers and run them up until they carry the full load of the building. By doing this you will know whether you have sprung the sills enough without the building. Now everything is ready to place the moving trucks in position.

#### Three-Point System of Placing Trucks

The modern method is to use three sets of four-wheeled steel trucks, placing them at three points as shown in the diagram herewith. No matter what



Fig. 1. House Riding Easily on Three Trucks.

shape building is being moved, the front truck is always placed in the center, because it is used for steering as well as to carry its proper proportion of the load. In moving a square or rectangular shaped house the rear trucks should be placed equal distances from the outside wall of the building, say, three or four feet; but in moving an ell-shaped house, which we are con-

Always keep this point in mind—load at three points and never at four points if you want to move your building in good shape. If you use the three-point load it makes no difference how rough, soft or uneven the roadway is, the building will ride smooth and upright at all times without racking the frame or cracking the plaster.

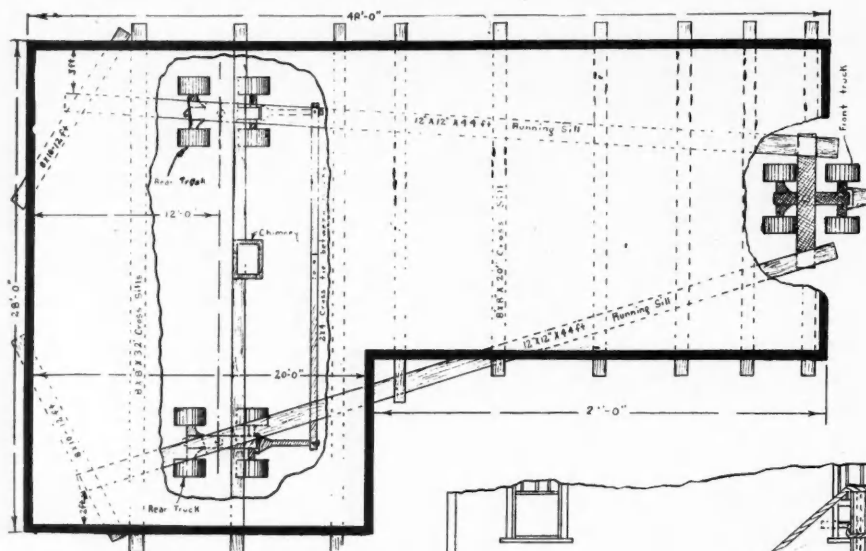


Fig. 2. Floor Plan of Ell-Shaped House, Showing Method of 3-Point Loading.

sidering in this article, the trucks should be moved forward a little bit further, as shown in Fig. 2.

Usually the rear trucks, when moving an ell-shaped house, are placed one-fourth or one-third of the length of the house in from the rear, so as to carry their proper proportion of the weight in connection with the front truck. Now study the three diagrams shown herewith and you will more thoroughly understand just what I am trying to explain.

Fig. 1 shows a view of large house loaded on three points—also method of staking capstan to brick pavement. Note how nicely the house is riding up the street.

Fig. 3 shows the front elevation and the proper method of trussing the front of an exceptionally wide building. It is only necessary to do this on houses over 24 feet wide.

Fig. 2 shows you clearly how to load an ell-shaped house. You can see by this diagram why it is that I advocate the three-point method of loading instead of four-point loading. If you load on four points it means that you must keep the road level at all times or one of the trucks would go down into some depression in the road and the corner would sag down, which means danger of tipping the building and invariably results in cracking plastering and twisting the door jambs and window frames and partitions out of place.

## Farm Paints and Painting

By W. J. Byrne

All new farm houses should be painted with a priming coat and two succeeding coats of paint, applied as directed by paint manufacturers. If the farmers will do this, they will derive full benefits from the paint used.

An up-to-date farmer, or the farmer who looks upon painting his buildings as an asset, will apply

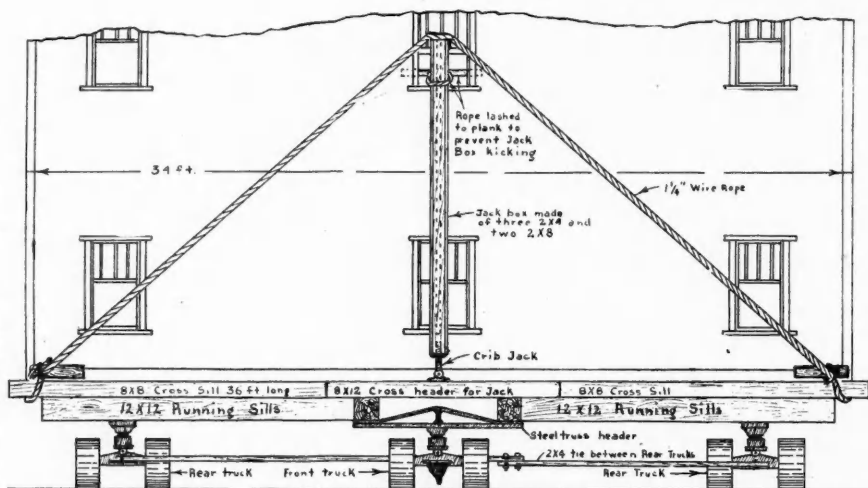


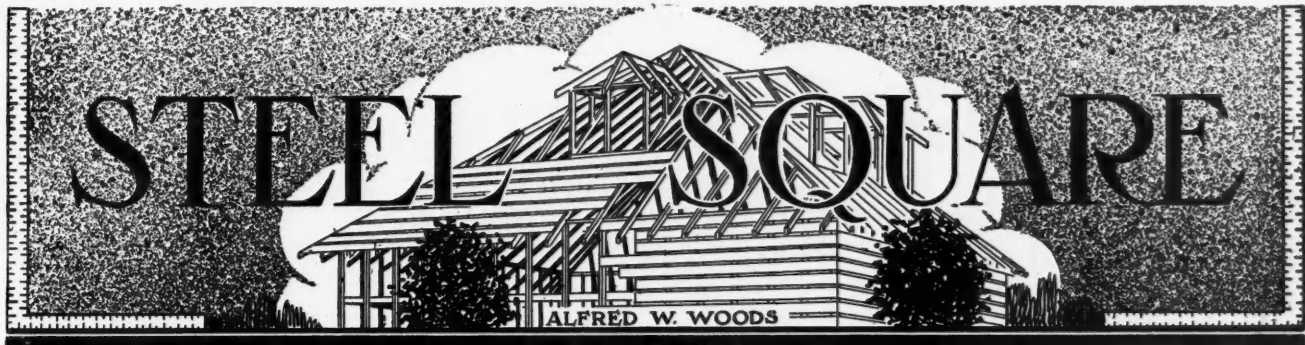
Fig. 3. Front Elevation of House Over 24 Feet Wide, Showing Trussing.

two coats of paint every five or six years. By doing so, it will thoroughly protect his buildings from the ravages of the weather and thus prolong the life of same.

New barns should be painted with regular house paint, in preference to the regular barn paint. By so doing, it will produce a foundation for subsequent coats of regular barn paint.

The farmer should use a barn paint made by a reputable concern. A reputable paint manufacturer will produce a paint made for the purpose of painting barns, either metal or wood, and will be made from a durable metallic base, which will resist rust, corrosion and the weather, thereby protecting and beautifying the surface painted.

Farm implements, wagons, carts, etc., should be painted at least once a year. One coat is usually sufficient and should be applied after the season is over.



## Woods' Annual Sermon Celebrating Our Tenth Anniversary

ADDRESSED ESPECIALLY TO THE BOYS AND YOUNG MEN EXPLAINING THE BASES OF STEEL SQUARE WORK

By A. W. Woods

**A** GAIN, Ye Chief Editor reminds us that another birthday is at hand—that it is time to say something on the square on this, the Tenth Anniversary of the AMERICAN CARPENTER AND BUILDER. But before we begin, we want to give a souvenir suitable to the occasion. Therefore, to each of the readers we present a ten cut diamond with a ten pointed star on a grand ten cut center. It is symbolic of the number of years since the "A. C. & B." was sent out on its mission to do good, to grow and improve as time goes on; how well it has succeeded is for the readers to decide.

In looking back over the past, a flood of thoughts loom up, but what is the use of looking back. We brush them aside and look to the future.

So on this occasion, we want to talk especially to the boy in the manual training schools, in the shops, on the farm and ranch, or wherever he may be found and hope we may be able to say something that will not only prove interesting at this time, but beneficial should it ever become necessary for him, ten years hence, to do battle with the saw and square as implements of the welfare for life's existence.

To suit the occasion, we are going to take for our subject a roof containing ten sides and with a pitch of 10 inches to the foot, and illustrate the cause and effect in roof framing. We want the attention of every boy, so get out your Dad's old square. We do not care how ancient it is or of whose make, just so it has a square angle and a correct scale of measurement. We do not want any new-fangled patent square

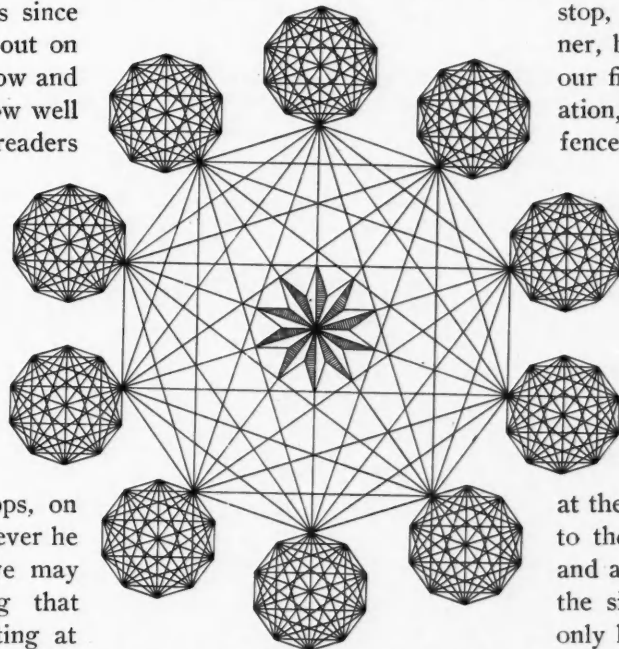
with a lot of tables on it for this and that, but just the plain old square with its inch divisions divided in twelfths—that's all.

Now, Attention! The short arm is called the tongue and the long arm is called the blade. The figures begin at the corner commonly called the heel, and that is where we will begin—at the heel, and run up the blade to 12, as shown in Fig. 1, and there we stop, just like stopping for dinner, because there is where we get our fill. This is our base of operation, and so we will build a circle fence about us, not to keep us in, but to enable us to tell just where to leave our base on certain occasions.

This circle should be of reasonable size on which to make an accurate scale calculation. However, only one-half of the circle is needed for this purpose because the reckoning begins at the center of the plan (as at 12) to the center of one of the sides, and as we need only half of one of the sides for calculation purposes, only half of the circle is needed.

Now, as we said before, our example for this occasion is a ten-sided roof, so with the spacers we will divide one-half of the circle into ten equal parts and draw a line from 12, passing at the first point on the circle, as shown, we find that this line intersects the tongue at 3.9 inches, or practically  $3\frac{11}{12}$  inches. This line, as will be seen in connection with the square, forms a right angle triangle. Now, let us see what this angle contains.

1st,—it is as one-twentieth to the area of the whole plan.



Associate Editor Woods' 10-Diamond Present to Each of Our Readers.

## How to Use the Steel Square

2nd,—it is as one-half to the area of one of the sides radiating to the center and is all that we need from which to develop all of the lengths, cuts and bevels contained in the roof. Why? Because the altitude of this triangle represents the run of the common rafter for one foot; the hypotenuse represents the run for the corresponding hip; and the base represents one-half of the length of one of the sides per one foot run of the common rafter, or it represents the length of the side of a ten-sided frame when the diameter is 12 inches.

If we place the square on a piece of stuff at the figures here shown, the tongue will give the miter for a ten-sided frame. As proof, suppose we cut ten

the figures to use on that member for the following cuts:

$12\frac{5}{8}$  for the seat cut of the hip rafter.

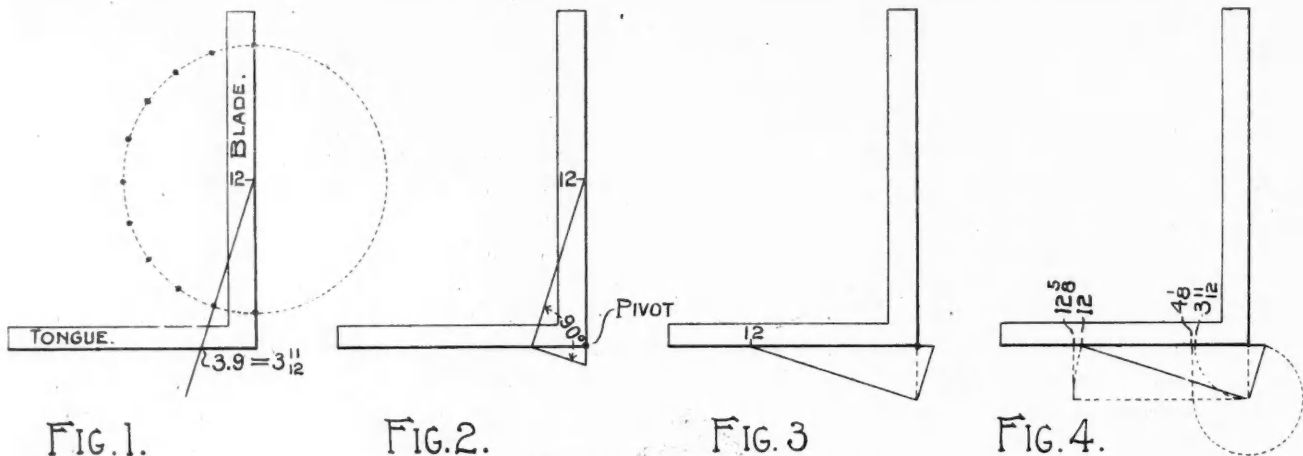
12 for the seat cut of the common rafter,

$3\frac{11}{12}$  for the side cut of the jack to fit against the hip,

$4\frac{1}{8}$  for the side cut of the hip rafter where they come together at the center.

We have now laid the foundation, as it were. It has been slow and tedious, but it pays to have a good foundation upon which to build. We are ready to cut the rafters, but this is a good place to take a rest, and so we will put off operation until next month.

The most interesting part of our subject is yet to



Principles of Steel Square Framing Illustrated for 10-Sided Building.

pieces, using the figures here shown, each  $3\frac{11}{12}$  inches in length on the long side, and place them together and it will be found that they form a true decagon, and it will be found to measure exactly 12 inches straight across from side to side, barring of course irregularities in the cuts and measurements.

We will now pass on to Fig. 2. In this we have the same as shown in the preceding figure, with a like additional angle, as shown below the tongue, but of smaller area. That is, if we were to lay the small angle on top of the larger one, it would be found that the hypotenuse sides would coincide with each other. So, in adding this angle to the first angle, we do not change it, except to increase the area; that is, what was the hypotenuse side in the first instance is the altitude in the second instance. Just why the increase in the angle, is to arrive at one of the set of figures to use on the square for cuts of the rafters which will be explained later.

Now, suppose this large angle is a separate piece, and as though it were pivoted at the heel, as shown. Now, let us swing it around until the straight side rests along the tongue, as shown in Fig. 3. It is a simple looking thing, but its measurements are indispensable for further progress and so we transfer them to the tongue, as shown in Fig. 4.

These figures are fixed points and remain so regardless of the size of building, or pitch of roof and are

come and we hope all of the boys and girls, too,—if they want to—will be on hand when we come again in May.



### Building Laws Don't Bother Uncle Sam!

Twelve stories is the highest any building can be built according to the city ordinance of Boston, but the government is completing one that will be thirty stories high.

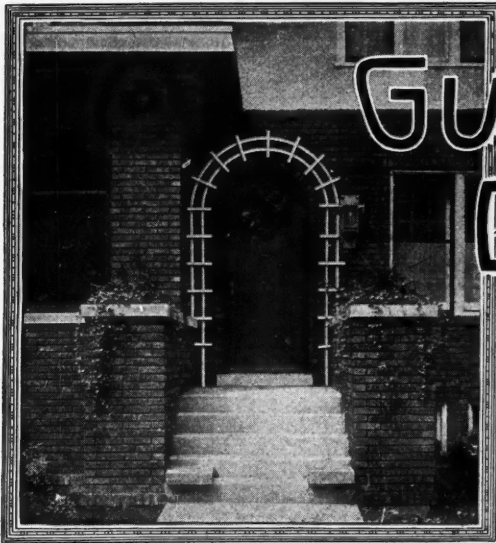
New England's highest building, the new Boston custom house tower, will be ready for occupancy early in 1915. It is 65 by 75 feet square, and reaches to the height of 502 feet and 6 inches.

The tower rises from the roof of the old custom house, and the columns of Quincy granite surrounding the older structure were hauled from Quincy, Mass., years ago by oxen.

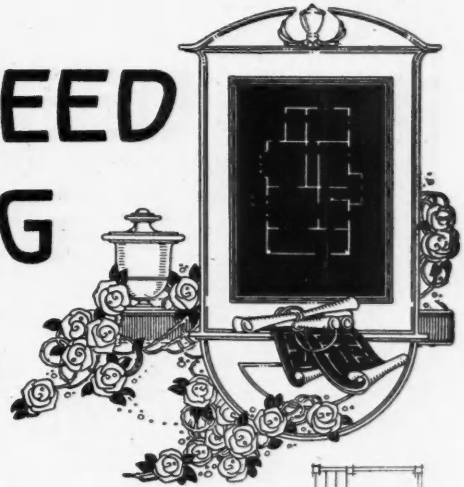
The mammoth clock dial which is 21 feet 6 inches in diameter will be illuminated at night, making it clearly visible for miles. Vessels far out at sea will be able to distinguish this beacon.

Four elevators will carry passengers and two sets of staircases have been provided. This structure will cost \$1,800,000. It will accommodate all Boston branches of the customs service.

The site on which it stands is federal property, so Uncle Sam can do as he pleases.



# GUARANTEED BUILDING PLANS



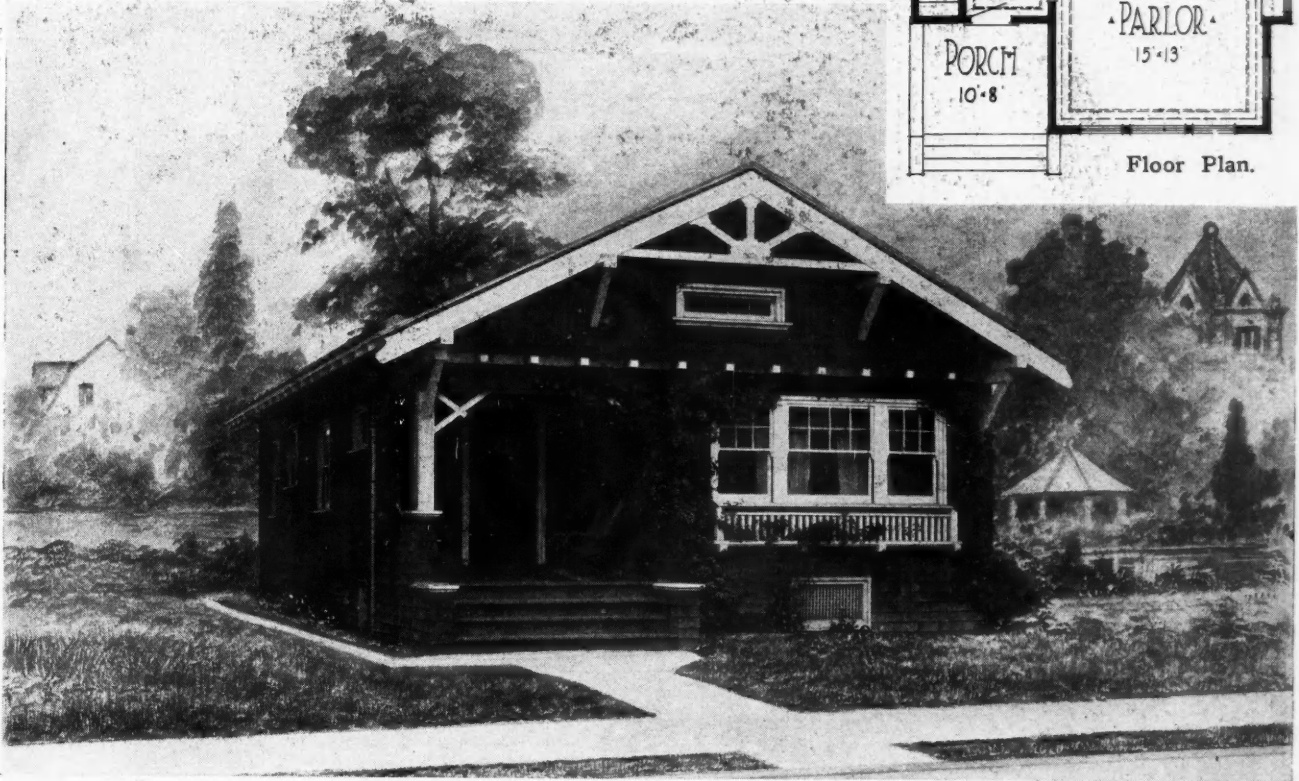
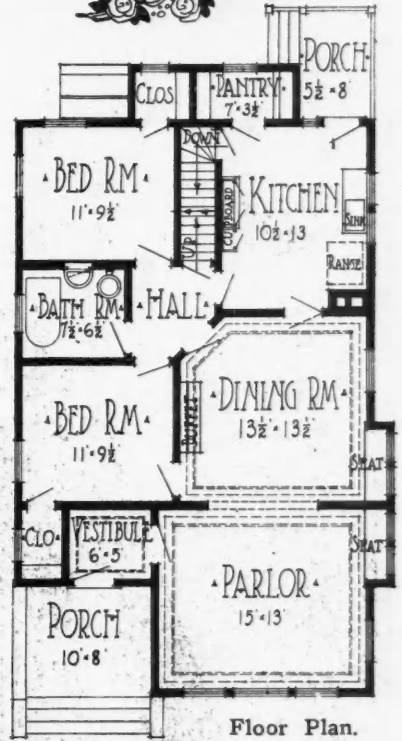
## Five-Room Shingled Bungalow

Here is a neat little bungalow of five rooms; three living rooms on the sunny side of the house and two bedrooms and a bathroom on the opposite side. It has a good basement cellar and there is some storage in the attic, which is reached by a stairway going up from the hall and landing under the peak at the rear of the house.

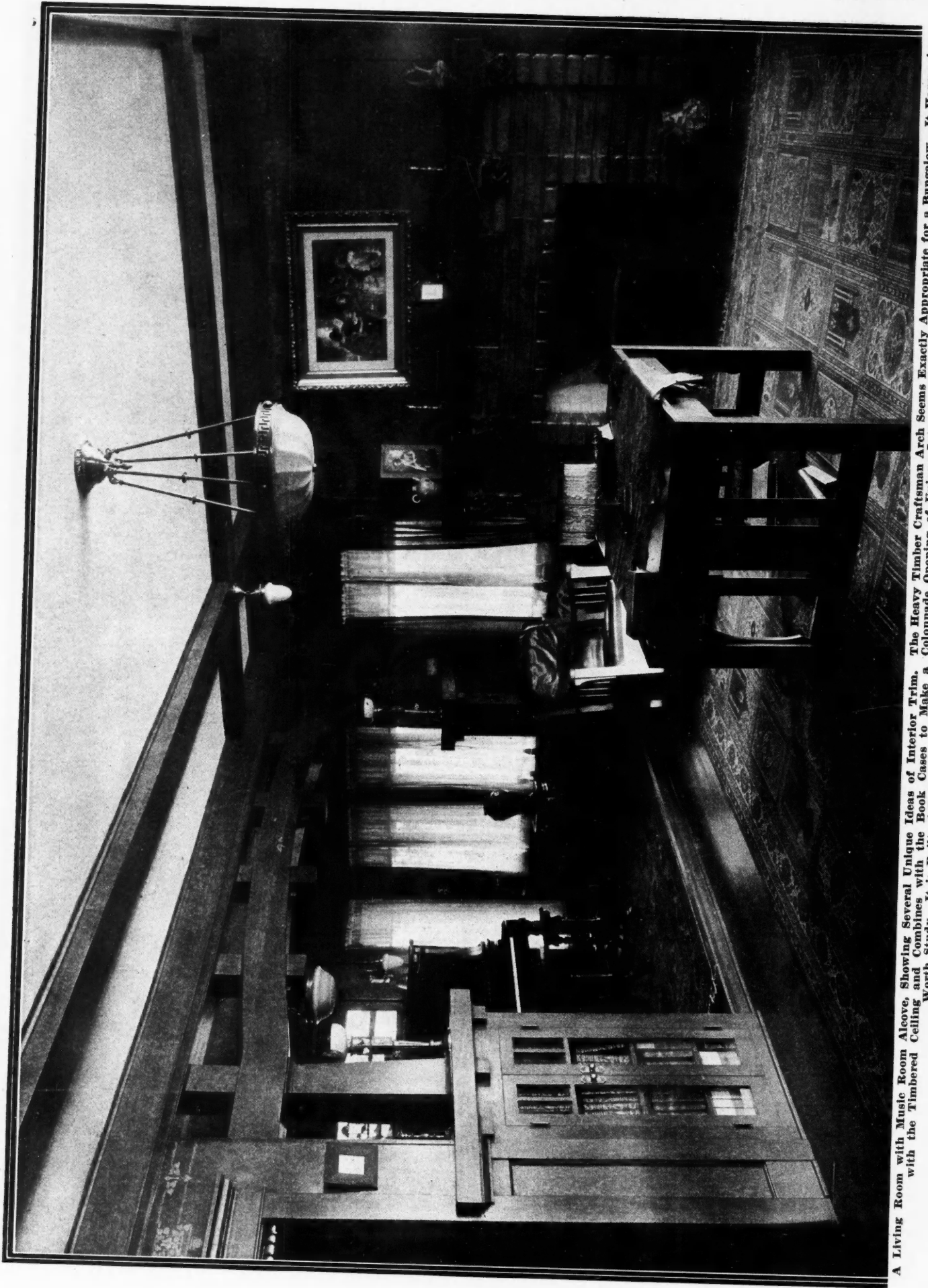
The main roof covers the front porch. Because of the wide eave projection especial provision is made for extra window area to light the living rooms. For appearance, a house of this size and shape requires a wide projection at

the eaves, and this projection has considerable influence in darkening the rooms, which is especially noticeable in the fall of the year. The window treatment is especially interesting. This parlor has four regular windows and a casement window, which is built in a box, is divided between the parlor and dining room.

Considerable attention is given in this bungalow to the interior woodwork. Special designs are worked in to harmonize throughout the front part of the house. This includes the casement box window and the built-in buffet in the dining room.



Interesting Five-room Shingled Bungalow, 26 by 43 feet 6 inches. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$5.00 per set. Blue-prints consist of basement plan; roof plan; main floor plan; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering ask for Design No. 6663.



A Living Room with Music Room Alcove, Showing Several Unique Ideas of Interior Trim. The Heavy Timber Craftsman Arch Seems Exactly Appropriate for a Bungalow. It Harmonizes with the Timbered Ceiling and Combines with the Book Cases to Make a Colonnade Opening of Unique Interest. The Fireplace in This Room is Also Worth Study. It is Built of Brick with Ornamental Terra Cotta Inserts. The Mantel Shelf is Wood.



Handsome Five-room Bungalow of Shingles and Cobble Stones. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$6.00 per set. Blue-prints consist of basement plan; roof plan; main floor plan; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6665.

**Bungalow with Cobblestone Trim**

Odd in trim, but exceptionally neat and pleasing in appearance, is this beautiful bungalow listed as Design No. 6665. It is 25 feet by 43 feet 6 inches in size.

A bungalow which has an elegant appearance from the street is much sought after by prospective builders. This design may be built on a narrow lot, because it is only 25 feet wide on the ground. Of course, allowance must be made for the dining room projection, also the box window in the front bedroom, as well as the wide overhang of the roof.

Bungalows all require wide cornice projections which really count in proportioning the house to the lot more than the foundation walls.

Usually all town lots have considerable depth. It is seldom that a builder is called upon to restrict operations at the rear of a house, except to shut off expenses. It often happens that a property is ruined by selecting a house too wide for the lot. Such a misfit also tends to injure the property on both sides. The selecting of a plan and the fitting of the plan to the lot requires careful study.

When this bungalow is built in the North it has a good foundation wall, and the construction above the wall is good enough to keep the cold out in winter and the heat out in summer.

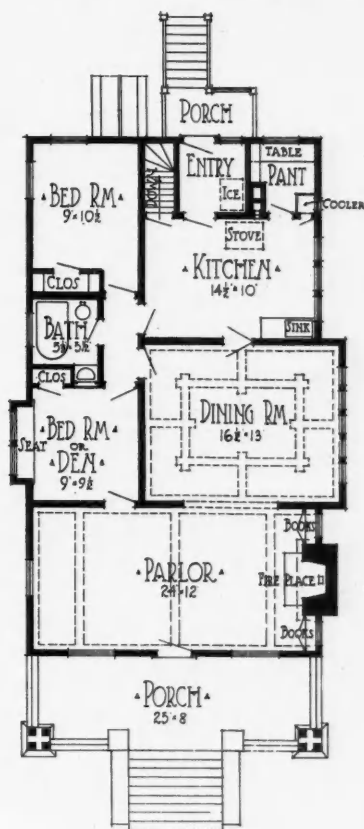
This plan provides for especial comfort in the large front parlor, which is 24 by 12 feet, and is well lighted by three large windows and two high windows at the sides of the chimney over

the bookcases. This room has a beam ceiling which comprises two large panels and two smaller panels. There also is a beam ceiling in the dining room constructed of the same kind of wood with similar mouldings, but the design is different. Usually where two rooms are connected by a wide doorway the woodwork is similar in both rooms.

The two bedrooms are small, but conveniently arranged with a bathroom between. There is an extra door opening from the parlor into the front bedroom, built with the expectation that this room may be wanted for a den instead of a bedroom. It often happens that only one bedroom is required in a bungalow. The extension window in this front bedroom may be used to hold a folding bed. There is a good imitation of a davenport in the daytime that unfolds for a bed at night. In this way, the room may be made to serve for a den and for a spare bedroom as required.

There is a good deal to the workshop end of this little bungalow which comprises the back entry, kitchen, pantry and stairway to the cellar.

The best house plans provide for some kind of an outside entrance to the cellar. In this plan there is an outside doorway with outside concrete steps protected by side walls and a trap door built in pair. A trap door is much cheaper than to cover the steps with a regular roof and it answers the same purpose.



Floor Plan of Bungalow. Size 25 by 43 feet 6 inches.

**Hollow Tile Residence, Stucco Coated**

A thoroughly well built residence, which embodies a number of interesting features, is shown in this design. It is built of hollow structured tile, coated on the outside with cement stucco, applied directly to the tile walls.

The detail drawings on the following

is constructed very much the same as the floors.

The basement wall starts with footings 2 feet wide and 12 inches deep. The wall itself is 12 inches in thickness, reaching above grade level. Twelve-inch tile is used up to the level of the first floor. From there up to the plate 8-inch tiles are used.

The interior details of woodwork are given on another page. It will be noticed that the woodwork is rather massive, but plain and simple in design. The shoe mould is fastened to the floor only—a detail often done wrong.

The floor plan shows a good sized sun parlor, a fine living room, a very pleasant dining room and a practical



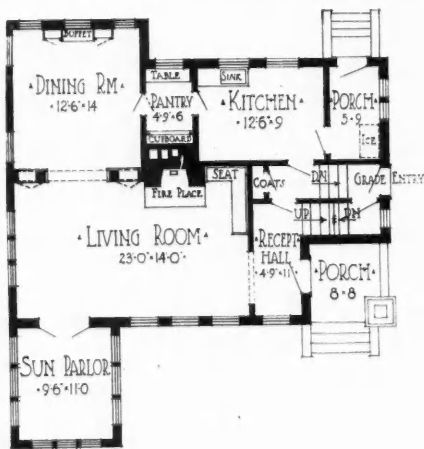
**Hollow Tile, Stucco Covered Residence. Size 35 feet by 25 feet 6 inches. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$12.00 per set. Blue-prints consist of basement plan; roof plan; first and second floor plans; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6675.**

page show two ways of constructing the floors and ceilings. One uses 2 by 10-inch wooden joists for the main floor and 2 by 6-inch joists for the upper floor, with wooden rafters in the usual way covered by roof boards, laid close above the cornice and with matched and beaded boards as a finish between the lower ends of the rafters.

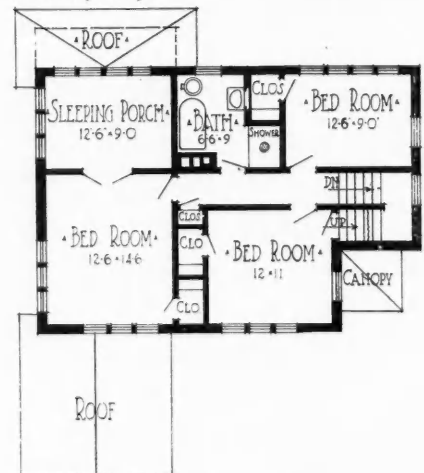
The other details show fireproof construction for both floors and for the roof, using reinforced concrete and hollow tiles. The reinforcing steel and the tiles are placed on wooden forms, and the concrete is poured around them. Do not remove the forms till the concrete is thoroughly hardened. The finish floor of hard wood is laid on 2 by 3-inch beveled sleepers embedded in the upper cinder-concrete layer. This manner of construction leaves nothing of the house to burn but the thin flooring, the doors and other inside finish. The fireproof roof

The wall tiles forming the lintels over all doors and window openings are filled with reinforced concrete to give them strength and solidity. A bearing of 8 inches is made for each lintel support.

kitchen on the first floor. The second floor contains three bedrooms and a sleeping porch with an extra fine bathroom. The design is thoroughly modern in every way.



First Floor Plan.

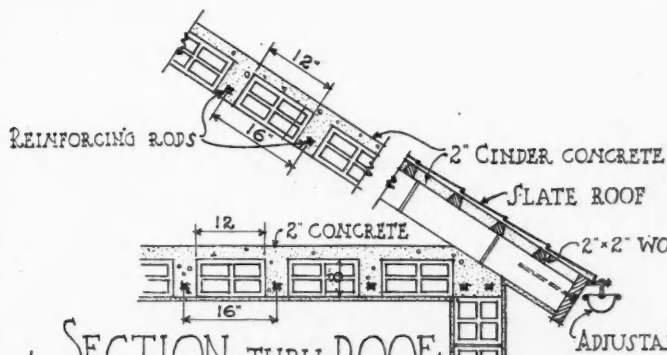


Second Floor Plan.

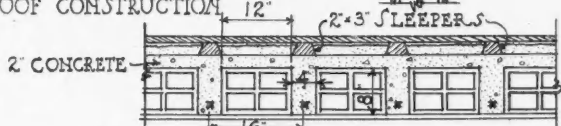
Arrangement of House, Size 38 by 25 ft. 6 in.

*For Interior and Construction Details of this House see Next Two Pages.*



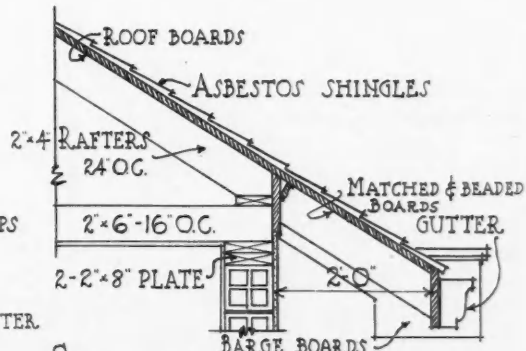


SECTION THRU ROOF  
SHOWING COMBINATION TILE AND REINFORCED CONCR. FLOOR AND ROOF CONSTRUCTION.

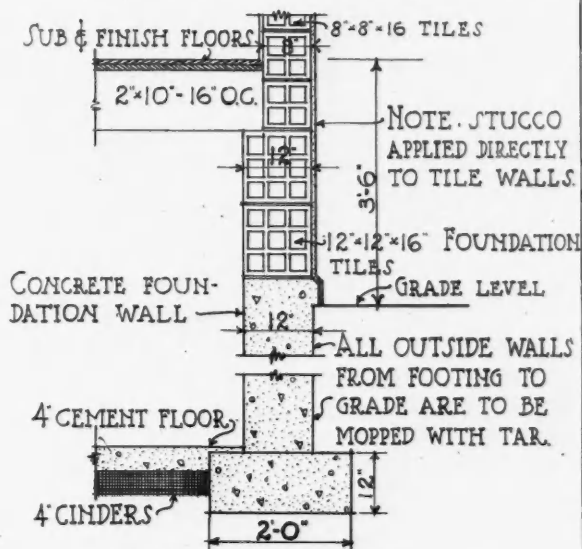


SECTION THRU FLOOR  
SHOWING COMBINATION TILE AND REINFORCED CONCRETE FLOOR CONSTRUCTION.

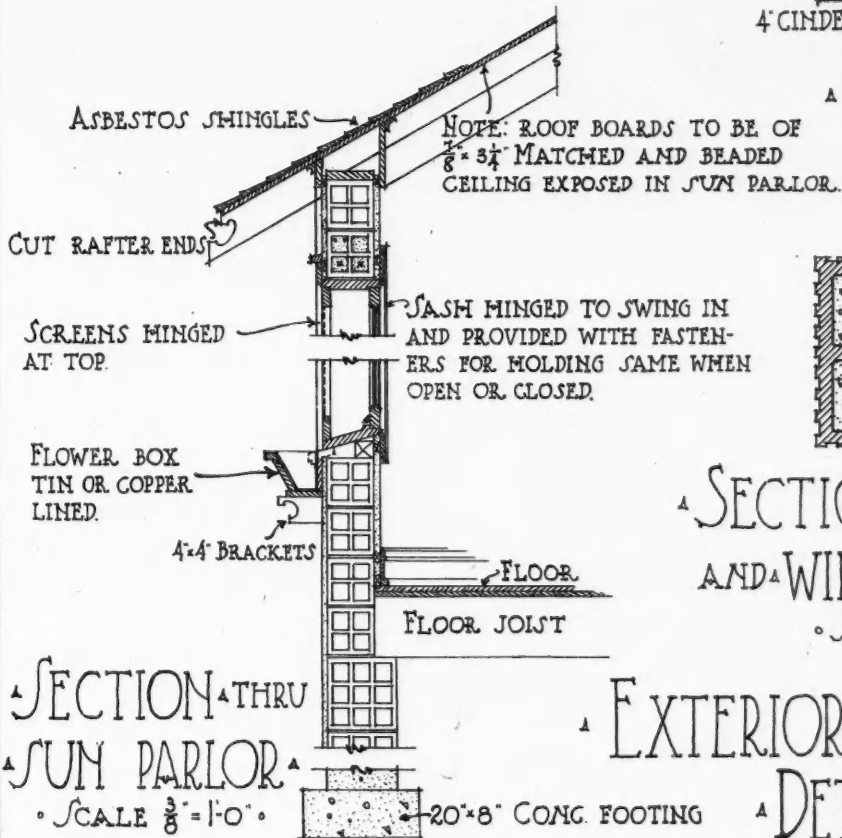
FIRE-PROOF WALL FLOOR AND ROOF CONSTRUCTION  
SCALE  $\frac{3}{8} = 1'-0''$



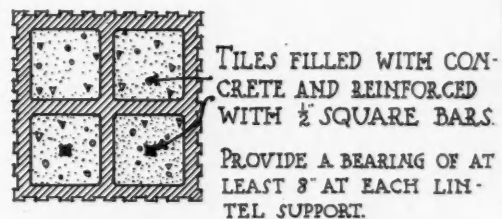
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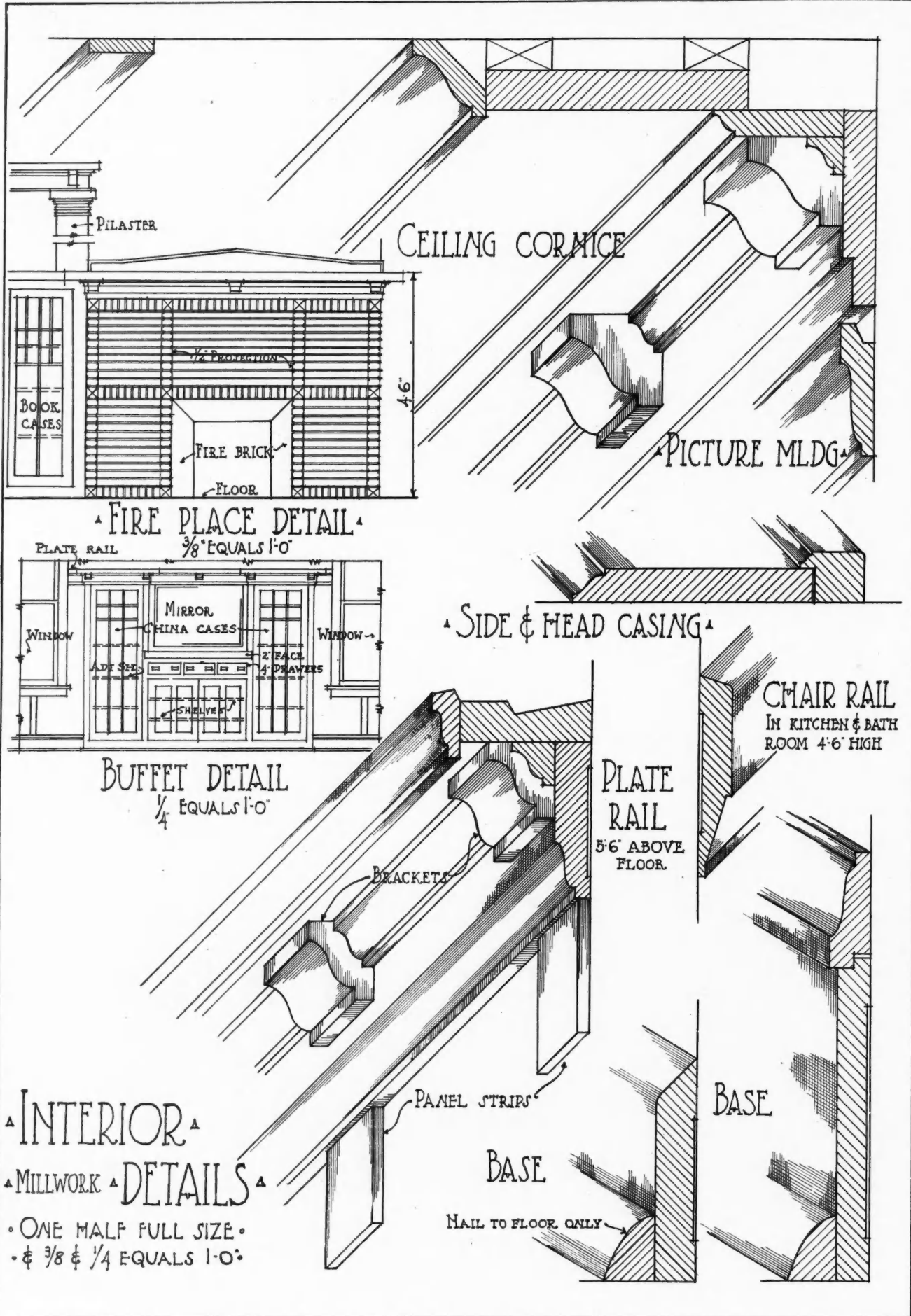


SECTION THRU SUN PARLOR  
SCALE  $\frac{3}{8} = 1'-0''$



SECTION THRU ALL DOOR AND WINDOW LINTELS  
SCALE  $\frac{1}{2} = 1'-0''$

EXTERIOR WALL SECTION DETAILS  
SCALE  $\frac{3}{8} \& \frac{1}{2} = 1 \text{ FOOT}$



▲ INTERIOR ▲  
 ▲ MILLWORK ▲ DETAILS ▲  
 • ONE HALF FULL SIZE •  
 • & 3/8 & 1/4 EQUALS 1'-0" •

DETAILS OF INTERIOR FINISH IN MODERN FIRE PROOF RESIDENCE (DESIGN 6675) SHOWN ON PAGE 48.

**Shingled Bungalow with Paneled Gable**

A neat and low-cost bungalow containing five rooms is shown in the accompanying illustrations. It is 30 feet 6 inches by 46 feet 6 inches on the ground and has a liberal overhang. It is built gable end to the street, and the roof extends over in front to cover the veranda and the opposite gable covers the rear porch.

The construction is of concrete or stone wall up to the surface of the ground and the usual framework for the superstructure. The main floor is set up well above the ground by elevating the joists several feet above the top of the cellar wall. The upper part of the basement above the wall is boarded with sheathing, and then a course of building paper, then the outside heavy boarding.

A break is made on a level with the floor joists and the structure from here up to the plates is similar, except that shingles are used for weather covering for the sides of the house proper, as well as on the roof.

The gables are distinguished by a panel finish of stucco over metal lath. The cornice is wide and the gable projection is given a heavy appearance by using an extra deep fascia, supported by brackets. With an overhang as wide as

this, such a support is necessary to prevent sagging.

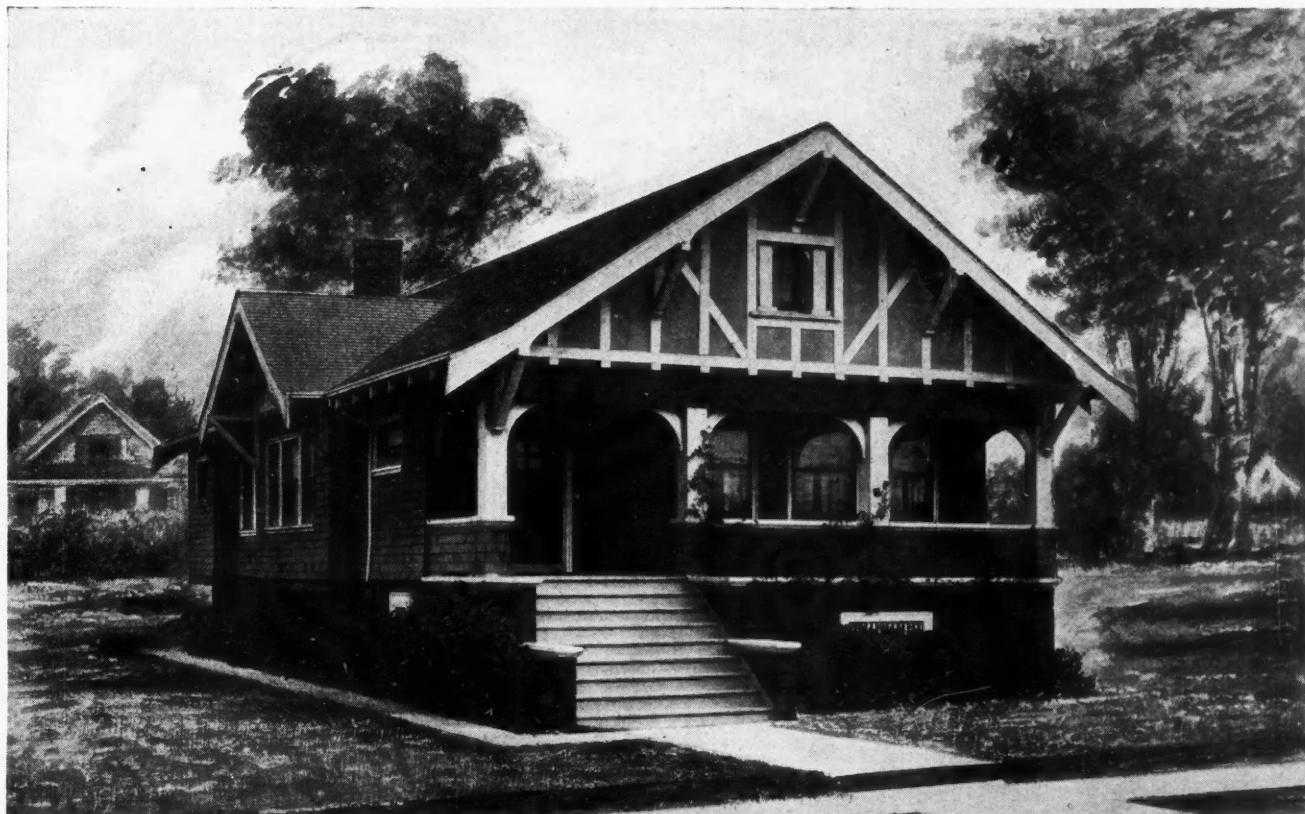
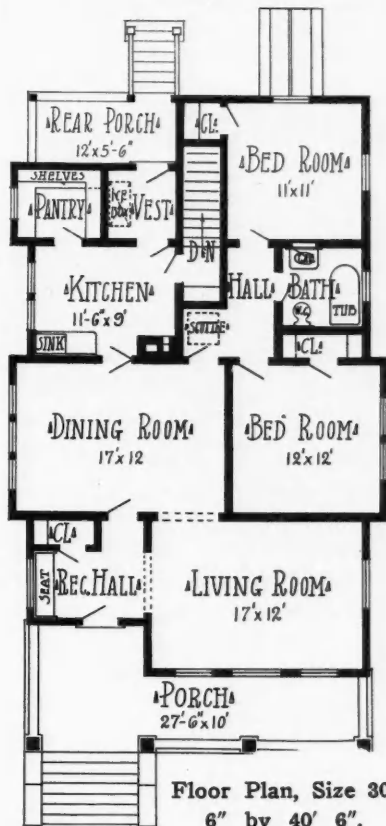
The floor plan of this interesting little bungalow shows three living rooms, two

bedrooms and a bathroom, with a good pantry and a few extras, such as reception hall, with a good coat closet and a splendid pantry and rear vestibule, which affords considerable additional storage.

The one permanent objection to a bungalow, the stock in trade of all objectors, is lack of closet room. This plan overcomes the difficulty on the main floor without resorting to special cupboards in the basement. However, a scuttle hole is provided in the rear hall, so that some use may be made of the attic for storage purposes if necessary.

There is a good cellar way going down from the kitchen, which also has a good storage cupboard to the right of the door as you enter from the kitchen.

There is a back entrance to the cellar which is covered with a sloping door for shedding rain, and which protects the outside concrete steps. Usually it pays to add a little extra expense to a cellar under a bungalow, because more use is made of a bungalow cellar than a similar cellar under a two story house. An outside cellar way is a great convenience on washdays and when tending the furnace. It is a good ventilator at all times, because any of the different doors may be left partly open to admit much or little air as needed according to weather conditions.



Shingle Covered Bungalow, 30 feet 6 inches by 40 feet 6 inches, exclusive of front porch. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$6.00 per set. Blue-prints consist of basement plan; roof plan; main floor plan; front, rear, two side elevations; wall sections and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering ask for Design No. 6666.

### A Little White Bungalow of Six Rooms

An interesting town house, having four rooms on the first floor and two bedrooms and a sewing room on the second floor, is shown in this design.

This house is 38 by 25 feet on the ground, but the second floor is very much smaller because of the low sloping roof. The wide expanse of roof is relieved both in front and at the rear by the stylish way in which the dormers are built. The front dormer lights the little sewing room and the back dormer window lights the stairway.

The two upstairs bedrooms are well lighted by double windows in the gables.

The front veranda, being a little shorter than the width of the main roof, relieves what would otherwise appear to be an extra wide stretch by chopping out the corners. Still, the porch is sufficiently long for looks and to accommodate all the necessary porch furniture in summer time. A good porch is used about four months of the year in the Middle West.

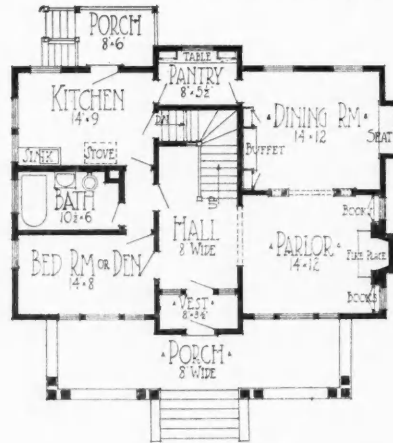
The downstairs plan provides four rooms and a bathroom, besides a large front hall and a very convenient pantry. The parlor and dining room, being connected by an archway, are almost like one room. The parlor is made very attractive by the large chimney and fireplace, with bookshelves in the corners.

There are windows over the bookshelves at considerable height, which, together with the three front windows, light the parlor in a very satisfactory manner.

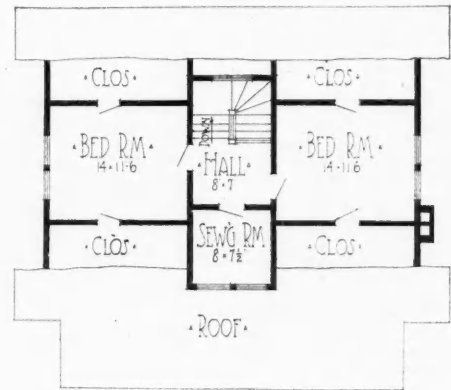
There is a window extension in the dining room which is used for an extra seat. The windows in the dining room

comfortably screened by training a climbing vine in such a way as to reach from the steps around to the pantry window.

This house is intended for a lot of generous width. The appearance of a house depends a great deal upon the



First Floor Plan.



Second Floor Plan.

Arrangement of House. Size 38 by 25 feet.

and parlor together admit light from three sides, which really is quite a study in lighting.

The pantry connects the kitchen and dining room. It is 5½ by 8 feet with a convenient work table in front of a screened and shaded window. Also the back porch is conveniently placed to make a sort of kitchen summer annex. A porch of this kind may be easily and

manner in which it fits the lot. Thirty-eight feet with the overhang means that the house itself is more than 40 feet across.

White is the most satisfactory color to paint this house. A light drab with white trim also looks well, but there should be no yellow ochre in the drab, as it finally shows through and the effect is unsatisfactory.



Clean-cut Cottage Design of Six Rooms. Size 38 by 25 feet. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$7.00 per set. Blue-prints consist of basement plan; roof plan; 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. 6661.



Five-room Gable Roof Bungalow, with distinctive porch. Size 30 by 43 feet. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$6.00 per set. Blue-prints consist of basement plan; roof plan; main floor plan; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6670.

**Six Gable Bungalow**

A bungalow built with six gables is shown in this design. It is 25 feet by 43 feet in size, but the center part being 30 feet in width calls for a gable roof extension to project the dining room five feet beyond the regular house line. The advantage of this extension is to secure a good sized dining room with abundance of light without adding a great deal to the cost of the bungalow. This extension is one of the main features in this gable style of roof.

One object in building a bungalow is to have a cozy dwelling a little different from the ordinary, and this plan is a pleasant variation from the usual bungalow style. There is something very artistic about the appearance of a heavy front porch. Large square columns supporting a roof having two gables of different sizes illustrates another way of avoiding sameness in building houses.

It is a study in the first place to design attractive dwellings for small families, and it requires careful selection on the part of the builders to fit such designs into the special environments that they are intended to occupy.

There are five rooms in this bungalow besides the bathroom and pantry. The parlor being 25 by 12 feet in size makes a very attractive room that is especially well liked by everyone.

There are two bedrooms and a bathroom on one side of the hallway, while the kitchen, the large pantry and dining room are on the opposite or sunny side

of the house. The sizes of all rooms are large for a bungalow and the plan is especially attractive.

There are so many windows that the house is splendidly well lighted in spite of the wide overhang of the roof.

There are beam ceilings in the living

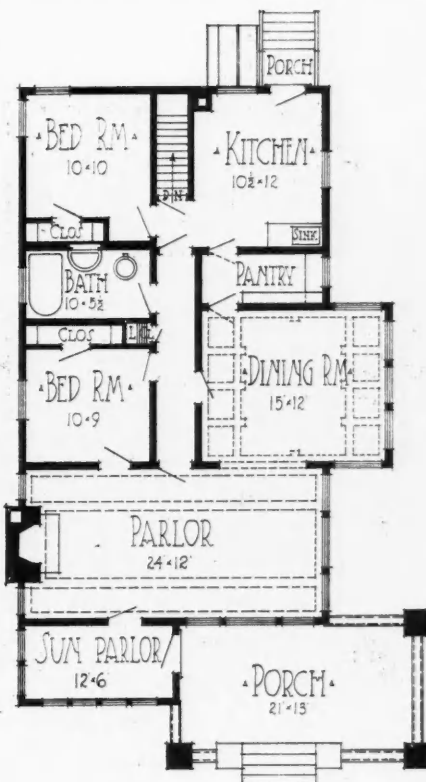
room and dining room. The living and dining room are connected by a rather wide archway, so it is natural to finish the two rooms very much alike. There are some differences in the beam ceilings, and the dining room has a plate rail, but the color of the woodwork and the general design is the same in both rooms.

The basement ceiling is 7 feet 6 inches in height to give sufficient headroom for furnace pipes to work properly. Also this height of ceiling permits the use of larger cellar windows, which are appreciated in the laundry. There is an outside entrance to the laundry room with easy steps so that it is unnecessary to pass through the kitchen on washdays or when tending the furnace in the winter time.

Housekeepers in bungalows usually are a little more proud of their kitchens than old-fashioned housekeepers who have so much house to take care of that some of the dark corners have to be neglected. A modern bungalow kitchen receives just as careful attention as any other part of the house.

The woodwork may be less expensive, but it is designed and built in with just as much care as the dining room or parlor. Kitchen designs are plain.

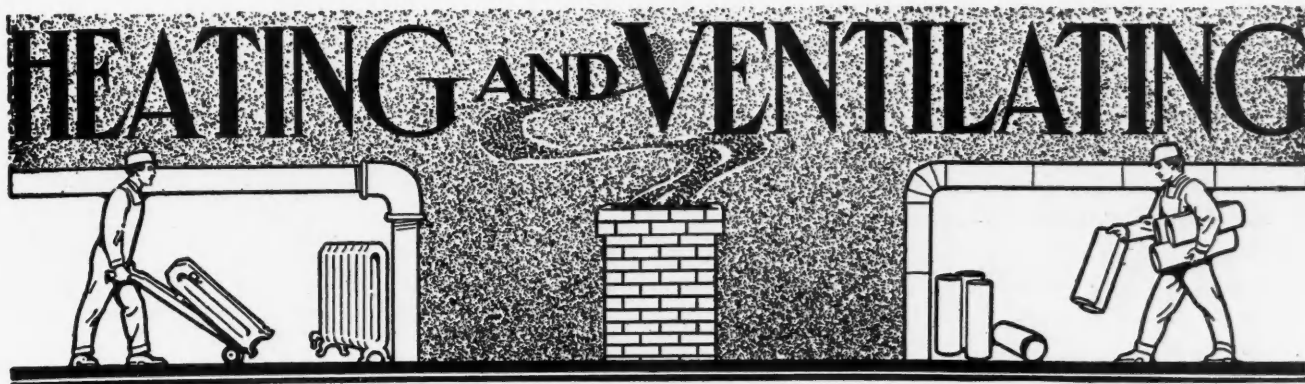
For a bungalow this plan provides more than the usual number of clothes closets and similar conveniences. Examining the plan will convince any builder that this little house possesses many virtues that are well worth careful consideration.



Floor Plan of Bungalow. Size 30 by 43 feet.



Beautiful Paneled Dining Room in a Los Angeles Residence. The Lower Two-Thirds of the Dado Consists of Vertical Panels for Which Oak Finish Wall Board May Well be Used. A Horizontal Band Surmounted by a Plate Rail Caps This Part of the Paneling. The Upper Part of the Dado is a Series of Horizontal Panels Filled with Rich Tapestry Paper. A Bracketed Plate Rail Makes a Finish at the Top. Built-In Buffet is an Interesting Detail. Filling One Side of the Room. A Room Treatment Like This is the "Right" Answer to Rich Decorative Effects in Dining Rooms.



## How to Buy a Furnace

FIRST ARTICLE—VALUABLE HINTS FOR CONTRACTORS AND BUILDERS REGARDING THE HEATING PLANT AND ITS RELATION TO THE REST OF THE JOB

By C. S. Stout

(Secretary, Marshall Furnace Co.)

**D**ID you ever enjoy a dinner in a cold dining room? Did you ever bathe in a cold bathroom and keep your temper nice and sweet? Have you ever tried to read in a cold living room with your fingers so numb you could scarcely hold your paper?

Did you ever know a man who could be good natured and love his neighbor in a house heated to about the right temperature for a cow stable?

And, Mr. Contractor, did you ever stop to think what the consequences are to *you* if the man who has just moved into a new house you have built for him suffers from cold?

### Grumpy Over the Heat, Finds Fault with Everything

No matter how beautiful the residence is—no matter how convenient for his wife and family—no matter how luxuriously it is furnished, if the house isn't comfortable he won't be satisfied, and no one thing has as much to do with the owner's comfort as the *heating plant*.

If the house is cold the owner will never be pleased with what *you* do for him in other ways. The doors and windows won't work right—the hardware will look cheap—the floors will be full of cracks—the woodwork will be stained wrong—but that's enough; you know how many flaws an over-critical owner can find, if he is not feeling right, in an apparently perfect job. It's human nature to be cross and ugly and pessimistic when one is cold or hungry; and if the heating plant is a failure it is only natural for the owner to look with the cold eye of criticism on everything you have done for him.

### Heating Satisfaction Important to Every Builder

Therefore, it's to your *direct advantage* to do all that you possibly can to help secure heating apparatus for every house that you plan or construct that is adequate and efficient and that will supply the owner of the building with an abundance of properly heated, tempered and moistened air.

And this statement holds true even if the owner

places his own heating contract and you receive no financial benefit from it whatever. You should help him with the heating in every way you can, if he will let you.

The average person that you have to deal with is very apt, when he comes to build a new house or remodel an old one, to spend too much time and give too much attention to things that concern the *looks* and to little attention to the things that govern the *comfort* and *safety*; and it's the architect and contractor's place and moral duty to bring the owner's attention back to the essentials.

### Don't Let Essentials Be Slighted

The average owner and his wife will spend hours deciding on lighting fixtures and yet never think of seeing that the wiring and gas piping are done in a safe manner; they will have long discussions about the plumbing fixtures and yet the piping could be put in to leak sewer gas at every joint and they would not be any the wiser; they will plan the fireplace and mantel and yet thousands of buildings are burned every year from defective chimneys because someone doesn't watch careless masons; they interest themselves in the finish and design of registers and radiators, but their interest doesn't extend to the cellar where the *essentials* are; and some of the work that is being done down there by careless, incompetent heating contractors is giving the building contractor a black eye, as well as the heating man who is trying to do work that is a credit to him and his business.

If you have the contract for the heating, it's up to you to put in an efficient, economical and durable heating plant because the cheapest-you-can-buy will kill your contracting business some day.

The contractor who does business on "the cheapest bid" basis is "sitting on the chute and swabbing it with grease."

### Heating Most Important No Matter Who Handles the Contract

If the architect or owner places the heating contract,

do your level best to get them to put in something as good as you would buy for yourself; and you will not lose by it.

The heating of the house is, without exception, the most particular thing bearing on the comfort of the occupants and the thing that should be considered first when planning household equipment.

Plumbing is very important, lighting is also, and there are many other things that need and demand your closest attention, but when it comes down to something that is absolutely essential, then heating comes first!

#### **When to Take Up the Heating Proposition**

The time to take up the heating proposition is not when you get the partitions all set and ready to lath, but when the plans are finished and before you place a sill or lay a joist.

As soon as the plans are finished, if you have the job at that time, it is a mighty good plan to call in a reliable heating man and let him look them over and see about where he can place pipes, registers, etc., and see if there is anything he can suggest that will lessen

the expense of heating installation or add to its efficiency that is dependent upon the manner of building construction.

As a matter of fact, he can usually find places where he can help you cut down the cost because he can see what you are going to be up against later. Another thing, if you wait, or allow the architect or owner to wait, until you are ready for the concealed partition pipes and risers you are all too hurried to give the matter proper thought and attention, and the heating contractor is also. Nor will you be able to get as good service and as carefully planned a job from the heating contractor that you would if you gave him time to give the matter proper thought and study!

Just as soon as the plans are ready is the proper time to get your bids on the heating apparatus, and before you have the house started you should have the heating contract all ready placed or everything all ready to place at a moment's notice.

In the next part you will read some of the reasons why it is important to have the heating contract placed before you start work and how it will save time, trouble and money. *(To be continued in May issue)*

## **Every Barn a Different Ventilating Problem**

SECOND ARTICLE—PLANNING A FRESH AIR SYSTEM ACCORDING TO SIZE AND CONSTRUCTION OF EACH BARN

By L. Klima, Barn Ventilating Expert

**A** LOOK of disgust was on the face of Mr. Jones, who was sitting at the library table. He had just laid down his faithful farm paper—one for which he had subscribed for the last fifteen years, and one that he always looked to as being the one publication that would always give him the facts as near as they could get them. And he had good reasons for being disgusted, for he had just read an article on how to ventilate a dairy barn, and it seemed so much like the method which he had employed in his own barn, which had proved to be a failure, that he had good reasons to think that the article was written by a man who either did not have the experience or had not had time enough to give his system a thorough test.

When Mr. Jones was ready to install a ventilating system in his barn he did the same thing that a great many other farmers do, he wrote to the editor of a farm paper and got what information he could in regard to a ventilating system for his building.

Some of the better farmers, or those who are more familiar with college work, write to their University; and in this case the inquiry is turned over to some one who, perhaps, knows very little about this particular subject, and the reply given is not supposed to cover that particular barn, but rather to cover the subject in a general way.

There is positively no gravity ventilating system which will work exactly the same in any two barns, even if they were constructed exactly alike; and for

this reason the system must be planned according to the general construction of the building; the number of cubic feet in the stock room; the number of head of stock; the size of the windows; size of the doors and other openings; and many other things that must be taken into consideration in order to plan a system which will do the work properly.

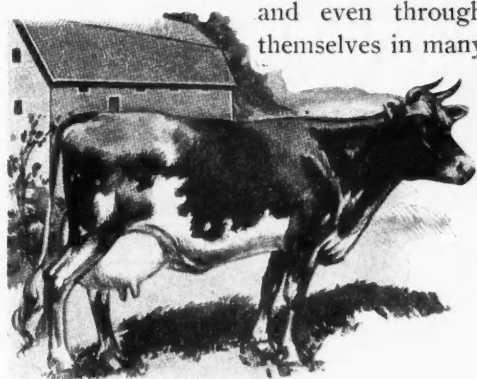
If all of the money that has been spent in experimenting on gravity ventilating systems for farm buildings has been put into a fund and the systems planned according to the buildings by an expert who is in a position to know what is required, there could be a ventilating system in almost every barn in the United States, and no more money would have been spent. Also these systems would have been permanent while the ones which have been put in, in many cases are temporary.

#### **Don't Depend on Cracks for Ventilation**

In the March article we explained how much fresh air a cow should have and what constitutes correct ventilation for a barn. Some of the facts given were based upon the theory that a barn was air tight. This, of course, is not true, but the experiments were based upon this and you can judge from this the amount of air that could possibly work through the walls of a building.

It is true that every barn allows a certain amount of air to pass through the cracks around the windows and doors; also through the cracks between the boards





Strong, Healthy Dairy Cow Stabled in Well-Ventilated Quarters.

and even through the boards themselves in many cases; but it is still a fact that the better a barn is constructed, the more necessity for a proper ventilating system in it.

When the wind is blowing there is more air coming through the walls of a barn than on days when the wind is not blowing; but even on the days when the wind is blowing there is perhaps not over one-tenth as much fresh air coming into a barn as is required by the stock.

The object of furnishing this fresh air to the stock is to supply them with oxygen. Fresh air is two-thirds of the ration of the stock, so that they require twice as many pounds of air as of food and water combined. If this is a fact, and we have every reason to believe that it is, you can hardly expect stock to be doing their best with only one-tenth the amount of fresh air that they should really have.

If cattle are given only a part of the required amount of fresh air that they should have in order to keep their systems in first-class condition, and in order to properly assimilate their food, the result where they do not get this amount would be exactly the same as if the cattle were led up to a watering tank and given only a part of the water which they wanted to drink. The result would be exactly the same as if the feed was cut down; for they require a certain amount of oxygen in order to keep their bodies in first-class shape and to keep in a healthy condition, and it requires a certain amount of food in order to keep up their bodies and in case of the dairy cattle to produce the milk.

Feed, which is about one-sixth of the cow's ration in weight is usually expensive; water, which is about one-sixth is less expensive because this can be pumped out of a well with but very little cost after the well is once constructed, but air which is four-sixths of the ration costs absolutely nothing. God has furnished this free gift to all living things, and all that he asks is that it be allowed to get to us so that this, greatest of all feeds, which does not require any time to consume and which does not cost anything to get, may be given its chance to keep human beings and animals healthy.

### Beautiful Barns—Don't Spoil Them for Lack of Ventilation

It is really wonderful when we look around and see the beautiful barns which have been erected during the last years, the immense amount of money that

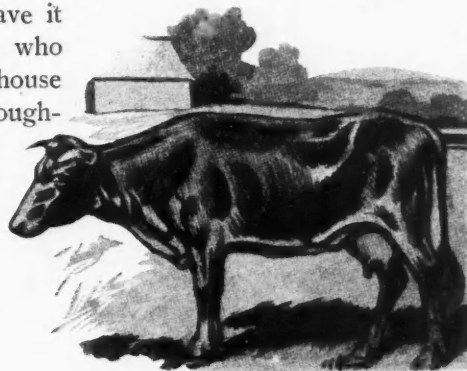
has been spent in getting sanitary equipment in them and then inside of these buildings are housed the results of many years of breeding and careful attention to produce a strain of cattle which will give a larger flow of milk and a larger test of butter fat; and then, to think that these animals would be allowed to breathe air that is literally reeking with moisture and in many cases with disease germs, when it would take such a small investment to install a complete ventilating system which will do the work properly and supply them with plenty of fresh air and oxygen and last longer than the building.

It is safe to say that if the ordinary dairyman or stockman were to live in his barn with his cows for six months he would be an invalid; or if not that, he would be crippled with rheumatism or some other disease caused by this excessive moisture in the barn.

When a stockman or dairyman has a sick member in his family he usually calls a physician, and the physician treats the case as he is able to diagnose it. If he is going to build a barn he will talk with some man who has had a great deal of experience with barn building, and perhaps will take his ideas in most cases for his building; but when it comes to figuring out a ventilating system, which perhaps is by far the most important from the standpoint of health for his live stock and for himself perhaps—for he must be in the barn a great deal of the time—he will take the advice of almost anyone. The result is that he puts in a ventilating system which he condemns; and the only reason that he condemns the system is because he did not receive the proper information when he was planning it.

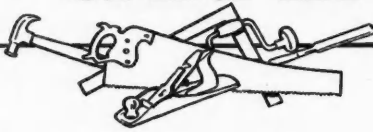
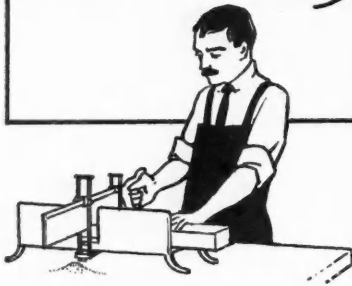
Barn ventilation is not a new idea. From the time when barns were first built with the sod roof and the straw walls or perhaps where they were built of logs and mud filled in between them, some method has been used for ventilating. Sometimes windows were used, sometimes doors, sometimes holes were left in the roof for the air to pass out, but there has always been some method of ventilating these buildings.

Anyone can install a ventilating system just the same as anyone can build a house or a barn, but if you want a house properly constructed—one that will stand up and give you service, the chances are that you would have it built by one who understands house building thoroughly, so that you would get the most for your money. Barn ventilation is exactly the same.



The Effect of Impure Air in Non-Ventilated Stables.

# TRICKS *of the* CARPENTRY SHOP

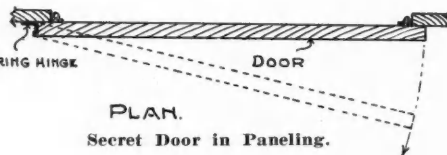
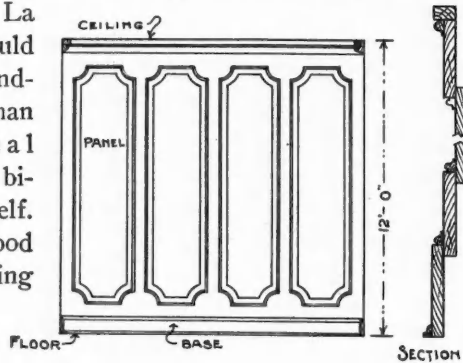


## Bro. Jasbury Returns

He's Back on the Job Again for Long a Run.

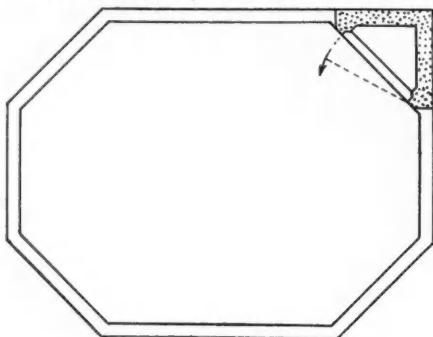
Dear Editor: I had hoped to "skip" this year, valuable as your paper is, as I am at times overloaded with magazines, trade journals, etc. I renew again with the faint hope that I may see an occasional "whimper" from Jasbury. Where, oh, where is Jasbury?  
Forest Reichard,  
Easton, Pa.

ONCE visited an estate, the house of which seemed to be the last word in residence building. The owner being in Europe at the time, the caretaker showed me through. I was examining some antique furniture, with my back to him, when upon turning around to ask some more questions (my only habit) I found myself in good company—I was alone. Being near the only doorway, I knew he did not pass out that way. Had it been the late Mysterious La Fayette, I would not have minded, but this man was a real heavy-footed biped like myself. While I stood there wondering what sort of species of a Hob-goblin had adopted my friend, he walked in the door with a smile large enough



PLAN.  
Secret Door in Paneling.

to make a New England dinner. He had walked up to the wall, pushed against a panel that swung back, stepped over the base—and presto! I examined the door and its appurtenances were something as shown in my sketch. The moulding was nailed



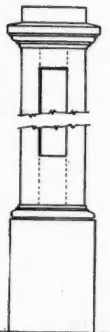
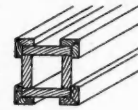
Secret Vault in Room Corner.

fast to the side stiles, top and bottom rails, so that a good push on the panel would give the opening, and to avoid the slam a thin strip of

rubber had been pasted on the edge of the panel.

**ANOTHER SECRET DOOR.** Going into another room, one that had octagon corners, the caretaker showed me a similar panel, except this one swung out into the room, exposing a strong box for private papers, etc. This was built in cement with iron front combination—a complete safe.

**MYSTERIOUS HIDDEN BOX IN STAIR NEWEL.** Next he showed me a startling newel on the main stairs, a paneled affair with the rear or stair side panel on hinges to open out. In this was an iron box for some purpose unknown to him and by this time the place had become so spooky, I was about half unconscious myself. The caretaker told me there were more secret pockets, doors, etc., in the place, but he did not have time to show me.



Secret Compartment in Newel.

Since I visited that place, I have often thought, the real rich folks are nearly always in fear of the poor; in fact, they are afraid they will be poor sometime themselves. Being a Shouting Methodist instead of a Socialist, I will "can" the rich man talk and say a few words about a little stunt of my own pulled off recently.

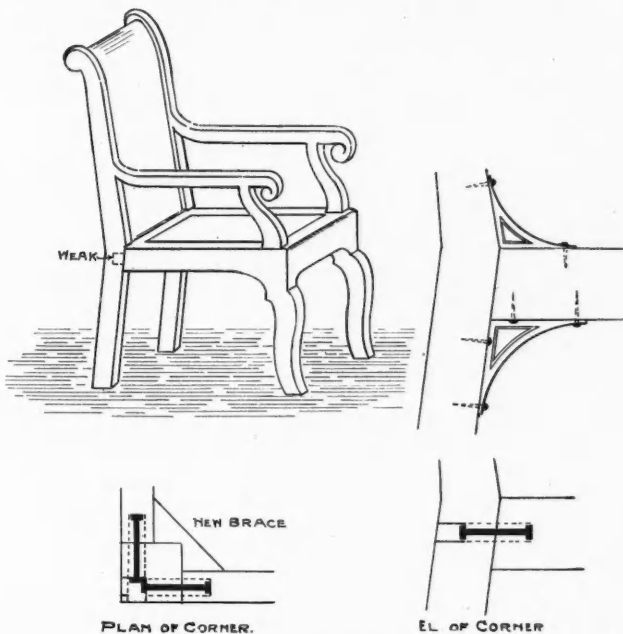
## BUNKOES A CUSTOMER BY MAKING QUARTER OAK NEWEL OUT OF POPLAR.

I recently had some quartered oak stair newels to build. I boxed them up as usual, ripped out the corners and put them on, then the filling in pieces to form the panels, then the cap and panel mouldings, and base. The newels were 5 by 5-inch, various lengths. An order was given for one more afterwards and instead of ordering the box oak, I ordered poplar, put on four thin pieces of veneer where the panels would be, put on the corners, cap, panel mouldings, filling in pieces, base, etc. The newel looked solid quartered oak; just as good, but principally made of poplar. This thing is not only a saving, but is worth remembering.

**CHAIR GLUING AND UNGLUING.** Speaking

about cabinet making, I have many times noticed chairs that are cast-off for the simple reason that they are slightly broken, or unglued. I doubt if there is a home in the United States where the furniture entire is intact. This, I ascribe to various causes. As chairs are very often put together piecework, the fellow doing this, is after quantity, not quality, which seems to be only natural; I can say this from actual experience. Then again, the glue used is not of the quality used by the old timers, it being a *sellable* species of the American hurry-up period. Also the new-fangled steam and hot water heat, are allies with furniture glue, as an enemy.

Am at present working with ten fancy dining room



Ordinary Weak Construction and How to Strengthen It.

chairs; my job is to reglue them. They are so rickety they would make the food in a person sitting on them, ferment—the manner of construction is simply bad. Such chairs are only made to sell, the figure in the wood and a stain that matches some sort of gegaw in the owner's house is the only practical purpose such furniture can serve. If carpenters used such flimsy, impractical construction in even the most out of the way part of a building, he would be taken out at sunrise and shot—providing he got up that early.

**WHY NOT IRON BRACES FOR CHAIRS?**

I am quite sure that if a furniture concern put a chair on the market with concealed metal angles, or braces, or even brackets to show, with some agreeable design to harmonize with the particular style of chair, they would soon be in position to advertise in the *AMERICAN CARPENTER AND BUILDER*, or any other reputable magazine—"The Most Practically Constructed Furniture of the Day."

I shall now try to illustrate where and why chairs always have the jerks. They usually have a tennon about 3/8 inch long, or two small dowels where the

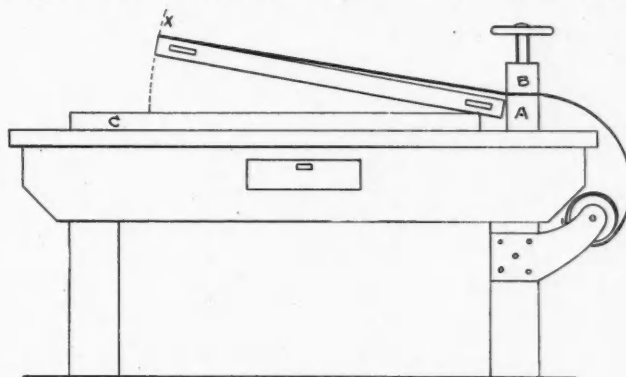
strain comes. Why not a bracket (iron) inside, or one similar to sketch on the outside.

**IRON STRENGTHENERS O. K. FROM MAN'S STANDPOINT.** The cabinet makers say it would look too much like the work of a blacksmith or shoemaker. Who cares, just so it is not falling apart as our factory-made furniture of today is. I have talked on this subject with furniture men and they say that as soon as you go putting metal in chair construction, you let go of the graceful and technical end of the profession. That seems a feminine excuse for a man's shortcomings. If I ever get to Washington in the shape of a Senator, I shall introduce a bill that, if passed, will make furniture, especially chairs, strong enough to last at least until Saturday noon. (Some big talk.)

Speaking about furniture with metal strengthenings on—the old folks were there; viz.: "The old iron bound bucket," "Grandfather's clock," "The iron bound chest," etc. The chairs I spoke of in the other part of this tirade, I am repairing with the aid of stove bolts, put in as ordinary stair rail bolts. The hole where the head of the screw is, is larger and plugged up with wood, same as boat builders do, or hand railers. NOTE: The brace block I show could be made in metal with a sufficient number of screw holes in to keep the corner intact, if put in when chair was originally being built, as glue sets up.

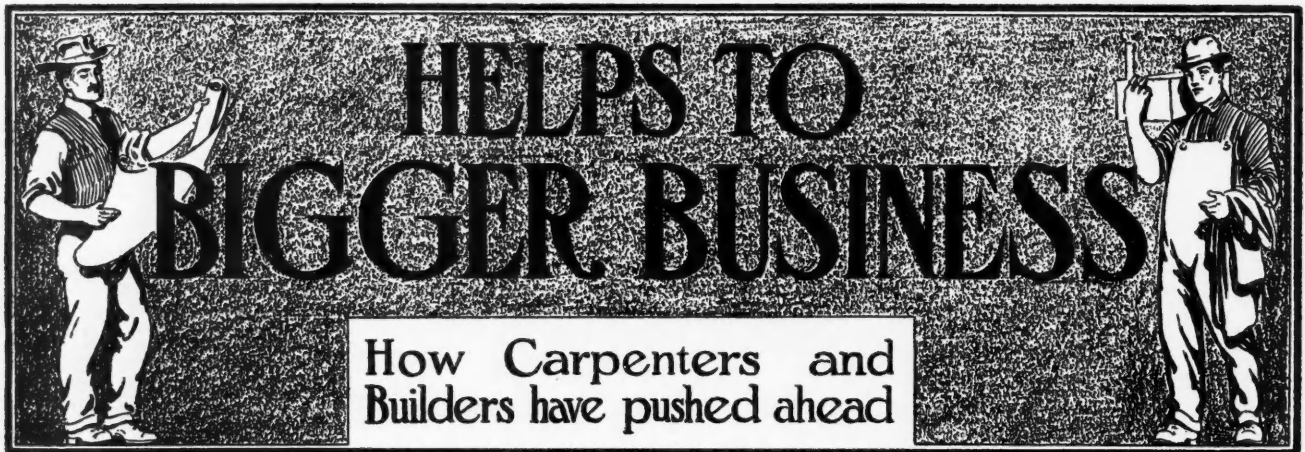
**A WIRE SCREENING FRAME.** I have about run down on the chair question for now and will take up a mosquito frame wire puller. To put screen wire on a frame and do it so that there are no bumps, holes, etc., is a nice job. Here is the scheme I saw a fellow using recently. He was the inventor, builder and user; but not all at one time.

When the frame is placed against cleat A, raise up about to X, *i. e.*, after the wire is nailed on, then drop down on bench strip C. The wire being



A Handy Screen-Making Bench and Clamp.

screwed tightly between cleats A and B pulls it very tight over the entire frame, then tacked on rail near cleat A, then side stiles, then cut off. This arrangement works very well indeed, as the man who uses it has become accustomed to it, and more, he has a disliking for mosquitoes, hence, he tries to get the screens on the building as quickly as possible.



## Little Details to Bring Satisfaction

INEXPENSIVE CONVENIENCES THAT ARE SURE TO MAKE A HIT WITH THE HOUSEWIFE

By Peter Hedstrom, Architect

IT is the desire of every progressive builder to increase his business and there is no better way to do that than to build so well that the work will be his best recommendation. There is no better advertisement of a builder's ability than a well executed piece of work and for effective and beneficial publicity there is nothing better than a satisfied Owner unless, perhaps, Mrs. Owner—provided the job happens to be a residence.

Anything which adds to the convenience of the house or to the ease with which it can be kept clean is sure to make a great hit with the housewife and she is pretty apt to mention it to her friends who are about to build. Now there are a great many things which are seldom called for in the plans and specifications, but which add greatly to the comfort of the home. Some of these things cost nothing at all but a little forethought, and the others such a small amount that the added prestige will more than repay the builder for the money spent putting them in. Following is a description of some of them, any one of which is well worth attention.

**STAIR CORNERS.** Stairways, with their many corners, are very hard to keep clean because it is next to impossible to sweep the dust and dirt out of the sharp corners. This difficulty can be overcome by making the corners blunt with a block of

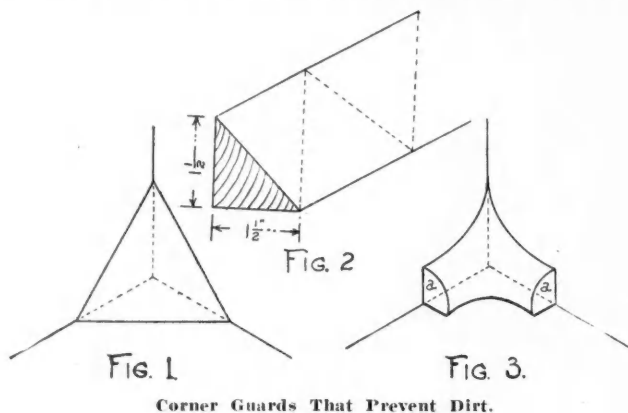
wood, as shown in Fig. 1. This is made out of a stick, the cross section of which is shown in Fig. 2. A short piece will make a great number of blocks as, by reversing the stick for every cut, there is no waste. Put the blocks in place at the time the stairway is built, using a long, slim nail through the center. There are metal pieces which answer this same purpose, but they are not in good taste in a residence.

This idea can be elaborated and used to make a round corner in conjunction with carpet strips. This is illustrated in Fig. 3. Take a block like the one in Fig. 1., only bigger; cut off the lower corners to make the faces "a" and "b"; work their outline to conform to a section of the carpet strip; the front hollow round and the rest of the block to graceful curves with a knife, rasp and some sandpaper. These blocks are a great convenience in kitchens and bath rooms but can be used to advantage in every corner of the house. Some enterprising mill manager might find it profitable to manufacture these blocks out of waste material. A ready sale ought to be found for them in every part of the country.

### Plumbing Hints

**LAUNDRY TUBS.** If architects, builders and plumbers had to do the family washing, the placing of the laundry tub would receive more intelligent attention. As it is the laundry tub is too prosaic to get much thought from the architect; the builder gives it no thought whatsoever; the plumber puts it where it is easiest to make connections and the housewife suffers with a badly placed and inconvenient fixture.

The best place for the tub is on the first floor; but for lack of space it is usually placed in the basement. Place the tub where there is good natural light. If one window is not enough, put in two, a window costs very little more than the solid wall. There must be floor space enough at the right end



Corner Guards That Prevent Dirt.

to accommodate a clothes basket and the back of the tub should be at least 3 feet from the wall, if possible. There should be a floor drain near the tub, but not where it will be walked on while doing the washing. The laundry tub cocks usually are placed just above back edge; from 2 to 3 inches from the ends of the compartment and extending into it

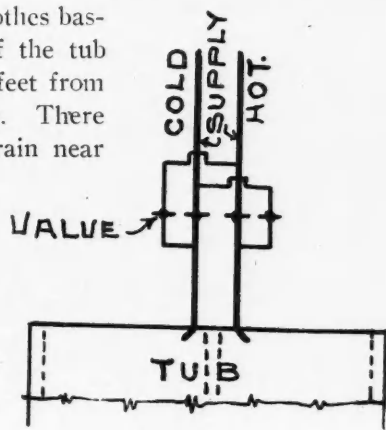


FIG. 4.

Suggested Improvement for Laundry Tub Cocks.

from 3 to 4 inches. This is apt to bruise the hands and catch the clothes, but the main objection that when the wringer is in place it comes directly in front of a cock and it is nearly impossible to operate it without removing the wringer. A much better arrangement of the pipes and cocks is shown in Fig. 4. The supply and vent pipes should be grouped near the middle of the tub.

#### RUN PIPE TO FURNACE WATER PAN.

Run a water supply pipe, provided with a valve, to the water pan in the furnace. It is great convenience and sure to be appreciated by the man who tends the furnace. Sometimes a float and valve is placed in the water pan to keep it, automatically, full of water.

**GAS PIPE FIRE STARTER.** If the house is piped for gas, be sure to have an outlet near the furnace to which may be attached, by a hose, a movable burner made of a piece of pipe flattened at the end. When the fire accidentally goes out or a new one is to be started, the lighted burner is inserted through the grates and left until the furnace is going good again.

**BATH TUB PIPES FROM WALL INSTEAD OF FLOOR.** There is no good reason why the supply pipes to the closet and the bath tub should not be taken from the wall instead of from the floor as is usually done. Taking them from the wall leaves the floor with three less obstructions and that is a big item to the person who has to keep the floor clean.

#### Improved Closets

Always consult the housewife about fitting up the closets, and be generous with the shelves. Every closet should have at least one shelf 2 feet wide on which blankets and quilts can be laid without falling off. When two closets adjoin and it is possible to have an outside window in only one of them, stop the partition between them a foot from the ceiling. This gives an opening for light and venti-

lation. A sash can be put in if desired. Wherever electricity is available, closets should be provided with an electric light. This is sometimes made to operate automatically by the opening of the closet door.

#### Better Planning for the Kitchen

The height of the sink should be from 36 to 42 inches, depending, of course, on the height of the person who is going to use it. Most sinks are very much too low. There always should be a window near or directly above the sink and the kitchen lights should be arranged so that a person working at the sink or range will not have to work in the shadow. The kitchen windows should be 36 inches or more from the floor and extend to within 12 or 18 inches of the ceiling. This allows a table to be set against the wall without coming up into the window, and it also gives better light.

Modern kitchens are built rather small and wall space is very valuable. Where the kitchen door swinging in would take up valuable space and be in the way, there is no reason why it should not be made to swing out, especially when it is protected by the rear porch which is usually screened, with the screen door at the entrance steps.

**MILK BOTTLE CABINET.** Rear porches should be screened. If lattice is used, the screen, which should be rust proof, is placed between the lattice or it can be put on removable frames which can be replaced in winter with solid ones. With a screened-in porch, build a milk bottle cabinet into the inclosing wall, convenient to the milkman on the outside and to the housewife on the inside, with a door on each side. A cabinet 12 by 12 by 4 inches will hold three bottles.

**LAWN MOWER GARAGE.** It is seldom one finds a house with a convenient place in which to keep the lawn mower. A nice dry place can be made for it under the rear porch and arranged so that the mower can be wheeled out and in with very little trouble.



#### Defined

Gerald—Say, Pa, what's a bungalow?

Pa—Well, a bungalow is a parody on a house.

#### Something Coming

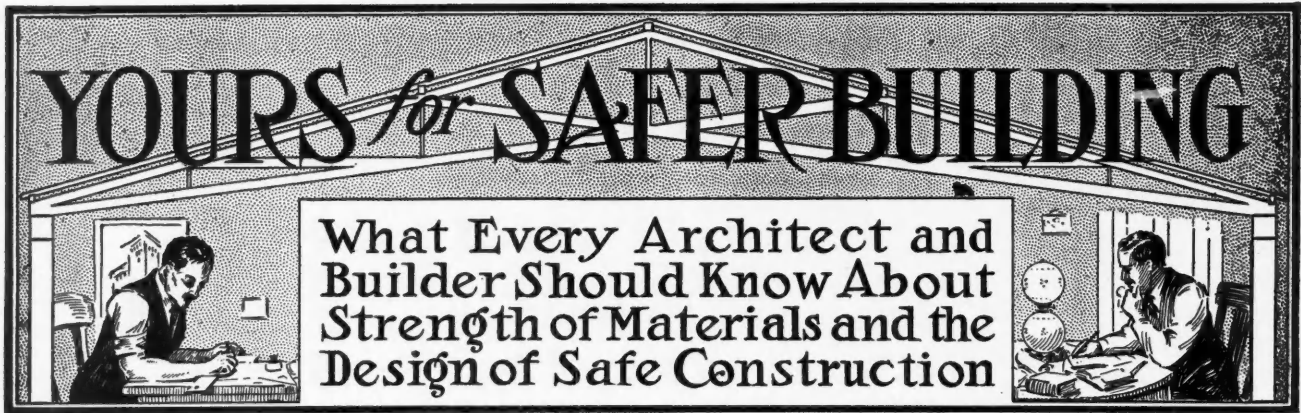
Tommy played truant from school and passed a long, delightful day fishing. On his way home he met one of his young cronies who accosted him with the usual question: "Catch anything?"

Tommy, in all the consciousness of guilt, responded: "Nope —ain't been home yet."

#### Incident Closed

"Mabel," said the father, "your young man stays until a very late hour. Has not your mother said something to you about this habit of his?"

"Yes, dad," replied Mabel sweetly. "Mother says men haven't altered a bit."



## Noon Hour Talks by the Boss Carpenter

### Talk No. 33—Truss Details

THE BOSS TELLS ABOUT FORMS OF CONNECTIONS TO BE USED IN THE CONSTRUCTION OF TIMBER TRUSSES AND SHOWS DETAILS OF SAME

“DURING the past few talks,” said the Boss, “I have tried to show you fellows how to find the stresses set up in the different members of a truss by the loads carried on the truss. I have tried also to show you that these different members of a truss then became either tension or compression members and that the sizes of such members were to be figured by the rules that I gave you in earlier talks. That is, the tension members were figured by the rule that the total pull in the member is equal to the area of the member in square inches multiplied by a safe value for the tensile strength of that particular material. Also, that the struts or compression members should be figured by one of the column formulas. These formulas and values of tensile and compressive strengths of various materials used in building have been discussed fully.

“You fellows can see that it is useless for you to go to the trouble of finding the proper sizes of the different parts of a roof truss if you cannot afterward connect these parts together in such a manner that the joints or connections will be as strong as the

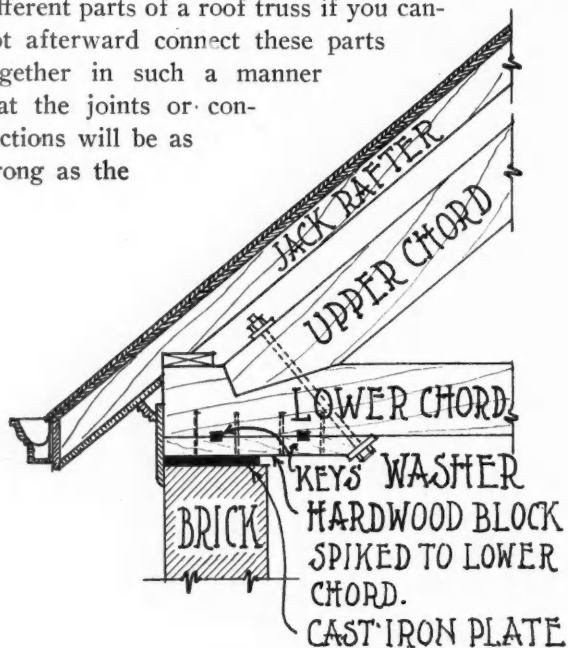


Fig. 29. Joint at Wall for Timber Truss.

members which you have calculated. For this reason, I am showing you a few of the common types of connections on timber trusses. In complicated work or in very large work, it will pay you to secure your designs of connections from some person who has made a study of these questions.

“Fig. 29 shows a simple way of forming the end connection in the case of a light timber truss. The

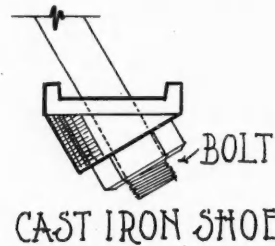


Fig. 30. Cast Iron Plate for Bolt Head.

bottom chord or tie is notched near the end and the slanting top chord member cut to fit the notch. After these parts are fitted, a hole is bored and a heavy

bolt placed so as to hold the two members together. To locate this bolt, extend the center line of the slanting member down to the center line of the horizontal member on your drawing of the truss, letting the lower member extend past the end of the slanting member far enough that the point of intersection of the two center lines will be in at least 6 inches from the inside face of the supporting wall. Then cut the notch from  $1\frac{1}{2}$  to  $2\frac{1}{2}$  inches deep and support the slanting member in its proper position until the hole for the bolt can be bored. This hole should be located far enough away from the notch so that a heavy steel washer may be used on the bolt as shown. The hole should be bored  $\frac{1}{8}$  inch larger in diameter than the bolt so as to allow free placing of the bolt. The direction of the hole should be perpendicular to the direction of the slanting member, as shown.

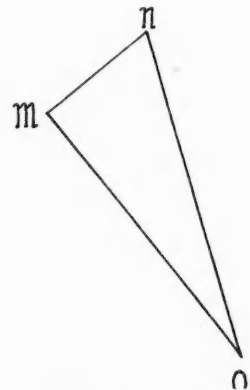


Fig. 31. Stress Diagram Used to Determine Pull in Bolt.

"Since this bolt is to hold quite a large pull, it should have a large steel washer at the head where it rests against the wood on the horizontal tie, or a special cast plate similar to that shown in Fig. 30 should be set in on the under side of the tie. In

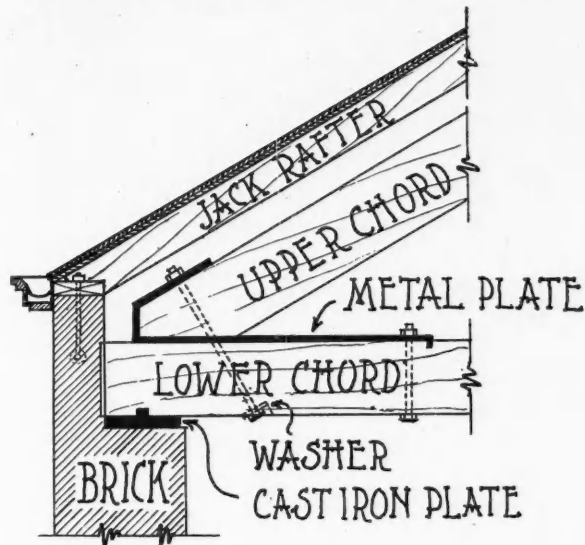


Fig. 32. End Joint, Showing Use of Steel or Iron Shoe.

Fig. 29 a block of hard wood is fastened to the bottom of the tie at the ends of the truss to form a support for the bolt heads and to prevent the wood in the tie from shearing off in front of the bolt. This block is of the same width as the lower chord and 2 or 3 inches thick, as the case demands. It is spiked securely to the tie and held from slipping by means of 1-inch or 7/8-inch square steel or iron keys driven through the tie. This block or bolster is spiked on before the bolt is put in place.

"The size of the bolt is found by a graphical process and by direct calculation. On your truss drawing, lay off a small diagram to scale similar to that shown in Fig. 31. The line *mn* is drawn in a direction parallel to the upper chord member, and the length, *mn*, laid off to scale according to the amount of stress which you have originally found by your stress diagrams to be present in this member. Then from *m* draw a line parallel to the direction of the bolt, and from *n* draw a line perpendicular to the direction of the slanting seat on which the upper chord member is to rest. The length of the line *mo* as shown in the figure when multiplied by the scale which you have used in laying off *mn* will give you the pull in the bolt. The size of the bolt may now be found by the following rule: Diameter of steel or wrought iron bolt, in inches, equals the square root of  $\frac{\text{Pull on bolt, in pounds}}{11,000}$ .

If you do not remember the exact way to find the square root of a number, you can estimate the answer very closely by trial. That is, find that number which when multiplied by itself will equal the number that you are trying to find the square root of—for instance,  $1.5 \times 1.5 = 2.25$ , or 1.5 is the square root of 2.25.

"If the pull on your bolt is found from the graphical diagram to be 20,000 pounds, then  $\frac{20,000}{11,000} = 1.82$  and the square root of 1.82 is about 1.35. You would probably use a 1½-inch diameter bolt, since that is a near commercial size.

"The size of the washers which rest on the timber may be found by remembering that the washer delivers the pull on the bolt direct to the timber. Therefore the size of the washer must be such that its area multiplied by a safe crushing stress for the wood across the grain will equal the pull in the bolt. Safe working values for some of the common timbers are as follows:

White oak .....	600 lbs. per sq. in.
Yellow pine .....	500 lbs. per sq. in.
Oregon pine .....	400 lbs. per sq. in.
Spruce .....	250 lbs. per sq. in.
Hemlock .....	200 lbs. per sq. in.

"Washers may be either round, rectangular or square. Cast iron washers are often used and may be easily obtained. Pieces of steel plate are often used for square or rectangular washers and vary in thickness from 1/4 inch to 3/4

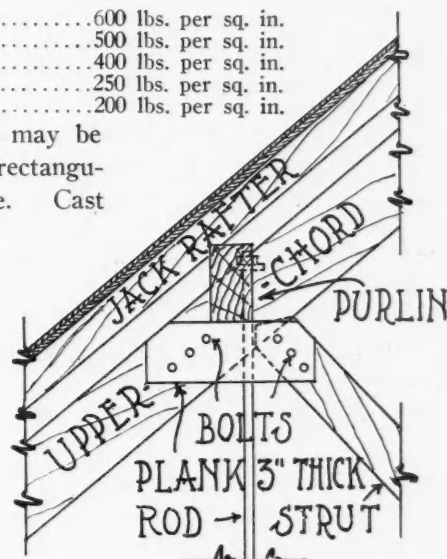


Fig. 33. Typical Joint on Upper Chord of Truss.

inch, depending upon the size of plate and pull exerted on bolt. The thickness should be such that the plate will not buckle under the head of the bolt.

"It is good policy to use a bearing plate under the end of the truss as shown in Fig. 29. This plate may be of cast iron, but the size should be such that the unit bearing stress on the brickwork under the ends of the truss is not greater than 100 pounds per square inch of plate surface. This unit bearing pres-

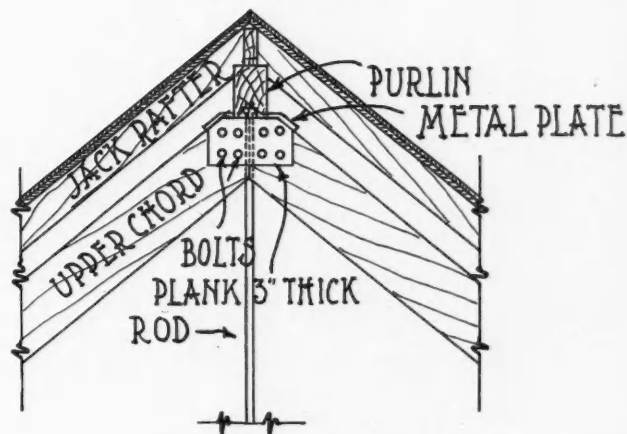


Fig. 34. Joint at Ridge of Truss.

sure may be found by dividing the supporting force under the end of the truss by the area of the bottom surface of the plate to be used. Or, if the size of the plate is desired, it may be found by dividing the supporting force by 100 to get the area of the plate and then finding two numbers which, when multiplied together, will give this area.

"Fig. 32 shows another type of end connection which depends mainly on the strength of an iron or steel plate bent into the form shown and held in place on the truss by bolts smaller than those used in Fig. 29. In this case the area of cross-section of the bent plate is found by dividing the tension in the end member of the lower chord by 12,000. A thickness of plate is then chosen and the width figured by dividing the area by the thickness. Plate at least  $\frac{1}{2}$  inch thick should be used in this location. The width of the bent plate should be equal to the width of the slanting member.

"The height of the vertical cut at the end of the slanting member may be found by dividing the pull in the tie by the number found by multiplying together the width of the slanting member in inches

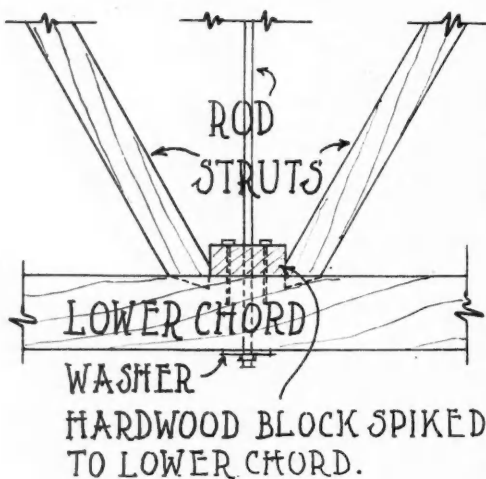


Fig. 35. Joint at Middle of Lower Chord.

and 1,500 for yellow pine, 1,400 for oak or Oregon pine, or 1,200 for spruce.

"The location of the inner end of the bent plate from the extreme end of the tie is found by dividing the pull in the tie by the number obtained by multiplying the width of the tie by 150 for white oak, 125 for yellow pine, 125 for Oregon pine, or 100 for spruce.

"The slanting bolt does not need to be larger than 1 inch in diameter when the pull in the tie is less than 45,000 or 50,000 pounds. When the plate is wider than 6 inches, two bolts should be used in the vertical position shown. It is claimed that two  $\frac{3}{4}$ -inch diameter bolts may be used when the bent plate is made of  $\frac{3}{8}$ -inch stock, or two 1-inch bolts for  $\frac{1}{2}$ -inch plate.

"Fig. 33 shows the method of notching the slanting members of upper chord of a truss so as to form a bearing for the struts or compression members between the upper and lower chords. A notch of about 1 inch should be sufficient. This figure also shows a method of supporting the purlins at the joints of the

upper chord. A piece of 3-inch plank is bolted to the upper chord and the slanting strut to hold the end of the purlin in place.

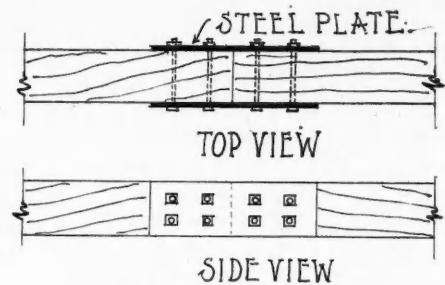


Fig. 36. A Form of Bolted Splice.

"The method of extending the vertical steel tie-rod through the upper chord is also shown in Fig. 33. Iron or plate washers are used to prevent crushing of the wood, as in the case of bolts already described.

"Figs. 34 and 35 show methods of forming the connections at the ridge and directly below at the center of the lower chord. Fig. 35 also shows a method of supporting heavy timbers by means of steel or iron stirrups.

"Where two slanting braces meet on either the upper or lower chord of a truss, it is well to use an oak block about 3 inches high between them to prevent the action of one brace against the other if they are located unevenly. This block should either be notched into the main member, or securely spiked to it.

"The method of notching in or blocking as shown in Figs. 33 and 34 can be used on the slanting braces at the other joints of the lower chord.

"I want to caution you about one other thing before we quit," said the Boss, "and that is in regard to splicing timbers on long spans. Where solid timbers are used, a bolted splice similar to that shown in Fig. 36 may be used. If the members are built up of 2-inch boards, care should be taken to bolt them together securely throughout the length of the member, and to see that the separate boards break joints so as to provide a uniform strength between the different bolted lengths."

### The Novice on Roller Skates

ALMOST three years ago—in fact, at the very beginning of the series of Noon-Hour Talks by the Boss Carpenter, we published a short editorial, entitled "The Builder on Thin Ice." It was intended to serve as a friendly caution notice to carpenters and builders that they should look twice before they jump into the dark when handling details of building construction with which they are not perfectly familiar.

As a result of this intended kindness on our part we were severely criticized at that time by some of the Brothers, who insinuated that we were attempting to throw cold water where it was not needed, and that we were a stumbling block in the path of progress! While this did not take the wind out of our sails to any great degree, it served to convince us that there really is a field for instruction in the more common phases of building construction with which the carpenter should be familiar. One of the results of this



eye-opener on our part has been the publishing of these monthly Talks by the Boss Carpenter.

From the number of encouraging letters that we have received from the Brothers, we feel that our attempts have been well taken by our readers in general; but still we find that we have not completely done away with the bad habit of some of the Brothers of *guessing* at conditions rather than *investigating* them thoroughly.

Guessing is the wrong way to go about any proposition; especially where a bad guess may cause destruction of property, or even the loss of life in some instances.

Within the past few weeks we have had two specific cases in which we have been asked to O. K. designs in which the originator either guessed very badly or else did not have the slightest idea of what he was really doing.

In one instance one of the Brothers wrote to us and asked us to tell him the proper size of steel I-beam to use as a support for a porch roof where the span of the roof was 34 feet and the width of the porch 10 feet. Since he did not give us information in regard to the loading which was likely to come upon this roof, we wrote back and asked him to name a definite loading for us to use in figuring the size of this beam. His reply stated that there would be about 2 tons load on this roof. We felt that this value was entirely too light, and soon found it to be, as there were 340 square feet of porch roof in the case

and at least one-half of the weight on this 340 square feet must be supported by this steel I-beam. Taking the least snow load *alone* as a basis of figuring, we found that there would be nearly twice the amount of load that he had stated to be present on this roof.

This shows that this builder had simply *made a guess* at what he thought would be likely to be present in this case, and that he really had no intelligent idea of the amount of load which he would really have to handle. If we had designed this steel beam to take care of the load which he gave us, the chances are that his porch roof would have sagged badly after the first heavy snowstorm, and he would have blamed us for giving him too small a size of beam.

Again, we advise the guesser to keep out of a game where guessing has no place. Either educate yourself to meet the important points of your work, or be satisfied to keep out of work where questions of design are present.

While the Boss Carpenter has the most kindly feelings towards any Brother who is really trying to learn how things should be done, he feels at the same time that in speaking thus plainly he is doing a kindness to the other fellow who is content to take things as they come and trust to luck that the results will be satisfactory.

Intelligent reasoning and "good intentions" are two different things. If you are on roller skates, don't pad your pants in expectancy of a fall, but learn to stand up for yourself.

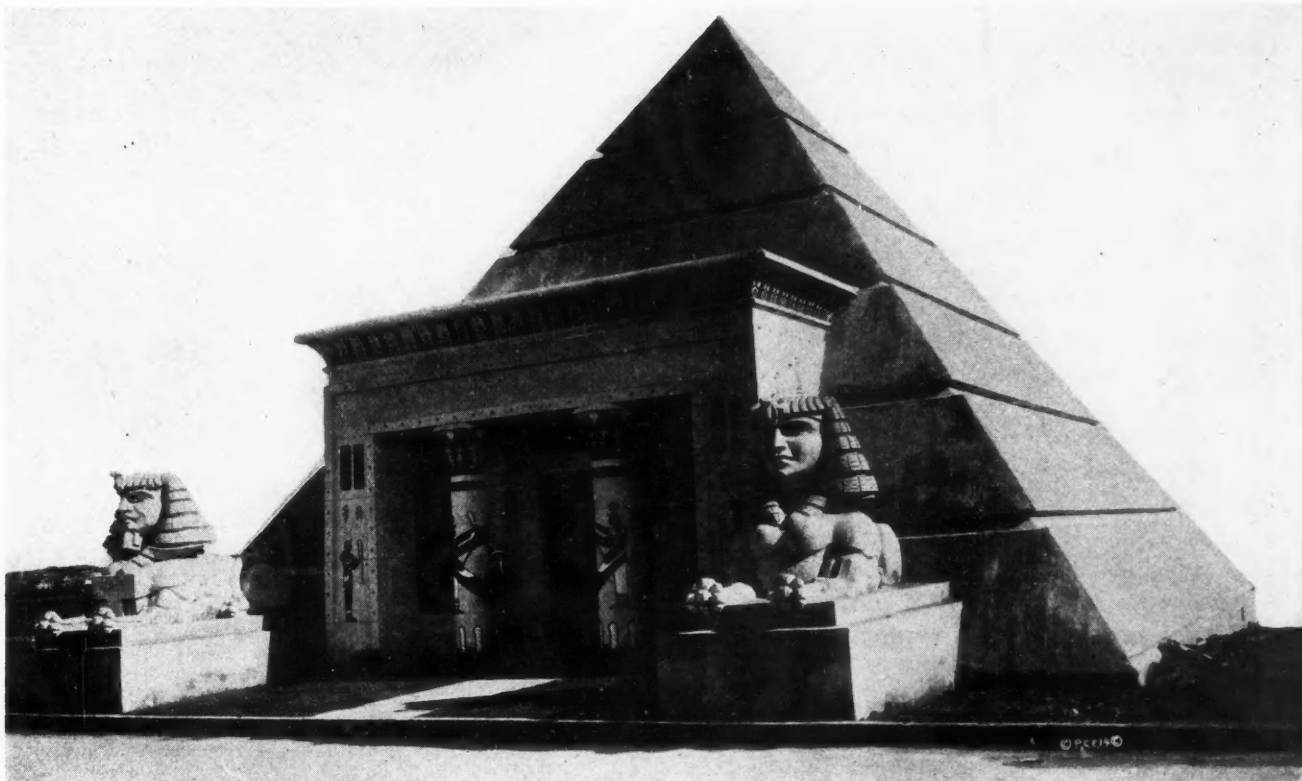


Photo Copyright, 1914, by the Panama-California Exposition, San Diego, Calif.

The Pyramid and Sphinx Drafted Into Use for Commercial Purposes. This is the Office of the Cawston Ostrich Farm and One of the Curiosities of the Builder's Art Much Visited by the Tourists in Southern California.

**"The Man that I Admire the Most, is the One that Has the 'Guts' to Go Ahead and Do the Thing that Everybody Else Said Couldn't be Done."**

—THE MAN FROM THE LUMBER YARD

In the accompanying letter a subject is opened that has been foreign to trade journals. But we are interested in our readers being the best possible men.

We would be pleased to hear from any that wish personal suggestion along this line.

—EDITOR.

**W**HENEVER I use language that is not dignified my wife goes for me. She says: "Papa, it is not necessary."

I told my wife the other day that the man I admired the most was the man that had the "guts" to go ahead and do the thing that everybody else said couldn't be done. Of course, she was shocked, but she couldn't tell me how to say it in a society way, to mean the same.

There are thousands of men that have as much pluck as Goethals. Goethals is the man that put the Panama Canal across. I know several contractors that have faced more uncertain jobs than Goethals. They hung on, when even their wives lost confidence in them.

Men of the right sort can do almost anything when their wives (God bless 'em!) have confidence in them.

The job is doubly hard when the wife says: "It can't be done." But these men won, in spite of all adversity.

I glory in their pluck as much as in Goethals.

Completing its nest was as important to the wren as finishing the Castle of Skibo was to Carnegie.

Of course, all of us want to be connected with big things. But it is not the size of the job that counts.

Find the man, who holds on when others let go; the one who pushes ahead when others turn back; the one who stiffens his backbone, when others supinely lie down; the one who advances when others retreat, and you have found a Gibraltar; an oak, a security to tie to.

Are such men *born*? Yes, of course, but they must be *trained* as well.

Many a man of sterling qualities is spoiled in the bringing up.

Imagine the raising of Abraham Lincoln, of Ulysses Grant in a steam-heated flat with nothing to do and too much to eat. I know parents who want to protect their boys from every hardship. What a calamity for the boys! I hope my youngsters will have sorrow, trouble, difficulties and the grace to overcome.

It will make them strong and worth while.

I am not wasting time in regrets at my many lost opportunities.

I am hustling to make up for lost time. I can

never forget the constant lament of a good old soul that made headquarters in our "yard office." His lament was, because he "never had a chance." He would have been president, if he had had the chance of Lincoln; a general, if the same show had been given him that Grant had; or a big railroad man, if he had gone to New York when Jay Gould did.

Incidentally, we learn that the last of the Gould family has been ousted from the management of the roads formerly controlled by the father.

Wishing drifts only to want. Work carries to wealth or position.

I don't have much patience with the man who is always unlucky. I have made some rules for the unlucky which they should heed.

**Rules for the Unlucky**

It is very unlucky to begin anything on Friday, *if it is wrong.*

The thirteenth is an unlucky day to start an enterprise, *that is not properly managed.*

It is unlucky to take a contract in the dark of the moon, *if the contract is taken below cost.*

A boy born on Friday the thirteenth will be very unlucky, *if he has plenty of money to spend and is not properly trained.*

Never walk under a ladder, *when paint is being dropped.*

Yes, indeed, it is unlucky to be born under a bad star, *if that star puts into a man a weak will, and a wish-bone where the backbone should be.*

Did you ever sit down and take an inventory of yourself? Suppose you do it. See how nearly you reach one hundred per cent (100%) in health, initiative, will power, constancy, knowledge, decision, etc., etc.

I wish I could talk these things over personally with each one that cares to work for a better manhood, in body, mind, and heart. I have known some people who seem sluggish mentally when their only trouble was a torpid liver.

More people under the Stars and Stripes suffer from over-eating than from hunger. Some folks literally dig their graves with their teeth.

Indecision and inertia are two negatives that are hard for many people to overcome.

**How Bill Fixed Himself**

I want to tell you of a friend of mine, I will call



Why Not Row Up Stream to Success?—

him Bill, because that isn't his name.

Bill was an observer, and he saw that when he told his son that he was bad, it made him worse, and that when he told the boy that he was good, the boy was really better.

Bill knew that his principal weak spot was indecision. It was hard for him to decide whether he should order ham or eggs for breakfast. He would never make a final decision until the last minute, and after he decided one way he knew he should have decided the other way. His wife said things to him that were unpleasant and his friends made fun of him because of this weakness.

His fighting blood was raised one day, and he declared that even if every one said he couldn't overcome it, he would do so.

He studied his case, and decided that one reason he was so slack was because everybody told him that he was. His first decision was: "If no one else will tell me I can overcome this I will tell myself." He remembered how his son was affected by what was told him. He formed the habit of talking to himself, and constantly stated: "I am firm. I am not vacillating. I can come to a decision. I am positive," etc., etc. Bill talked out loud to himself, and got all the force of confidence, the same as if someone else had spoken to him, and affirmed the same thing.

**Confidence Breeds Confidence**

No, it was not silly in Bill to do this. It gave him strength. It made him self-reliant, and quick in his judgments.

You may have some weak spot in your mental or moral makeup. Don't admit it. Deny it. What if you were weak in the arm, would it improve your arm to say, "My arm is weak, I can do nothing?" No, you should say, "I have strength in my arm; I can lift weights." You would then lift weights, and by repeatedly lifting you would get strong, and still stronger.

Don't drift. Drifting ends in defeat. The man with a will, and back bone; with energy and ambition, can by study and application reach a safe harbor.

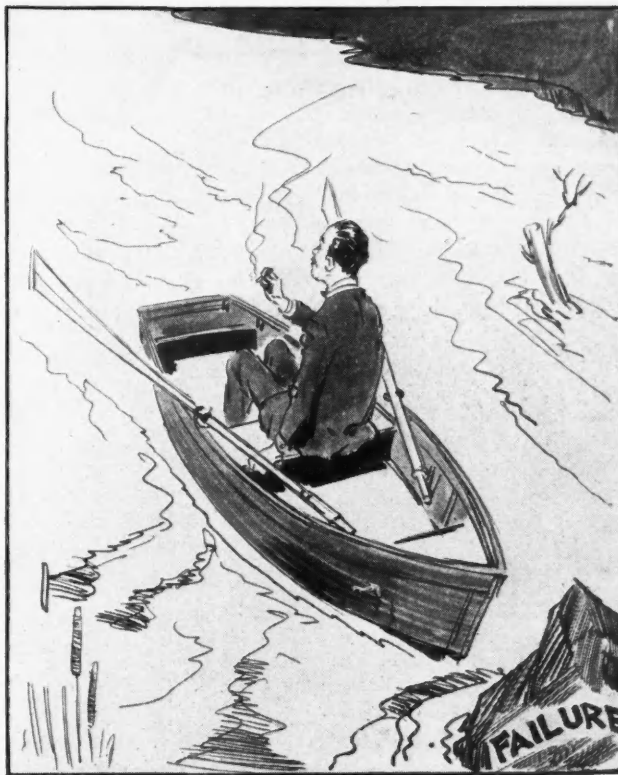
Leave "can't" out of your vocabulary.

Decide, (1) is it worth doing? (2) do I want to do it?

**When Things Can't Be Done**

Why not try? You never can tell until you try. Many things that couldn't be done have been done. The earth was not flat for Columbus. He discovered a new world.

Who said boats could not be built of iron because they would sink?



It's Way Ahead of Drifting Down Stream to Failure.

When was it that a heavier-than-air machine would not fly?

Why can't a message be sent without a wire?

Nothing can be completed without being begun.

Brother, let us climb higher; be better men; doers of bigger things. If you and I have grit and faith we can do things.

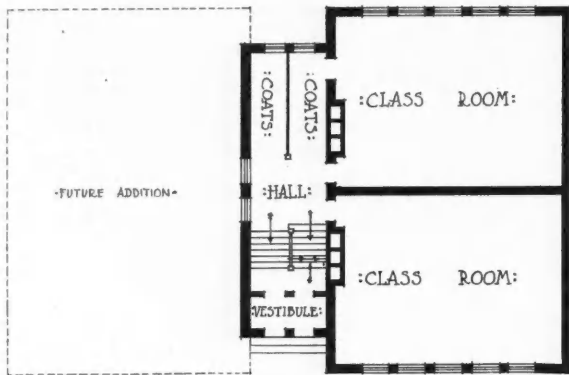
Next month we will get down to some basic facts about this.

Yours for self-reliance,  
THE MAN FROM THE LUMBER YARD.

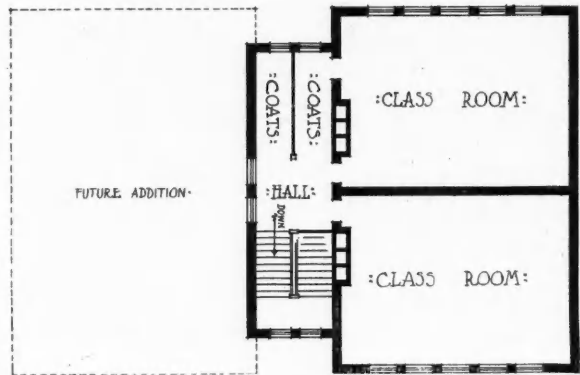
**River Grove, Ill., School Provides for Future Growth**

THE school at River Grove, Ill., illustrated here-with, is a solution of the problem which confronted the Board of Education of a rapidly growing district with rather limited means at its disposal. The building as it now stands is planned so as to take care of future enlargements at a comparatively small expense. For the present the second floor has been left unfinished and the wall dividing the two class rooms omitted, as the present needs are only for

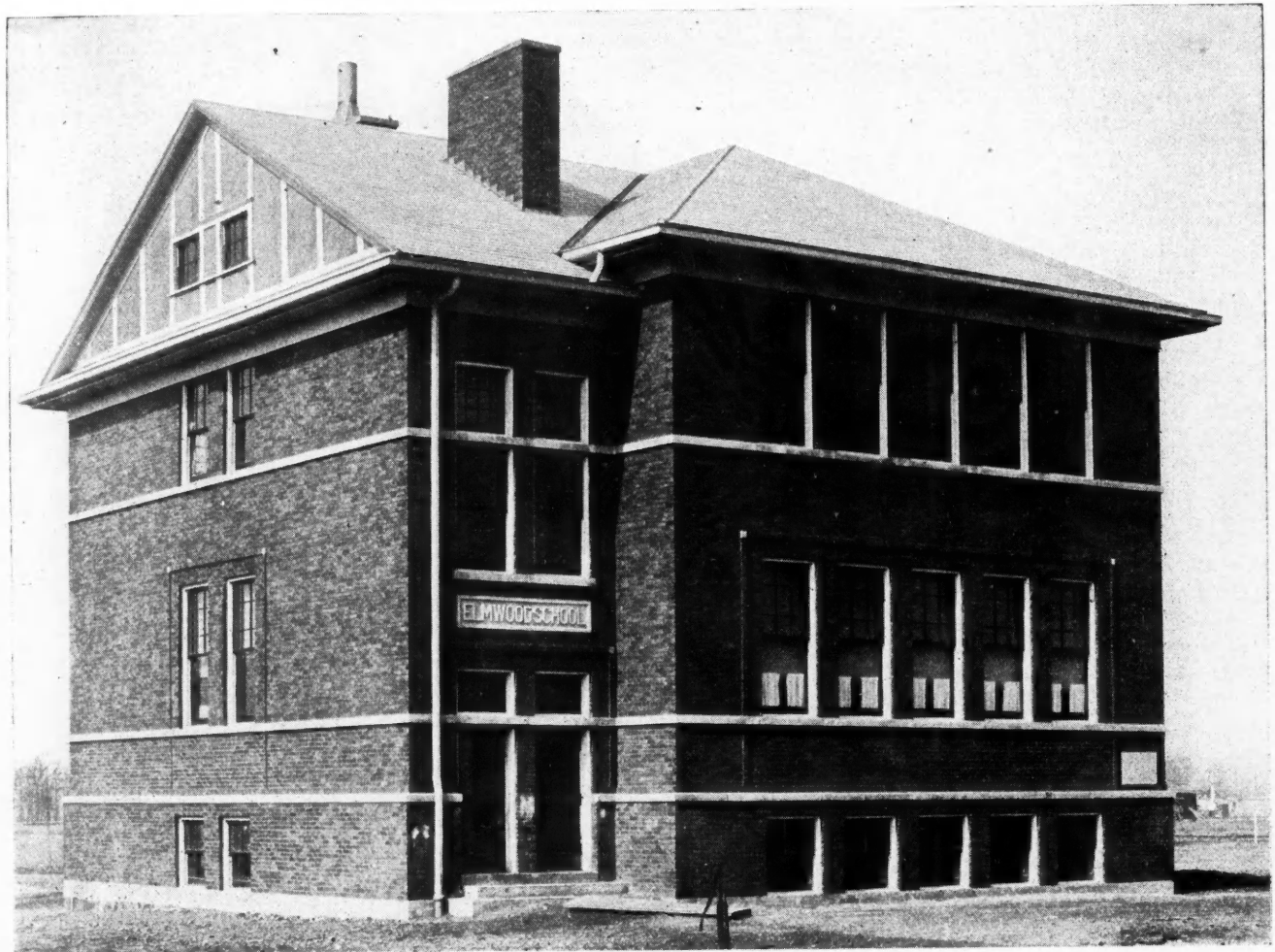
two rooms. It will only be a question of short time, however, before the capacity of the building will be increased when the second floor will then be completed, making a four-room building. Should future needs require, four more rooms can be added, as indicated by dotted lines, thus making an exceedingly economical eight-room building. The building is of brick with stone trim and has a slate roof. The trim throughout is of oak, and the class rooms are of standard size. A basement with cement floor is under the entire building and can be used for playroom in inclement weather.



First Floor Plan.

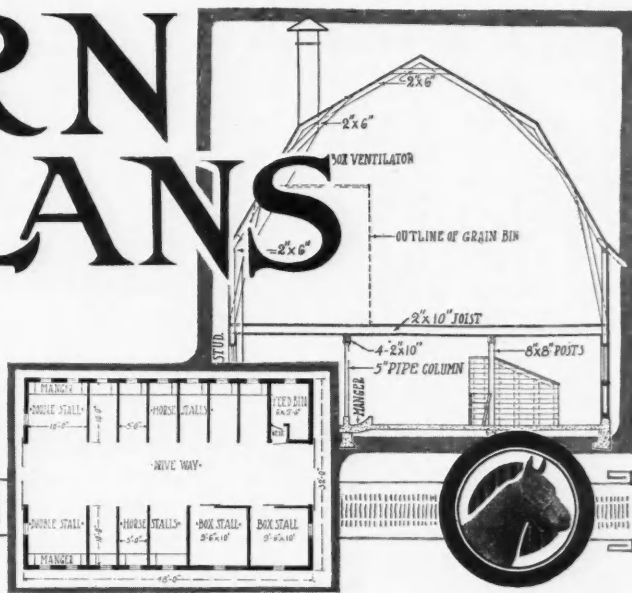
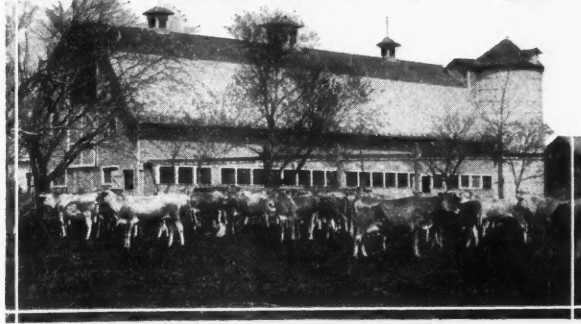


Second Floor Plan.



First Half of Future Eight-Room School at River Grove, Ill. Designed by G. W. Ashby, Architect.

# MODERN BARN PLANS



## How to Build a Round Barn

Featuring A Model 60-Round Barn with Basement

By H. M. Ward

A round barn sixty feet in diameter gives room for more stock than a rectangular barn of the same floor area. The plans and details shown herewith provide stalls and stanchions for forty cows, with 20 per cent less wall area and costing from 30 to 45 per cent less money than a rectangular building for the same number of cows. The greatest advantage is that it requires less framing lumber, which reduces the labor and cost of the building when complete.

The round barn is a comparatively new thing to the builder, and for this reason some hesitate in undertaking the work of erecting the building. The work of building a round barn is no more complicated than building a rectangular building and as the round barn is the coming thing, every builder should study into it; he will find no difficulty in erecting it after a careful study of the plans and details.

The first thing to consider in the erection of a barn or other farm building is a convenient arrangement for the purpose intended. Many steps and a great deal of time can be saved if the building is properly planned.

One of the great advantages of a round barn over a rectangular barn is in the work of distributing silage and other feed to the cows. The feeding starts at the silo door where the silage

is thrown down, and is continued around a circle ending at the door ready for the next feeding. The same is true when cleaning out the stable, using the litter carrier, which runs on a circular track back of the cows.

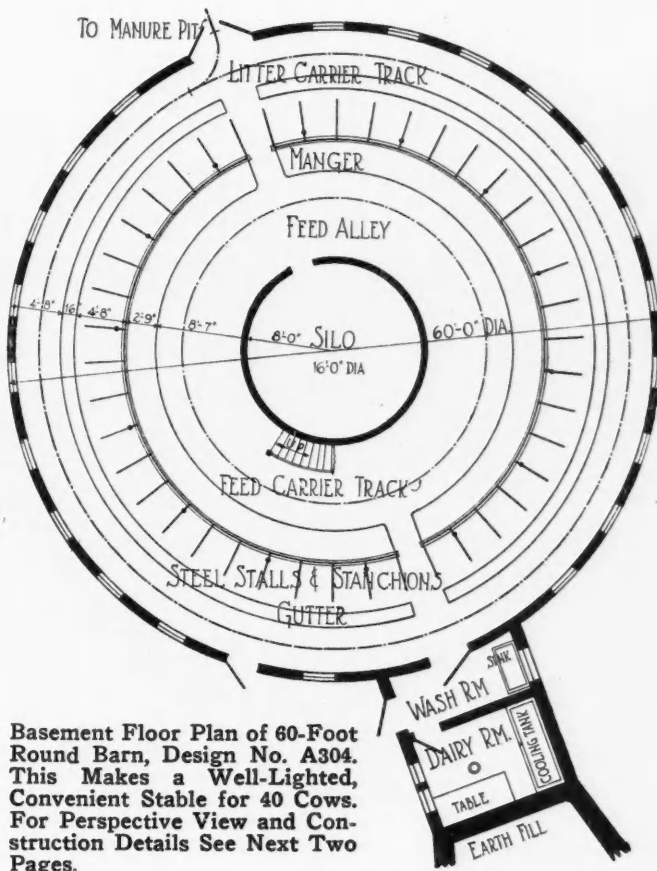
The silo is located in the center of the barn, where it occupies the space that is least valuable for other purposes, and at the same time forms a support for the roof. The silo is of the home-made

type, built all of wood and that, too, of stock material, that the builder or farmer can purchase anywhere. The round construction gives great strength on account of the bracing effect resulting from the concentration of the framing timbers supporting the roof. As shown in the details, there are no timbers whatever obstructing the large mow. The circular construction is the strongest because every board around the barn acts as a brace, the same as a hoop on a barrel. It is the best type of construction to resist wind pressure, as the wind, in striking the surface, glances off and gets no direct hold on the roof or walls, as it can on a rectangular building.

The hay carrier runs on a circular track around the mow and drops the hay wherever desired. Thus in no instance does the hay have to be moved more than a few feet, which means a saving of much labor during haying time.

We will give a few helpful suggestions so that our readers will have no trouble in building the round barns they will be called upon to build for farmers.

The concrete footings are placed below the frost line, and to solid ground. They are 24 inches wide and 12 inches thick. A concrete wall extends from the footings to a height of 4 inches above grade. Then a hollow tile wall is built to 8 feet 8 inches above the stable floor. Hollow silo blocks make a fine tile for a wall of this kind as the outer surface of the tile has a slight curve, which gives the wall a fine appearance when



Basement Floor Plan of 60-Foot Round Barn, Design No. A304. This Makes a Well-Lighted, Convenient Stable for 40 Cows. For Perspective View and Construction Details See Next Two Pages.

finished. The sill is built up of eight thicknesses of 1 by 4's on top of the wall. Building it up in this manner makes a stronger sill than can be obtained in any other way, as it forms a continuous hoop around the barn.

The girders are built up in the same manner, only of larger boards, allowing  $\frac{1}{4}$  inch between the ends of the boards when constructing the sills and girders. The joist are 2 by 12 inches, placed so that the outer ends rest on the sill and the inner ends on girders. The girder is supported by 5-inch wrought iron columns placed just back of the line of stanchions. The girder around the silo is supported by 3-inch wrought iron columns. These joists are spaced 2 feet on centers at the outside of the barn,

The silo is completed before the roof is framed. The rafters are framed on the mow floor or some level place, according to the details, and then raised into place with a block and tackle. The main rafters are spaced 4 feet apart at the outer circle, and these are the only ones in the upper section of the roof. At the break in the roof a header is cut in between the main rafters, and in the lower section a rafter is placed between these, thus making twice as many rafters in the lower section as in the upper section of the roof. After all the rafters are in place and braced, 1 by 2-inch sheathing is put on. No chalk line is necessary as the shingles are laid by the sheathing.

The shingles are laid about 5 inches

to the concrete footing with six  $\frac{3}{4}$ -inch by 6-foot 6-inch anchor bolts. These bolts are embedded 18 inches into the footing.

The flooring is placed perpendicularly both inside and outside, with the result that the ensilage follows the grain of the wood and will settle more evenly and freely.



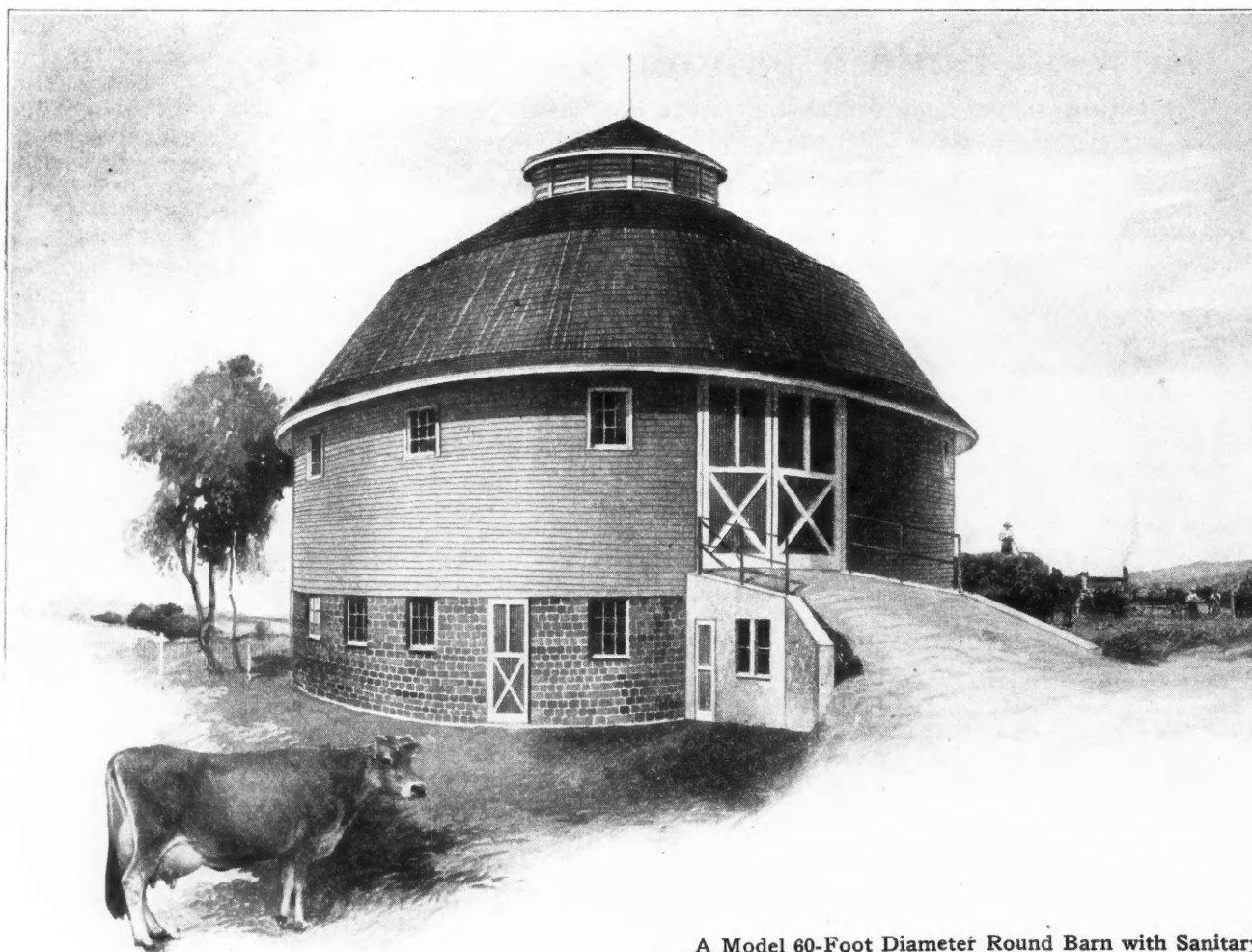
### Simplified Spelling

"Spell your name!" said the clerk sharply.

The witness repeated: "O, double T, I, double U, E, double L, double—"

"Wait," ordered the clerk, "begin again!"

The witness repeated: "O, double T, I, double U, E, double L, double U, double O—"



**A Model 60-Foot Diameter Round Barn with Sanitary Tile Walled Basement to Accommodate 40 Cows. Milk Room is Built of Concrete Underneath the Bridge to Hay**

**Mow Floor. The Round Barn is a Winner—Gives 25 Per Cent More Accommodations at the Same Cost. We Can Furnish Complete Set of Blue Printed Working Plans and Typewritten Specifications for Only \$12.00 Per Set. When Ordering Ask for Design A304.**

and half as many joists are used in the inner span. The joists under the driveway are doubled, being only one foot apart at the outside of the barn. The floor is laid in four directions. The studding is 2 by 6, 16 feet long, spaced 2 feet on centers, and temporarily braced until the drop siding is nailed on the outside.

to the weather on the lower section and 4 inches to the weather on the upper section of the roof.

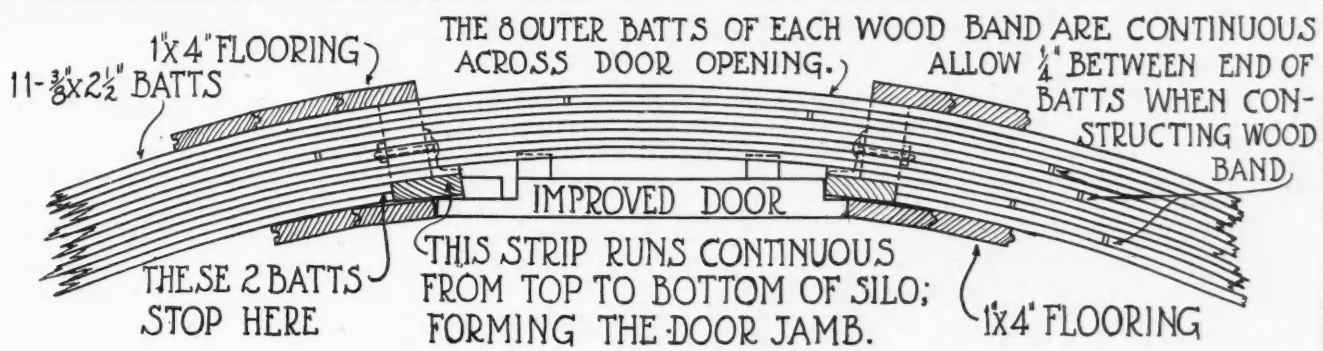
The silo is constructed of ordinary  $\frac{3}{8}$  by  $3\frac{1}{2}$ -inch flat batts and 4-inch flooring. The hoops are made of eleven thicknesses of flat batts, according to the details and stand 2 feet on centers. The lower three of these hoops are anchored

"Your Honor!" roared the clerk, "I beg that this man be committed for contempt of court!"

"What is your name?" asked the judge.

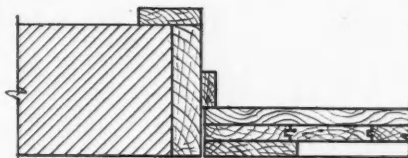
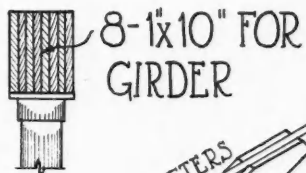
"My name, your Honor, is Ottiwell Wood, and I spell it O, double T, I, double U, E, double L, double U, double O, D."—L. H. J.

*For Details of This Barn See Opposite Page.*



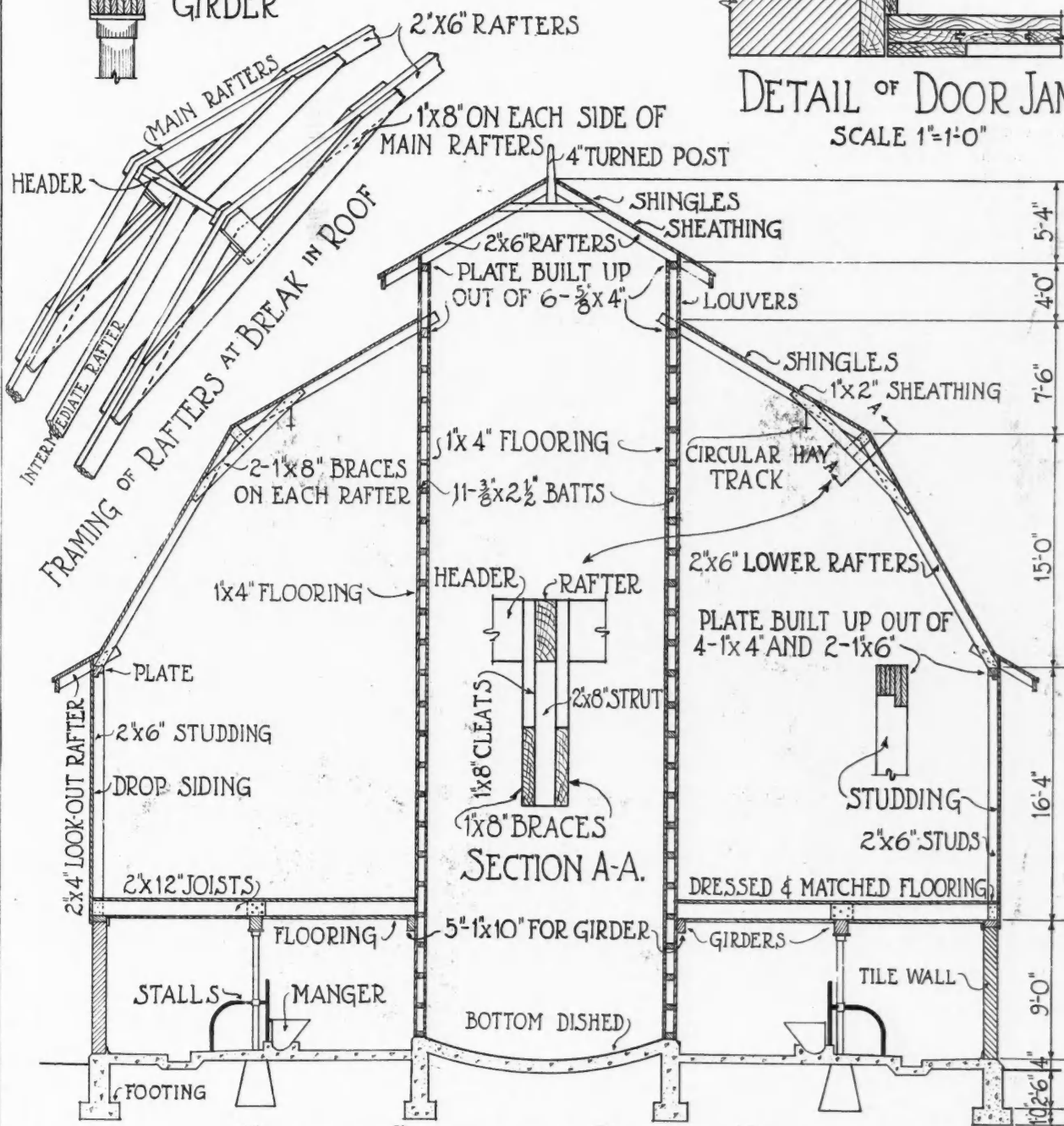
DETAIL AT SILO DOOR

SCALE  $\frac{1}{2}$ "=1'-0"



DETAIL OF DOOR JAMB

SCALE 1"=1'-0"



CROSS SECTION OF ROUND BARN

SCALE  $\frac{3}{32}$ "=1'-0"

DETAILS OF 60-FOOT ROUND BARN WITH TILE-WALL BASEMENT AND "HOME-MADE" STAVE SILO (DESIGN NO. A304) SHOWN ON OPPOSITE PAGE.

### Small Horse and Cow Barn

A combination farm barn and stable, 34 by 44 feet, is shown in this design. This size and style of barn is intended for a farm of from twenty to forty acres where a dozen cows are kept, and accommodation is required for four or five horses.

The detail drawings, shown on the opposite page, give the construction from the footings of the concrete wall to the metal ventilating cupola on the peak of the roof. This light frame truss plan of roof has been worked out during the development of dairy stables to provide abundance of mow room for feed and other roughage stored over the cows for convenient feeding. This plan provides for a concrete floor with alley ways, gutters and mangers of the proper widths and all thoroughly well supported by ample piers and footings to carry the load when the

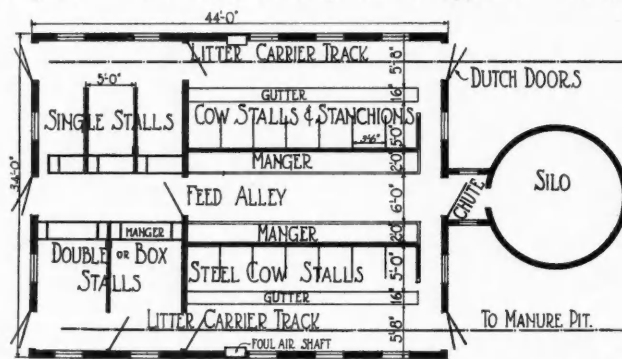
barn is filled with grain or fodder.

Two ventilating flues are provided to carry off the foul air from the cow stable. Fresh air is let into the stable by air ducts through the outside walls which deliver fresh air over the cows in such a way as to prevent a direct draught. The silo is connected with the stable by means of a covered passage-way which makes a very good feed room.

The detail drawings on the opposite

page show the framing of the rafters from one sill clear around to the other sill. Each line or string of floor joists is a tie to take up the end thrust of the rafters to prevent any possibility of spreading. This is one of the main features in this manner of construction that is sometimes overlooked. Each set of joist are either lapped or spliced on the girders and they are spiked together and they are also well spiked into the studding.

A great deal of attention has been paid to the hay track. Special hanging irons are furnished by the manufacturers which cop onto the collar beams and the track swings underneath. Time is saved by having the collar beams all even and true. It will be noticed by referring to the sectional rafter drawing the collar beams are quite short. The object is to get the hay track as close to the peak as possible.



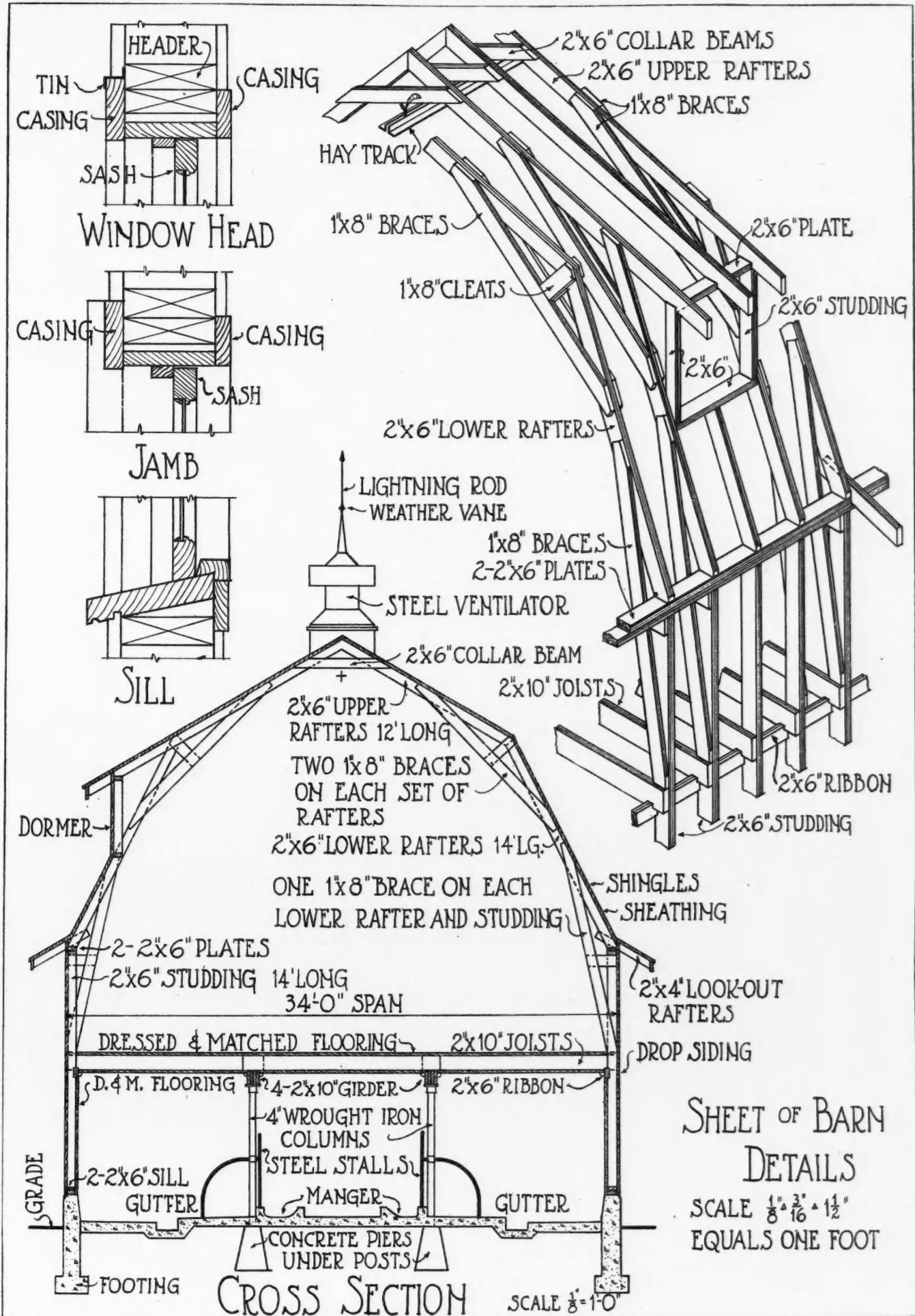
Ground Floor Plan of Horse and Cow Barn Design A308. Size, 44 by 34 Feet.



A General Farm Barn of Small Size to House Both Horses and Cattle and Their Winter Supply of Food. A 44 by 34-Foot Gambrel Roof Barn. We can furnish Complete Set of Blue Printed Working Plans and Typewritten Specifications for Only \$6.00 Per Set. When Ordering Ask for Design A308.

For Details of this Barn See Opposite Page.





SHEET OF BARN  
 DETAILS

SCALE  $\frac{1}{8}'' = \frac{3}{16}'' = \frac{1}{2}''$   
 EQUALS ONE FOOT

CROSS SECTION SCALE  $\frac{1}{8}'' = 1'-0''$

DETAILS OF CONSTRUCTION DRAWN TO EXACT SCALE OF GAMBREL ROOF BARN WITH DORMERS (DESIGN A308) SHOWN ON OPPOSITE PAGE.

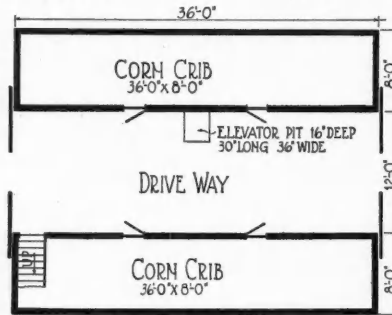
### Combination Corn Crib and Granary

In this plan the corn cribs are each 8 feet in width, and they occupy the outside of the building from the concrete floor to the curb or purlin plates. The sides of the corn cribs are made open in the usual way to promote circulation of air to properly cure the grain. The space in the center of the building is intended for thrashed grains. It is divided into bins as shown in the second floor plan.

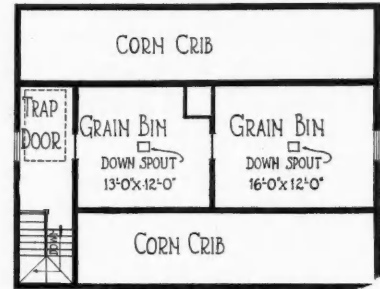
A high storage for grain, built in this way, requires a farm elevator which cannot be shown in the drawings because there are various makes and the installation varies in detail according to the style and operation of the machin-

ery. There is an elevator pit shown in the concrete floor at one side of the driveway where such pits are usually constructed. The size and proportions of the pit are best furnished by the manufacturers of elevating machinery. The advantage of such a building is better

storage of grain, including ear corn. Such buildings are labor savers, because they accommodate labor-saving machinery. The impossibility of doing farm work by hand has compelled farmers to resort to more economical methods of doing business.

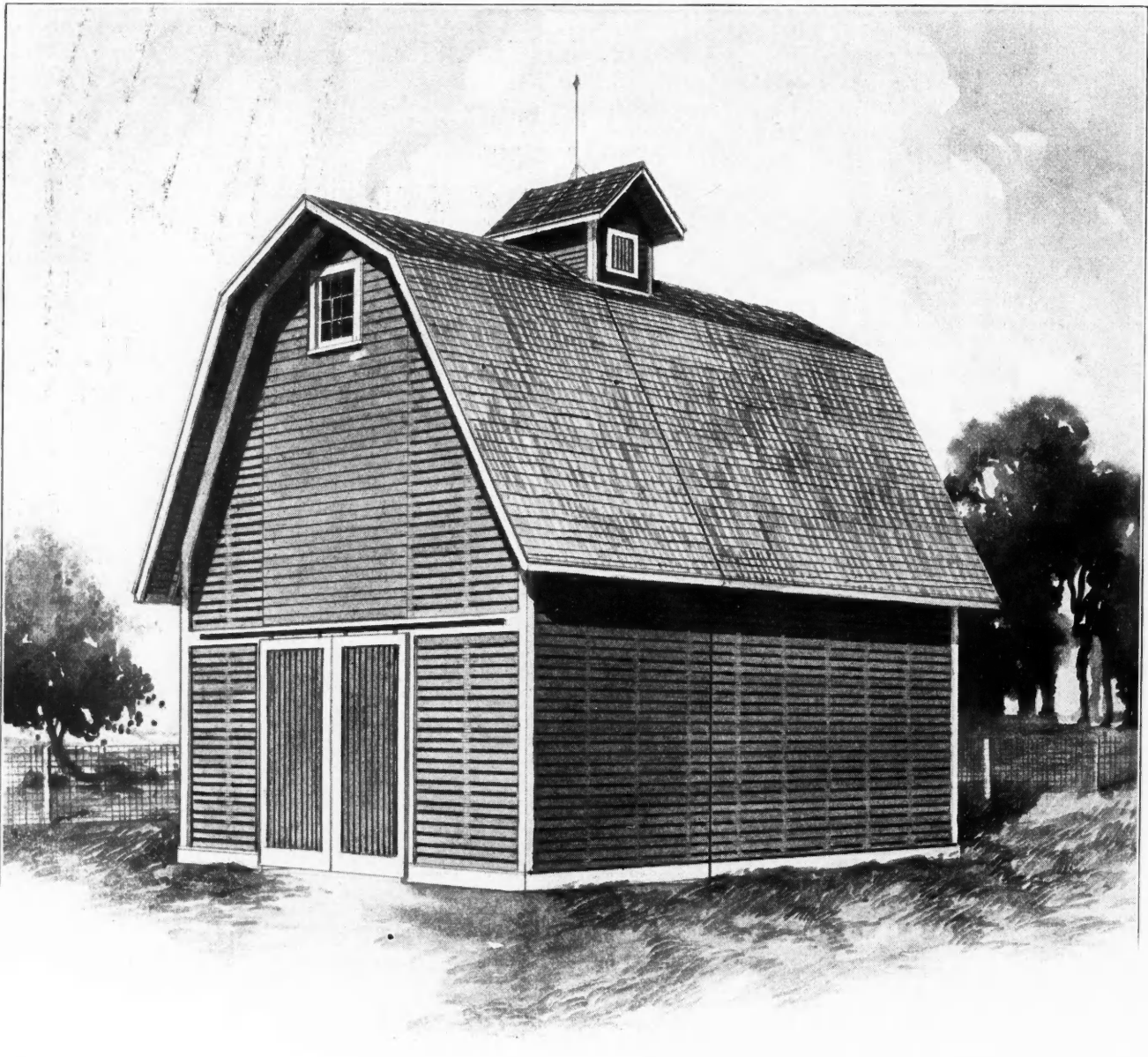


First Floor Plan.



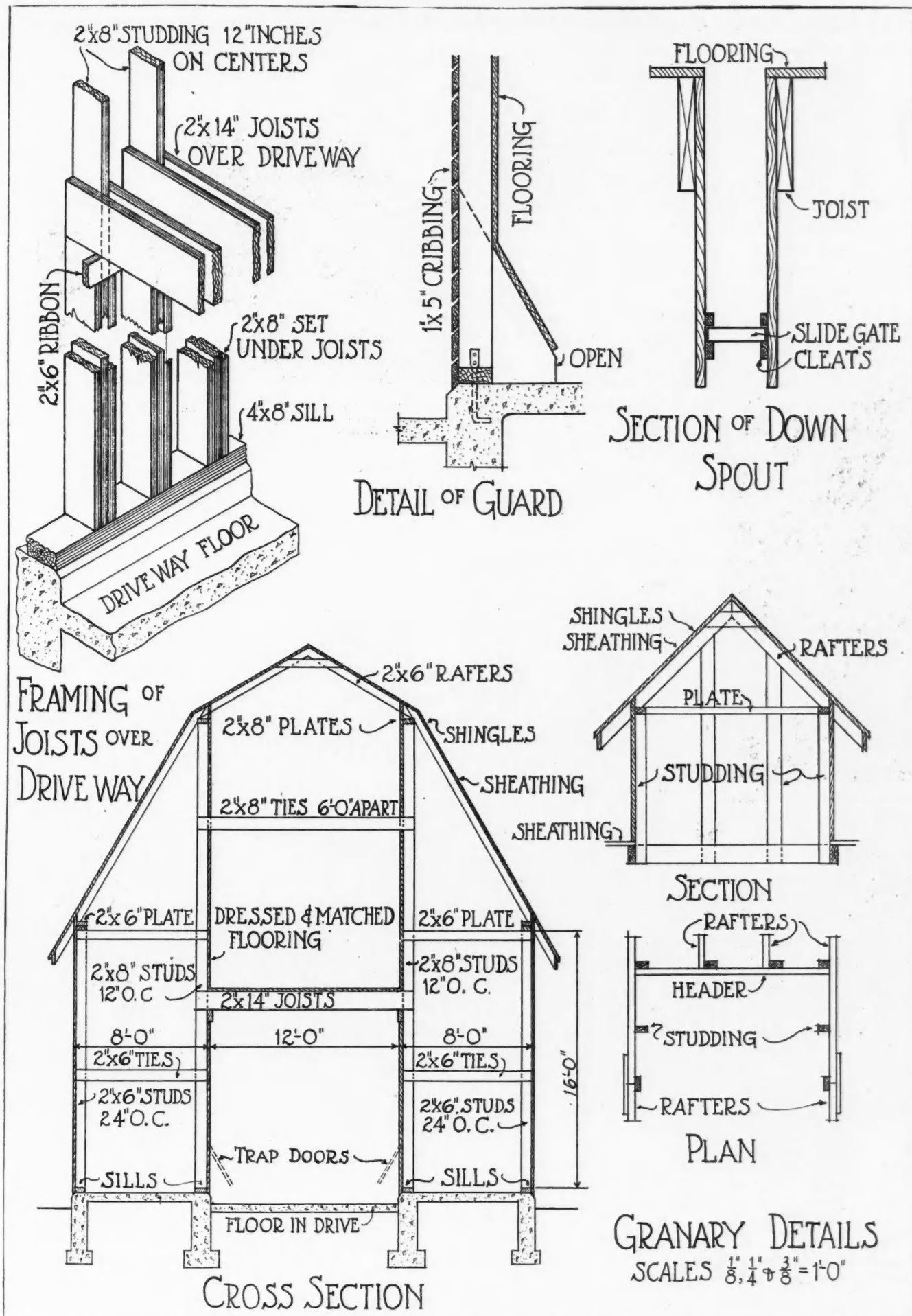
Second Floor Plan.

Arrangement of Two-Story Granary, A 306.



A 2-Story Gambrel Roof Combined Corn Crib and Granary. A Building of Huge Storage Capacity Arranged for Easy Handling of Ear Corn or Grain by Means of Power Elevating Machinery. We can Furnish Complete Set of Blue Printed Working Plans and Typewritten Specifications for Only \$6.00 Per Set. When Ordering Ask for Design A306.

For Details of This Granary See Opposite Page.



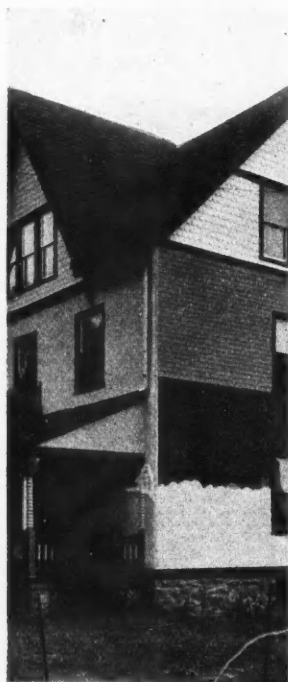
CONSTRUCTION DETAILS OF TWO-STORY GAMBREL ROOF CORN CRIB AND GRANARY (DESIGN A306) SHOWN ON OPPOSITE PAGE.

# Metal Lath and Plaster Cut Down Fire Insurance

CEMENT PLASTER CONSTRUCTION WELL LIKED BY BUILDERS AND OWNERS—RECOMMENDED BY THE HIGHEST AUTHORITIES

By W. Geo. Lane

**I**N further consideration of this subject and supplementing the article appearing in the *AMERICAN CARPENTER AND BUILDER* for March, it is well to inform the prospective home builder that by adopting this construction he can secure a practical insurance, not only for his property, but for the lives of his home people and the protection of his home treasures, at a cost so low that the interest charges upon the extra investment would not average \$14 per annum.



Overcoating Old Clapboard Siding with Cement Plaster and Metal Lath.

He would more than cover this interest charge by his saving on one item of up-keep expense only, namely, that of exterior painting. In fact, his interest charges would be more than \$6 per year less than his cost of painting every three years, appropriated for at so much per annum.

It may not be out of place to mention that in the minds of some there is a fear that the use, for construction purposes, of any metal, of which iron is the base, presents a danger of the weakening of that construction through corrosion.

The average builder fails to appreciate the cement plaster surface, if proper materials are used and care is taken in the mixing and application, has a tensile strength of 600 pounds per square foot without the added strength of the metal re-enforcement.

It has also been proven by practical experience that under proper conditions and with ordinary care this danger of corrosion is negligible.

We may mention three instances which have come to the writer's observation during the last two years.

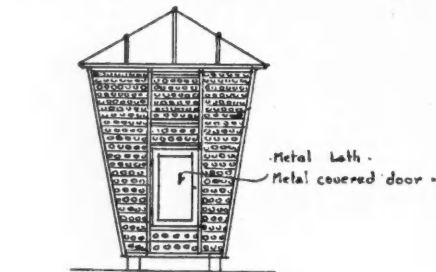


Beautiful Residence of Mr. W. K. Grove, Orange, N. J. Lathed Both Inside and Outside with Bostwick "Truss-Loop." A Fine Example of Architectural Possibilities of Stucco.

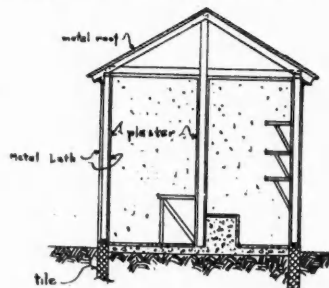
When the old Dana's Institute of Warren, Ohio, was torn down to make room for the present "Stone block," metal lath of the earliest manufacture and of a type not nearly so well imbedded in the plaster as are the products of the metal lath manufacturers of the present day, and which had been a part of the building for more than 20 years, showed absolutely no deterioration in weight or strength after that period of use. The metal when the accumulation of dirt, etc., was brushed from it with a wire brush, showed up perfectly bright and the surface as smooth as the day upon which it was taken from the machines.

When the old partitions were taken out of the Union Trust and Savings Bank Building in Warren, Ohio, equally good conditions were shown by the lath.

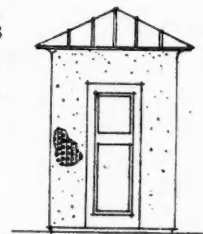
After a fire in the fall of 1914 at the Tod House in Youngstown, Ohio—which fire, by the way, was stopped by metal lath and plaster elevator enclosure, built between 17 and 18 years before—when the fire repairs were being made, pieces of lath were taken from the enclosure, which after being cleaned, weighed per square yard the same as when it was manufactured, and the surface was equally free from any corrosion.



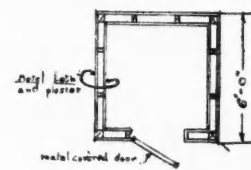
EAT-PROOF • BIRD-PROOF • THIEF-PROOF • CORN-CRIB



GASOLINE OR ACETYLENE GENERATOR AND STORAGE HOUSE

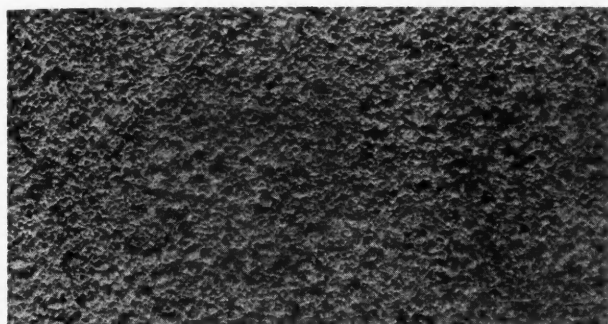


FIRE-PROOF SMOKE HOUSE

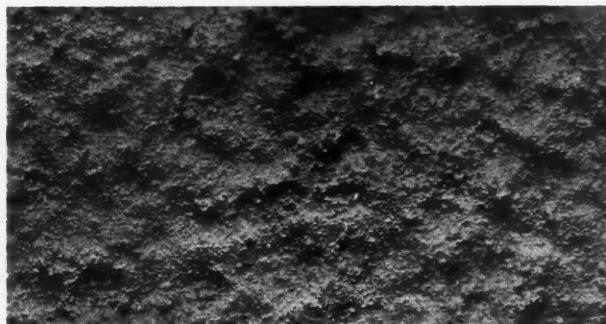


PLAN

Working Drawings of Three Small Buildings That Should be Constructed of Metal Lath and Cement Plaster—a Rat-Proof Corn Crib, a Gasoline or Oil Storage House, and a Fireproof Smoke House.



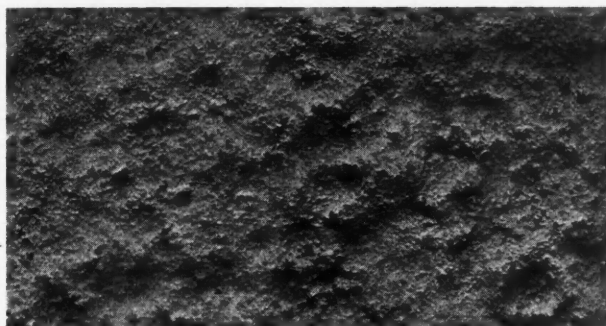
Sand Float.



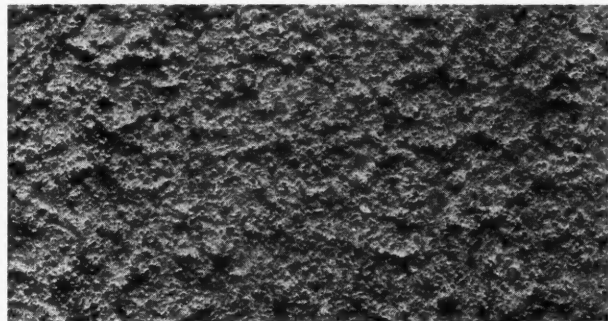
Slap Dash.



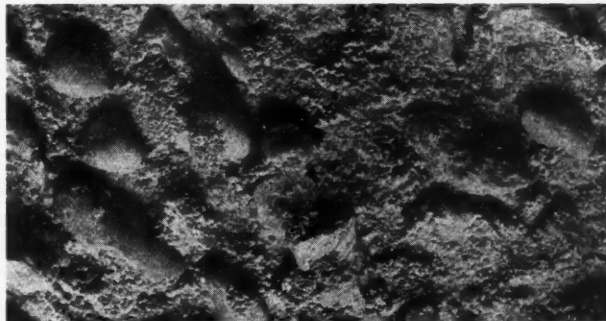
Stippled.



Pebble Dash.



Rough Suction.



Pebble Cast.

**POPULAR SURFACE FINISHES FOR PLASTER OVER METAL LATH.**

Illustrations by Courtesy Clinton Wire Cloth Co.

Various degrees of roughness in the surface finish of the final coat may be developed, ranging from the smooth trowel finish to the rough cast, spatter dash or pebble dash finish. The rough surfaces, however, are always to be preferred, as they are not apt to show the fine checks or cracks, which are liable to occur in work of this kind.

The smooth finish is obtained in the usual manner floating to an even surface and troweling to a smooth finish, while the rough cast or rough suction finish is obtained by floating and drawing the surface rough.

The rough cast finish may be obtained by using trowels covered with carpet or burlap. It is not well to trowel the surface too much, however, as the plaster is liable to crack and fall off if the cement is disturbed after it has begun to set. To obtain the best results, the rough cast surface should really be what is sometimes called sand finish. This is done by using a slight excess of sand and having the plaster not very wet. The sand should be large grained and coarse, as this will add to the rough appearance of the surface.

The slap dash or spatter dash, when performed by experienced workmen is probably the most satisfactory and is more universally used than any of the various finishes. The slap dash is secured by throwing a creamy mixture of cement and sand against the wall, by dashing from a wooden paddle in such a way as to produce a roughened surface. A similar surface, although somewhat finer in texture, may be obtained by dashing from a stiff broom.

The pebble dash surface can be secured by applying the final coat fairly wet and then throwing clean pebbles into the fresh plaster. The pebbles must, of course, be distributed uniformly over the surface, and must be thrown against the fresh, soft plaster with sufficient force to imbed themselves securely. Pebble dash finish is sometimes obtained by mixing small pebbles with a creamy mixture of cement and sand and applying like the slap dash.

There need therefore be no fear on the part of any prospective builder of danger from this source, and he is further safeguarded by the fact that any metal lath manufacturer advertising in any paper or magazine connected with the building industry will gladly furnish him with Standard Specifications show-



The Saw-Tooth Roof of the Mack Motor Truck Garage, Cambridge, Mass., is Constructed of "Corr-Mesh," which Serves Both as Reinforcing Steel in the Finished Slab and as Forms for the Wet Concrete.

ing the proper use of this material—which will insure his work being erected in a manner to give him a permanent construction. Owners of frame buildings need have no fear that it will be necessary for them to entirely rebuild to secure exterior fire protection.

Metal Lath is made so that it can be applied directly on the present surface of an old building and in some cases without the furring or extra metal construction to secure air space between the lath and plaster and the old wall.

In fact a fireproof exterior of this construction can be added to any building without disturbing the daily course of living of the inmates.

This overcoating, as it is technically termed, would not cost, taking the average of the United States and including the transportation charges upon material, more than \$1 per square yard for the plastered surface to which would have to be added such additional expense as might be necessary to extend window frames and sills, door frames and eaves to preserve the outline and architectural effects of the old building.

Taking a building 30 feet wide by 40 feet deep and 20 feet high as an illustration, the cost of this overcoating would be in the neighborhood of \$350. For this expenditure the building would be permanently preserved and the outlay returned to the owner in reduced upkeep expense upon the exterior of his building in about 12 years.

His satisfaction gained is not confined to the improved appearance and value of his property and his individual protection from the ravages of fire, but he automatically

lessens the fire risk of the community in which he lives, does his share to lessen the cost of insurance in his section of the country and to lessen the average fire loss of the community.

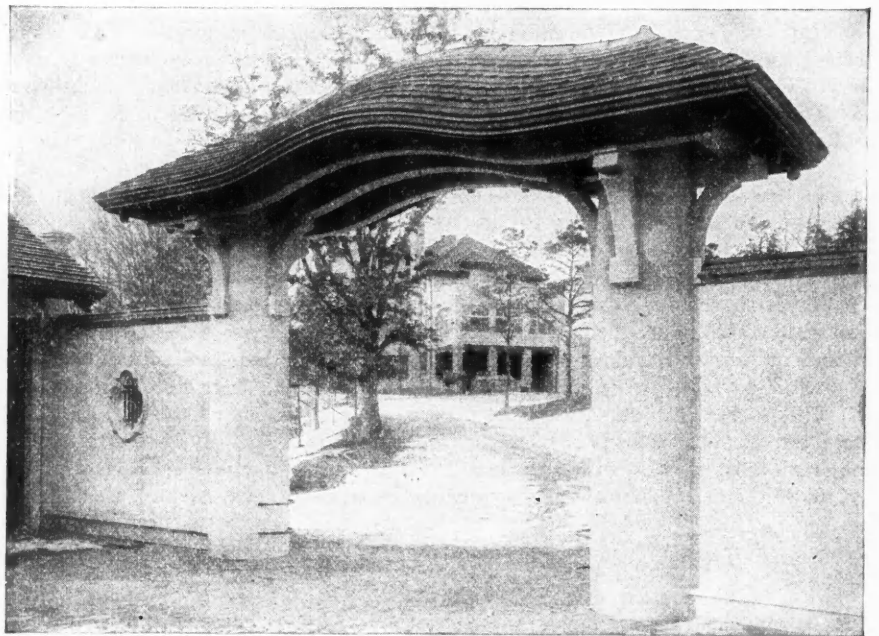
While it naturally follows that the efforts of this new movement for safer and saner building have been largely concentrated upon the city and suburban property where the possibility of the spreading of a conflagration is the more imminent there should not be left out of consideration the special danger to which all buildings in the rural communities of our country are exposed. Although the loss in dollars and cents to the country at large is less on account of the decreased number of buildings exposed to the danger,

fires that do occur in the rural districts are generally of a more devastating character than similar fires in cities and towns. The lack of fire fighting apparatus, of water pressure and the decreased amount of available help make it always difficult and often impossible to save even a percentage of the property in close proximity to the fire.

What has already been written as to the protection of residence property by using metal lath and plaster construction applies with equal force to country homes except that the country home can be fireproofed at a lower expenditure of actual money.



One of the most expensive woods used regularly in an established industry in the United States is boxwood, the favorite material for wood engraving. It has been quoted at four cents a cubic inch, and about \$1,300 by the thousand board feet.



A Graceful Courtyard Entrance at Chestnut Hill, Mass. Designed by Chapman and Frazer, Architects. Both Wall and Gate Posts Built of Cement Plaster on Clinton Wire Lath.

# The Editors Drawer

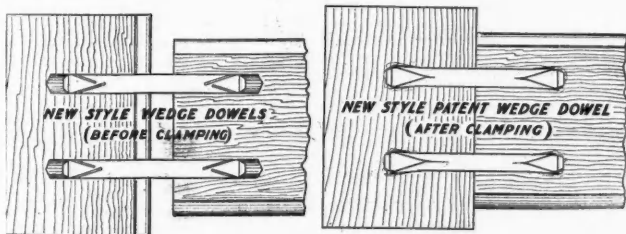
*New things worth while.*

## New Wedging Dowel for Door Work

One of the large lumber companies of the Northwest—a firm with a capacity of something like 5,000 doors and 7,000 sash per twenty hours—has brought out what seems to be the perfect wedge dowel.

As will be seen in the first illustration, the wedge is simply the end of pin nearly separated from the body by a “v” cut. A special machine handles the first operation—cutting one end. Ten thousand an hour is the capacity of this machine, and an hour-and-a-half run will take care of the day’s supply.

This first end of the dowel ready, it is inserted in the rail.



New Idea—A Self Wedging Dowel.

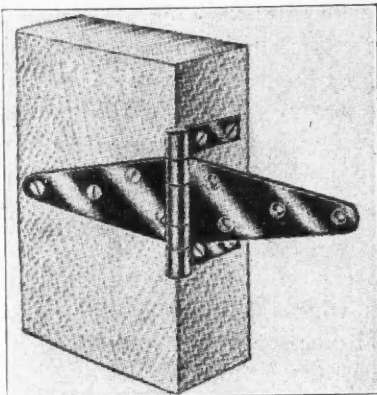
The rail, carrying the dowel, is then run through a second special machine (with a capacity of 15,000 to 30,000 rails per day), where the other end of the pin is cut in the “v” shape. Then when the stile is attached and the whole clamped, the thin section between the ends of the “v”s give way—and the wedge is complete. No space is left for surplus glue. Every bit is driven back around the pins, and into the joint between sections.

It looks to be just about “right.”



## A Hinge That Does Away With Sagging

We illustrate a hinge which is said to do entirely away with sagging, twisting or pulling off.



Hinge Strengthened by Two Jamb Wings.

This is brought about by means of a strap at top and bottom of central pin, which is to be secured to the door jamb. The strain is, in this way, taken from the nail or screw heads onto the straps and inside edge of gate or door frame.

The manufacturer is putting this hinge out in the 4, 6, 8, and 12-inch sizes.

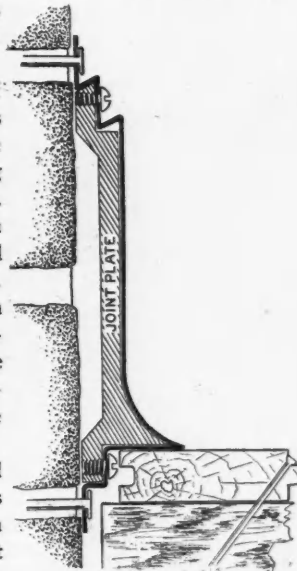
## New Metal Cove Base Good-Looking and Sanitary

Perhaps the worst dust and dirt-gatherer in a building is the angle made by floor and wall. Hard to get at with broom or scrubbing brush, it presents a problem for builder and housewife or janitor.

We show a cross section of a metal cove base which does away with this trouble. The curved cove offers no hiding place for dust and germs. And it surely looks much neater than the base board and shoe mould generally used.

This illustration gives an idea of how joints are handled. Ends of the lengths are flush, and against the flat surface of joint-plate, joints are practically invisible.

Besides the sharp-nosed flange illustrated, this base is made with square nose, which may be set flush with cement or wood floor. By changing the set, space may be left to use tile or linoleum—bringing either flush with cove.



Neat Base of Sheet Metal.

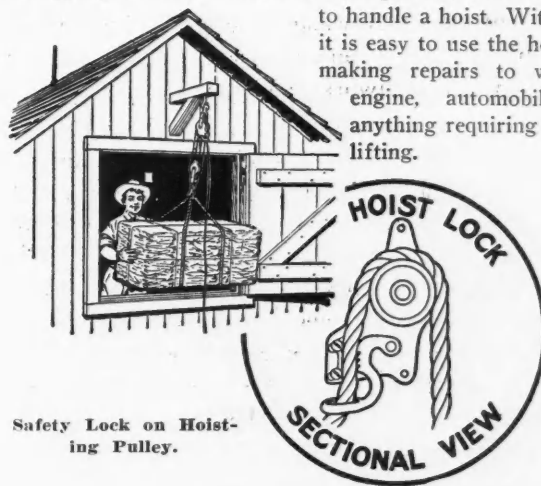


## Safety Lock Doubles Uses of Pulley Hoist

There are an endless number of uses for a good pulley hoist. Things often stand around, taking up valuable room, because of the labor necessary to carry them to an upstairs storeroom. By means of a hoist this labor could be done away with, and empty space utilized.

An ingenious concern has recently brought out a safety locking device which does away with the danger of slipping and dropping a heavy load; makes it possible for one man

to handle a hoist. With lock it is easy to use the hoist in making repairs to wagon, engine, automobile or anything requiring heavy lifting.



Safety Lock on Hoisting Pulley.

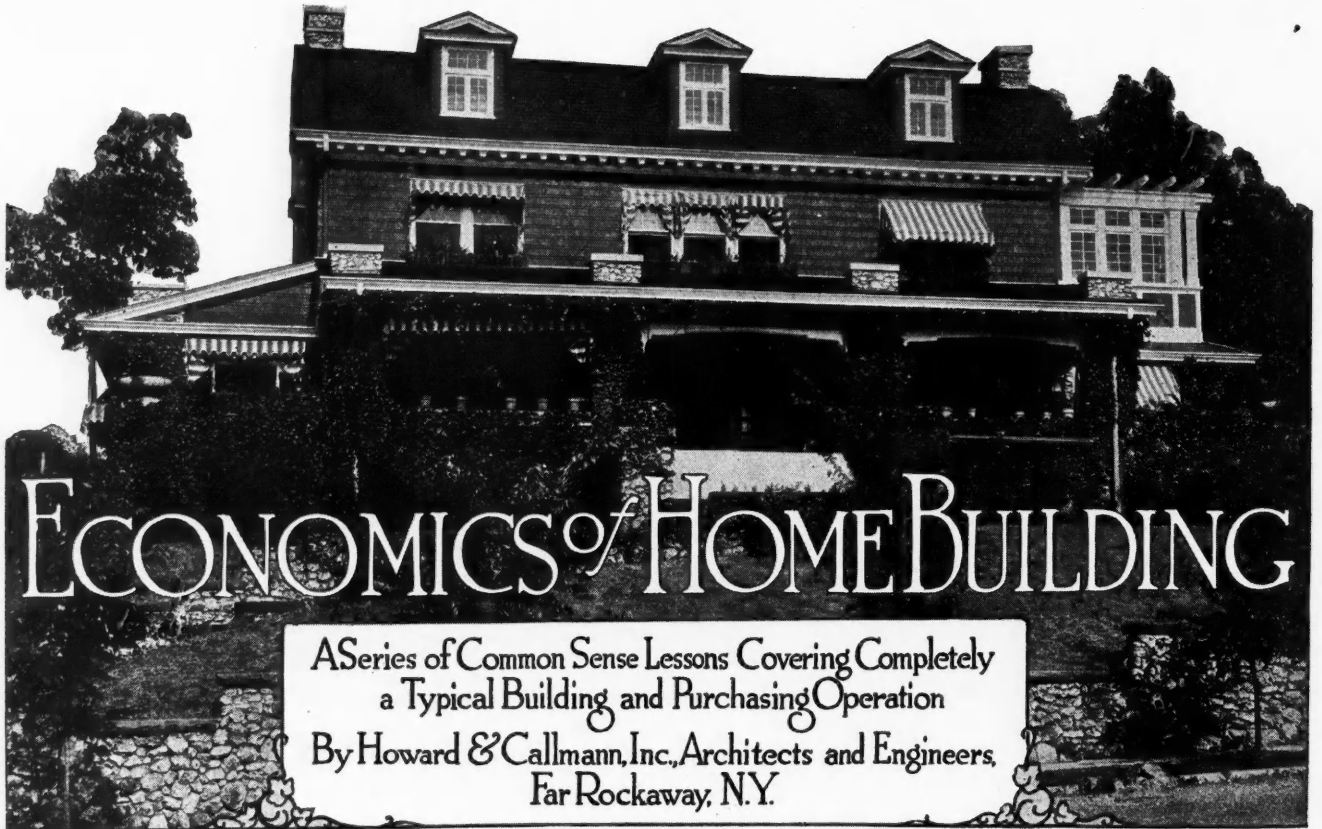
The lock is positive. The slightest pull automatically jams a toothed jaw against the rope. In this way the pulley hoist may be used as a wire stretcher. Other uses would suggest themselves.



## Change in Apartments

“I thought you were going to move into a more expensive apartment?”

“The landlord saved us the trouble,” replied Mrs. Flimgilt. “He raised the rent of the one we have been occupying.”



# ECONOMICS OF HOME BUILDING

A Series of Common Sense Lessons Covering Completely  
a Typical Building and Purchasing Operation  
By Howard & Callmann, Inc., Architects and Engineers,  
Far Rockaway, N.Y.

IN TWELVE PARTS—PART V

## Handling Construction Contracts to Advantage

**W**ITHOUT question one of the most important questions to contractors and home owners alike is

that of cutting down waste in lumber. That was dealt with in Part IV (January issue). Quite as important is to buy millwork economically.

### Mill Work

(83) Window frames, sash, cornices, balustrades, gable boards, piazza columns and the general outside exposed woodwork, together with the interior woodwork, comprise the mill work.

(84) *Outside Woodwork.* The outside woodwork should be made of some of the soft woods which do not split or check from the action of the weather. It is not advisable to use any hardwood for outside work, as it is costly and checks.

(85) *Interior Woodwork.* The interior woodwork can be made from various woods, according to the rooms and the finish desired.

(86) *Wood for Kitchen, Etc.* For the kitchen, butler's pantry, laundry, etc., cypress, white poplar or white wood is used, as the cost is reasonable. White pine and white wood can be painted and cypress is usually stained.

(87) *Wood for Hall, Living Room, Etc.* For the entrance hall, living and dining rooms, staircases, etc., straight oak, birch or chestnut is much used,—they cost about the same. These woods can be stained

and finished in various shades. Samples of these shades can be obtained from the manufacturers of stains. Architects submit these samples to their clients to choose from.

(88) *Wood for Bedrooms.* For bedrooms, white wood or white pine casings around doors and windows finished in white or cream enamel, with the doors of birch veneer and stained dark mahogany, make a rich effect. The enamel on the casings can readily be done over after a few years' wear; varnished or waxed work is not so easily restored. With the cream and mahogany finish, brass hardware should be used with glass door knobs.

(89) *Other Woods for Bedrooms.* There are many other woods used for casings in bedrooms, viz.: maple, bass, white mahogany, oak, ash, birch, etc., and the doors are usually made of the same wood.

(90) *Wood for Staircase.* The main staircase should be built of the same wood that is used for the hall, or if the staircase starts from the living room it should match the wood of that room.

(91) *Treads and Risers.* A staircase has various parts. The "tread" is where the foot is set. The "risers" are the vertical pieces between each tread.

The correct proportion of a tread to a riser is  $7\frac{1}{2}$  inches rise by  $10\frac{1}{2}$  inches tread, and the higher the riser is made the narrower the tread.



### PROPORTIONATE DIMENSIONS OF TREADS AND RISERS

To illustrate:  $7\frac{1}{2}$  inches by  $10\frac{1}{2}$  inches is the standard, and the following are the ratios most commonly used:

- $7\frac{1}{2}$  inches by  $10\frac{1}{2}$  inches
- 8 inches by 10 inches
- $8\frac{1}{2}$  inches by  $9\frac{1}{2}$  inches
- 9 inches by 9 inches

The 9 inch by 9 inch is the highest ratio allowable and should only be used for back staircases, as it is quite steep.

*Usual Staircase.* A  $7\frac{1}{2}$ -inch rise by a  $10\frac{1}{2}$ -inch tread is a good, easy staircase.

These figures do not include the nosing of the tread, which is the projection of the tread from the face of the riser under which a small moulding is set.

*Newel Posts.* Note: *Mouldings on newels should not project over the stairway.*

(92) The newel posts on a staircase should not have any mouldings projecting beyond the main shaft of the newel, as it cuts down the width of the "stairway" and is dangerous.

(93) It is better, at a point on the newel above the handrail to make a setback of  $\frac{3}{4}$  of an inch on each side of the newel, thus—if the newel is 6 inches by 6 inches, the part above the handrail would be  $4\frac{1}{2}$  inches by  $4\frac{1}{2}$  inches. A mould with curved top, having a  $\frac{3}{4}$ -inch projection can be worked on as a cap and will be on the same line as the main shaft. This is a very practical and good newel, as it can be paneled, fluted or carved.

(94) *Handrail.* The handrail, balusters, strings, etc., are made of various design to suit the character of the building.

### Stock Doors, Sash and Trim

(95) *Material From Specializing Mills.* There are certain mills who make special kinds of doors of various woods; they are made in such quantities that they can be purchased, including the freight, at less cost than they can be produced by the average woodworking mill. They are good substantial doors of various thicknesses and design. A catalog of these doors should be in every architect and builder's office.

(96) Window sash is made to stock sizes, and if stock doors and sash are desired to save cost, the plans should call for the actual sizes these specializing mills make.

(97) Stick trim and base can also be procured in the same way, but care must be taken to select a good design of moulded trim, otherwise it will mar the general effect of the interior.

A CONTRACT for a complete building is sometimes made with one contractor, who sublets part of the work to other contractors who are called sub-contractors. In most instances he is a carpenter, or a mason contractor. He may sublet the mason work

if he is a carpenter; or if a mason, he may sublet the carpenter work.

### Carpenter or Mason the General Contractor

(99) Usually a carpenter contractor makes the contract with the owner. He may buy his own mason materials and have a mason foreman carry out this part of the work, or as above state, he may sublet this part of the work to a mason contractor.

(100) *One Contractor for All Trades.* When the contract is made with one contractor, he adds to his estimate a percentage of profit for his executive work in connection with the sub-contractors. This is over and above the profit he has included in his estimate upon his own part of the work. This additional profit, created by giving all the work to one contractor, is sometimes saved by:

(101) *Dividing up the Contracts—Separating the Contractors for the Various Trades.* An architect can divide up the work and make contracts with the various sub-contractors direct, which eliminates the additional profit of the "General Contractor."

(102) Wherever practicable, the work should be divided up as follows:

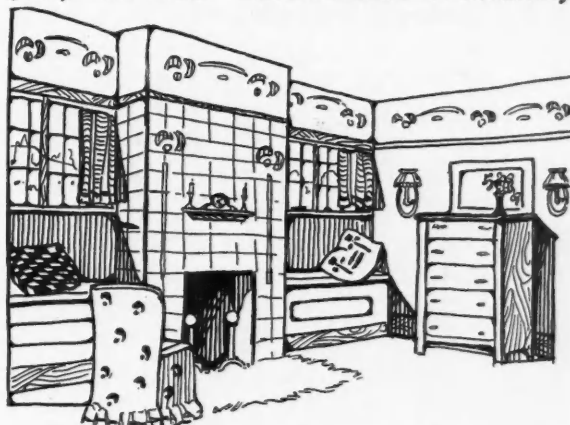
- Carpenter and Mason work.
- Plumbing and Gasfitting.
- Heating Plant.
- Electric Wiring and Bell work.
- Painting
- Gas and Electric Fixtures.
- Fly Screens.

(103) The carpenter and mason work includes excavating, footings, walls, piers, plastering, stucco, tile work, framing, exterior and interior wood finish, mantels, glass, hardware, flashings, gutters and leaders.

(104) It has been proved more satisfactory to divide up the contracts, as the various contractors are then responsible for the quality and promptness of their work to the architect and owner. If any difficulties arise, instructions can be given to them direct, and not through the medium of a second person.

(105) Further, it is often possible by dealing direct with the sub-contractors to make selections of fixtures and materials that will reduce the cost of the work, by which the owner benefits; and the contractors receive their money direct from the owner, which is preferable.

(106) *Estimates.* Discrimination is necessary in



Plan Each Room with Reference to Its Furniture.

selecting the builders, plumbers, steamfitters, etc., who are invited to figure upon the work; this should be done before the estimates are taken and not afterwards, as contractors lose much time each year by taking off quantities in making estimates. The lowest estimator should be awarded the work.

#### Mill and Supply House Competition Through the Medium of the Contractors

(107) There is more in selecting the contractors than appears on the surface.

Let us assume that four contractors for the carpenter and mason work are invited to figure. The mill work and rough timber usually amounts to one-third of the carpenter and mason contract. Thus, if all four contractors relied upon one or two mill estimates, it would materially reduce the competition.

(108) Therefore, it is necessary to select contractors who will get estimates from various mills. There should be at least four mills represented.

This method should be applied to the other trades, plumbing, steamfitting, etc. In this way keen competition will be assured.

(109) For the finished hardware, gas and electric fixtures, mantels and fly screens, a stipulated amount should be set. For a house to cost approximately \$7,500 the following amounts should be ample:

Finished Hardware .....	\$130.00
Gas and Electric Fixtures.....	150.00
Mantels (each) .....	75.00
Fly Screens .....	100.00

(110) A number of supply houses should be invited to compete by submitting their best line of goods for the amount stipulated. They will submit designs and samples of the finish, at the architect's or builder's office, where the owner can make his selection.



### How to Lay Out Just the Ordinary Winding Stairs

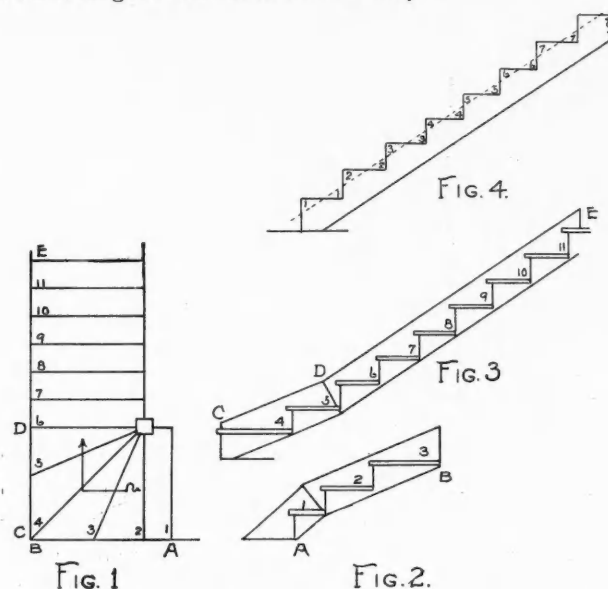
By I. P. Hicks

IT is very often the case that the stairs to the cellar have to be constructed with a few winding steps. When this does happen, it comes in pretty handy for the carpenter to know just how to proceed with the work to advantage, and not have to spend very much time figuring around how he is going to do the job.

Figure 1 shows the plan of a winding stair with four winders. In laying out the winding steps care should be taken to average up the steps so that the winders will approximate about the same width. To do this, steps 3 and 4 have to be laid out longer on the string-board. Figures 2 and 3 show these steps laid out on the string-board. The proportion is about 5 to 7, that is, in laying out the string-board, for every 5 inches of step No. 2 it takes 7 inches for step No. 3. Steps Nos. 4 and 5 are laid out exactly in the same manner. For every 7 inches on the stringer for No. 4 step you want only 5 inches on

the stringer for step No. 5. This will bring the treads approximately the same width where one will naturally step on them in going up and down stairs.

If we take Fig. 2 and swing it right around against the wall, A and B will come into the same position as shown by A and B in Fig. 1. If we take Fig. 3 and swing it around in position against the wall, it fits on Fig. 1 as shown by C, D and E, thus completing the wall string of the entire stair way.



Diagrams of an Ordinary Winding Stair.

For the plumb cut of the stringer at B, Fig. 2, take the regular rise of one step on the tongue of a square and one-half the width of steps 2 and 3, as laid out on the plan, on the blade of the square; and the tongue gives the cut. The plumb cut at C, Fig. 3, may be found in exactly the same manner. The other joints in the stringers may be readily found by putting the stringers in their proper position and marking the intersecting points where the stringers cross one another. The rise is always the same, but the width to lay out the step on the string-board should be taken from the plan, as shown in Fig. 1.

Figure 4 shows a method of sawing a plain plank stringer out of a narrow plank. It sometimes happens that when the carpenter goes to build the cellar steps he has no plank at hand quite as wide as they should be to cut the stringers out of. To cut into the stringer the full width of the step would make it too weak. An easy way to overcome this is to cut into the stringer just half the width of the step, turn the piece you cut out right over and nail it onto the stringer which will then give full bearing to the step. By this method you do not have to cut half the width of the step out of the stringer, and it leaves it much stronger. Then there is only half as much sawing to it.



### Jobs

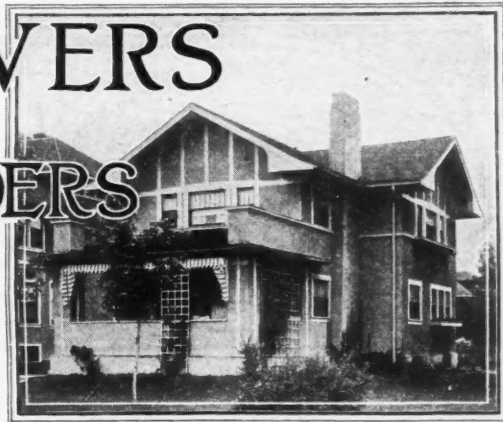
A SMALL man can make a big job shrink to litness, but it takes a big man to make a little job grow into a big one.



# SPACE SAVERS

for  
HOME BUILDERS

Model Building  
Designs Containing  
Newest Devices.



## Small Bedrooms Made Larger

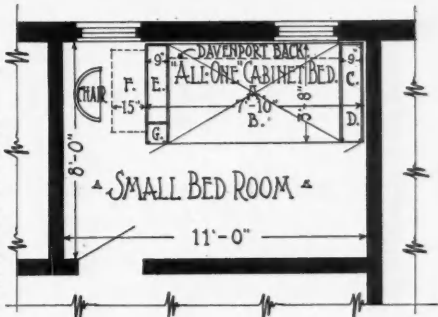
"The All-One Cabinet Bed" a Godsend Where Space Is Limited—Makes Those Closetless Rooms Both Convenient and Comfortable.

THE "last word" in combination space-saving furniture is being introduced by a responsible Chicago concern. The housewives like it, and as for builders and architects, it helps them out of many a tight place. This is known as the "All-One Cabinet Bed." It is an ingeniously contrived piece of furniture, not built-in, but movable like any other piece of high-grade home furniture. It is a full sized bed, and into the foot board and head board are worked compact cabinets of various kinds. This makes a beautiful and attractive piece of furniture—an ornament to any home, and equally appropriate for hotels or clubs.

The photographic sketch shows the general appearance of the "All-One" bed with a suggestion of what some of the cabinets are used for. The little floor plan diagram illustrates graphically the space-saving feature of the furniture combination. Here is a small bedroom, 8 by 11 feet, with no closet

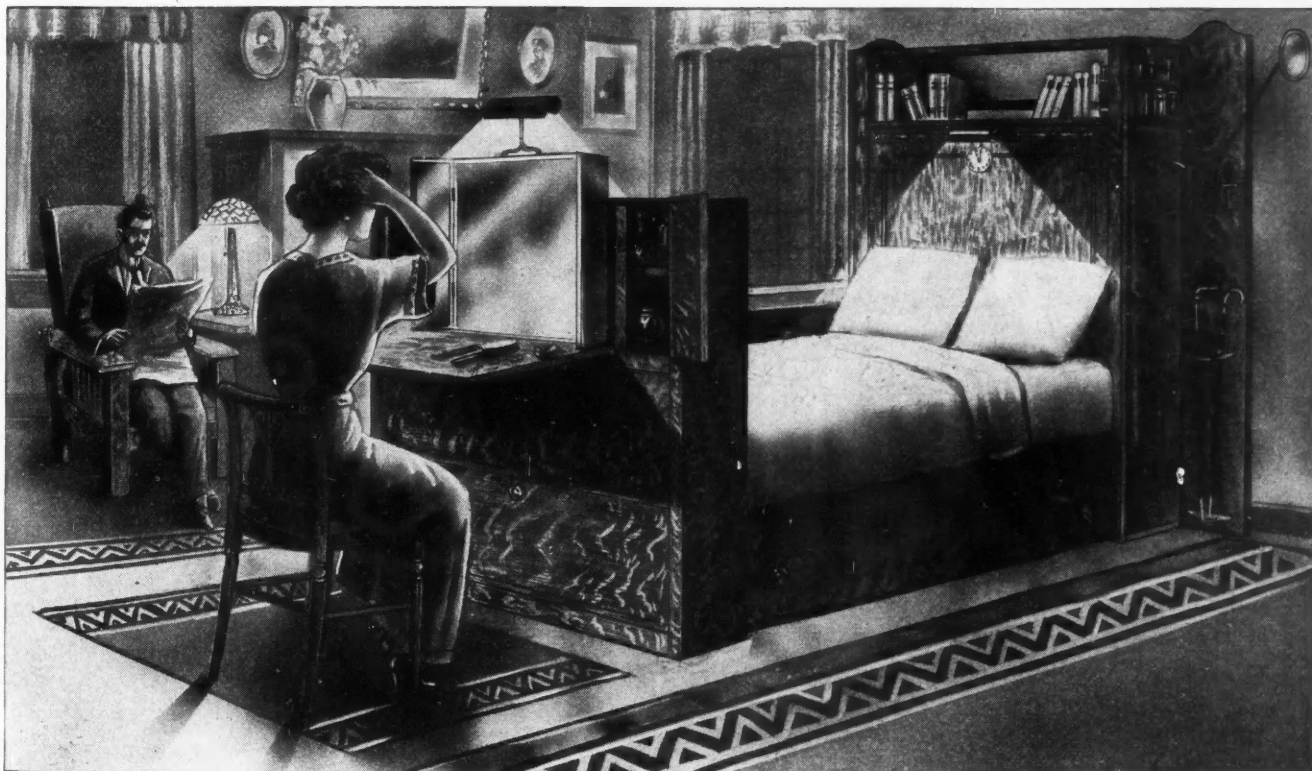
space. Such rooms are to be found in almost every house. The space occupied by the bed is made to pay its way for other uses also. The equivalent of one-third the floor space is added to the room, and it is supplied with plenty of wardrobe and cabinet space by using this cabinet bed. Every inch of space is put to use. The head board and foot board cabinets, though only 9 inches deep, contain a surprising amount of space. The bed itself is made with a davenport back to be folded up in the day time, diminishing the width 18 inches. Underneath the bed is a capacious drawer compartment; in the headboard is a wardrobe with telescopic carrier for suit hangers; in the foot board are concealed dressing table or writing desk, with shoe cabinet below.

With the high cost of real estate every square foot of floor space in houses and apartments is so valuable that ingenious space-saving outfits like the "All-one Cabinet Bed" meet with an eager recep-



- A. BED OR DAVENPORT.
- B. SPACIOUS DRAWERS UNDER BED.
- C. CONCEALED WARDROBE.
- D. BOOKCASE ABOVE.
- E. CONCEALED DRESSING TABLE OR WRITING DESK, SHOE CABINET BELOW.
- F. DRESSING TABLE OR WRITING DESK DROPPED DOWN WHEN IN USE.
- G. CABINET FOR TOILET ARTICLES ETC.

tion. While this is not in any sense built into the room, nor constructed on the job, architects and builders are interested, as they are able to provide for it on their plans and so make space valuable that would otherwise be of little use.



Ingenious Combination of Bed, Dressing Table and Wardrobe Cabinets that Save 30% of Bedroom Floor Space and Make Clothes Closets Unnecessary.



# CEMENT BUILDING CONSTRUCTION

**EDITOR'S NOTE**—Our readers are urged to make full use of this Department. Put your concreting problems up to us; also write us your experiences and accomplishments in the Cement field for publication here.

## Simple Means of Washing Sand and Gravel Used for Concrete Aggregates

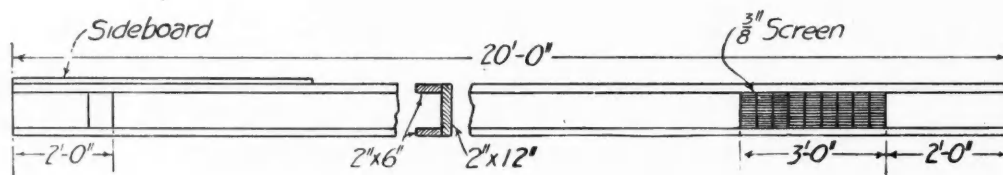
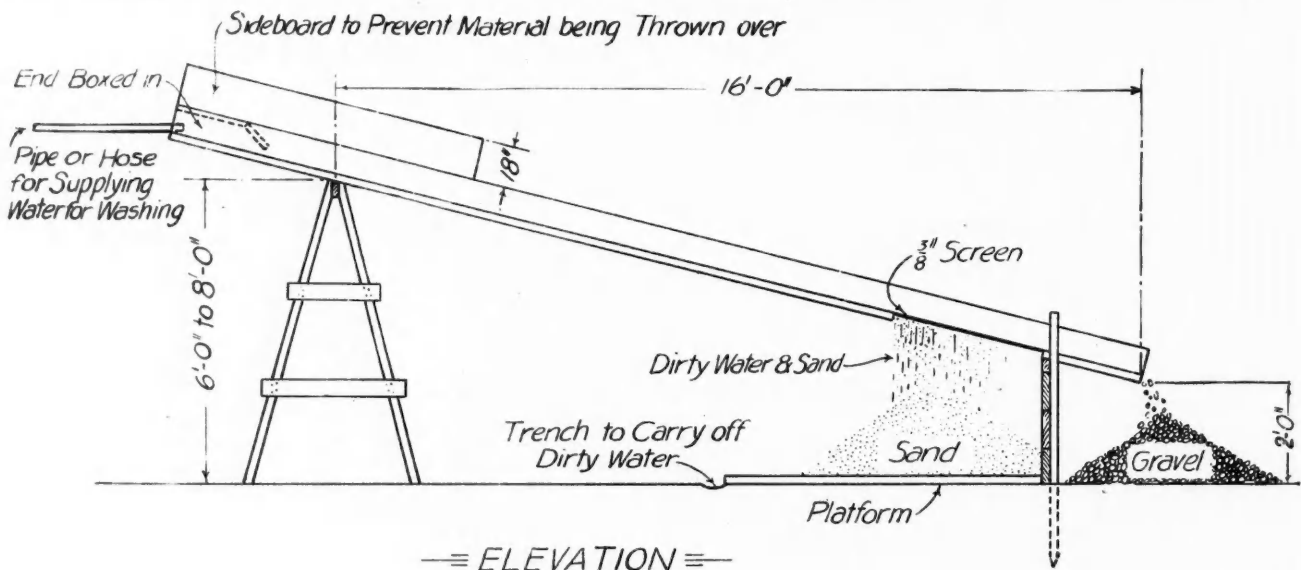
By H. Colin Campbell, C. E.

**A**LTHOUGH a number of manufacturers are marketing various types of power-operated sand and gravel washing machines, most of these, though not unreasonably expensive, involve an outlay which is not warranted on the part of the average carpenter-builder or contractor engaged incidentally in concrete construction.

Several simple means may be employed for freeing sand and gravel of such objectionable matter as clay, loam or silt. For instance: Small quantities of aggregate may be washed and screened by means of a screen of proper size and mesh placed over a water-tight

box, both screen and box being inclined at an angle of 30 degrees with the horizontal. The box should be about 2 feet deep, and when the gravel is thrown upon the screen and water applied at the upper end to wash it down toward the lower end, the sand will be separated from the gravel and will pass down into the box, while overflowing water will carry away dirt and silt.

When the builder or contractor has a power-operated concrete mixer (and such a piece of equipment should be a part of every contractor's outfit) washing may be accomplished by securing one of the com-

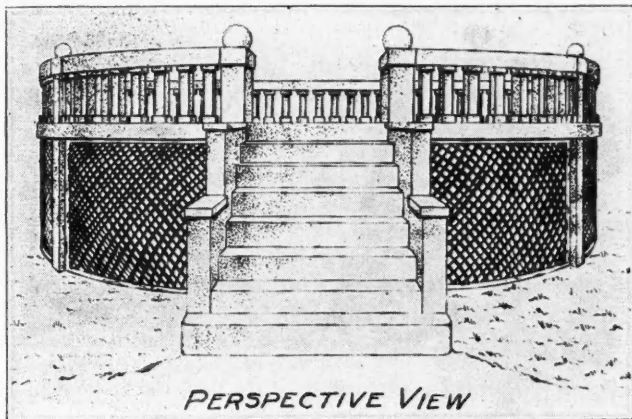


A Practical Gravel Washing Plant for Small Contracts.

mercial rotary screens that may be obtained in lengths varying from 8 to 20 feet. Mount this screen on a proper axis, and wash the gravel by passing the material through this screen, which is revolved by belt connection to the gasoline engine, water being supplied by pipe, hose or similar convenient means.

Those of our readers who attended this year's Chicago Cement Show may have seen in one of the exhibits a sectional model of a simple trough apparatus for washing and screening sand and

men can handle from 20 cubic yards of material per day, upward, depending upon whether sand and gravel are washed only as required for use, or whether the men were kept steadily employed at the task of shoveling. An estimate has also been made from one job on which this device was used, showing the cost of washing per cubic yard ranges from 25 to 30 cents. The apparatus shown has the merits of simplicity and cheapness, and several instances of its practical use demonstrated efficiency as well.



A Reinforced Concrete Bandstand.

gravel. A drawing of this apparatus is here shown. The general arrangement is illustrated in detail and consists principally of a trough set at such an incline that the aggregate will roll down by gravity assisted by water flow applied at the higher end of the trough. The slope of the trough will depend on the amount of water used and the nature of the aggregate to be washed. For this reason the drawing shows the height of the elevated end as a variable; namely, from 6 to 8 feet. The latter height will not be objectionable if the material to be washed is dumped in a pile at this end of the trough so that shovelers may work from the top of the pile of material. In other words, if several truck loads are kept at the high end of the trough, the shovelers will be able to stand and work at an elevation that will make it unnecessary to throw the material upward more than 3 or 4 feet.

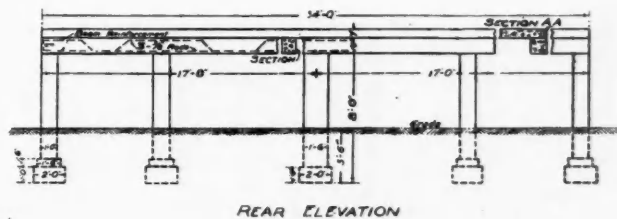
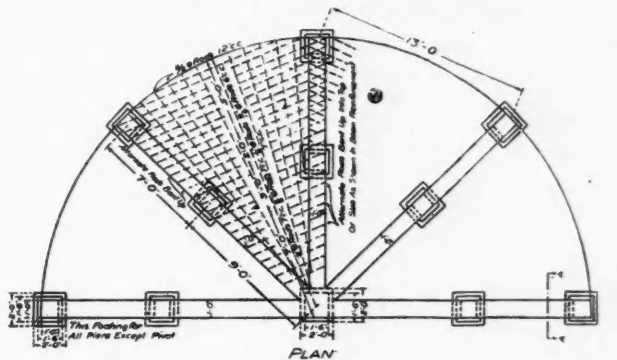
Water may be supplied from a flowing well, where such exists, or from a pump operated by engine or by hose connected with hydrant supply. Material to be washed is shoveled into the trough at elevated end, and gravity combined with the flow of water causes it to roll down through the trough. When the material reaches the screen placed at the lower end of the trough, sand and dirty water pass through the screen, while the coarse aggregate passes on and accumulates in a pile at the trough outlet, from where it is removed from time to time as occasion requires.

A contractor who has used this device for washing and screening material has estimated that two

## Design for Reinforced Concrete Bandstand

### BRIEF SPECIFICATION AND DETAILS OF CONSTRUCTION

**D**RAWINGS accompanying these notes show a simple design for a bandstand that can readily be constructed by the average building contractor familiar with the fundamental principles and requirements of concrete construction. Although the structure represented is one that may possibly be larger than required for the park grounds of the average small community, the builder can readily modify dimensions to meet local requirements.



Construction Details of Concrete Bandstand.

Experience has shown that half of a 34-foot circle will include sufficient area to accommodate a 40-piece band, allowing each man about 12 square feet of floor space. In the accompanying drawing, the floor is shown about 6 feet above ground level.

**FOUNDATIONS.** Excavation for foundation piers should be deep enough to go below frost line. In this case 3½ feet is assumed as sufficient. If experience teaches that this depth is greater than necessary for your section of the country, of course the depth may be reduced with corresponding saving of material. Pier footings should be 2 feet square and 1 foot thick at the bottom, then reduced to a block 18 inches square and 6 inches thick, of

cross section, as shown in the drawing, representing the rear elevation. Concrete mixed 1:3:5; that is, 1 sack of Portland cement to 3 cubic feet of clean, coarse sand all passing a  $\frac{1}{4}$ -inch screen, and 5 cubic feet of coarse gravel or crushed stone, ranging in size from  $\frac{1}{4}$  to  $1\frac{1}{2}$  inches, is recommended for pier footings.

**PIERS.** Upon the footings, piers should be set as shown in the plan. These are 12 inches square and should consist of a 1:2:4 mixture, in which the sand and gravel or broken stone meet the specifications for grading already suggested for pier footings. Piers should be reinforced with four  $\frac{3}{8}$ -inch round steel rods placed near each corner of the pier,  $1\frac{1}{2}$  inches from the surface. These rods should be imbedded in the footings and be long enough to extend up into the concrete beams above.

**CENTER, OR PIVOT PIER.** The footing for this pier should be of the same size and at the same depth as footings for other piers. As floor beams meet at this pier, its cross section should be somewhat larger, say 18 inches square, with reinforcing placed in the same manner as in the other piers.

**INTERMEDIATE PIERS.** These are spaced in the design shown, 9 feet from the pivot, center to center, and are of the same size as the outside piers.

**BEAMS.** Reinforced concrete beams which rest upon the piers in the manner shown in the plan drawing are of a 1:2:4 mixture. Beams should be 12 by 12 inches in section below slab. They should be reinforced with three  $\frac{5}{8}$ -inch steel rods spaced 4 inches, center to center, thus placing the two outside rods 2 inches from the sides of the beam. The rods should also be placed  $1\frac{3}{4}$  inches from the bottom of the beams and be continuous the entire

beam length. Where beams pass over a pier, three short  $\frac{5}{8}$ -inch reinforcing rods should be placed within 2 inches of the top of the beam and bent down at the  $\frac{1}{4}$  points (at angles of from 30 to 45 degrees). This is illustrated to the left in the rear elevation. At the ends of the beams the reinforcing rods are hooked or bent so that they will offer greater resistance against pulling loose.

**FLOOR.** Floor construction should consist of 7 inches of 1:2:4 concrete reinforced with round steel rods placed 1 inch from the bottom of the slab. Alternate rods are bent up within 1 inch of the top of the slab at the points where they pass over beams. Floor reinforcing rods are spaced as follows:

First, 5 feet from the outside,  $\frac{9}{16}$ -inch round rods spaced 6 inches, center to center.

Second, 2 feet from the outside,  $\frac{1}{2}$ -inch round rods spaced 7 inches, center to center.

Third, 3 feet from the outside,  $\frac{3}{8}$ -inch round rods spaced 7 inches, center to center.

Fourth, in the 7 feet remaining,  $\frac{1}{4}$ -inch round rods spaced 7 inches, center to center.

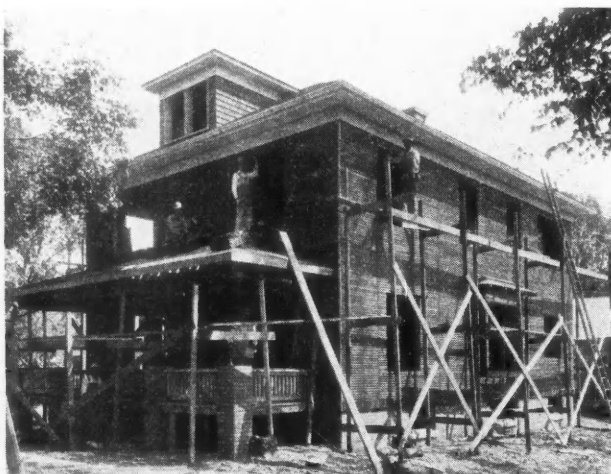
In the plan drawing, one segment shows the manner of placing reinforcement.

In addition to the foregoing, temperature rods running radially should be placed upon those already laid. These should consist of  $\frac{3}{8}$ -inch round rods spaced 12 inches, center to center, at the outside. Alternate rods may be shorter than others, inasmuch as all rods converge at or towards the center.

To builders interested in reproducing this design or a modification of it, we shall be glad, upon receipt of specific inquiries, to furnish additional suggestions and recommendations, together with an idea of the approximate cost if full details are forwarded with the inquiry, giving cost of materials in the vicinity in question.

## Stucco Board in Demand for Exterior Lathing

"BISHOPRIC" MATERIAL, TESTED TO BE STRONGER THAN SHEATHING, COMING INTO USE FOR CEMENT PLASTERED EXTERIORS—AN EXCELLENT INSULATOR

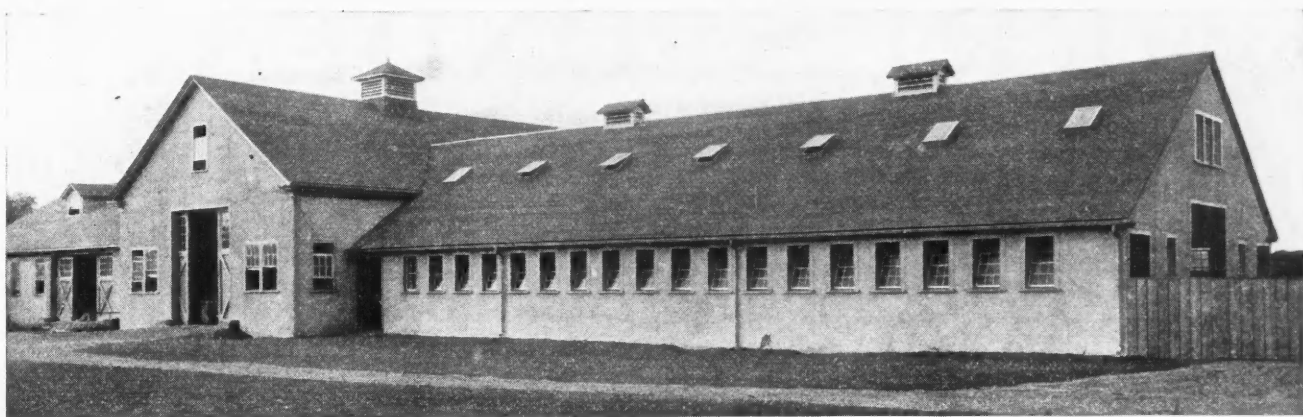


Residence of John J. Dyal, Topeka, Kans., wherein Stucco Board Was Used on Entire Building Without Sheathing. Stucco Was Applied by Contractor W. S. Nash.

**W**ITH the growing use of stucco as an exterior material for every class of building—from the dairy barn on the farm, to the up-to-the-minute bungalow in the city—is an equally growing demand for a lathing material that shall be reasonable in price, that shall stand up on the job, and shall be convenient to handle.

The photographs with this article are from construction jobs in two far-separated localities—Massachusetts and Kansas. On each of them stucco board has met that demand. From each job comes the same story: "Stucco Board used throughout (in many cases, both interior and exterior); it has proved all that could be asked in a lathing material. Easy to put up, economical in cost, in time, and in saving of plaster. Stucco dries out evenly—no cracking."

The big problem in connection with stucco work has been to keep the plaster from cracking and dropping off the walls, or from pulling down the lathing by sheer weight. In designing this board, its makers have concentrated on those two points. The result has been a lath strip with an inside bevel, imbedded in an asphalt mastic layer. The back-



Dairy Barns of Edward Jennings, Weston, Mass., Where "Bishopric" Stucco Board Was Used on Both Interior and Exterior with Entire Satisfaction.

ing does not permit the plaster to push back deeper than the depth of the lath, which means that no plaster is wasted. When the plaster is forced into the space between the strips, and hardens, it forms a perfect dove-tail bond with the lath. In turn, the lath is fastened securely to the framework or sheathing and cannot be pulled away by the weight of the stucco.

In these ways stucco board has been made to solve the stucco problem. Then, too, the asphalt mastic layer is air-proof and moisture proof. It is a mighty good insulator against heat and cold—a reason which makes it popular for interior use, as well.

One of the photographs shows the large dairy barn on the farm of Edward Jennings, Weston, Mass. This is practically a new field for stucco. Interior and exterior, this barn was lathed with stucco board. Mr. Jennings is more than satisfied with the result of his builder's recommendation that they use this material. The barn is exceptionally well insulated against changes in atmosphere, and there has been no cracking of the stucco whatever.

Another use has been found for stucco board by Contractor A. Williams, College Hill, Cincinnati, Ohio. One

recent job is a fine, eight-room residence of this construction. On this job stucco board was used on interior and exterior walls; on rafters for shingling; and underneath floors. Mr. Williams finds the ease with which stucco board may be applied is no small item of economy.

Stucco board comes in rolls—it can be applied with about the same speed as a roll of ordinary building paper. It is this feature, without doubt, to which Mr. Williams refers.

On the other residences illustrated, stucco board was used exclusively—in some instances over sheathing, and in other instances without sheathing. In every case it has been used with entire success.

Last month an account was given of some tests by which the strength of stucco board was found to be considerably greater than that of ordinary 1-inch sheathing. This strength makes its use without sheathing not only possible, but successful. With sheathing the wall strength would, of course, be double.

It is a material which is certainly making rapid progress in the favor of the building world. New uses are constantly being found for it—and the original uses of it are each day proving "right."



Two Duplex Apartments at Arlington, Mass. Designed and Built by John C. Cameron. Examples of the High Quality Work Being Done with Cement Plaster on Stucco Board.

# 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.

### Just as Good and Easier

To the Editor:

Rhineland, Mo.

After seeing the sketch and reading the description of Mr. Scheiderer's broom holder in the March issue, I am inspired to give mine.

1. Place the broom handle in a vise.
  2. Place a  $\frac{3}{8}$ -inch or  $\frac{1}{2}$ -inch bit in your brace.
  3. Place the point of the bit against the broom handle and turn the brace just as if you were boring a hole in something else.
  4. When you ascertain that the bit has perforated the broom handle, remove the broom from the vise.
  5. Drive a nail in the wall; pass your left hand over the nail and say the words, "Open Sesame."
  6. Hang up the broom.
- Not patented.

S. E. MILLER.



### Still Finds Fault With Heavy Timber Detail

To the Editor:

Independence, Mo.

When I received the February number of the AMERICAN CARPENTER AND BUILDER and opened it, it just happened to open at page 48. The first thing caught my eye was a detail drawing of heavy framing. I had to smile when I saw it, and I said to myself, "If some poor Brother Carpenter happens to do it that way he will surely make himself some extra work."

I came very near taking the matter up at the time, but now I see that Bro. Setzephandt has taken it up. He has asked you a very direct question and you have given him a very indirect answer.

For the benefit of Bro. Setzephandt I will state that the tenon on the top of the post has no bearing on his question or the putting together of the work at all. The work executed as per detail cannot be put together at all. The detail is in error. In that kind of framing it is one of the imperative rules of geometry that the outside of the tenon must be cut at a right angle to the shoulder of the brace, "regardless of the pitch of the brace," to get the work together at all.

In my thirty-five years of experience I have never seen work detailed nor executed in that way. That had been worked out long before I started to learn the trade. You say some carpenters prefer to leave extra room in the mortises. This I know to be a fact, and it is because they could not frame it to fit if they would try. They are the men that good mechanics have to figure against; the men who put up the work that is so unsatisfactory and so much kicked against.

I will state again for the benefit of Bro. Setzephandt, that it is very essential that the outside

edges of the tenons on the braces should fit perfectly against the outside edges of the mortises, and the column and purlin should fit perfectly against the shoulders of the braces to have a perfectly rigid job.

Now I should like to ask a question. In the March issue, page 85, you show a slightly modified detail of the work under discussion. In this detail you show all the tenons framed down narrower than the width of the stick. Now, what is the reason for weakening the construction and adding all this extra work? In this age, and in the carpenter business especially, we cannot take the time to do it, and anyone executing the work would undoubtedly follow the detail, thereby wasting a lot of time and doing unnecessary work. So I think your detail is very misleading.

This is the first time "in my whole life" that I have tried to pick a quarrel with anybody, and if I get away with it I will promise never to let it occur again.

W. B. MALLERNEE.



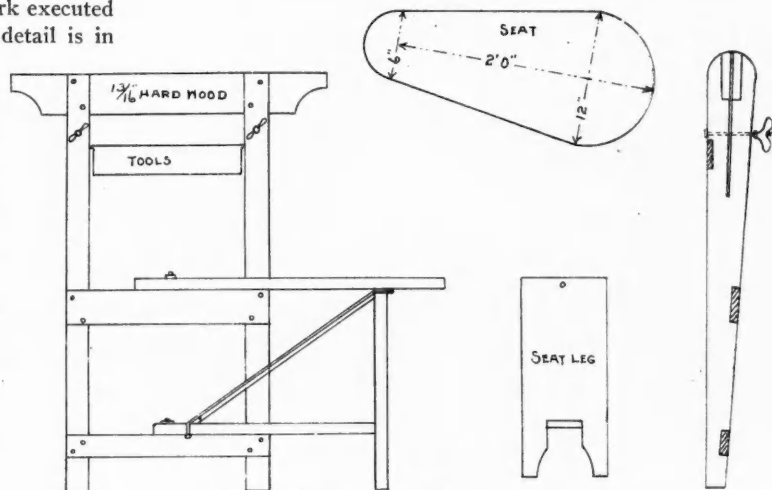
### Saw Filing Cabinet

To the Editor:

Manorville, Mo.

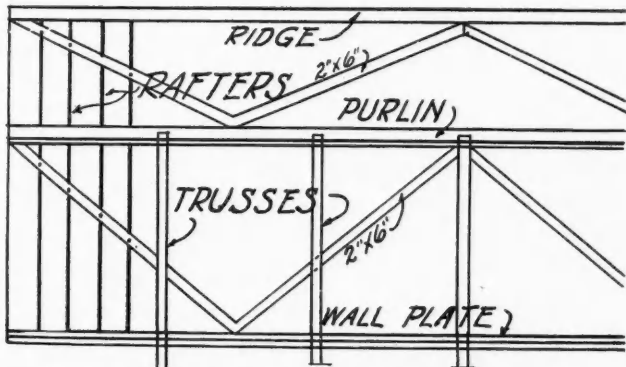
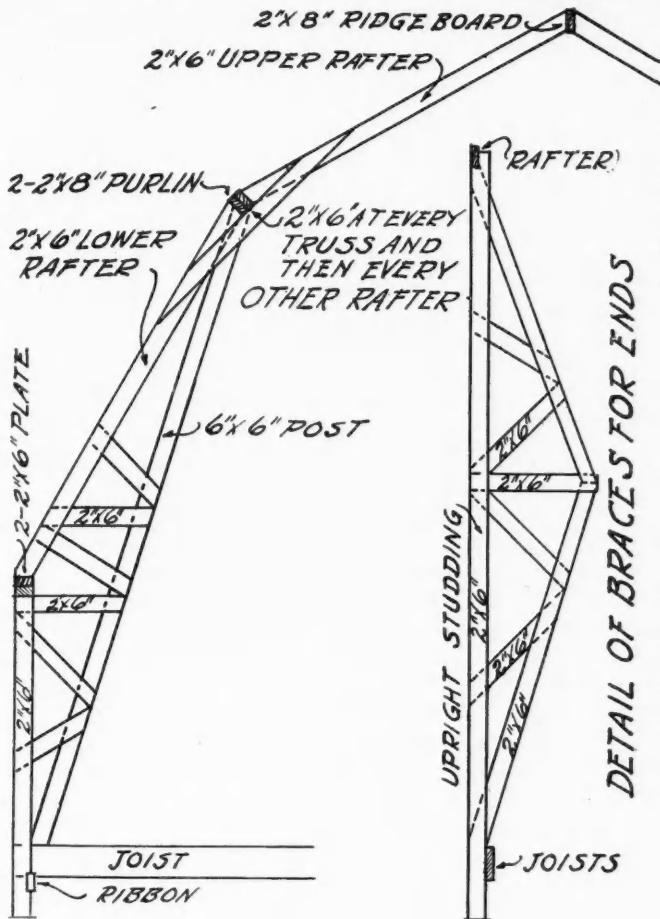
Am sending sketch of saw filing cabinet I have used for some time and think it the best for shop use I have seen. You will notice, when the operator throws his weight slightly back, the clamp may be shifted to any desired angle, or the seat may be shifted, keeping the work directly in front of the operator. The wood clamp lessens vibration and the whole is tight and compact. It can be made by any mechanic in a short time from scraps.

I am a reader and believer in the AMERICAN CARPENTER AND BUILDER.  
E. T. SWEARENGIM, Builder.



Handy Saw Filing Clamp and Seat.





View of Roof Looking Down, Showing Diagonal Braces.



Barn Builder Bjorklund and Crew.

Uses Two Upright End Braces

To the Editor:

Osakis, Minn.

I am sending you a photograph of myself and crew on one of our jobs up here. I have just completed my fifth barn in and around Osakis, all with the same style roof. It is 36 by 64 feet. You will see, by diagram, that I use a "W" brace on top and bottom rafters. I also use two end braces, putting them 10 feet apart. This does away with brace coming in on hay mow floor. I am sending detail of this also.

I try to do good work and am getting good prices for it.

AXEL BJORKLUND.

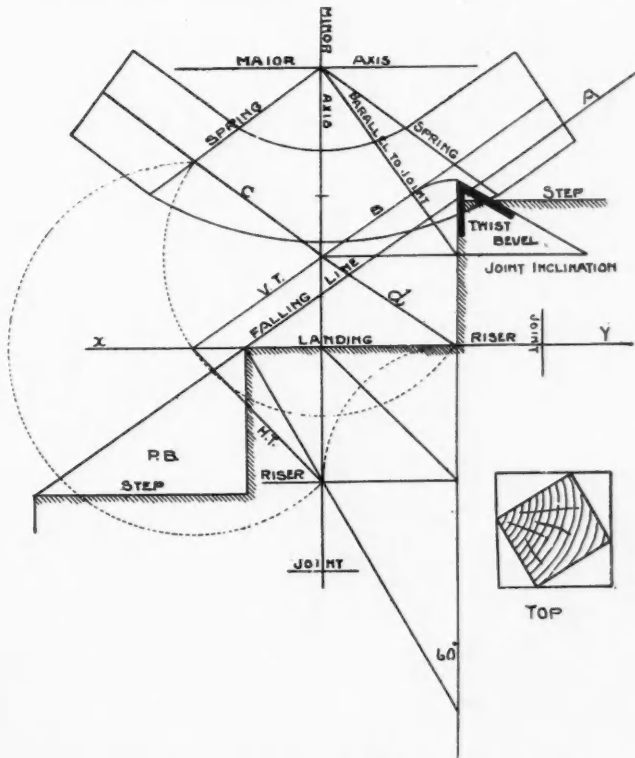


Falling Line System of Hand Rail

To the Editor:

Balmy Beach, Toronto, Can.

Am herewith sending you drawing of handrail on the "falling line" system. This sketch shows it on its simplest form, being a quarter space and having falling line in a straight line with ordinary steps. In setting out this work, it is not necessary to have all these lines. I use them to demonstrate the idea of the "falling line" system. The inclinations of joints lines being square to falling line *A*, the dihedral level is not required; and as lines *B* and *C* are equal in length, one level only is required for both ends. The face mould is constructed as shown by the aid of the *H* trace and lower tangent, *d*. The advantage of the "falling line" system over



Hand Rail Developed by the "Falling Line" System.

the square cut system is very great, as it adapts itself to any position of stairs. When once the resting points are understood, which gives the *H* and *V* traces of the plane in all cases.

I will, however, submit a drawing early, fully showing their construction, if your readers are interested in this subject. The present paper and diagrams illustrate the application of the principle. I do this for the purpose of helping those to more readily recognize the principal lines, who are very far advanced.

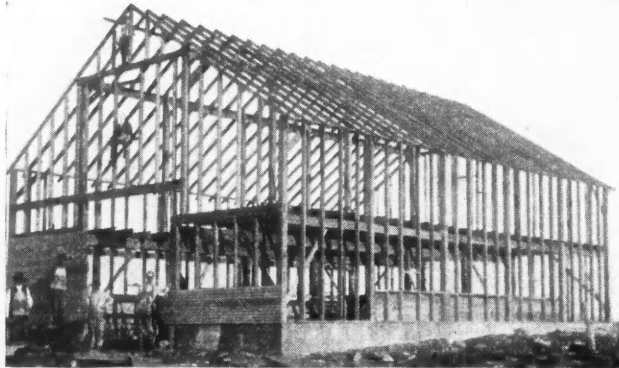
JOHN MACLACHLAN.

### A Missouri Barn Builder

To the Editor:

Guthrie, Mo.

I am sending my subscription for another year. I don't want to miss a number. I am not an old hand at the trade and I get lots of useful help out of the AMERICAN CARPENTER



Heavy Timber Barn Built Near Guthrie, Mo.

AND BUILDER. Will send you a picture of a heavy timber barn I built a short time ago. It is 34 by 50 feet, 14-foot studs. I and two other men completed the job in fifteen and a half days.

ED. HENDERSON.



### Gambrel Roof Construction

To the Editor:

Moosomin, Sask., Can.

As a subscriber I find THE AMERICAN CARPENTER AND BUILDER a most valuable investment. As a carpenter and builder, I would like to give my experience in planning and constructing a gambrel roof, which is used almost exclusively for barn construction in this locality. Here in the West there is seldom such a thing as a timber framed barn, the heaviest material used is 2-inch plank. Our gambrel roofs are made self-supporting; that is, without any posts

beneath to support their weight. The customary width of barns are 28, 36 and 40 ft., and most of these are required to be built to accommodate a hay rack and tackle.

The following are the first principles to confront the builder in designing self-supporting gambrel roof for any given span.

1. Sufficient height in loft for hay slings and mow.
2. Proper pitch to obtain a strong roof.
3. Good appearance of end elevation.
4. Length of rafters proportioned so that they will not cut to waste.
5. To determine the bevel cuts.

To design a gambrel roof and to determine the above mentioned features, proceed as follows:

Draw a sectional plan, scale 1 inch to one foot, as Fig. 1. First draw the span  $AB$ , and from its center  $C$ , erect the perpendicular  $CD$ , making  $CD$  equal to half the span, or  $AC$ , plus  $1/20$  or 5% of the span. Then from the Plate  $A$  and  $B$  draw a line 62 to 63 degrees off the horizontal forming the line of the lower rafters,  $AE$ . Now from  $D$  draw a line 58 degrees off the line  $CD$ , forming line  $DE$ , the line of top rafter. This will give the general outline of the roof.

Now draw another outline over this plan, adjusting the lengths of  $AE$  and  $ED$ , slightly, to eliminate cutting the material to waste.

This is your working plan, which should be drawn in heavier outline.

To get the rafter bevels at  $E$ , bisect the angle  $AED$ , forming line  $EF$ , and now take the bevels off the working plan.

I have built a good many gambrel roofed barns with spans from 28 to 42 ft., and I have never put a post in the loft to support the roof; they are all self-supporting and when complete there is no vibration or sway when under a load or heavy prairie wind pressure. The biggest difficulty with this style of construction is to support the large gable end walls against wind pressure, as they require to be built of long length 2 x 6-inch studs, double occasionally.

Fig. 4 is a diagram of a general roof construction which has proven satisfactory for spans from 28 ft. to 36 ft.



Gambrel Roof Barn of Self-Supporting Plank Frame Construction; Size 42 by 62 feet. Built Near Moosomin, Sask.

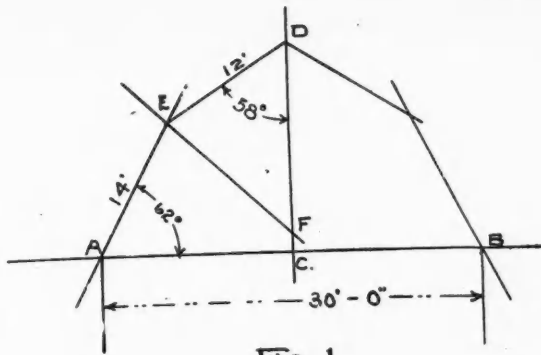
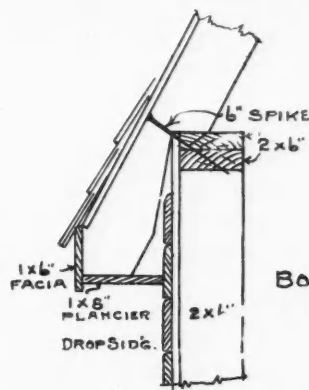


FIG. 1.



BOX CORNICE

FIG. 3.

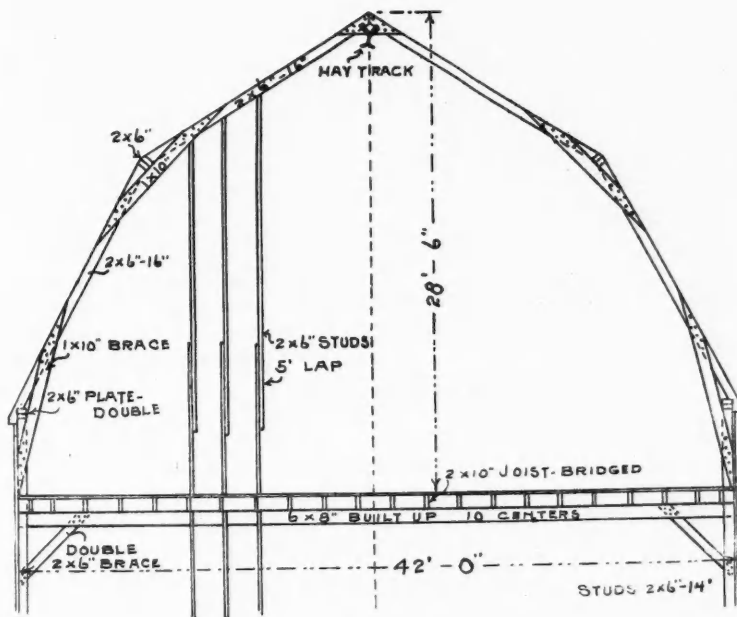
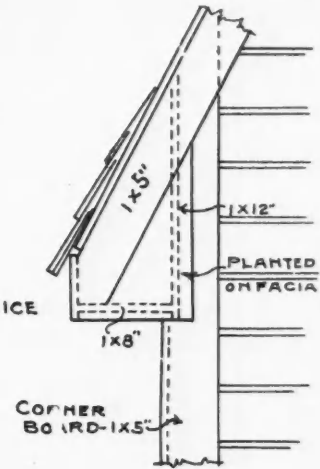


FIG. 2.

Details of Gambrel Roof Barn Work.

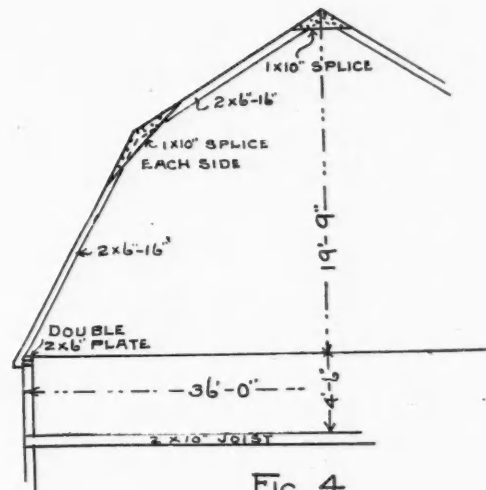


FIG. 4.

I always side the building up to the plate and usually lay the loft floor complete before raising the rafters. By having the loft floor laid, I mark the roof outline on the floor and nail each set (4 rafters) together on the floor before raising. By this method four men can raise each set of rafters, made of 2x6-inch fir and a 35 ft. span very easily without any scaffolding and only one guy rope, and they will all come in perfect line for sheathing. I put a splice on each side of the knee and one at the ridge. These splices are cut from 1x10-inch spruce boards, knee pieces 5 to 7 ft. long from point to point and put from 20 to 30 nails in each piece.

The photograph is a view of a gambrel roof barn built last June, size 42x62 ft., and the sectional plan, Fig. 2, will give an idea of the roof construction, showing purlin and extra splices.

Rafters with a purlin at the knee are more difficult to raise. I nail a 16 ft. length of purlin plate on a seat of bottom rafters and raise them in sections with a jin-pole and block and tackle. This system was easier than scaffolding as the purlin plate was 21 ft. from the loft floor. The top rafters were raised in pairs with rope and a man at the ridge to nail the stay laths and to move the block and rope along. This left a roof of a 42 ft. span and 28 ft. from loft floor to ridge without a supporting post in the loft.

We had some racking winds while I was on the job and the roof stood without a particle of creaking or vibration. The owner is well pleased with the strength.

P. STRUBLE.

### Cleaning Bedford Stone

To the Editor:

Peoria, Ill.

What methods are best for the cleaning of Bedford stone in building construction, and what kind of pointing is most favorable for beauty and durability?

E. T. TUCKER.

Answer: We believe that it is common in work of this kind to wash and scrub down the stonework with a weak solution of muriatic acid. Wire brushes or stiff bristle brushes may be used for the work. The acid solution will vary from 1 part acid and 5 or 6 parts water to 1 part acid and 10 or 12 parts water, depending upon the strength of the acid used. This work should be done carefully and all parts of the acid removed with clean water as soon as the stains have been removed.

Pointing may be of either the concave or convex type. That is, the joints may be cleaned out to a depth of 3/4 inch and then filled with a special pointing mortar and rounded in by a special tool, thereby giving a concave effect to the joint, or the joints may be filled flush with the surface and given a rounded projection effect which is also produced by a special pointing tool.

A Portland cement mixture should not be used on Bedford stone on account of the staining effect which may occur. Some special cement which will not stain the stone should be used for this work. La Flange cement is often used for this work or else a putty made of lime, plaster of Paris, and white lead. All joints should be cleaned out thoroughly, brushed clean, and well moistened before pointing. EDITOR.

**A Lumber Table**

To the Editor: Elmhurst, Ill.  
I think you would be doing your readers that are not carpenters a great favor if you would print a lumber table.

A. E. OLSON,  
EDITOR.

*Answer:* Here is one.

**A Measurement Table for Lumber.**

Here is a simple and complete table for obtaining the number of feet in a bill of lumber. The top line gives the length of the piece of lumber in feet. The first column to the left gives the dimensions in inches. The remaining columns show the number of board feet in the piece. For example: A piece of lumber 2x4x10=7 feet; 2x4x12=8 feet; 2x10x18=30 feet; 2x14x18=42 feet; 8x8x24=128 feet.

	10	12	14	16	18	20	22	24	26	28	30	32
2x 4	7	8	9	11	12	13	15	16	17	19	20	21
2x 6	10	12	14	16	18	20	22	24	26	28	30	32
2x 8	13	16	19	21	24	27	29	32	35	37	40	43
2x10	17	20	23	27	30	33	37	40	43	47	50	53
2x12	20	24	28	32	36	40	44	48	52	56	60	64
2x14	23	28	33	37	42	47	51	56	61	65	70	75
3x 4	10	12	14	16	18	20	22	24	26	28	30	32
3x 6	15	18	21	24	27	30	33	36	39	42	45	48
3x 8	20	24	28	32	36	40	44	48	52	56	60	64
3x10	25	30	35	40	45	50	55	60	65	70	75	80
3x12	30	36	42	48	54	60	66	72	78	84	90	96
3x14	35	42	49	56	63	70	77	84	91	98	105	112
4x 4	13	16	19	21	24	27	29	32	35	37	40	43
4x 6	20	24	28	32	36	40	44	48	52	56	60	64
6x 6	30	36	42	48	54	60	66	72	78	84	90	96
6x 8	40	48	56	64	72	80	88	96	104	112	120	128
8x 8	53	64	75	85	96	107	117	128	139	149	160	171
8x10	67	80	93	107	120	133	147	160	173	187	200	213
10x10	83	100	117	133	150	167	183	200	217	233	250	267
10x12	100	120	140	160	180	200	220	240	260	280	300	320
12x12	120	144	168	192	216	240	264	288	312	336	360	384

**We Know of None**

To the Editor:— Belmond, Iowa.  
Would like to know if there is any way to straighten and hold straight a warped door. It was slightly sprung when I hung it and with the heat on inside and cold on the outside it grows worse.

R. D. KENEFICK.

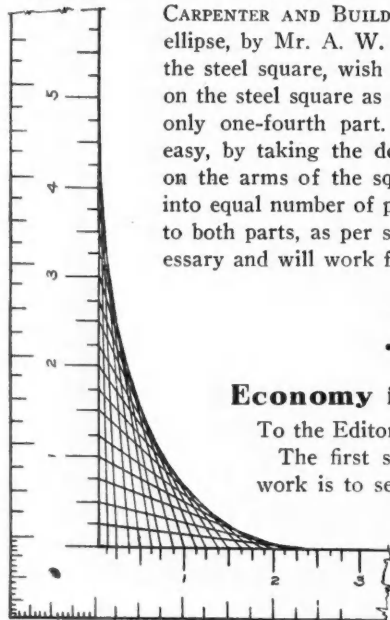
*Answer*—A door that is properly made will not warp, and when you find one that is, you may know there is something radically wrong with it. This question has been up before in our correspondence columns, and the general opinion was that to throw the warped door away and get a new one is the only permanent remedy.

EDITOR.

**To Draw an Ellipse**

To the Editor: Omaha, Neb.  
Seeing in the October, 1914, number of the AMERICAN CARPENTER AND BUILDER the way to draw an ellipse, by Mr. A. W. Woods, with the aid of the steel square, wish to add it may be found on the steel square as per sketch, which shows only one-fourth part. Its operation is very easy, by taking the desired length and width on the arms of the square and dividing same into equal number of parts, then drawing lines to both parts, as per sketch, is all that is necessary and will work for any arch or segment.

JOHN BRADEN,  
Expert Stair Builder.



Drawing an Ellipse with the Steel Square.

**Economy in Millwork**

To the Editor: Keyser, W. Va.  
The first step in economy in mill work is to see that all planer knives and saws should be kept in the best possible order. It will be well in ordering knives to see that it is stated on the order

whether they are to be worked in green or dry lumber, so the maker can put the proper temper in them. With saws it should be seen that they are filed correctly and given the proper depth of gullet for work that they are intended to do.

Now, with the knives and saws in good condition, the next thing to consider is the belts. By the belts we expect to transmit power to the saws and knives in order that work might be done. When putting on a new belt see to it that the ends of the splices do not run against the atmosphere, for if they do in time they will turn up and then the belt will sliver, which cuts down its life. I once saw a new 8-inch belt put on by pulling the ends together by the use of clamps which stretched one side more than the other, with the result that it ran to one side and, in a few days the edge was so badly torn and worn that something had to be done. The belt was turned over, cut and turned end for end, the pulleys were lined, but with no result. Someone suggested that the other side be stretched. This did the work. Now, it would not have taken any more time or cost any more to have corrected the trouble at first than it did after it had done so much damage.

Some shops use second-hand belt, as it only costs about half as much as new and is a time-saver in shutdowns to take out stretch. There is no economy in using resin to prevent slipping, as it hardens and cracks the belt. Use something else that will give relief and at the same time lengthen the life of the belt. Now, what we have said in regard to belts not only holds good in the mill, but anywhere they are used.

We now come to the machine hand, or the brain and muscle of the shop. To be a time and money-saver for one's employer, the machine hand must not only be able to set and run his machine, but he should be able to find and correct trouble when it develops. I know of a man that was running a matcher, when all of a sudden one of the cutter heads started to do poor work. This man tightened the box bolts, tested the shaft to see if it was sprung, and adjusted the gages, but without result. The foreman suggested that a sharp set of knives be put on the opposite head. When the dull knives were taken away all the pain and trouble went with them. You will see by the above that the wise machine hand does not always look for trouble where it appears to be. Be on the job every day; be a close observer; study, read, and visit other shops for new ideas, if you want to be spoken of by your foreman as a cracker jack.

W. S. CALDWELL.

**Wants to Remedy a Damp House**

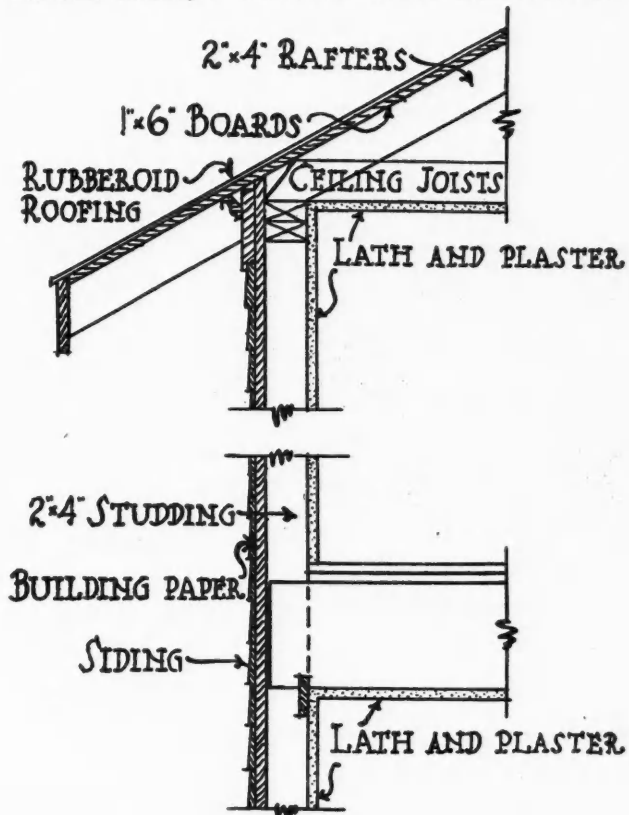
To the Editor: Iron River, Mich.  
One of my neighbors has a two-story house which is plastered on the inside with pulp plaster. The exterior consists of common sheathing with lap siding, with a layer of building paper between the sheathing and siding. In cold weather the inside walls of the house are wet and frosty, especially on the side on which the wind blows. Can you give me an explanation of this trouble or a remedy which may be of service in overcoming it?

I am enclosing a sketch showing the general construction of the walls.

WM. STEWART.

*Answer*—This trouble may be due to two causes. First, if the air in the rooms of this residence is very moist and

warm, there is a likelihood that condensation of moisture would occur on the cold walls of the house. You can see that this would naturally be more on the colder wall on which the wind blows. Second, the trouble may be due to poor insulation in the walls themselves. We have heard of an instance where a wall similar to the one shown produced this same difficulty in the rooms. In this case, the formation



What is There About this Construction to Cause a Damp House?

of moisture on the side walls was stopped by building an inside brick wall upward from the top of the foundation walls of the building until it reached the level of the under side of the floor on the first story, fitting tightly against the floor joists and floor. It was found that this brick wall stopped the upward current of air from the cold basement through the spaces between the studding of the building, thereby allowing the air spaces between the studding to act as insulating spaces and preventing sudden changes of temperature in the plastered wall. If your trouble is due to this cause, the closing off of the passages referred to may be of value.

Possibly some of the Brothers may have had experience in overcoming similar trouble. If so, we would be glad to hear of their method for producing good results. EDITOR.



### To Straighten Studding

To the Editor: Houlton, Me.

I wish to ask what is the proper way to straighten studding? I have always sawed in part way and wedged, then nailed a board the full width on both sides about two feet long.

Am at present building a school house, the studding is 2x7"x12' first story and that for the second is 2x6"x12'. The school board thinks it makes the studding weak. I think it makes them stronger, but would like to now if there is any better way.

BURTON W. CLARK.

Answer—The method you use is the one generally resorted to and with the boards properly nailed on the sides, will make a substantial job. We know of no better way short of replacing the crooked studs with straight ones. EDITOR.

### Gambrel on a Silo

To the Editor: Kasson, Minn.

Would you please give me some information through your valuable paper on how to frame a gambrel roof on a silo, 14 feet in diameter? What I would like to know is the seat, plumb and side cuts of all rafters, also run of each. Also how to cut the rafters for a gable in a roof of this kind.

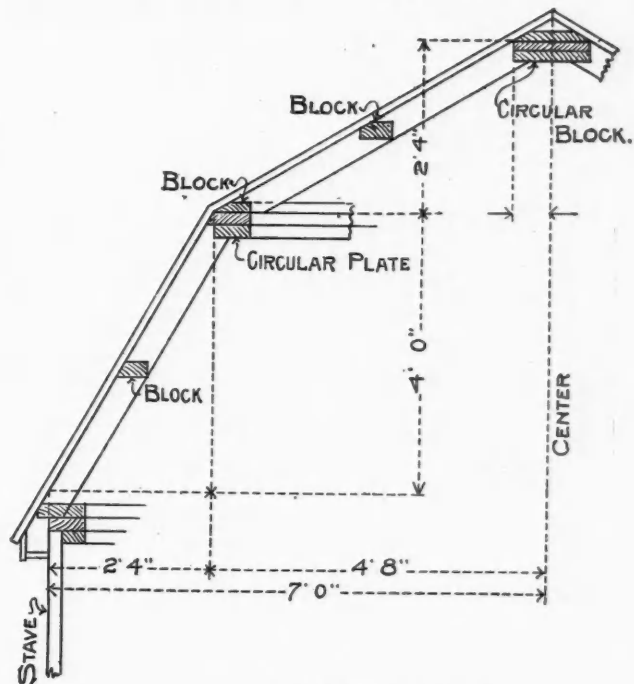
Am a new subscriber and enjoy reading the AMERICAN CARPENTER AND BUILDER. Name withheld by request.

Answer—A roof of this kind should be framed as shown in the illustration. The pitches, of course, can vary as best suits the individual taste. The purlin plate must be a built up circular plate and the rafters will all be the same for each set.

The upper set run to a common center, causing their points to be cut wedge-shape. This may be simplified by forming a circular block with large enough diameter to receive the full width of each rafter where it rests against same. This would avoid making side cuts to the rafters and thereby give a direct bearing of all rafters against the block.

The sheathing of a circular roof furnishes another problem that is liable to worry one without previous experience. The simplest way is to sheath it up and down, and to do this the boards must be cut wedge-shape. First space off the plate at bottom that will work best with the boards that are to be used.

This could be simplified by laying off on a floor the full size lower and purlin plates and after spacing off the circumference as above mentioned on the lower plate, strike off chalk lines from the center to two of these points; this will give the width of the boards to be used at the different plates and the lengths are found same as for the rafters. This will require blocks cut in between the rafters to nail to. They should be cut with a circular face with radius from the center



Gambrel Roof for Silo.

to the point where they are to set. They should rest level with the plate and beveled to the pitch of the roof.

The gable or dormer plate should be to the same height as the purlin plate and its ridge on a level with the peak of the main roof and all will be easy sailing, as its roof will then occupy a regular section of the cone of the roof. Should the ridge be dropped down below the top of this cone, then Mr. Amateur will experience trouble, and lots of it.

A. W. WOODS.

## Correspondence Department

### Interesting Church Building

To the Editor: American Fork, Utah.

Enclosed please find views of interior and exterior of our new Tabernacle. I send them to you because I prize the AMERICAN CARPENTER AND BUILDER above any trade journal

it is possible to heat a six-room house with hot water heat from a boiler in the kitchen or cellar. The boiler may have a brass coil inside, and an inlet at the bottom and outlet at the top. Of course, we would enlarge the water back, and so on. I am not a plumber, so I will leave it to you.

GEORGE SEAMAN.



View of New Tabernacle at American Fork, Utah; Photo Taken Shortly Before Completion. Construction Superintended by J. H. Pulley.

that I know of. I superintended the entire construction of this building, and it is the finest of its kind in the State. It cost eighty-five thousand dollars.

JAMES H. PULLEY,  
Architect, Contractor and Builder.



### A Heating Problem

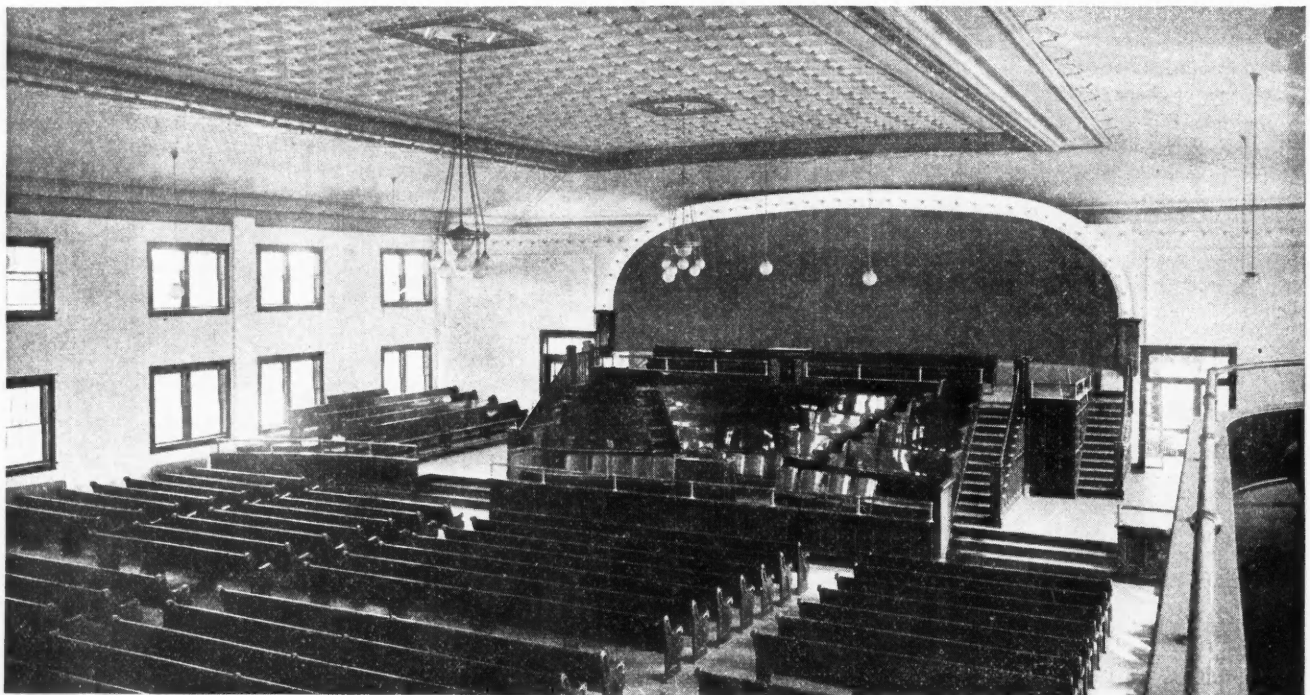
To the Editor: Westbury Station, L. I., N. Y.

I have been thinking for some time about a problem in the plumbing line, and believing you might assist me, I take the opportunity of asking your aid. I would like to know if

Answer: We do not consider that this scheme would be of service for such a large residence or where so much heating service is demanded. We believe that you would do far better to install a regular hot water heating plant if you wish to supply radiators for six rooms. In our issue of December, 1913, page 84, you will find a description of a scheme of this kind which is used to heat one room.

We believe that you will have trouble in finding a water back or heating coil large enough to supply the hot water necessary for your radiators during cold weather. EDITOR.

(Correspondence Department continued to page 98)



View of Auditorium of Tabernacle Looking Toward the Front.

# 3 Great Prizes for Contractors!

**O**UR Second Great Annual Prize Contest for Contractors, Carpenters and Builders starts March 1st. The prizes in this contest will be awarded according to the amount of orders in dollars and cents, sent in to us between March 1 and December 1, 1915.

This time, instead of one big prize as we gave last year, we are giving three. Last year, we gave away one automobile and fifty additional valuable prizes. This year, instead of a single automobile, we are giving three—a Ford Touring Car for first, a Saxon Roadster for second and an Indian Motorcycle for third place in this great contest. Three extraordinary prizes! And in addition, just the same as last year, we are giving

## 50 Other Big PRIZES

All the prizes are practical, valuable and worth hustling for. In addition to the Automobiles and Motorcycle, there are hundreds of dollars worth of the finest tools—everything you want. After our last contest closed, several contractors in small places wrote us that they had not participated because they did not think they could do enough business to win a prize. Yet most of our prizes went to small towns!

### The Small Town Man's Chance

to win is good. It is better this year than last—for, this year, there are three big prizes instead of one. Don't forget that it was a contractor in a small town—Polo, Ill.—who won the automobile last year! You probably don't realize how comparatively little effort would have won you a prize last year. Don't fall into that error this year. Remember, also that this contest is

### Exclusively for Contractors Carpenters and Builders

and that no one else can enter. This contest is for the purpose of keeping old and new customers awake to the big inducements on Building Material offered in our Grand Free Building Material Catalog. Catalog free! Send the coupon. It is for men in the business only!

### Send the Coupon for the Rules

The big free Contest Circular gives complete specifications of the Ford Automobile, The Saxton Roadster and the Indian Motorcycle and describes and illustrates the immense assortment of tools to be distributed. Gives Rules of the Contest and full information. Ask for latest edition of our Grand 156 Page Catalog of Building Material. Send the coupon for Big Circular today and go after these great big beautiful prizes. Go in and win!

GORDON-VANTINE CO., 758 Federal St., Davenport, Iowa  
Gentlemen—Please send the books checked below

- 1915 Contractors' Contest Circular
- Building Material (Lumber, Millwork, Hardware, Paint, etc.)
- Plan Book (Send 10c for handling and postage on this book of 150 proven plans.)

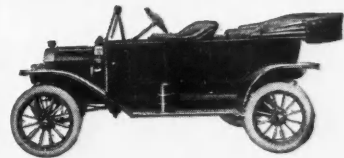
Name .....

Address .....

Occupation .....

**1st PRIZE**  
To be given to the contractor who sends us the greatest amount of business during the contest.

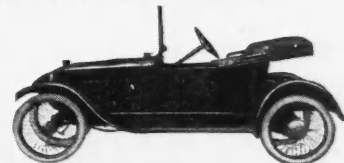
The lucky winner of this Five Passenger 1916 Model, Ford Touring Car will have a prize worth winning. Is there any reason why you should not win this splendid



### FORD TOURING CAR

**2nd PRIZE**  
To be given to the contractor who sends us the second largest amount of business during the contest.

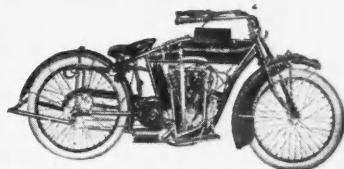
For Second Prize this year, we have selected a trim, speedy Saxon Roadster. This is a car which would be a tremendous convenience to every builder in his business. Go after this



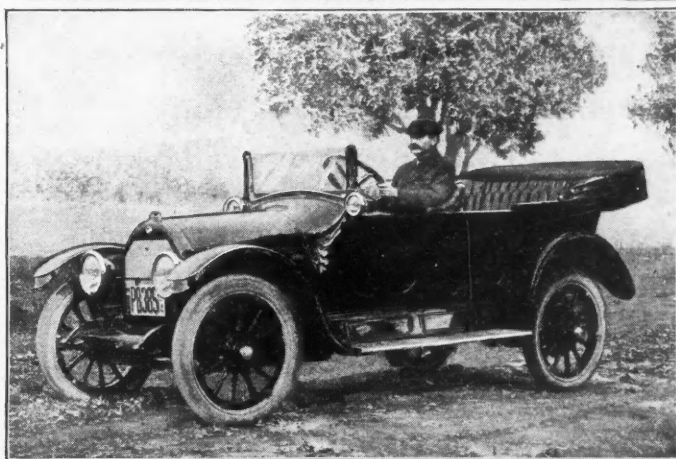
### SAXON ROADSTER

**3rd PRIZE**  
To be given to the contractor who sends us the third largest amount of business during the contest.

There is not a carpenter or contractor in the country but who could use this Indian Motorcycle to advantage. It makes an ideal Third Prize. You could cover a lot of ground in a day on this machine. Are you to be the rider of this



### INDIAN MOTORCYCLE



### Last Year's Winner!

Above, we show a photograph of Geo. Drenner of Polo, Ill. in the car which he won for First Prize in our last year's contest. A pretty fair sort of first prize to win, eh? But the contest brought him more than just the prize.

By dealing with Gordon-Van Tine on our "direct-to-you" Sales Method he made a saving of almost 33 1-3 per cent on every dollar's worth he bought from us. You can do the same! You can make similar savings. And in addition—

### YOU Can Win This Contest!

Get busy. Go in with that determination. Send today for our big Prize Contest Circular. Learn how easily one of these great prizes can be yours. And, just in conclusion, let our Contest Circular explain to you how we have arranged to give a Prize to every Contestant! Send for the circular! Use the Coupon! Now!

## GORDON-VAN TINE COMPANY

The Largest Building Material Supply House in America. Lumber, Millwork, Hardware, Paints, Roofing, etc., all at "Mill-Direct-to-You" Prices. We ship anywhere. Prompt, Safe Delivery and Satisfaction Guaranteed or Money Back. 10,000 Contractors Deal Regularly with us under this Guarantee.

Contractors' Dept. 758 Federal St., Davenport, Iowa

In case of a tie for any of the prizes offered, duplicate prizes will be awarded to tying contestants, or the cash value of the prizes will be equally divided.



## Your Best Asset in Assuring Satisfaction in Roofing and Building Materials is J-M Responsibility

Your clients know you and depend on you. That is one reason why they do business with you.

But you do not stand alone in guaranteeing satisfaction to your clients when you supply J-M Roofings and Building Materials.

J-M Service, with over half a century of manufacturing experience and recognized business integrity to its credit, stand back of you to assure satisfaction on J-M Responsibility.

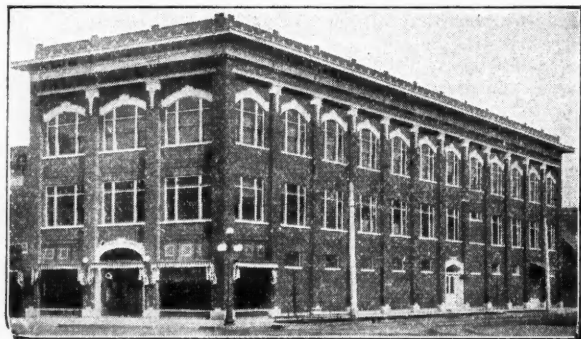
When you supply J-M Roofings and Building Materials you put them into the job with the assurance that every J-M Product must Make Good on J-M Responsibility.

### J-M ASBESTOS Ready Roofing is most Satisfactory of all Prepared Roofings because it never needs Painting or Coating.

Very rarely needs repairs, and besides being weatherproof is practically fire-proof. Sparks and flying brands cannot set it on fire from without and it will blanket fire below it.

Makes an ideal roofing for the general run of business blocks with sloping roofs, for sheds and platforms, for barns, stables and farm buildings and has even been used satisfactorily on some dwellings.

**J-M Asbestos Ready Roofing** is made of Asbestos Felt and Trinidad Lake Asphalt and is therefore non-conducting, so that it makes a building warmer in Winter and cooler in Summer.



*Spohn Medical Co., Goshen, Ind., covered with 73,000 sq. ft. J-M ASBESTOS ROOFING*

Nothing in it to rot, break down, dry up or disintegrate. Extremely pliable and easily, securely, and effectively applied with J-M Vise-Grip Roofing Cleats that make laps and joints absolutely water-proof and do away with unsightly smears. "The White Tops" are handsome and these Cleats preserve their slightness.

Your **J-M Roof** owners may register their roofs with us; and after that their Full Service is up to **J-M Roofing** Responsibility.

Ask us for information about **J-M Roof** Registration, for Literature, Prices, etc.

## H. W. JOHNS-MANVILLE PRODUCTS

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

J-M Zero Pipe Covering  
 J-M Anti-Sweat Pipe Covering  
 J-M Sectional Underground Conduit  
 "Noark" Enclosed Fuse Devices  
 J-M Corrugated Asbestos Roofing  
 J-M Regal Roofing  
 J-M Asbestoside  
 J-M Asbestos Slater's Felt  
 J-M Asbestos Roofing and Insulating Felts  
 Keystone Hair Insulator  
 J-M Hair Felt

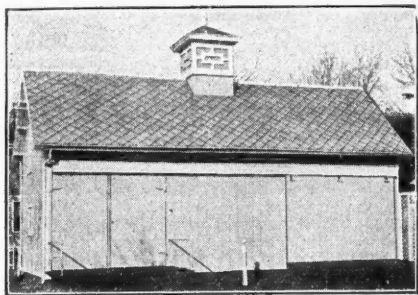
J-M Sound Deadening Felts  
 Cold Storage Insulation  
 J-M Weatherite Paper  
 J-M Mineral Wool  
 J-M Asbestos Fire- and Damp-proof Flooring Felt  
 J-M Cork Floor Tiling  
 J-M Washless Faucet  
 J-M Sanitor Drinking Fountain  
 Audiffren-Singrun Refrigerating Machine

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER





# J-M Transite ASBESTOS SHINGLES simply can't burn and are practically indestructible—



Garage of G. W. Conklin, Huntington, L. I., Roofed with J-M Transite ASBESTOS SHINGLES

They are made of Asbestos Fibre and Portland Cement moulded in one piece. They are so tough and elastic that they can be applied practically without breakage. Once in place they never need replacement.

Different colors give variety of effects, and colors never wash out. Make a building cooler in Summer and warmer in Winter. So much lighter than slate

and tile they can be laid on structures designed for Wood Shingle Roofs.

And they cost but little more than shingles, economy considered, for their first cost is their only cost. Covered by J-M Roof Registration and J-M Roofing Responsibility.

## J-M Cold Storage Insulations

So complete is the line of approved J-M Cold Storage Materials that any practical cold storage insulation problem can be efficiently solved by their use. Those who solicit the co-operation of this department receive the benefit of our long experience and obtain successful installations without experiment.

All J-M Cold Storage Materials are sold on the same Service Basis as all other J-M Products, which assumes complete responsibility for the materials in service.

Every J-M Product is Sold, and must give Full Service, on J-M Responsibility.

## J-M Fireproof Cold Water Paint

Actual service has proved that the light reflecting surface of walls and ceilings produced by **J-M Fireproof Cold Water Paint** reduces lighting bills at least 25%. It brightens up corners and dark places, thereby making daylight last longer and necessitating the use of fewer lights when working at night.

And in addition to this great saving, the productiveness of employees is increased from 10 to 40%, according to local conditions.

**J-M Cold Water Paint** is composed of various minerals and cementing compounds and is mixed with ordinary water, which costs you practically nothing. Due to this economy, this Paint costs only a fraction as much as oil paints. It covers a greater area and one layer covers better than two layers of oil paint.

Contains no oil, alkali, lime or injurious chemicals, so won't discolor with age nor harm hands or clothing. Being absolutely fireproof it is approved by the Fire Underwriters, therefore insurance premiums are often reduced where it is used.

**J-M Fireproof Cold Water Paint**, when applied according to simple directions, forms a hard, firm, sanitary and odorless coating which will not chalk, scale, peel or rub off.

# H. W. JOHNS-MANVILLE COMPANY

Akron  
Albany  
Atlanta  
Baltimore  
Birmingham  
Boston  
Buffalo

Chicago  
Cincinnati  
Cleveland  
Columbus  
Dallas  
Dayton  
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Detroit  
Duluth  
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Louisville  
Memphis  
Milwaukee  
Minneapolis

Newark, N. J.  
New Orleans  
New York  
Omaha  
Philadelphia  
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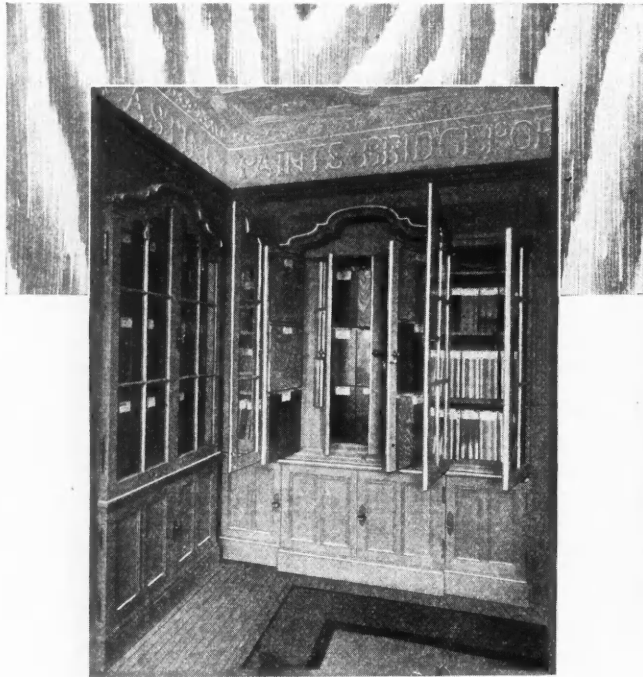
Portland, Ore.  
Rochester  
St. Louis  
St. Paul  
Salt Lake City  
San Francisco

Seattle  
Syracuse  
Toledo  
Washington  
Wilkesbarre  
Youngstown

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

3081

WHEN WRITING ADVERTISEMENTS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER



A corner in the Exhibition Room of The Bridgeport Wood Finishing Co.'s Service Department, Craftsman Building, 6 E. 39th Street, New York City.

LET our Service Department help you choose the most appropriate finishes for the interior woodwork of your home. We show in our Exhibition Room in the Craftsman Building, 6 E. 39th St., New York City, over a thousand different beautiful effects obtained with



on all kinds of wood—effects that any wood finisher can give you with our goods. See this exhibit. It will be a revelation of what can be done to beautify your home through the proper finishing of the interior woodwork.

*We work with your painter and architect to get the most effective finishes at the most economical cost*

## The Bridgeport Wood Finishing Company

Service Department  
The Craftsman Bldg., 6 East 39th St., New York City

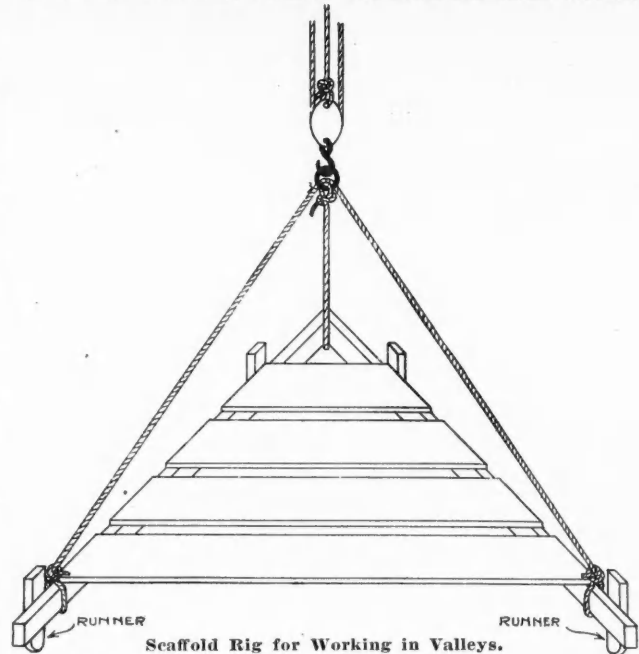


### A Handy Roof Work Device

To the Editor: Ellsworth, Iowa.  
Find enclosed postal card showing method we use in re-nailing or patching old roofs, also find enclosed sketch showing a device we use for working in valleys. We find it very



Holt and Lande Roofing a Church with Block and Tackle Scaffold.



handy in putting in new tin work. The postal card shows the tackle and how it is used. By using ladders, saves time and material as scaffolding is avoided.

HOLT & LANDE, Contractors.



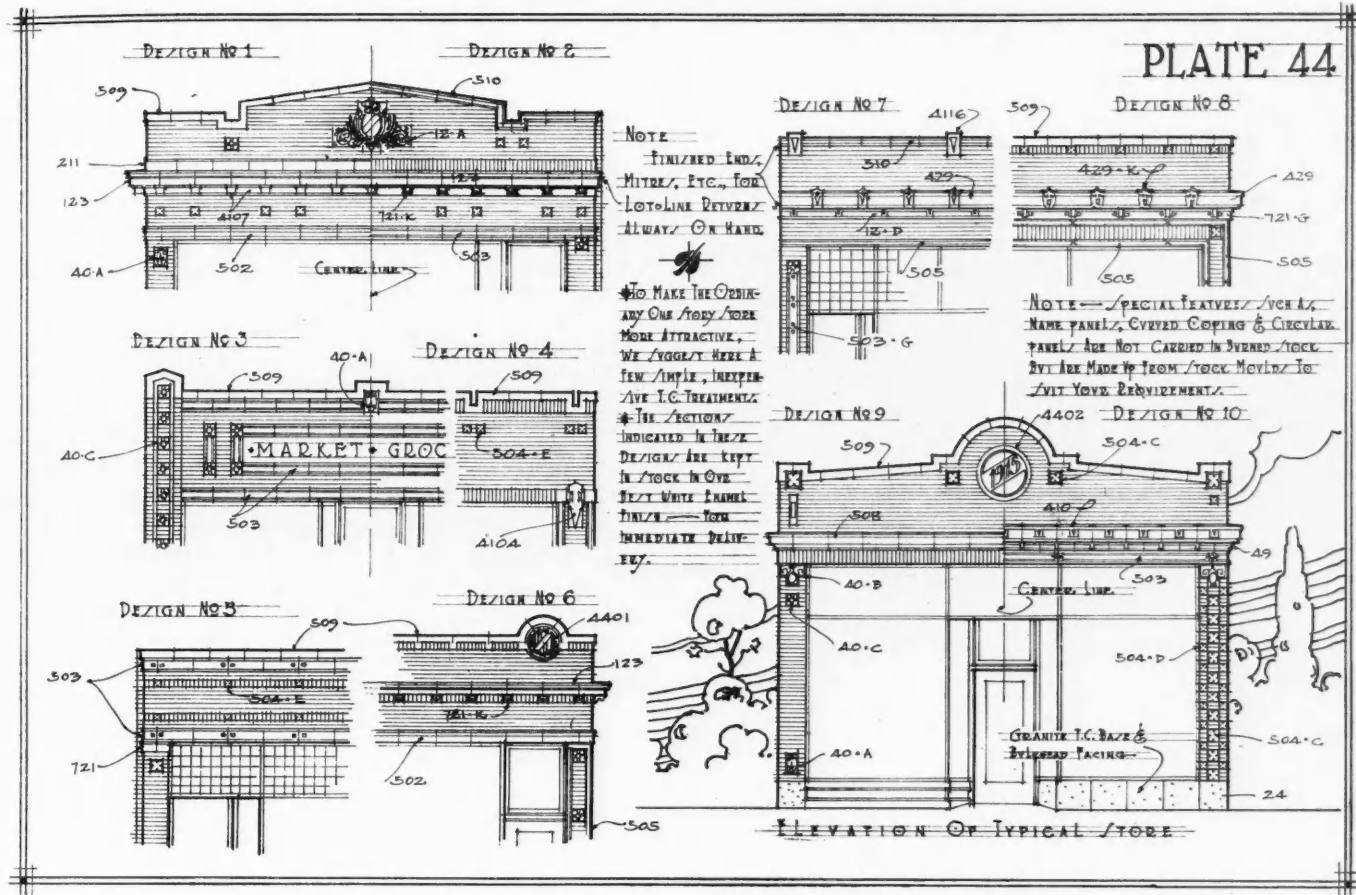
### Shinglers' Straight Edge Hook

To the Editor: Crowley, Ore.  
Did you ever hear of a shingler's straight edge hook? I ran across one the other day, and it works fine.

It can be made out of any thin piece of iron five or six inches long. Bend it at right angles about 1 1/8 inches from one end and punch two or three holes in the other end for tacks or shingle nails. All there is to do now is to find a 1 by 4, or anything suitable for a straight edge, and tack the hook down from the face of the straight edge the distance the shingles are to be laid to the weather. The small piece that bends at right angles should be long enough to catch the butt of the last course of shingles laid. Two nails are enough to hold it in place.

I made my pair out of a piece of old band iron.

O. E. STARKS.



A plate from our 1915 Portfolio (reduced)—Now ready for distribution—Write for it.

## “THE SMALL SHOP”

¶ There is no reason nowadays why that next store building of yours should not be a credit to yourself and the community. You can make it attractive—clean looking and modern by using MIDLAND white enamel terra cotta.

¶ As we receive so many requests for simple and inexpensive terra cotta treatments for the ordinary brick store front, we prepared the plate above. It illustrates selections from our stock material which we can deliver AT ONCE, except special features, name panels, curved coping, etc., as noted.

¶ We want you to bear in mind that we are always ready to assist in the solution of your building problems—send in your plans or sketches for information and estimates.

# MIDLAND TERRA COTTA ©

1120 CHAMBER OF COMMERCE # CHICAGO

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

**Display Case for Egg Collection**

To the Editor: Bluffton, Ind.  
 Here is a photo of an egg case I made for the Public Library here. It is made of quarter-sawed white oak. Has

**Discovers Sawdust Composition**

To the Editor: Y. M. C. A., Houston, Texas.  
 In experimenting with composition bottles, the writer recently discovered a sawdust composition that can be moulded



Quartered Oak Egg Collection Case Built by Jesse L. Reiff for the Bluffton, Ind., Public Library.

ten glass doors and as many wood panel doors. The wood doors close down on the glass doors.

Mr. Williamson of this town has gathered all kinds of bird eggs, and has them on exhibition at the library in this case. This case is 55 inches wide and 10 feet long and about 3½ feet high. The glass doors are locked and you can see the eggs by lifting up panel doors.

JESSE L. REIFF.

like plaster of Paris and sawed, turned, and varnished like wood. This compound consists of a plastic mass made by thoroughly mixing 30 degree Baumé sodium silicate with resinous wood sawdust, moulded into any shape desired under pressure of 300 pounds per square inch, without the use of heat.

The moulded pieces are allowed to stand in a dark room for two weeks to set, after which they can be machined,

**PEARL Screens Are Still New When Others Are Gone—**

Does that sound like a pretty strong statement? Let us prove it. First of all, genuine Gilbert & Bennett PEARL Wire Cloth derives its rust-resisting qualities from the coating. This metallic protection is a secret composition, owned and controlled by Gilbert & Bennett. It will not crack, chip or peel off under any conditions whatsoever.



*For Screening Doors, Windows and Porches—*

Made in Two Weights Regular and Extra Heavy

PEARL is handsome—its original bright metallic lustre with a short exposure to the weather turns a permanent "invisible gray" and stays that way.

The thing that's making PEARL sales bigger every year is the fact that it requires no paint or repairs—it represents true screen economy.

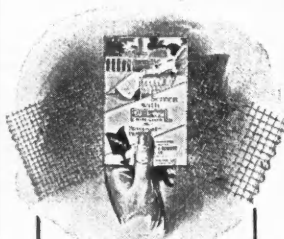
Don't be deceived. There can not be a "just the same as PEARL." The manufacture and application of the non-crack, no chip coating from which it derives its wonderful rust-resisting qualities is a secret process the exclusive property of this company.

But to be sure of PEARL wear you must get genuine PEARL Wire Cloth two Copper Wires in the Selvage and the Round Tag bearing the Gilbert & Bennett name on each roll.

Write our nearest office for samples of both Regular and Extra Heavy PEARL, full details regarding same, and the name of the nearest dealer

**The Gilbert & Bennett Mfg. Co.**  
 (Established 1818)

Dept. R31, 277 Broadway, New York  
 Dept. R31, 38 S. Dearborn St., Chicago  
 Georgetown, Conn.  
 Kansas City, Mo.



FREE Samples and Booklet  
 Write our nearest office.



The Best Hardware Dealer in Your City  
 Sells "PEARL"

**Saved \$240**

"We saved about 40% on the price of the lumber—total amount of order \$602.

"C. J. STANTZ,  
Topeka, Kans."

**Saved \$500**

"I am well pleased with the quality of material. Saved \$500 and we like the house very much.

"F. E. FEAR,  
Big Piney, Wyo."

**Saved \$250**

"I am well pleased with house and saved \$150 on it, besides saving \$100 on other buildings.

"L. C. YOUNG,  
Bouilla, S. Dak."

**Quality great**

"Lumber received in good condition. Everybody says no person could get any such lumber around here.

"CARL G. MILLER,  
Miltona, Minn."

# Find out quick how much you can save on Lumber

Prices are lower right now than when the four H-L-F customers quoted above made their splendid savings. Think what a big thing it would mean to have \$240, \$500, \$250 added to your profits on just three jobs. Right now lumber is cheapest in fifty years—if you order quick, you can buy lumber cheaper than you ever dreamed was possible. Right now you can save hundreds of dollars on the lumber needed for your Spring building.

Never again will lumber be so cheap. Already the market shows a decided tendency to rise. Europe needs lumber badly. The minute the perils to shipping are relieved, the demand will be overwhelming. Then watch prices go up and watch your chances to make a big extra profit go to ruin. Don't wait, but write for prices today.

**Get price without bill of materials**

If you haven't bill of materials ready for all the jobs you are going to handle or are figuring on for Spring building, simply answer the questions below—it will take you only a few minutes—a lot quicker than making up bill of materials.

From your answers we can, by our new system of unit estimating, name you a price, including the freight. No extras guaranteed. There is no charge for this service—no obligation incurred in using it.

Get H-L-F estimates on all jobs you are working on for Spring and get them quick at the lowest price in years.

**State which style roof preferred**



PLAIN GABLE    GABLE & GABLE DORMER    HIP & HIP DORMER    PLAIN HIP

**Just out! New edition big H-L-F Plan Book**  
 Bigger and better than ever. Packed with building ideas for carpenters and contractors. 100 real homes for folks who work for their money. Floor plans, descriptions, guaranteed costs. Better than any dollar book—costs only 10 cents. Send for it today. Use the coupon.

**Send bills of materials if they are ready**

If you have some bills of material ready, rush them to us for price. Our big force of estimators, all of them experienced lumber men, will get out your bid quick. Order now, before the price goes up. Prices are way down now, but they are bound to go higher soon. Get the bargain of your life and the finest lumber obtainable anywhere.

**Grades, counts, satisfaction guaranteed**

Every H-L-F timber, board and shingle is guaranteed. We also guarantee full count, full satisfaction in every way or money refunded. You see the lumber before you accept. There is no way on which you can lose, and you can save a lot of money and get better material, by ordering from H-L-F. Don't wait—send the material bills you have ready—answer the questions at the left for any job you are figuring and price will come quick. Write today—get your lumber ordered before the price goes up.

**Hewitt-Lea-Funck Co.**  
 808 Crary Building  
 SEATTLE, WASH.



**Fill in the answers to the questions and mail today**

Width (outside measure) \_\_\_\_\_ ft., \_\_\_\_\_ in. Length (outside measure) \_\_\_\_\_ ft., \_\_\_\_\_ in. Do you want one-story house? \_\_\_\_\_ Story and half house? \_\_\_\_\_ Two-story house? \_\_\_\_\_

Check the rooms you want—living room ( ), dining room ( ), kitchen ( ), den ( ), library ( ), music room ( ), bedrooms (how many?) ( ), bathroom ( ), porches (how many and what size? \_\_\_\_\_)

Will outside be wood? \_\_\_\_\_ Brick? \_\_\_\_\_ Brick veneer? \_\_\_\_\_ Concrete blocks? \_\_\_\_\_ What sort of siding? \_\_\_\_\_ Or will you use shingles? \_\_\_\_\_ What height ceilings downstairs? \_\_\_\_\_ Upstairs? \_\_\_\_\_ What height outside wall studs? \_\_\_\_\_ Do you prefer plaster or wall board? \_\_\_\_\_ Do you want an attic? \_\_\_\_\_

**HEWITT-LEA-FUNCK CO., 808 Crary Bldg., Seattle, Wash.**

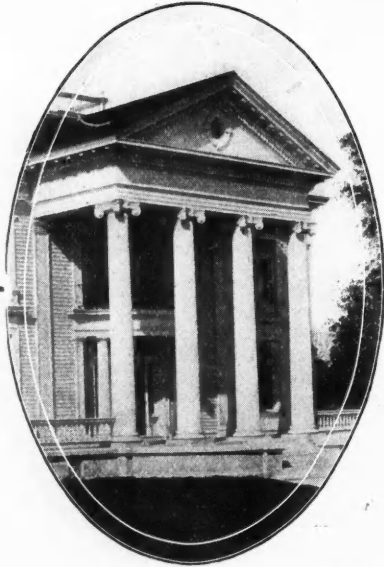
Gentlemen—Please send me the following:

- ( ) Delivered freight-paid price of enclosed list of materials (no charge for quotations).
- ( ) Prize Plan Book (send 10c). ( ) Barn Builder's Guide (send 4c).
- ( ) H-L-F House Pricer (free). ( ) Millwork Catalog (free).
- ( ) Information on H-L-F patented stud and wall board.
- ( ) Plan Sheet (free).

Name \_\_\_\_\_ Business \_\_\_\_\_

Street or R. F. D. No. \_\_\_\_\_ P. O. \_\_\_\_\_

State \_\_\_\_\_ When are you goin to build? \_\_\_\_\_



## White, Whiter, Whitest

There is always one detail or another about a house that calls for white paint; and then it cannot be too white.

When you specify Carter White Lead for any painting you are sure of getting the whitest white lead on the market—the Carter process excludes everything that might discolor it or impair its paint value.

The word "Carter" is not on every keg of pure white lead you may see, but you will never find it on a keg that does not contain perfect white lead and lead that is perfectly white. Carter is not simply "pure white lead"; it is a better material in every quality that makes pure white lead the most desirable paint.

Specify Carter for your finest painting and decorating.

On large undertakings, when you want to be conservative and play safe, Carter Pure White Lead is the paint of known value. Behind it is a reputation for uniform, steadfast quality, for fineness of texture and for every feature that makes pure white lead the paint to be relied upon.

### Carter White Lead Company

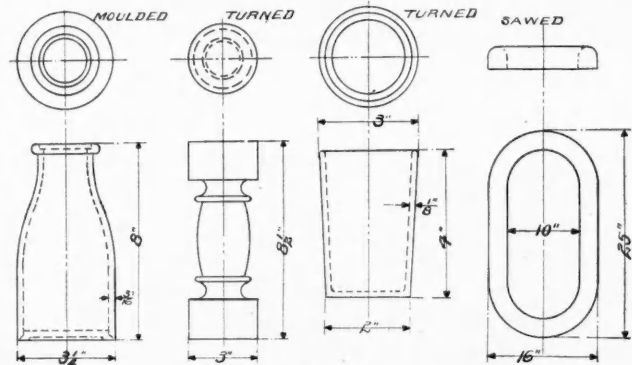
West Pullman Station A

Chicago

Illinois



If you want to know the details of painting, "The Carter Paint Calculator" will interest you. The price is 25c, but it will be sent to any architect or contractor with our compliments upon request.



All Made Out of Sawdust Composition.

nailed, sawed, stained, painted, and varnished the same as wood. The strength of this composition is about half as great as wood, but it is practically fire-proof and will not split.

The accompanying figure shows some of the shapes that were made out of this composition. F. B. HAYS.



### Carpenter Jobbing Shop

To the Editor:

Chicago, Ill.

Would like to have your idea of starting up a bustling trade in the jobbing carpenter business. Could you send me some information; also I would like to see some of the Brother Chips give their ideas in our columns.

WM. P. LARSEN.



### New C. H. & E. Factory to Open March 20th

The grand opening of the new factory of the C. H. & E. Mfg. Co., at Mineral & Clinton Sts., Milwaukee, Wis., is scheduled for Saturday, March 20th. This is a thoroughly modern building of mill construction and it will be filled with many things of interest to contractors and builders. On the main floor will be shown the complete C. H. & E. line of contractors equipment. A machine of each model will be shown in actual operation. The C. H. & E. line is said to be the most complete. It comprises six sizes of portable saw rigs, either gasoline engine or motor driven for shop or job work; twenty-two sizes of power driven pumps; two sizes of builders' hoists; also material elevators, mortar and plaster mixers, concrete chutes, tar kettles, gasoline engines, etc.

Any of our readers who are in Milwaukee or vicinity on the 20th, are cordially invited to inspect this new factory building and see how the C. H. & E. machines are made.

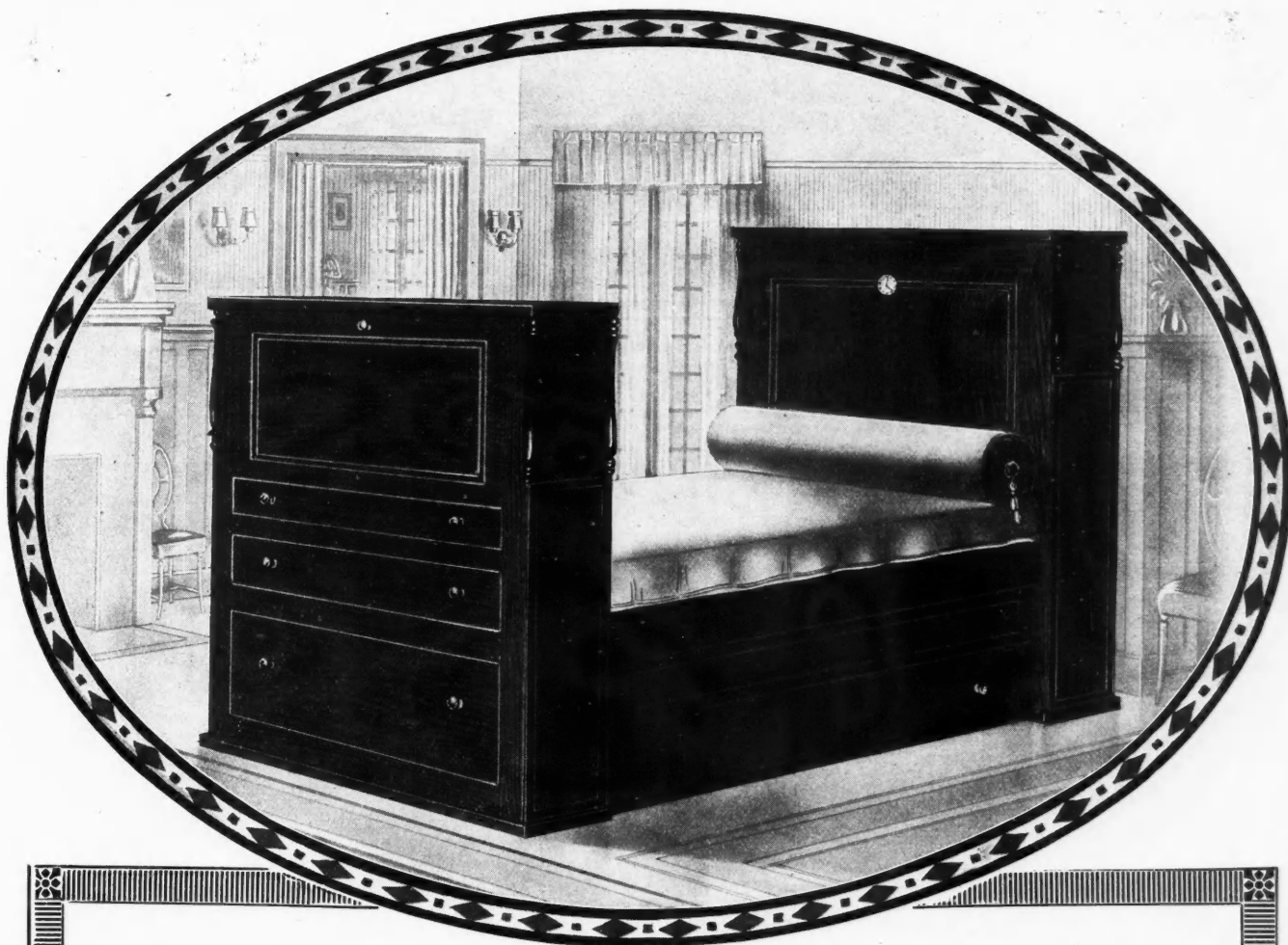


### The "Ideal" Aluminum Level

Certainly the aluminum level has hit the fancy of carpenters and builders generally. It is only a short time ago that we saw the first aluminum level; but since then thousands have been manufactured and sold, until now the carpenter who doesn't have at least one aluminum level in his kit is something of a curiosity.

There is something about the aluminum level that appeals to the skillful craftsman. While weighing no more than wood the aluminum levels seem to be more substantial. They have a finished mechanical appearance that skilled mechanics appreciate. Aluminum has the quality of being non-rusting. It is also very light, and is sufficiently strong and hard to stand rough handling.

An interesting line of aluminum levels is offered by the Ideal Level Co., 716 Chene St., Detroit, Mich. You will find it worth your while to write them for their catalog.



*Save or Add 30% to Your Floor Plan by Using the*  
**ALL-ONE CABINET BED**

Figure it up in dollars and cents. Then show it to your customer, show him where he can build a bigger house for the same money or get the same floor space in a smaller house for less money by using an **ALL-ONE Cabinet Bed**.

The **ALL-ONE** is not a built-in bed, although it may be had to appear so, but is a space-saving combination of all the articles that go to make up a modern bedroom and contains many more conveniences than the average bedroom can accommodate because of limited space.

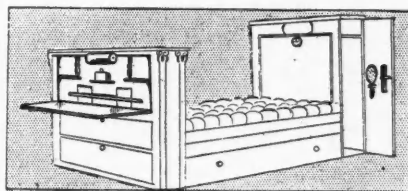
The **ALL-ONE Cabinet Bed** contains a Wardrobe complete, a double or single Bed, a Writing Desk, a Dressing Table, with triple mirrors, a concealed Book and Magazine Rack, a concealed Shoe Compartment, Reading Lights at either end of Bed and a Neat Clock. It also contains more drawer-space than the average dresser and chiffonier combined.

The **ALL-ONE Cabinet Bed** in the three-quarter size takes up only 28 square feet, and in a room 8 x 11½ feet gives fully 20% more space than is available in a 10 x 12 foot room with an ordinary bed, dresser, chiffonier and desk—in addition to that the 8 x 11½ room has a great many more comforts and conveniences than the larger room.

**TO CARPENTERS AND BUILDERS**

We have a very liberal proposition to offer you. Talk the **All-One** to your customers, save them money or give them more for their money and make a nice profit for yourself. The **ALL-ONE Cabinet Bed** comes in several styles and finishes, so that it will harmonize with the Interior Trim.

We feel sure after once seeing our full-colored Catalogue and reading the details of our proposition, you'll see its money-making possibilities. Let us send you this handsome Catalogue and explain everything.



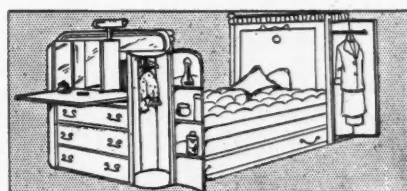
Showing Commodious Desk, Note Desk Light

Why not write in now

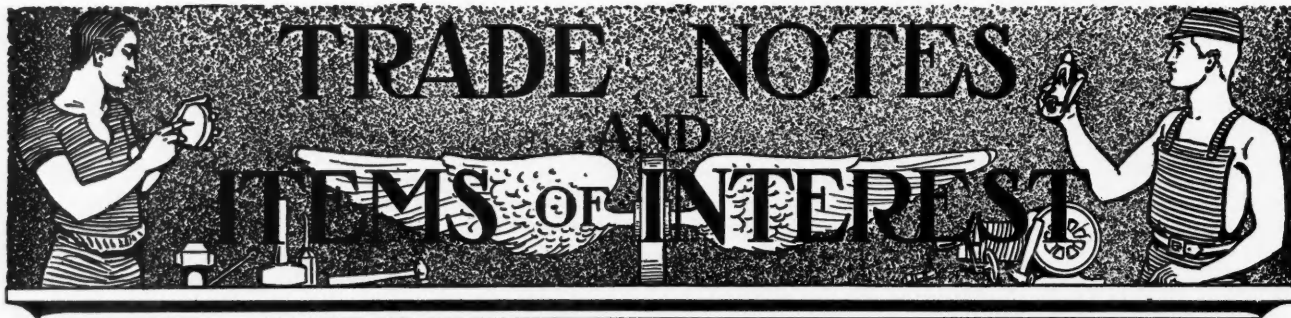
**The Cabinet  
 Bed Company**

830 Consumers Bldg.

CHICAGO



Dressing Table. Triplicate Mirror. Adjustable Light



Through this department the Editors aim to keep builders, contractors, carpenters and architects in touch with what their friends, the manufacturers, are doing for them in new or improved tools and machinery, methods and materials—pertaining to building. Items for these columns must have real news value; they are offered here as interesting information for our readers; they are not advertising. No matter will be printed here simply because some advertiser wishes it. Likewise, no matter will be excluded simply because the article described is not advertised in this magazine. Suggestions for the betterment of this department are requested of our readers.

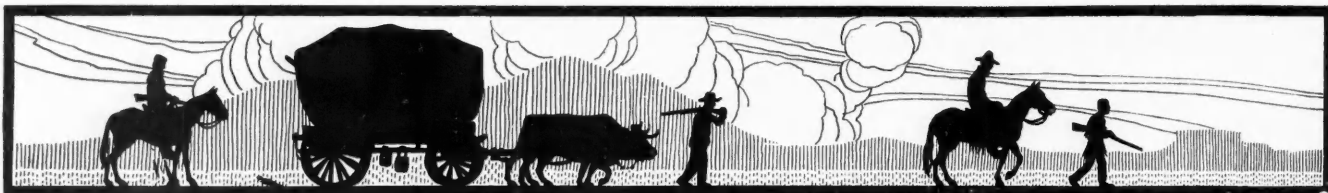
**A Few More "Ideal" Squares for Our Folks**

Last fall the Ideal Tool Works, Middletown, N. Y., undertook a unique advertising campaign. With the idea of quickly introducing their "Ideal Three-in-One Square," they determined to place a limited number of these labor-saving tools in the hands of wide-awake representative carpenters and builders in every locality, so that other workmen could examine this new tool and see it in use.

The manufacturers believed that a personal recommendation from a satisfied user would be the strongest advertisement for the "Ideal" Square; and so they made a very low introductory price on the limited number which were to be sent out as sort of demonstration tools. For this introductory work 200 tools were apportioned to each state, and a series of advertisements announcing the plan and describing the "Ideal" tool was run in THE AMERICAN CARPENTER AND BUILDER and in several other publications in the building

field; a certain number of tools was allotted to the readers of each publication.

The publishers of THE AMERICAN CARPENTER AND BUILDER have received word that there are still a few of these introductory offer tools on hand, and these can now be secured by our readers at the half price. The circumstances surrounding this are particularly gratifying, as they clearly show the extra amount of "pep" our readers have when it comes to grabbing off a good thing; also our readers are now to have the benefit of this special offer on the remaining sample squares at the low price. In their letter regarding this the Ideal Tool Works state that they allotted a definite number of sample tools to each publication carrying the introductory offer announcement. They state that while the offer met with a hearty response from THE AMERICAN CARPENTER AND BUILDER readers, the results obtained from other publications were disappointing. The apportionment of "Ideal" Squares for



**Pioneers**

We are Pioneers in the Ventilation field. Twenty-three years of Study, Experimenting, Observation and Experience have resulted in the production of a Ventilator—that ventilates efficiently under all conditions. Willis Ventilators are constructed to positively suck out all impure foul air, gases, smoke, steam or odors and keep the air in any building fresh and vitalized.

They are used on all types of barns, factories, schools, churches, halls, in fact, on all buildings where fresh air is essential to the welfare of man or beast.

**Willis Ventilators**

are made of only the highest quality of sheet metal, combined with skilled and honest workmanship.

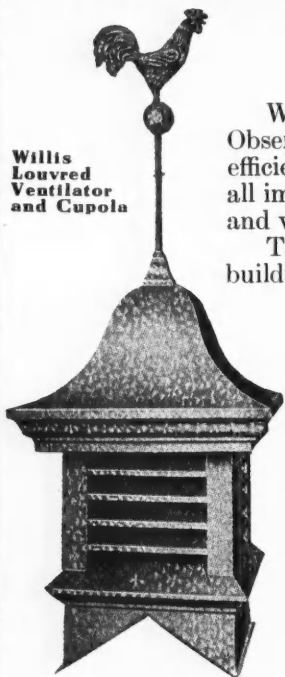
Being large manufacturers of sheet metal goods we have the facilities that enable us to turn out the highest grade Ventilators at lowest possible cost. In fact the value you receive will astonish you.

Willis Ventilators come in all sizes and styles and are storm and bird-proof. We always keep large stocks on hand and ship day order is received.

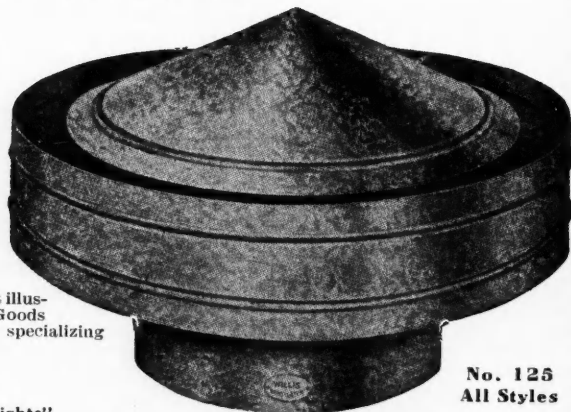
Send for our large illustrated 180-page catalogue; it illustrates the complete Willis Line of Sheet Metal Goods and shows the products of twenty-three years of specializing in sheet metal. Drop us a line today.

**WILLIS MFG. CO.**

Galesburg, Illinois  
Manufacturers of the Famous "Willis Skylights"



Willis Louvred Ventilator and Cupola



No. 125 All Styles





**Sidestep That Costly Job  
of Building Cupolas—Recommend  
**KING AERATORS****

**and a King Sanitary Ventilating System  
Save Money on Your Pay Roll—Please Your Customer More**

Wooden cupolas cost you many hours of time of one of your best men. King Aerators can be installed by a carpenter and helper in just a few minutes.

You cannot make your customer see the money eating work you put into building wooden cupolas. You cannot make a profit on them—as individual jobs, you handle them at a loss.

Sidestep these undesirable jobs by recommending the King Ventilating equipment. It's a money saving proposition for you—and a profit making equipment for your customer. You give him a more sanitary barn—free from foul air—it stays in better condition—the stock live better and produce more profits.

**Prevent Fire from Spontaneous Combustion**

Lack of ventilation in the haymow has caused a large percentage of the fires in farm barns. Hay gets overheated—easily ignites—attracts lightning during thunderstorms. Efficient ventilation is the farmer's best protection against this trouble. Tell him about the King equipment.

*Catalog mailed free on request.*

You will find the photographs in our catalog of great help in showing your customer how nicely King Aerators set off the barn. Let us send you a copy free.

**King Ventilating Co.**

1120 Cedar St., Owatonna, Minn.

Formerly Galvanized Steel  
Cupola Co.



**FREE!**





## This Roof is Weather Proof

When you complete the laying of a Rex-tile roof you can give the house-owner a weather and time-proof guarantee.

# Rex-tile

TRADE MARK

can't flap, warp or curl—on to stay—water can't leak through. Fastened at the bottom through a patented turn-under fold that gives a double butt-end and protects the nails from moisture and rust.

No painting is necessary. The color is a part of the shingle, and is there to stay.

Builders will appreciate the ease of handling Rex-tile Shingles. Much lighter than slate and tile—not sticky like some prepared roofing.

Rex-tile Shingles are sold at one price. No fear of price-cutting competition if you use them on your roofing jobs, because the turn-under fold for nailing—at bottom—no flapping or warping—nails perfectly covered—is patented and exclusive.

Rex-tile Shingles are being advertised in a country-wide campaign. We'll be glad to send you sample advertisements and shingles with full information, prices, etc.

### Flintkote Manufacturing Co.

90 Pearl Street, Boston, Mass.

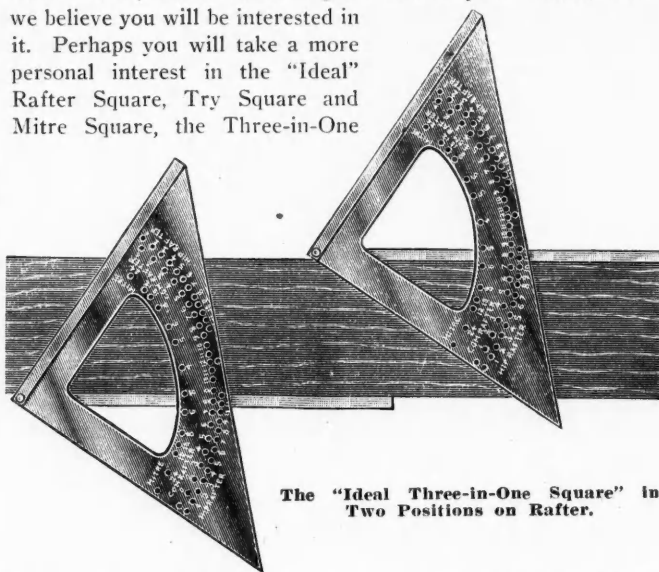
67 Beaver St., New York

659 Peoples' Gas Bldg., Chicago, Ill.

Also manufacturers of Paradux—a waterproof canvas covering for all surfaces on which walking will be done—such as sleeping porches, piazza roofs, roof gardens, balcony roofs, boat decks, etc. Easier to lay than tin or metal—far more durable—requires no special preparation of the surface to be covered. Can be painted any color desired.

our readers was soon exhausted, but from the other allotments there are still some remaining, and the manufacturer now places these at the disposal of our readers.

As you can see, this is now a *family affair* between yourselves and us. It is up to the "Big Family" to make good again on its reputation for keen, wide-awake business judgment. Here is a paragraph from this letter from the Ideal Tool Works, which means a good deal to your Editor, and we believe you will be interested in it. Perhaps you will take a more personal interest in the "Ideal" Rafter Square, Try Square and Mitre Square, the Three-in-One



The "Ideal Three-in-One Square" in Two Positions on Rafter.

Square, by having this *inside view*. Here is what they wrote us:

"Had our other advertisements turned out even half as well as yours the introduction work would have been quickly finished. Allow us to congratulate you on having a publication which in results has far exceeded any other which we have used. You certainly have made good your pledge to distribute our goods.

"As we desire to end our introduction at an early date, we have decided to give your readers the benefit of what the others failed to distribute for us. We urge them, however, to send their orders at once, as the supply is limited.

"Very truly yours,

"IDEAL TOOL WORKS."

An announcement regarding this offer appears in another part of this number. Turn to it now, or if you desire further information in regard to the "Ideal" Three-in-One Square, address Dept. C., Ideal Tool Works, Middletown, N. Y.



### Northfield Mixer Contest

One of the interesting incidents of the Chicago Cement Show was a drawing held the last day, February 17, by the Northfield Iron Co., 402 Water St., Northfield, Minn. The drawing was conducted under auspices of the various trade papers connected with the cement field, the prize being a mixer, donated by the Northfield company. The lucky winner was Mr. M. Rood, of Bark River, Mich., who has selected a Dry-or-Wet machine, and will use it in his block plant for manufacturing brick and blocks. Under date of February 22, Mr. Rood wrote the Northfield Iron Co., as follows:

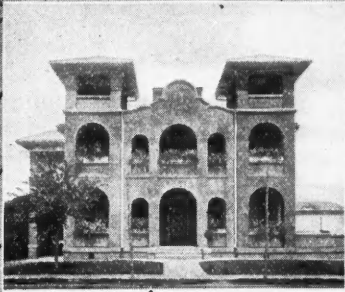
"Hope that this mixer will start a new and prosperous foundation for continual luck in business this year, and I also hope that this will lead to sales or orders from other cement users in this neighborhood for some of your mixers."



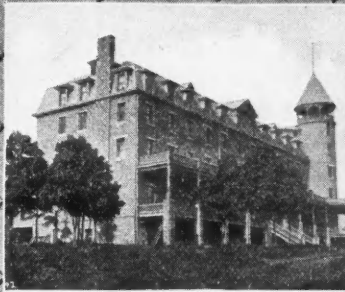
### Time for Allmetal Weatherstripping

Is there any good reason why one should wait for the cold, nasty weather of early winter before having weatherstrips put on? None, that we ever heard of.

# Asbestos "Century" Shingles



Residence  
San Antonio, Texas



Hotel  
Sulphur Springs, Ark.



Bungalow  
San Juan, Porto Rico

## The Artificial Roofing Slate that Solved a Problem Centuries Old

AS EARLY as the Eighth Century Builders and Architects objected to the use of wooden roofs as *over-liaible to fire*. This objection brought about two remarkable changes in the History of Building. The first was the introduction of the fire-proof arch and the second was the search for an absolutely fire-proof light-weight roofing material.

It has taken centuries to solve this latter problem, and its final solution is the Asbestos "Century" Shingle, made by the patented "Century" Process.

Property owners everywhere have seen these Shingles in use on all classes of buildings. They are asking questions about them and seeking all the information they can obtain.

You and your clients will find the way these Shingles stand up year after year without painting or repairing a revelation of value and service.

There are in your community prospective builders, who will ask about Asbestos "Century" Shingles. Are *you* in position to supply them with the facts about these Shingles? If not, write us without delay for samples, information, terms and trade prices.

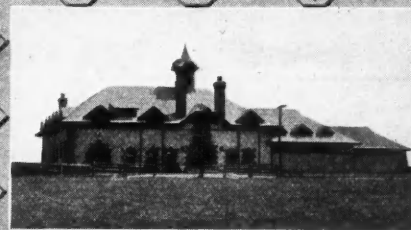
### Keasbey & Mattison Co., Factors

Dept. B.                      Ambler, Pa.

Branch Offices in the Principal Cities of the United States



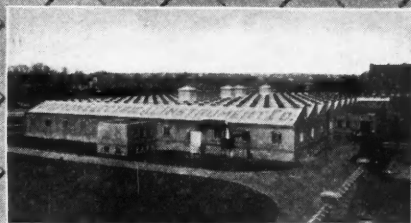
Mining Camp  
Red Ash, W. Va.



Stable  
New Port, R.I.



School  
Charleston, Ill.



Industrial Plant  
Newark, N. J.

In putting up new buildings in the spring and summer, why not *finish* the job? Everybody nowadays wants tight and snug weather proof windows. To borrow an advertising slogan, we would say concerning the weatherstrip proposition, "Eventually—why not now?"

We are under the impression there would be some saving in expense by weatherstripping windows when they are first hung. Certainly there would be a lot of satisfaction in turning over a job complete with "Allmetal" weatherstrips in place. We believe a good many builders are making a mistake when they neglect the weatherstripping business all through the building season and pick it up only for a few months in the fall and early winter. We are convinced a nice business can be done right through the building season in connection with the regular run of work, if one has the agency for a satisfactory weatherstrip and will work it constantly.

The Allmetal Weatherstrip Co., 226 W. Madison St., Chicago, are looking for reliable carpenter and contractor agents. The "Allmetal" weatherstrip is O. K. and some special service features are offered agents by this company that make doing business with them more than usually satisfactory. President J. D. Pierce will send you full particulars if you will write him.

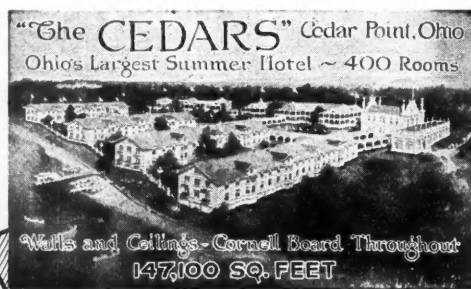
### Myers "Hercules" Door Hanger Track

The newest thing in door hanger tracks is the "Hercules" just brought out by F. E. Myers & Bro., Dept. B., Ashland, Ohio. This is an improvement over the well-known Myers "Giant" tubular steel track. It is used in connection with the "Giant" track or separately. The feature of this new track is that it provides a stiff ribbed steel shield or hood securely riveted over the "Giant" tubular steel track. This shield serves a triple purpose—it stiffens the track, taking the place of brackets; it fits snugly to the side of the building and so



New Barn Door Equipment Offered by F. E. Myers & Bro.

**147,000 Sq. Ft.**  
Used on  
**This One Job**



The only wall-board that is all pure wood-fibre and *inner-sized* in addition. Inner-sizing hermetically seals it through and through, fortifying it against warping or swelling. Others are only surface-sized.

Write Today for Particulars!

**Cornell Wood Products Co.**

**Smashing  
Big Popularity!**

**Cornell Board**

*Leads the Field!*

Cornell Board is best—yet costs less, because it is the only board made from log to finished product under one roof. Our great \$3,500,000 exclusive modern wall-board mill in the heart of the Wisconsin spruce forests produces the highest quality at lowest costs.

300,000 square feet daily

**Cornell, Wisconsin**



*"The GRAIN is RIGHT in the WOOD"*

# Fiberlic

## Wood Grain Panels

**F**OR the first time in history, we now have an interior surfacing material that is a vast improvement over lath and plaster, and also

### A Perfect Substitute for Interior Decorative Grained Woodwork

And Fiberlic is *not* a "wall board." Fiberlic is made from the fiber of a well-known imported root. These fibers are extremely tough and strong and, after undergoing a recognized chemical process to remove the resinous matter, are built up to any desired thickness.

The most attractive feature of Fiberlic is the Wood-Grain Panels, with the grain *in* the surface. Not a printed grain or printed paper mounted on wood, but "the grain is right *in* the wood," faithfully reproduced from the actual wood by a patented process. In oak, walnut and mahogany grains.

### Fiberlic is *Not* a "Wall Board"

Fiberlic Wood-Grain Panels open up a wonderfully large field for interior decorative effects, answering every purpose of genuine grained wood, yet the comparative cost is very small.

For strength, rigidity, toughness and fire-resistance, Fiberlic will meet astonishing tests. The panels afford many handsome interior decorative schemes. Fiberlic also comes plain

### For Walls and Ceilings

Costs no more than the better class of wall boards. Just as easy to apply.

*Samples, prices and specifications on request.*

**THE FIBERLIC CO. Camden, N. J.**



## ROBERDS' Oak Wall Board

is by far the best material ever invented for paneling dining rooms. It not only has the combined advantages of handsome appearance, strong, tough quality, light weight, and easy application, but is also the most economical wall finish on the market. Our Oak finish is not an imitation or mechanical design, neither is it pasted on, but is an integral part of the board itself. Our Quartered Oak Finish will harmonize perfectly with Golden Oak trim, while our Mission Oak will exactly match any of the darker Oak Finishes.

*Write today for catalog, free samples and prices of our complete wall board line. Finished in gray, tan, quarter-sawed oak and Mission Oak.*

**The Roberds Mfg. Co.**

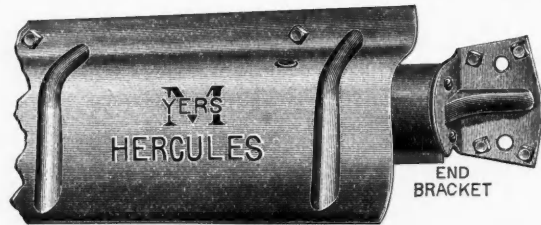
100 Railroad Avenue

Marion

Indiana

prevents ice and water from collecting on top of the tubular track; and it extends down over the top of the doors, protecting them from dripping water, and shutting out the weather. At each end of the track is a bracket fitting snugly and serving as end supports. These keep the birds out, preventing nesting or accumulation of dirt in the track.

Builders know that when F. E. Myers & Bro. announce a new feature it is worth while looking into. When this company puts out a new line with such a strong endorsement as



**The New Myers "Hercules" Track Acts as a Storm Shed and Support for the Tubular Roller Way.**

to quality and improved features, as they have with this new "Hercules" track, it is doubly worth investigating. The Myers company are one of the oldest and largest manufacturers of hardware. They are famous for their hay tools, pumps, door hangers, etc. There is scarcely a hardware dealer or implement dealer who does not know the Myers line, and carry parts of it on display. Carpenters and builders will be interested to call in and examine this new "Hercules" track. Full illustrated specifications and descriptive matter can also be obtained by addressing F. E. Myers & Bro., Dept. B, Ashland, Ohio.



### Chance to Become "Hydrex" Agent

The Hydrex Felt & Engineering Co., 120 Liberty St., New York City, who are doubtless well known to many of our readers through their "Hydrex" roofing and building papers, roofing paint and other waterproof building products, are appointing progressive builders in small towns to act as their agents. We are told that a good many builders are already representing "Hydrex" and are making some nice profits besides building up their reputation for good work through using the Hydrex materials. The company offer a very liberal proposition. Some exclusive territory is still open and we suggest to those of our readers interested to write them at once for full particulars.



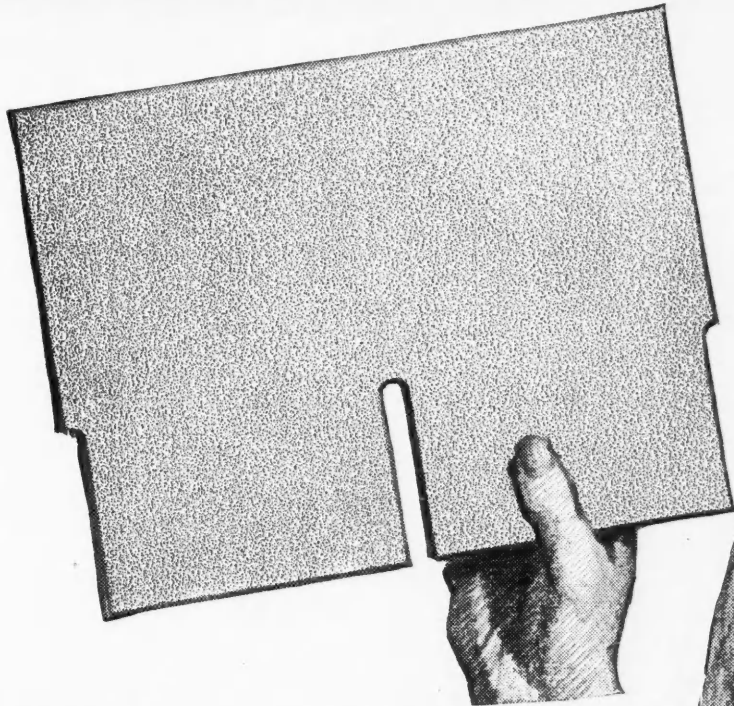
### Master Slide Rule Renamed "Interlox"

The ingenious measuring rule that has been marketed by the Dahl Mfg. Co., under the name of Master Slide Rule, has been re-christened with the distinctive and descriptive trade mark name, "Interlox." Any one who has used this rule in its present improved form will see the reason for selecting this name. The interlocking device that prevents this rule from folding or slipping and so insuring accuracy is one of the distinctive features of the Master Slide Rule.

This rule is especially useful for taking inside measurements. Where a workman has to measure the inside dimensions of doors, windows, etc., this slide rule makes accurate measuring very simple and easy. The exact inside dimension is read directly from the rule without having to make any allowance or deduction. It saves time, temper and trouble. The sliding arrangement allows the rule to be extended or closed instantly, yet the interlocking device holds it fast at any desired length.

The "Interlox" Master Slide Rule can be examined at most hardware stores or write the Dahl Mfg. Co., 51 G East 42nd St., New York City.

# “My Sale of Wooden Shingles Increased”



“When I first took on the NEPONSET Shingle I expected it would cut into my wooden shingle business. Instead, NEPONSET Shingles advertised *me* and *my business*, and *increased* my wooden shingle sales.

## NEPONSET Shingles

PATENTED

are not ordinary composition shingles. They are built up *individually*. Made in pairs to reduce laying-costs.

“The greatest roofing development of the 20th century. Any carpenter would be foolish to overlook this new *yet time-tested* product.”

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

**Bird & Son, Department C, East Walpole, Mass.**

Please send me a sample of the NEPONSET Shingle. This does not obligate me *in any way* whatever. Also send copy of your booklet “Repairing and Building.”



Name.....

Address.....

COUPON

COUPON

## How to Lay Bayonne Roof and Deck Cloth

DIRECT TESTIMONY FROM PRACTICAL MEN

Proper canvas to be used for covering roofs, piazza decks, sleeping porch floors, etc., has been the question that has puzzled carpenters and builders for a great number of years.

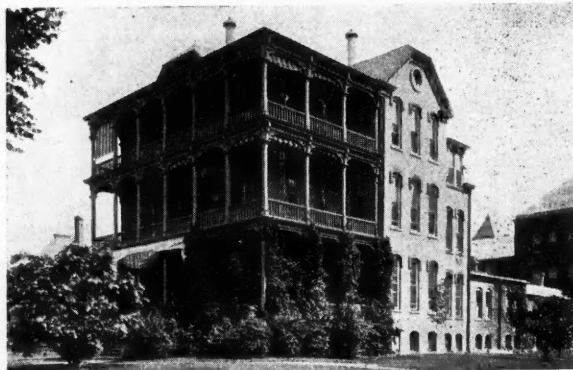
About eight years ago John Boyle & Co., Inc., who have been supplying cotton duck to builders for about forty years, experimented at their Bayonne plant in an endeavor to produce something that could be laid with less labor and effort than white cotton duck, and which would result in a neater appearance and have longer lasting qualities. Bayonne Roof and Deck Cloth was the result of these experiments. It has stood the test of constant wear and tear under all kinds of conditions. This has been proven by the vast number of letters received from builders, who have repeatedly used this material for all kinds of roofing. The laying instructions as furnished by John Boyle & Co., Inc., are as follows:

Bayonne Roof and Deck Cloth should not be laid in wet paint, nor are the edges or laps to be painted while being laid. Simply lay on dry boards and fasten to roof or deck with flat head copper or galvanized tacks, these to be placed  $\frac{1}{8}$  inch from edge of canvas while the cloth is being held taut, tacks to be not more than  $\frac{1}{2}$  to  $\frac{3}{4}$  inch apart and the laps of canvas to be  $1\frac{1}{2}$  or 2 inches. After laying, only one coat of paint need be added, unless there is to be considerable walking, in which event use two coats.

We quote from a few of the letters recently received in answer to a request as to whether these laying instructions have given the best results under the various conditions which confront the builder.

Abstract of letter received from Mr. N. E. Russell, Springfield, Mass.:

"I prefer Bayonne Roof and Deck Cloth. Any man with ordinary mechanical ability can apply it. It is noiseless under rain or the drip from other roofs. I have used it for piazza roofs and piazza floors where rooms were finished under the piazza. Have also used it to line eave troughs built into the



Pontiac State Hospital, Pontiac, Mich. 4000 Square Feet of Bayonne Roof and Deck Cloth on Porches.

cornice. The last two places give it a very severe test, as does lining of any kind."

Abstract of letter received from The Charles DeJong Building Company, Paterson, N. J.:

"We have used Bayonne Roof and Deck Cloth for the last four years, following directions for laying similar to those printed on circular. We tack canvas at edges about every 24 inches, having laid to a straight line and then nailing same.

"Construction of balcony floors which we deem best is as follows: Floor of  $\frac{7}{8}$  T. & G. white pine,  $\frac{3}{8}$  inch fall to the foot, surface of floor  $1\frac{1}{2}$  inch above edge of crown moulding at lowest point.

"Tin in gutter is continued to within  $\frac{1}{8}$  of inch from surface of floor, then a strip about  $\frac{7}{8}$  by  $1\frac{1}{8}$  is nailed against tin even with floor, over which canvas is pulled down and cut off slightly below edge to form water drip."

Abstract of letter received from Mr. C. V. Shropshire, Sea Bright, N. J.:

"Relative to Bayonne Roof and Deck Cloth, I wish to say that I have used several thousand yards of this material treated by your special preparation, and find that the best results are obtained by first having surface to be covered abso-



## Only a Thin Transparent Finish Protects Floors

From the shuffling of feet, dropping of liquids, the moving of furniture, and the many other floor abuses. By all means see that this finish will be sufficiently tough and elastic to safeguard your clients' floors against possible injury.



The One Perfect Floor Varnish is made to give a high, lustrous finish to floors, to resist the severest wear and tear and to remain unstreaked, unmarred, and free from spots. The use of Elastica Floor Finish will give your clients floors, not only beautiful to look at, but floors prepared to withstand months of hard service.

# STANDARD VARNISH WORKS

New York  
Berlin

Chicago  
Paris

London  
Brussels

San Francisco  
Melbourne

International Varnish Co., Limited, Toronto







**BAYONNE  
ROOF AND DECK  
CLOTH**

**You find a use for it  
on every job**

**E**VERY set of building plans that is important enough for an architect or contractor to figure on calls for the use of Bayonne in some part of the construction—from the humble bungalow to the imposing public institution or country club. Thousands of square feet are being used for porch roofs and floors, sleeping porches, bathing pavilions, etc. Think of its possibilities for conservatories, laundries, pantries and kitchens.

Bayonne is a special quality cotton duck treated by a process that makes it waterproof and increases its tensile strength and wearing qualities.

Is usually applied directly to boards of porch roof or floor without laying in wet paint. More economical to use and lay, and will out-last any other covering. Also makes a neater job.

It is positively waterproof and wearproof; practically noiseless; makes a neat job without upsetting the whole place, and will not buckle, peel, crack or stretch.

**How to Specify**

The floors and decks of porches shall be covered with "Bayonne" Roof and Deck Cloth, fabric (?) made by John Boyle & Co., 112 Duane Street, New York, N. Y. Material shall be laid directly on the floor or deck boarding with 1½-2-inch laps, fastened with flat-head

(copper) tacks spaced not over ½ to ¾ inch apart and within ¼ inch of the edge of the canvas. Cloth shall be held taut while being tacked. After laying, give decks (one) and floors (two) coats of white lead and linseed oil paint of color desired.

*The more you study it, the more uses you find, with increased economy and general satisfaction to every one*

**John Boyle & Company, Inc.**

112-114 Duane St. } NEW YORK CITY  
70-72 Reade St. }  
BRANCH HOUSE  
202-204 Market St., ST. LOUIS

Sample Book  
"N" gives widths  
weights of Fabric,  
laying instructions  
and prices. Write for it today.

**Birch** "is physically equal to nearly any wood, it is heavy, dense, of good milling qualities, lends itself to stains and fillers and holds finish well,"—says Uncle Sam in Agricultural Bulletin No. 12.

Because of its physical fitness **Birch** was used extensively as a substitute for mahogany and cherry, woods of the very highest price and value. In fact, "the artistic front of many a chest of drawers passed for mahogany a century ago (and may still pass as such in antique collections)" though made of **Birch**.

With this wood of high physical quality, the physical equal of mahogany and cherry, you can trim the homes you build.

No longer is it offered or used as a substitute. It is the genuine thing--genuine **Birch**.

Send for **BIRCH BOOK C** and learn all about this wonderful native wood, possessing the **GOOD** characteristics of mahogany and cherry. It is the best value for the money.

**The Northern Hemlock**  
 —————and—————  
**Hardwood Mfrs. Assn.**

Write Department C

**Wausau - - Wis.**

lutely dry. Then take the cloth directly from the roll, drawing it tight to avoid creasing, nailing it on the edge only with  $\frac{3}{4}$ -inch galvanized tacks  $\frac{1}{2}$  inch apart.

"After laying, give the cloth one thin coat of No. 1 white lead and linseed oil, properly mixed and evenly applied. Then allow to dry hard, after which one may paint it as desired."

Abstract of letter received from Messrs. Jahnes & Welch, Sea Bright, N. J.:

"Our opinion of Bayonne Roof and Deck Cloth as a deck or roof covering is that it has no equal where a hard wearing surface and water tight surface is required, notwithstanding the very slight pitch, as is the case generally with decks.

"Here on the ocean front the spray and sand during storms is a very severe test, and we find Bayonne Roof and Deck Cloth is the material we can recommend under these conditions.

"Water will not penetrate it before it is painted, and it is easier to paint with less paint than the raw canvas, and is easily laid.

"Our method of laying is according to your directions as near as possible. We have never had a leak, or had any repairs as yet to a Bayonne roof. This we can vouch for, and show proof."

Abstract of letter received from R. H. Houghtaling & Son, Coytesville, N. J.:

"We have been using your Bayonne Roof and Deck Cloth for some time and have found it so far superior in every way that in all of our specifications for new houses we call for your roofing for all veranda and porch roofs, and all roofs with flat pitch.

"In laying the cloth we lay the lap according to pitch of roof. If very flat we give 3-inch lap, but never less than  $1\frac{1}{2}$ -inch lap, and tack close to edge  $\frac{3}{4}$  inch apart. As soon as laid we give it a good coat of paint, rubbing in all the paint the cloth will hold; when hard and dry another good coat of paint, and then one coat of paint each year and roof will last at least 40 years, and we think longer."

Abstract of letter received from Geo. D. Morrow, Allenhurst, N. J.:

"With reference to the manner in which I have laid Bayonne Roof and Deck Cloth, would say that I have found by painting the roof on which the material is to be laid, allowing it to dry, and then putting on a heavy coat of ochre and oil (of course it should be painted wide enough just for one strip), and then lay the canvas direct on the wet paint, stretched tightly and laid with copper tacks about 1 inch on centers, it makes the best kind of water-tight job.

"While painting the next strip I paint the top edge of the strip already laid, and lap the second piece over so that in this way I get a heavy ochre under an entire surface of canvas. I then paint the top canvas with a light coat of ochre and oil, and two or three additional coats, as the case requires. I find that the canvas should be painted with ochre and oil at least once a year. In no case would I use white lead, for the reason that when the oil dries the white lead crazes with innumerable cracks, thus allowing the water to get down to the canvas and rot out."

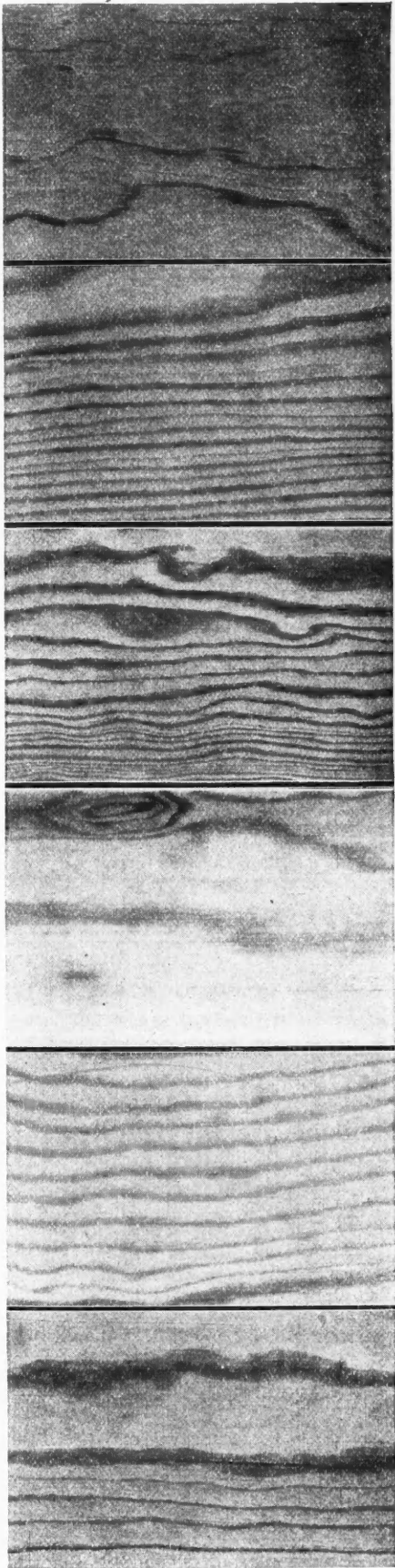
Abstract of letter received from The R. H. Howes Construction Company:

"We lay our canvas roof by, first: Preparing the roof surface by laying smooth matched boards of not over 3 inches in width, and properly pitching them so that no water will stand on the finished surface. Secondly: We lay Bayonne Roof and Deck Cloth with a lock joint, in the same manner in which a piece of metal would be applied, nailing the same down with copper or galvanized iron tacks, blind nailing (we prefer copper nail). Thirdly: After the last section is properly laid and drawn, we paint the entire surface with three good coats of lead and oil paint, starting with a colored paint, so as to insure three good coats. The most trouble in roofs, we believe, is caused by either using rough green boards, poor materials for roofing, and failure to properly protect by using the proper coats of good linseed oil, paint, etc."

Abstract of letter received from Mr. Joseph Dodds, Bernardsville, N. J.:

"I lay the laps in thick white lead, taking care that the canvas is laid without wrinkles, and have had entire satisfaction with this method."

Abstract of letter received from The John S. & L. Carlson



## *For Interior and Exterior*

Arkansas Soft Pine Looks Right, Wears Right and is Right. It is

### *Pick of the Pines for the Homes You Build*

You will find an "An Architectural Aid" a reliable guide to the correct use of the wood.

Send TODAY for your copy

It is unwise to pay more money for wood that is worth less or is less distinctively and beautifully marked.

Every piece of Arkansas Soft Pine is an individual pattern of surpassing beauty. (See illustration.) Added to the beauty of the surface grain is the **Hidden Figure** which is **developed and intensified by proper finishing.**

Arkansas Soft Pine will measure up to your conception of the "Wood Beautiful," and to your standard of the "Wood Useful."

*It is easy to work and worth working.*

---

**Arkansas Soft Pine Bureau**  
608 South Dearborn Street :: Chicago, Ill.

Company, Montclair, N. J.:

"Our method of laying this cloth on garage, piazza, and deck roofs is first to lay an under-flooring of narrow well-seasoned tongue and grooved boards running horizontally. This we give a good coat of white lead before applying the canvas. We then lay the canvas horizontally the same as the boards, giving it the usual lap, etc."

You will note that the replies in addition to comments on the method of laying the cloth, give some valuable information as to the best kind of flooring to be used and also method of finishing at flashings, gutters, etc. These letters cover all conditions; veranda roofs, sleeping porch floors, decks, and any number of places where constant wear occurs.

For further information address John Boyle & Co., Inc., New York City.



### New Mixer More Than Making Good

When the new Republic "Six" was first placed on the market, this year, many fine things were prophesied for it. The Republic booth at the Cement Show was a center of attraction for the great crowds visiting the Coliseum. Letters which are coming in, telling of the Republic already on the job, testify to the fact that it is doing even better than had been predicted.

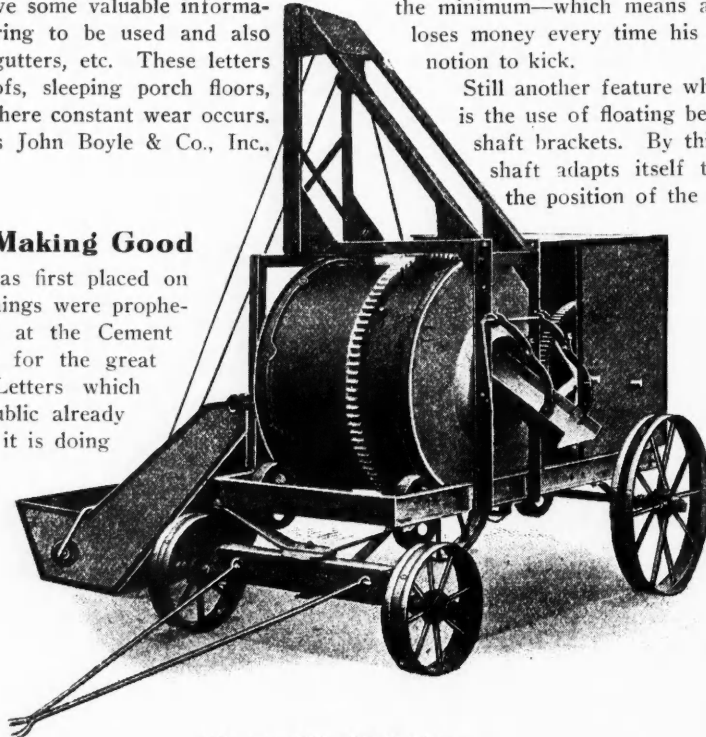
In the construction of this new machine, the Republic Iron Works, 100 Capitol National Bank Bldg., Lansing, Michigan, have introduced several new features in concrete mixer construction. The mixing drum heads are heavily riveted to the sheet steel shell, and there are

no reinforcing bars running across the interior. The value if this feature is in the fact that no pockets to catch and hold the mixture are formed.

The engine, too, is made to give the utmost in service at the lowest cost in money and trouble. Great care has been taken to protect all parts from dirt and dust. New improvements in engine building have reduced the working parts to the minimum—which means a lot to the man who loses money every time his mixer engine takes a notion to kick.

Still another feature which eliminates trouble is the use of floating bearings in the counter-shaft brackets. By this means the counter-shaft adapts itself to any unevenness in the position of the machine and does not bind in its bearings.

The building contractor, especially finds the Republic "Six" ideal for his work. It is designed to take up the smallest possible amount of room, and at the same time be easily portable. The result is a machine that will go into some mighty small corners, and which is as easy to move as a wagon. Another big reason for its popularity with builders, is that the



The Republic "Six" Mixer.



M-61 Morgan Door—Plain Red Oak and Birch. One of our most popular styles for interior work. The simple, strong design and beautiful grain appeals to the most critical architect and builder. 27 sizes carried in stock for immediate shipment.

## "Freight as Quick as the Mails"

One of our dealers writes: "We are very much pleased with the service as the goods get here as soon as the invoice and sometimes before."

We are paying a lot of attention to our service, for we know that correct, careful and prompt delivery makes the dealer, contractor, and his customer happy.

## MORGAN DOORS

*The Pride of the Modest Home and Mansion*

You'll have no hard luck delay in getting stock from us as shown in the Morgan Millwork Handbook.

By the way, have you a copy?

Your dealer can supply MORGAN DOORS without delay from our immense stock.

### Morgan Sash & Door Company

Department A-23, CHICAGO

FACTORY: Morgan Co., Oshkosh, Wis.  
Eastern Warehouse and Display:  
Morgan Millwork Co., Baltimore

DISPLAYS: 6 E. 39th Street, New York  
309 Palmer Building, Detroit  
Bldg. Exhibit, Insurance Exch., Chicago

# **Your Flooring Problem Solved**

An illustrated book containing Thirty-two pages of information of direct interest and practical value to every Builder. It should be part of the lumber library of every contractor.

**A copy will be mailed FREE on Request.**

*You need this Book. SEND FOR IT.*

Uncle Sam has investigated the uses and values of many woods. His reports are worthy of your close attention. Speaking of Maple, Beech and Birch Flooring in Bulletin No. 12 of the Department of Agriculture, he says:—

**Maple Floors**—Soon after this the roller skate craze struck the country, and Maple Flooring was instantly in demand. It was the best obtainable material for rink floors. Its good service in the rinks led to its use for other floors. Instances have been cited, apparently well authenticated, where **Maple has given longer service under excessively trying conditions** (stair landings in large stores) **than marble.**

**Beech**—A great deal of Beech is used for flooring, and it ranks after Maple and oak among the hardwoods so employed. **In ordinary floors it wears as well, or nearly as well, as Maple,** and it has the advantage of shrinking and swelling less than most woods.

**Birch**—Sweet Birch is a satisfactory wood for flooring, whether the purpose is ornament or long service or both. **The wood is handsome, it stands well** when thoroughly seasoned, **and it lasts a long time.** Large quantities of this flooring are made in the lake states and it finds service in houses of the better class in practically all of the eastern and some of the western states.

Hardwood floors in the buildings you construct will not retain their beauty unless they are durable. You have Uncle Sam's word for it that **Maple Flooring lasts longer than Marble.**

*You give your customers the best there is when  
you put in Maple, Beech or Birch Floors*

## **Maple Flooring Manufacturers Assn.**

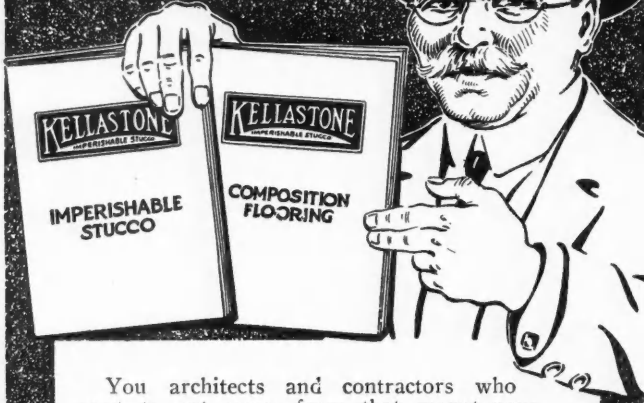
Stock Exchange Bldg.,

-

-

Chicago, Ill.

# Fellows! You Ought To Have These Books



You architects and contractors who want to get away from that monotonous sameness in the appearance of your jobs—you men who want to instill durability, character, dignity and unusual beauty into your building—you ought to have these books. One tells about the remarkably artistic effects secured with

## KELLASTONE IMPERISHABLE STUCCO

—how it embodies no Portland cement, lime or gypsum. How it is moisture-proof and fire-proof and withstands far greater settling strains than any other stucco without cracking.

How it is a non-conductor of heat, cold and dampness and how it possesses greater tensile and tension strength than cement stuccos and is not so brittle. It tells how easily Kellastone can be successfully applied over wood lath, metal lath, byrket sheathing, hollow tile, brick and stone walls, and how perfectly it bonds to door and window casings.

It tells how valuable Kellastone is in remodeling old buildings, how it is used as an interior plaster and the beautiful stucco and plaster effects it produces. And it tells how Kellastone can be applied with the same success in winter or summer. The other book tells about

### Kellastone Composition Flooring

and how it is composed of materials in powder and liquid forms which, when mixed and spread, form a tough, seamless mass over the entire floor including cove and base, if desired, thus providing a sanitary, durable floor without seams or joints and easy to keep clean.

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

#### Send for These Books Today.

They're brief, interesting and instructive. Your name on a postal brings them. Kellastone is carried by lumber and building supply dealers. If your dealer cannot supply you, write us.

**The National Kellastone Co.**  
504 Association Bldg. Chicago, Ill.

machine is remarkably low in price—offering advantages that cannot be had elsewhere for the money.

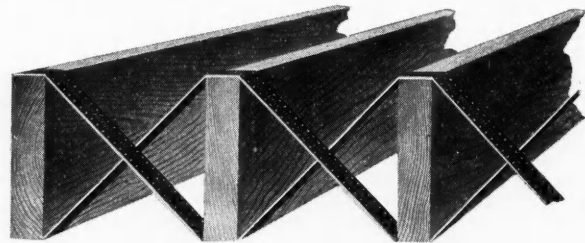
The Republic "Six" is a five-yard capacity machine—or six yards of loose dry material. So well is the mixing done that thirty seconds will thoroughly mix a batch.

We are glad to see this early success for the Republic—so carefully and well constructed a machine deserves it. The Republic people have some mighty interesting literature describing the "Six"—it should interest everyone who is in any way connected with, or interested in concrete mixing. Our readers would be well repaid for dropping them a line of inquiry.



### Steel Bridging the Newest Improvement

Contractors and builders will be interested in the accompanying photograph of "Aladdin" steel bridging, which is being offered by the North American Construction Company. This bridging is a new departure and is claimed to be far superior to the usual wooden bridging, which is so frequently faulty. The labor of cutting and nailing in wood bridging is no small chore. This new steel bridging takes



"Aladdin" Steel Bridging.

about half the time to put in, and when once in place holds the joists firm and strong throughout the lifetime of the building.

We understand that this bridging is furnished for the "Aladdin Readi-Cut" houses. Doubtless it can be ordered for other jobs, also, by our readers who wish to try it. Address the North American Construction Company, 796 Aladdin Ave., Bay City, Mich., for full particulars.



### "Little Giant" Still Making Good

At a cost less than you have to pay for the pallets alone for some of the big machines, you can buy a "Little Giant" brick machine with all its equipment. At every operation you make three perfect bricks. None of your profit is wasted in breakage.

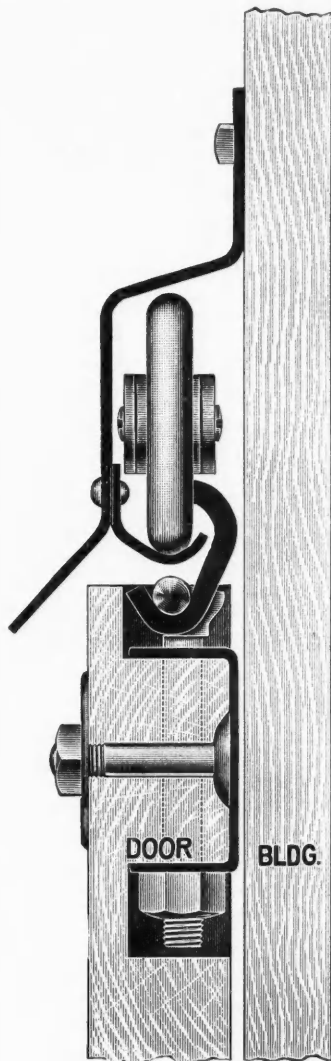
It is a well-known fact that cement brick properly made will stand the hardest test of fire, water or the elements. In many places there is already a big demand for them, and even where cement bricks have not yet been introduced a demand can easily be created.

Here are some figures that show where the profits are in the cement brick business. Six to eight sacks of cement and a load of sand will make 1,000 perfect bricks, every one salable, at a cost of from \$3.00 to \$3.50 per thousand for the material. One good workman can easily turn out 1,000 to 1,500 bricks per day. Plain cement bricks sell readily at \$12.00 per thousand, and ornamental bricks at \$20.00.

The "Little Giant" brick machine has been on the market seven years, and has made good for thousands of contractors, lumber dealers and cement brick manufacturers. This machine is manufactured and sold by the La Grange Specialty Company, La Grange, Ind. Write them for their illustrated booklet that tells all about the "Little Giant" and what it will do.

# No. 2 "Glide" Hanger

ADJUSTABLE



As is well known, the "Glide" Hanger requires no *lateral* adjustment, as it is fastened to the inside face of door, and the door is always carried the same distance from the building. Hence the necessity for lateral adjustment is avoided.

We have, however, had considerable call for a hanger with *vertical* adjustment, which is a very desirable feature, and have therefore brought out the No. 2 "Glide" Hanger, which embodies all the good points of the original No. 1, and in addition has the adjustable feature added, **AT NO INCREASE IN PRICE.**

Especial attention is called to the fact that *the adjusting nut is on the inside of the building*, away from the weather, which cannot be said of any other type of adjustable hanger. This insures an easy adjustment at all times, as the nut will not rust tight on the bolt, like it would if the adjustment were placed on the outside face of door, where it would be exposed to all sorts of weather conditions.

In your locality there is doubtless a "Glide" dealer, whose name—together with literature—we shall be glad to send you if you write.

## FRANTZ MANUFACTURING CO.

Sterling, Illinois

THE ORIGINAL WATER SHED TRACK FACTORY

### True Grain Wood Finishes in Wall Board by a New Process

The graining of wood has been accomplished for a good many years by the use of rollers and graining tools. The grain has been cut upon the rollers and the rollers and tools applied to the wood in such a way as to produce the grain. The work, while to a certain extent automatic, has been hand work, and the results have depended considerably upon the skill of the operator.

Grain finishes have been applied to wall board in this way with very good results.

The Heppes Company, manufacturers of Utility Wall Board, have just installed some very extensive machinery for applying grain finishes to their Utility Board. The new process by which these finishes are applied insures an actual reproduction of the wood. Not stained, but grained is the way the Heppes Company characterize the feature that makes this new style Utility Board so distinctive.

It comes in four beautiful wood-grains—flat oak, quartered oak, circassian walnut and mahogany. Heretofore to obtain the handsome effects of these expensive, precious woods on the walls of a home it required a fat purse and a willing spender—only the very wealthy could afford to enjoy such exquisite wall effects. But now Utility Board duplicates perfectly the rich, pleasing texture of these expensive, precious woods—yet brings the cost within the reach of practically every one.

Utility Board—known everywhere for its wear and weather-proof features—is one of the pioneers among wall-boards. The Heppes Company make Utility Board out of layers of fibre board which are lastingly welded together with hot asphalt into one stiff, unbending sheet. Utility Board is a splendid, inexpensive substitute for lath and plaster. Utility Board has in-built qualities of durability that assure it

permanence of good looks, and the fact that it nails direct to studding and joists or right over old plaster or ceiling without removing the plaster or ceiling from the walls is another convenient advantage in favor of Utility Board.

That this new grained board is Utility Board is assurance of its lasting qualities.

It is not like experimenting with something new and untried. This product has the Heppes Company backing behind it.

The four-page colored insert in another part of this issue gives further interesting and valuable facts about this new Wall Board as well as other Heppes Company products.



### Drawing Instruments and Levels for Builders

Of interest to the carpenter and builder who does his own designing and drawing, will be a new catalog of drawing instruments just put out by Kolesch & Co., 138 Fulton St., New York City. This company has been making instruments of precision for a great many years, and their line is well known throughout the building and engineering world.

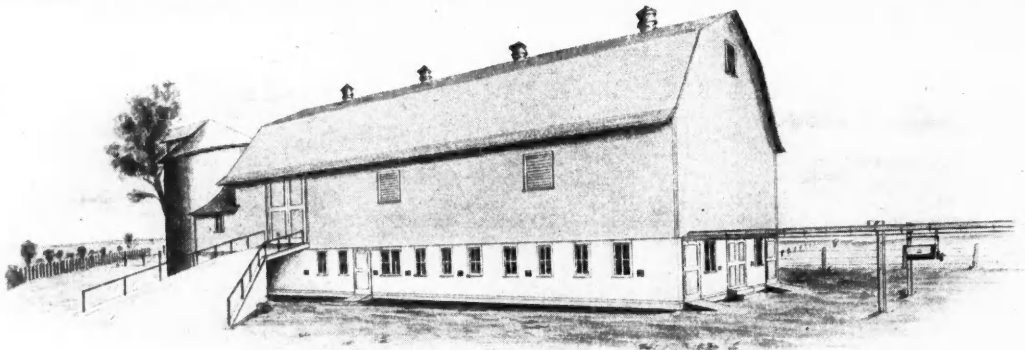
In this catalog they have listed levels which are especially adapted to the uses of the man who builds residences and barns. A line to the company's offices will bring the book.



### Metal Lath by Weight

The Associated Metal Lath Manufacturers, during its four years of existence, has made sincere effort to find by research and field investigation fundamentals that govern the use of metal lath.

The earnest desire of the metal lath manufacturers to get to the bottom of things is well evidenced in the fact that they have turned over to the National Bureau of Standards at



## Barns and Barn Equipment

There is a progressive contractor in every locality who is going to seize the opportunity created by the European War. You wonder at this statement, but consider the conditions a moment. The enormous increased demand for American farm products has caused all modern farmers to realize the importance of obtaining the maximum yield for the next few years at least; that this may be accomplished it will be necessary to build new barns and remodel many others. Needless to say, this work is of a profitable nature, and with the assistance we offer, should prove attractive to all contractors.

We maintain a **Free Service Bureau** for the benefit of the farmers in particular, but all contractors and parties interested in modern farm buildings as well. Send us your barn problems, as we can assist you greatly; remember that we manufacture **Complete Barn Equipment** and every phase of your work in this connection has been carefully considered. **Detailed Floor Plans** are sent free of charge, and we co-operate with you in every possible way.

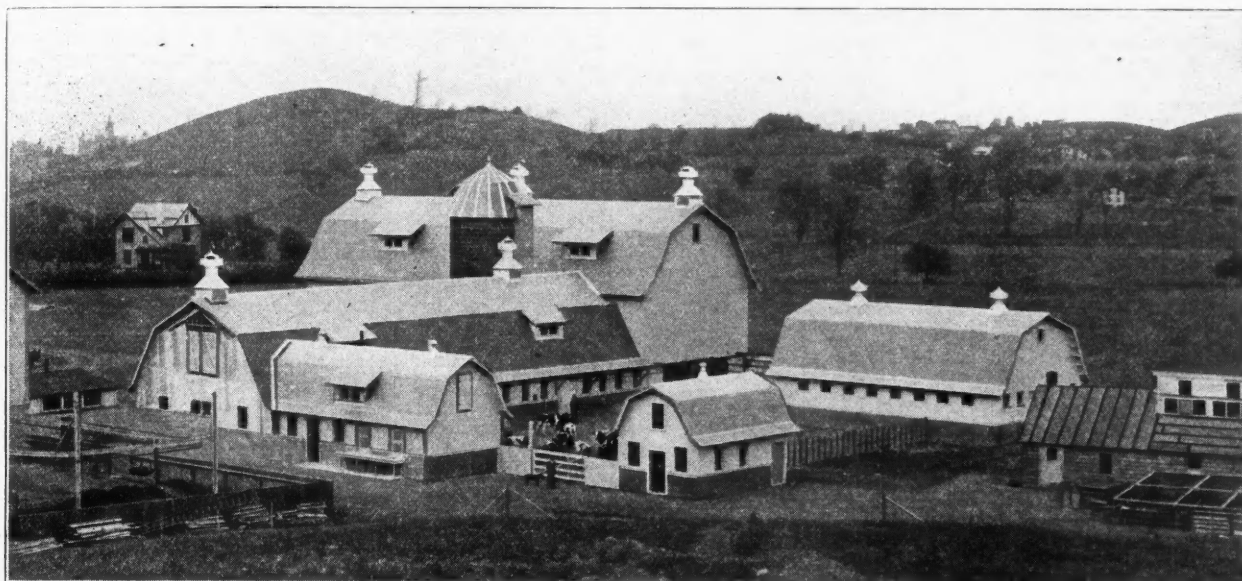
Don't overlook this chance to begin a profitable business for yourself, and send us today the names of parties expecting to build or remodel barns in your vicinity.

Complete catalogue will be forwarded you immediately.

### J. E. PORTER COMPANY

620 Fremont Street, OTTAWA, ILL.





## Make Barn Building A More Profitable Part of Your Work

Builders in all parts of the country have *made more money* after taking advantage of JAMES Barn-Building Service. Many of them have developed their business with dairy farmers until it has become the biggest part of their work.

The barn shown at the top of this page is a typical JAMES barn—one that any builder could be proud of, and the kind that makes every dairy farmer who sees it wish for one just as good. We have often told builders that one JAMES barn—built by the local man with the advice and assistance of JAMES experts—leads to many more good jobs in the same neighborhood, and this holds true in

every locality where builders have taken advantage of JAMES service.

It pays any builder to study up on the latest sanitary and economical methods of barn construction. We work with the builder, helping him in every possible way, and he gets credit for a fine, satisfactory job after it is finished.

Why not join us in getting more barn-building business in your neighborhood? Why not enjoy the bigger profits that are absolutely sure to come from this kind of co-operation with men who have devoted their lives to barn-building and barn-equipping problems? Why not avail yourself of this helpful

### Free Service for Builders

This service tells all about the proved principles that have made the JAMES organization undisputed leaders in this line. It describes the plank-frame construction—describes proper ventilation principles, location of barn, lighting, size and arrangement, construction of floors, position of posts, drainage, equipment, etc.

*We help you get the business.* Just answer the questions indicated in the coupon—give us the names of dairy farmers in your section who expect to build or remodel their barns—and we will work with you in landing some good jobs and putting them through so they will be right. We have complete blueprints, specifications, floor plans and lumber bills for many different types and sizes of modern dairy barns. Ask about them—ask about our *Special Blueprint Offer* and learn how to get the free assistance of our Architectural Department.

### JAMES MFG. CO.

C. Z. 75 Cane Street

FT. ATKINSON, WIS.

#### This Coupon Brings It

James Mfg. Co.,

C. Z. 75 Cane St., Ft. Atkinson, Wis.

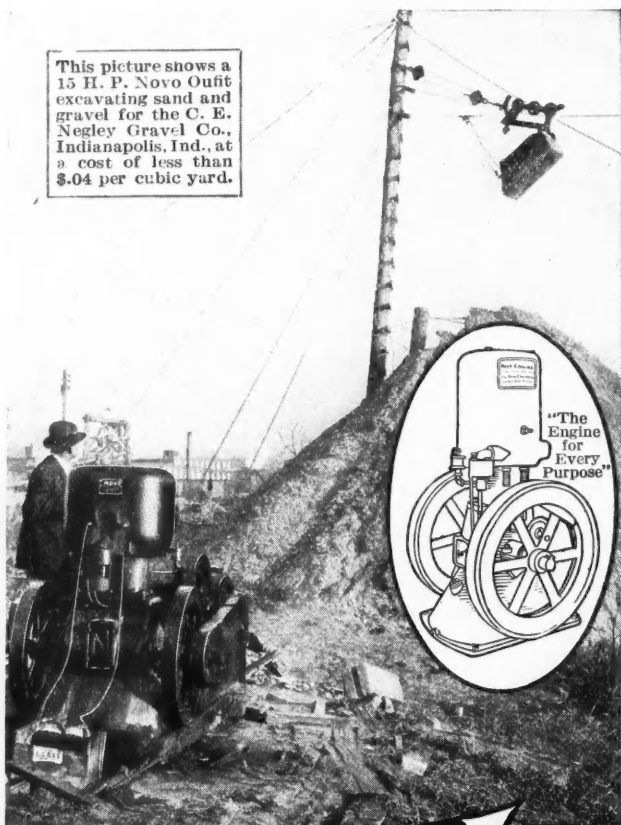
I would like to have the benefit of your **free service for Builders**, including information regarding blueprints of dairy barns, etc., and your **free book**, "Building the Dairy Barn," by W. D. James. I am enclosing a list of those in my neighborhood who expect to build or remodel dairy barns, and number of cows to be accommodated in each barn.

Name .....

Postoffice .....

State .....

This picture shows a 15 H. P. Novo Outfit excavating sand and gravel for the C. E. Negley Gravel Co., Indianapolis, Ind., at a cost of less than \$.04 per cubic yard.



# NOVO

REG. U.S. PAT. OFF.

## ENGINES and OUTFITS

Tireless and reliable Novo Power is taking the place of man-power at every turn — in every kind of work. It is almost suicidal for man-power to compete against Novo Power. What chance has Contractor "A" (who still uses antiquated man-power) against Contractor "B" who uses Novo Power, when one Novo does the work of six men and costs less than one?

Novo Power not only beats man-power; it beats steam and electricity. Novo has eclipsed steam. Novo costs less—is lighter—handier—safer—no freezing—runs itself. Novo beats electricity; self-contained units—no outside wiring.

### Will You Investigate to Save Money?

Many a power user at first thinks his case "peculiar." But he investigates! He learns facts about Novo's wonderful adaptability. Result? He puts a Novo on his payroll with this significant remark—"Why didn't I investigate years ago?"

### Send for Free Book, "Reliable Power"

Novo Centrifugal Pumping Outfits	Novo Hoisting Outfits
Novo Diaphragm Pumping Outfits	Novo Suction and Force Pumping Outfits
Novo Deep Well Pumping Outfits	Novo Air Compressor Outfits
	Novo Saw Rigs

**NOVO ENGINE CO., 448 Willow St., Lansing, Mich.**  
or Station A, San Jose, Cal.

Clarence E. Bement, Secy. and Mgr.

Novo Engines can be furnished for operating on gasoline, kerosene, alcohol or distillate.

Washington the investigation of the corrosion problem as affecting metal lath. Possible corrosion is recognized by architects and engineers as seriously touching all iron and steel material that go into a building, whether it be gas or water pipe, structural members, roofing, or metal lath; and the reports of the Bureau of Standards, following their experiments and research, should give much-needed information on this important subject.

Another thing which has been a source of annoyance to architects is a designation for metal lath that will be comprehensive and free from misconstruction. In the development of metal lath, whether of a form expanded from sheets or woven from wire, it has naturally been the practice to designate the material by the gauge of the metal.

The best building practice demanded the heaviest material—24 gauge in expanded metal and 18 gauge in wire—but with the development of new forms of metal lath it was found possible in some forms to still keep within the letter of the specifications, but furnish less material; in other words, the tendency was to supply an increasingly larger area of holes surrounded by strands of metal that were of the full gauge; and the weight per square yard would be correspondingly reduced. This problem was approached by the Metal Lath Association in the same fair-minded way that has characterized all of the co-operative work carried on by that industry, with the result that at a recent meeting of the Association, a resolution was passed to the effect that all metal lath in the future would be designated alone by weight, and in a metal lath hand book now on the press, the recommendation made by the Association is that in all specifications metal lath be required to be painted if not galvanized and to WEIGH NOT LESS THAN 3 $\frac{3}{8}$  LBS. PER SQUARE YARD.

It is quite unusual that the constituents of an industry can so far waive individual advantages and forget their differences as to unite on an elementary action of this sort.

Anything that tends toward uniformity or standardization of building materials is welcomed by architects and the action of the metal lath industry should have its deserved appreciation.



### Makes Better Carpenters

A short course of instruction, which covers geometry, projections, and architectural drawing, carpentry, the steel square, joinery, stair building, and roofing, besides giving full instruction in the mechanics of carpentry, arithmetic, geometry, formulas, and mensuration, has just been issued by the International Correspondence Schools of Scranton, Pa. This course is of particular interest to carpenters and apprentices in the trade, who wish to increase their knowledge of the theory of their craft, and to have a firm foundation to advancement in position and wages. Send for a prospectus of this short and excellent course, "The Carpenter's Special Course."



### The Garbage Can Problem Now Solved

The handling and disposing of garbage in the home has been a serious problem home builders have had to contend with for ages. The garbage disposal is rarely thought of during the drawing of the plans or while the building is under construction. It is something the man of the house leaves to womenfolks after the house is completed. The result is the unsanitary, unsightly, portable garbage can is resorted to, despite its inconvenience and dangers. The incinerators that have recently come on the market are along the right direction and show the trend of times toward the solution of the garbage evils. But these appliances are for the wealthy class only, because their exorbitant price is beyond the reach of the average homebuilder. He must look to a more inexpensive way of caring for his garbage waste.

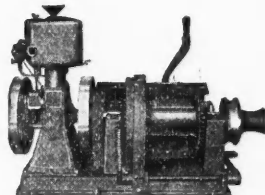
-Contractors  
who want  
"Constant  
Service"  
use **IDEAL**  
Power

# YOUR equipment needs the magnet power of "Constant Service" engines to realize highest profit percentage

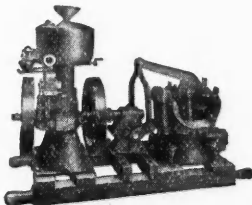
Supreme and conclusive are the successes of Ideal Power. Their claims of "Constant Service" are proven by the verdict of many thousand users. Power users find in Ideal Power a durable engine of simplicity, compactness and modern construction. Now—more than ever before, have power users realized the efficiency of **enclosed crank case, large valves, and cooling hopper.** In Ideal Power is represented the best of engine building designs. **Self oiling bearings,** quiet and effective action of all working parts **eliminates vibration.**

In short, you will find in all

## Ideal Type M Engines



We build Single-Reversing  
and Double Drum Hoists



Skid or Truck Mounted  
Diaphragm Mud Pumps

a power plant of the highest efficiency—Ideal quality, Constant Service, and backed by Ideal reputation and guarantee. This is our one suggestion—

### Investigate IDEAL ENGINES Now

For the busy contractor who wants quick delivery, we offer our Ideal line of power equipment—

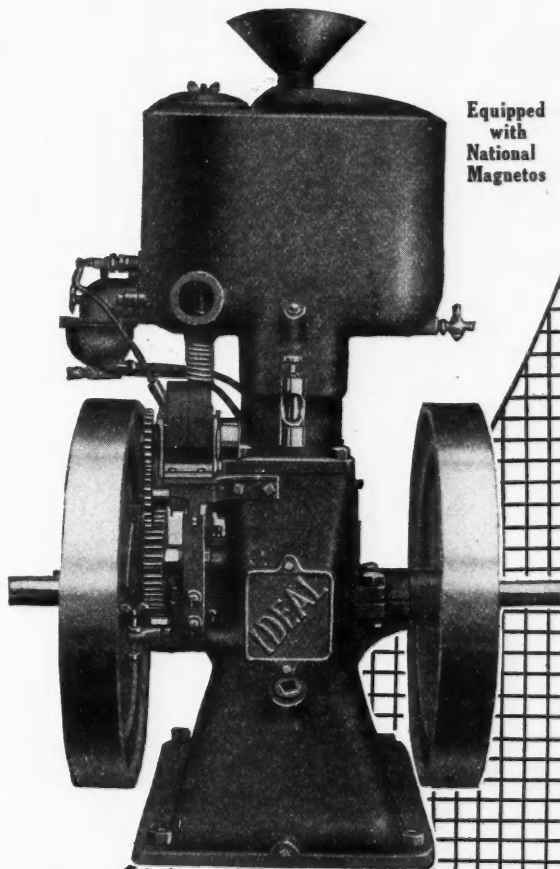
- Ideal Diaphragm Pumps
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*If you are in need of service—why not see us? Better look over our book 415*

## Original Gas Engine Co.

R. E. OLDS, Chairman

630 Kalamazoo St., E.    Lansing, Mich.



Equipped  
with  
National  
Magnetos



The Kitchen End of the "Majestic" Garbage Receiver.

The Majestic Company of Huntington, Ind.—the makers of the celebrated Majestic coal chute—have, after many years of experiments, finally succeeded in perfecting a sanitary garbage receiver to be built into a home that is practical and convenient, yet so moderate in cost that the owner of a modest cottage of \$3,000 can easily afford to install one.

It consists of an iron cabinet or case that serves as a container for the regulation galvanized garbage can and is built into and through the kitchen wall. Note the illustration which

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

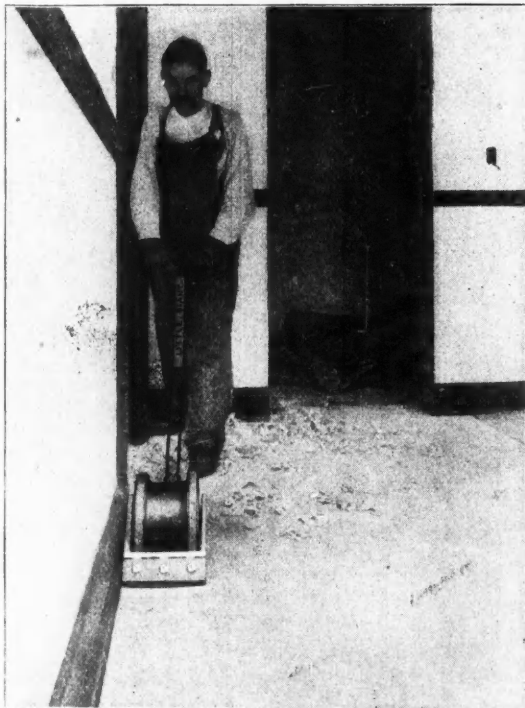
For complete details—dimensions and other particulars regarding this built-in garbage receiver—we advise our readers to write to the Majestic Company, 505 Erie Street, Huntington, Ind.



### Heitland Hot Water Circulating Fireplace Heater

Everyone enjoys the cheerfulness of an open grate fire; but many worry so much about the heat that goes up the chimney that they feel they cannot afford the luxury. A fireplace hot water heater is now on the market which utilizes all this waste heat, so that now one can heat from three to five rooms with the same amount of fuel consumed by the old-style fireplace.

The Heitland Grate & Mantel Company, Quincy, Ill., have developed this improved hot water circulation fireplace heater. It has a heavy cast-iron firebox, and across the back and over the top in the smoke arch is a coil of 1-inch charcoal iron pipe. This contains 29 lineal feet of pipe, giving an immense heating surface.



The New Way—Along the Baseboard

## Finish a Floor without paying a cent

No matter how you are doing it now, try a "Little Giant" on one of your jobs—it won't cost you a copper. Neither will it obligate you in any way.

We want you to try it out, to demonstrate it to yourself; we are not going to tell you about its many popular improvements and features here, but will leave it entirely up to you.

You can tell and will know whether it will save and earn money for you, so no matter how much floor finishing you do, much or little, let us send it on 10 days' Free Trial.

### The "Little Giant"

scrapes every inch of floor, and does it right, far better than laborious hand-scraping. No motive power required. Operator simply pulls the machine to scrape. It scrapes and finishes all kinds of wood, Oak, Maple, Birch, Beech, Yellow Pine and Parquet Floorings.

The "Little Giant" scrapes every inch of any floor. Works around curves, into corners and along baseboards without loss of time or extra effort.

To the 30,000 Users of Little Giants We have a complete stock of knives and other accessories of this machine always on hand.

Send for a "Little Giant" now to try on a job. Or, if you have no floor scraping right now, send for full particulars. Address—

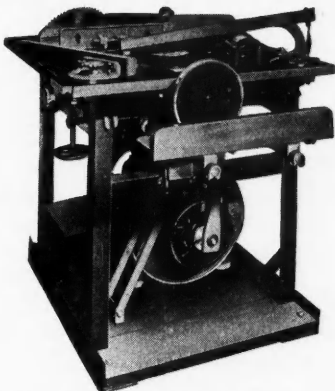


Operator Pulls Machine to Scrape Floors

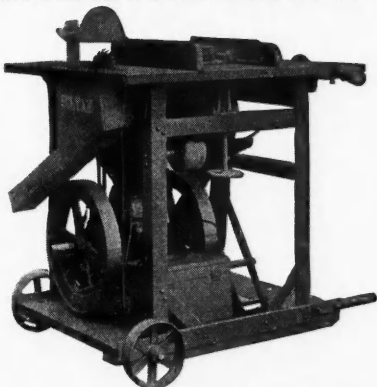
**THE HURLEY MACHINE COMPANY**  
21-39 So. Clinton St., Chicago      147 W. 42nd St., New York

• APRIL •						
Sun	Mon	Tues	Wed	Thur	Fri	Sat
				1	2	3
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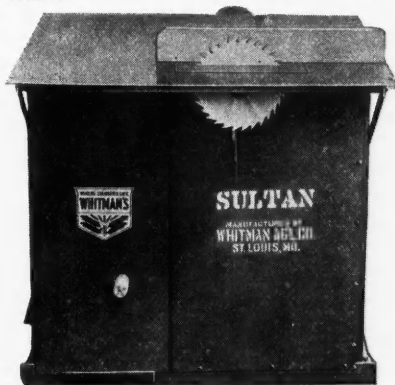
# Time to Get on the Job



**THE SULTAN COMPLETE PORTABLE SAW RIG**  
For all around efficiency this machine is unsurpassed. It is equipped with five H. P. Sultan Sawing Engine. The Saw has gravity blower to take saw-dust or shavings away from engine at all times.



**LIGHT PORTABLE SULTAN WOODWORKER**  
This machine is easily portable. This Sultan with one man will get out as much work as six with hand saws in two days. Figure out—can you afford it?



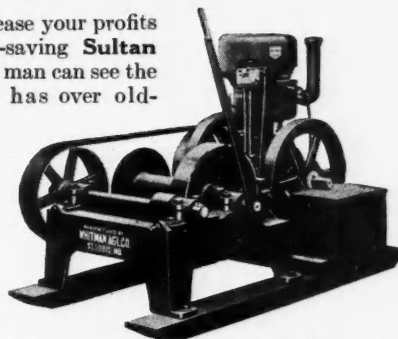
**THE SULTAN MIDGET PORTABLE SAW RIG**  
Here is an all-steel Portable Saw Rig. It is especially made for cross-cutting and rip sawing. It is very reasonable in cost and will pay for itself on a few jobs.

## Make this Year a Record-Breaker— SULTAN POWER AND EQUIPMENT Will Enable you to Earn More Money and Handle More Jobs This Season

Increase your capacity for work and increase your profits this season by using time-saving, labor-saving Sultan Contractors' Equipment. Every practical man can see the many advantages modern equipment has over old-fashioned methods. The same practical man will quickly see the superior qualities of the Sultan Line.

All Sultan Power Equipment is driven by the Improved Sultan Engine. An Engine representing the highest degree of efficiency in Gas Engine Construction and Design. An Engine that gives Constant Service and that requires the least attention and is most economical to operate.

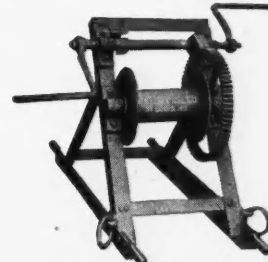
No matter what sort of work you do, we have a Machine for your individual needs that will earn you money.



**SULTAN SKIDDED BELT-DRIVEN HOIST**  
This hoist is especially adapted for Contractors and Builders. Make your jobs pay bigger profits by using power hoists. Hoist illustrated above is the Sultan Belt-Driven Hoist.

### The SULTAN Line of Contractors' Equipment is the Most Complete in the World

We manufacture every Machine complete (except saws on saw rigs). We have our own foundries, machine shops, etc., and consequently can quote you lowest prices on what you need. The Sultan Line includes Saw Rigs, Hoists, Winches, Swing Saw Tables, Material Elevators, Portable Drag Cross-cut Saws, Pumps, Self-Dumping Concrete Buckets, Tilting Cross-cut Saws, etc.

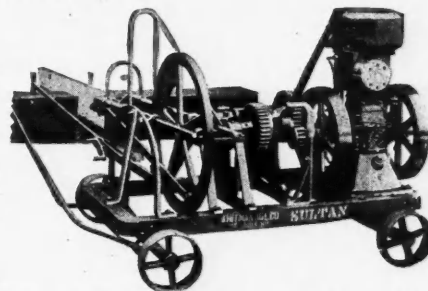


**SULTAN WINCHES**  
are solid and rigid. Being bolted and riveted as to make the whole frame a solid unit. Gearing is lined perfectly and an extra strong steel ratchet pawl engages large gear, enabling operator to securely lock the winch at will.

Our new large Catalogue is just off the press. It illustrates every Sultan Machine in detail. This book will be an education in Contracting Equipment to you. We'll send a copy on request. Write today.

#### Whitman Agencies

- Brown & Sites, 30 Church St., New York City.
- W. B. Lauer Company, 909 Old Colony Bldg., Chicago.
- Geo. F. Smith, 809 N. Main St., St. Louis.
- E. R. Bacon Co., San Francisco, Cal.
- Geo. T. Wallace Sales Co., Detroit, Mich.
- Buntingstone Hdwe Co., Kansas City, Mo.
- Warren Bros., Louisville, Ky.
- Franklin Builders' Supply & Coal Co., Columbus, Ohio.
- W. E. Lewis Co., Milwaukee, Wis.
- Ellis Woolman, Minneapolis, Minn.
- United Mfgs. Sales Co., 203 Davidson Bldg., Des Moines, Ia.
- Patterson Supply Co., New Orleans, La.
- Beckwith Bros., Pittsburgh, Pa.
- Mills & Lipton, Chattanooga, Tenn.
- Frk. L. Dykema, Grand Rapids, Mich.
- W. S. Wahlman, Ishpeming, Mich.



**THE SULTAN PORTABLE DRAG CROSS-CUT SAW**  
If you do any heavy constructive work, you will find this saw invaluable. It saws from three to five times the number of timbers or logs eight to ten men saw in a day. It soon pays for itself.

# WHITMAN A. COMPANY

7003 South Broadway

St. Louis, Mo.



## A FINAL TEST FOR ABSOLUTE BALANCE AND SWING BEFORE THEY LEAVE OUR HANDS.

A system of inspection that neither deviates nor compromises—that from the first rough forging of the tool to its final dressing for shipment insists on an absolute correctness of detail—this is what makes every

**GERMANTOWN  
MASTER BUILDER**

hammer, hatchet or axe a **Perfect Tool.**

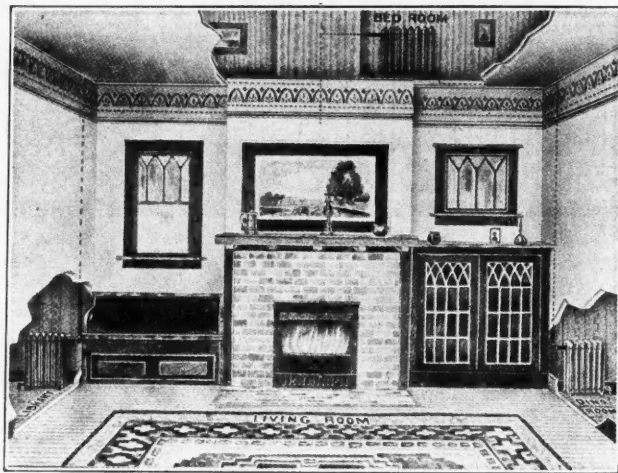
You can buy cheaper tools, of course, ordinary tools that give the ordinary amount of wear and service; but when the pride of the real workman needs satisfying you will accept none but a "Master Builder." In them, and in them alone you get that fine combination of perfect steel and perfect manufacturing care added to a design, every detail of balance, proportion and swing of which is the outcome of long years of successful tool building.

Over 57 years ago this business was started with an ideal—an ideal of making the **best** hammers, hatchets and axes regardless of *price*. That ideal has never been hauled down. When you purchase a "Germantown Master Builder" you are getting the absolute **best** of the toolmaker's art.

*The hammer illustrated above is made in three sizes; No. 745, 11 oz., No. 746, 16 oz., and No. 747, 20 oz. Handle of second growth hickory, octagon-shaped to prevent slipping. Ideal hardness, a claw that grips, perfect balance and swing. Each, \$1.00.*

**Germantown Tool Works**  
Philadelphia Pa.

Branch: 62 East Lake St. Chicago



Section of Residence Showing the Heater in Fireplace in Living Room, with Hot Water Radiators in Library, Dining Room and Bedroom.

The illustration shows a typical installation. The hot water heating fireplace is in the living room, and dotted lines show hot water piping running to radiators in library and dining room and overhead to second-floor bedrooms.

In many localities this fireplace heating system will become very popular.

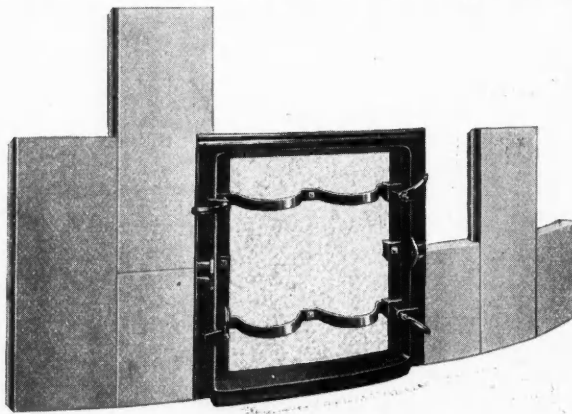
All carpenters, builders, and architects should be familiar with this improved fireplace heater, and we suggest that our readers write at once to the Heitland Grate & Mantel Company, Quincy, Ill., for further information.



### Stave Silo Business Offers Money-Making Opportunity

There is not a farmer in this country but is now convinced that he needs a silo. A lot of them have been able to have silos built, but more of them have not been able. This past year crops were better than ever before, and the amount of money for improving the farms is larger than it has ever been before. The farmers all are going to have silos just the moment they can—it is simply a question of selecting the best.

Perfection Concrete Stave Silo Co., 507 Clapp Block, Des



Sectional View Showing the Construction.

Moines, Iowa, have a system of concrete stave construction which offers many advantages both to the builder and to the man who will own the silo. But little capital is needed to start in the manufacture and erection of "Perfection Stave Silos," and the profits are the kind that soon swell the bank balance.

Their proposition is practically new, and the early birds are sure to catch the fattest, juiciest worms. Full particulars will be sent anyone inquiring—exclusive territory will be given the right men.

# Attention

**Readers of the American Carpenter and Builder**

**ANOTHER CHANCE to GET IDEAL TOOLS at HALF PRICE**

Several months ago we published Special Introductory offers of the wonderful **IDEAL** Three-in-One Try, Rafter and Mitre Square in various publications and set aside a certain number of tools for each magazine. The men who read the American Carpenter and Builder have shown themselves to be the most up-to-date and always on the lookout for labor-saving devices because they snapped up our Introductory offer before the ink was dry.

The other publications did not secure the desired introduction and consequently there are a few tools left over. Appreciating the support you American Carpenter and Builder readers have given us we are going to give you the benefit of these remaining tools at the original introductory price of \$1.00. This price is only one-half of the regular price and does not cover the cost of manufacturing and shipping, but we offer you these tools to close up this introduction. Remember the number of tools at this price is limited, so lose no time in sending in the coupon below.

## This Movable Bar

shifts, giving you all desired angles for Rafter Work, Mitre Work, Many-sided Figure Work, Bay Windows, Interior Work, etc. Simply spring pin into desired hold and tighten thumb screw. Bar is shifted by springing from one hole to another in every scale. Pin loosened only to change scales.

# \$1<sup>00</sup> Buys the IDEAL

**Rafter Square, Try Square and Mitre Square**

With the Three-in-One Square any man can lay out accurately cuts for any style rafter, Common, Hip, Valley, Jack or Cripple, having a rise from one inch to twelve inches per foot, a trick that takes years by the steel square method.

Here it is laid down in scales right on the square. Scales are double for right and left hand work. Just shift movable bar into hole marked showing number of inches rise to the foot and mark off your cut. With The Ideal you can cut 3, 4, 5, 6, 8, 10, 12 or 24 equal sided figures and cut 81 different angles making it splendid for Bay Window or Mitre Work. It is simple, speedy and accurate. It is made of best tool steel carefully finished and when folded fits into a space only 8 inches square. This square will be worth its weight in Gold during the coming season. Just think what work and trouble a single dollar bill can save you when invested in an **IDEAL** Three-in-One Square. **Send in the coupon now.**

## IDEAL TOOL WORKS

Middletown, New York

**Hurry**—We reserve the right to withdraw this offer without notice when shortage is made up—Simply pin a One Dollar bill to this Coupon and Mail.

Ideal Tool Works, Middletown, N. Y.

Gentlemen— I wish to take advantage of your special offer and am enclosing \$1.00, for which I am to receive, prepaid, your regular \$2.00 Ideal Rafter Square, Try Square and Mitre Square.

Name.....

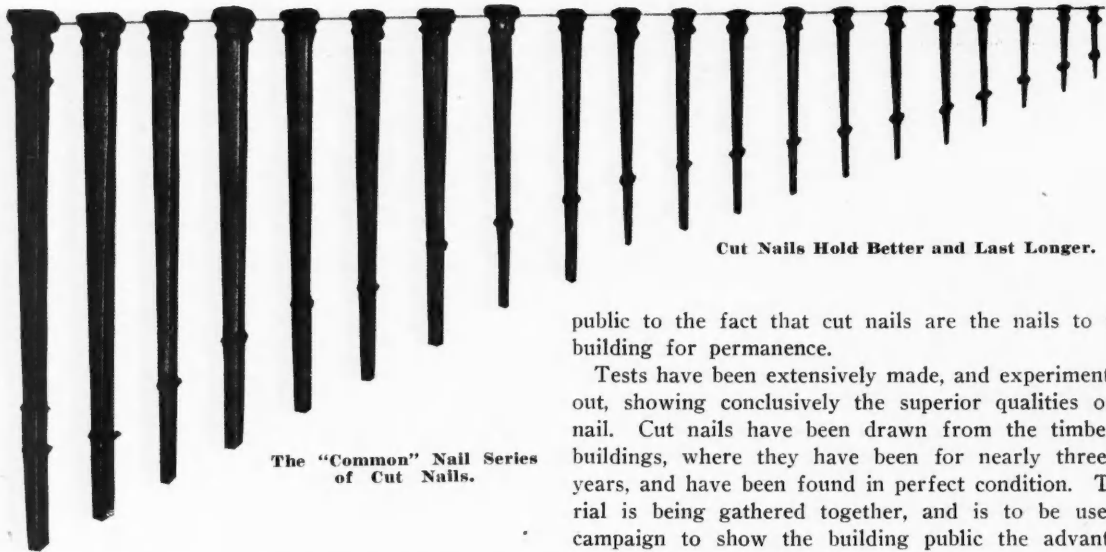
Address.....

Town.....

State.....

**FREE**  
Instruction  
Booklet sent  
with each Tool

TRY  
IDEAL RAFTER SQUARE  
MITRE



The "Common" Nail Series of Cut Nails.

Cut Nails Hold Better and Last Longer.

**Nails---Small in Size, But Mighty Important**

The art of building is making more rapid progress than any other art known to many. Materials and methods are being constantly and rapidly changed—usually for better—but in some instances old-fashioned quality is being sacrificed for speed or for price.

Nails, while a small item in point of size, are mighty big items in building. A chain is no stronger than its weakest link, and the frame-work of a building is no stronger than the nails which hold it together. With this in mind, and realizing that the commonly used wire nails are not giving full satisfaction, seven of the country's large manufacturers have formed an association—its object being to educate the

public to the fact that cut nails are the nails to use when building for permanence.

Tests have been extensively made, and experiments worked out, showing conclusively the superior qualities of the cut nail. Cut nails have been drawn from the timbers of old buildings, where they have been for nearly three hundred years, and have been found in perfect condition. This material is being gathered together, and is to be used in this campaign to show the building public the advantages and necessity of cut nails.

The Cut Nail Manufacturers (that is the name of the association) have realized that it is the carpenter and builder, the man who puts up the building, who knows what a nail must do; and he is best fitted to pass this word on to the public. The manufacturers realize that the public will listen to the advice of the local carpenter and builder when it will not even know of the nail maker's existence. So they are directing their appeal first to our readers. On another page of this magazine will be found the advertisement of this association. There will be found more complete information concerning this movement. That they are wise in taking this stand is not to be questioned. Without any doubt, the word of the carpenter or builder who is to put up a man's house

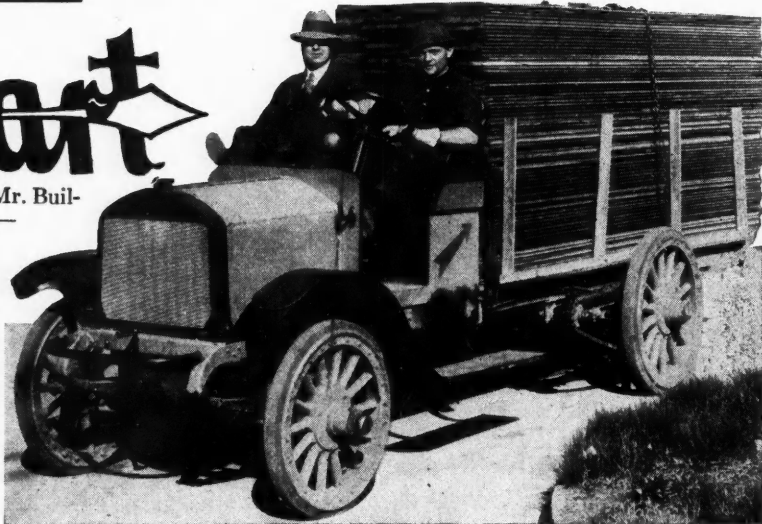
**BEAT THE CLOCK with a**



**You, Mr. Contractor; You, Mr. Builder; You, Mr. Lumberman—what is time worth to you?**

What makes a job a profit or a loss? Just the difference in time—that's all. But it's enough. Five or ten men drawing 35c to 50c an hour each, loafing because they cannot get to the job quickly or because the material is delayed—that's when time has the handicap on you—and you "pay the freight."

You can sit down and look over your 1914 contracts and right there you can see your losses on time sticking out like organ-stops. How about it?



What you need is 'Dart "time discounter." Take another look at 1914's time losses—then you will see that if you had had your "Dart" then what you would have saved would have more than paid for it. If it takes a team 45 minutes to make a trip, a loaded "Dart" truck will easily make it in 15 minutes or less; and in moving material remember that a loaded "Dart" will pull more than its own load on trailers behind it.

**YOU SAVE TIME WHILE YOU BUY ON TIME—** that's the way we sell "Dart" trucks to the man who wants to pay as he saves. Mail that coupon and we will show you how a "Dart" turns time lost into money found.

**DART MOTOR TRUCK COMPANY**

Department C B

WATERLOO, IOWA

**COUPON**

Interested in your proposition and would like to know more about it.

Name.....

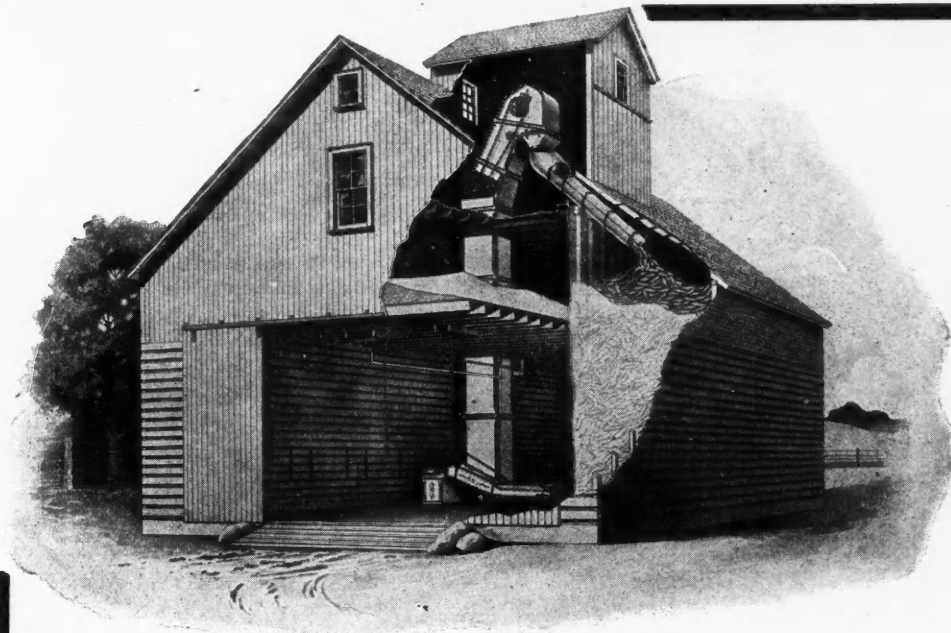
Address.....

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



# Corn Crib and Granary Plans Free

To aid you (and in that way help ourselves) in estimating building and equipping cribs and granaries that are to be constructed to admit the installation of Inside Elevators, we want to put into your hands



Cribs 36 feet or less in length with half-pitch roofs require no cupola. Picture shows 40-foot crib. Cupola need not be as large as shown in picture. Elevator is confined to one side of driveway. No pit is necessary for dumping of grain. A hole 16 inches deep is necessary into which boot of Elevator is set. The Jack for dumping the wagon is fastened to the joists, is entirely overhead. Our crib plans give complete information, except lumber specifications—we leave that to you.

*Meadows*

## INSIDE STATIONARY CUP ELEVATOR

Crib plans, catalogs and large posters telling all about our outfits and their application. Working together will be of mutual advantage. Farmers are demanding the modern two-story cribs. Installation of our Elevators makes these possible and enables you to satisfy the demand. Asking for the information that we want to give you puts you under no obligation whatever. Write today.

**THE MEADOWS MANUFACTURING CO., PONTIAC, ILL.**

## UNFADING ROOFING SLATE AND SLATE BLACKBOARDS

Best to be had and made in  
Slatington. Buy from us.

The Slatington-Bangor Slate Syndicate, Inc.  
Slatington, Penna.

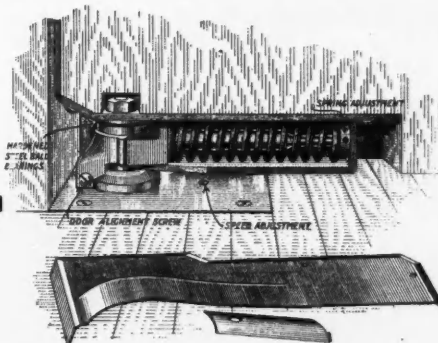
## Building Books Absolutely Free

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Your Choice of Any One of Twenty Building  
and Plan Books

Write for Descriptive Circular Telling About Our  
Great FREE Offer

AMERICAN CARPENTER AND BUILDER  
1827 Prairie Ave., CHICAGO



## Stops the Flop

No more flopping, slam-banging, wig-wagging doors when the **Standard Floor Hinge** is used. It controls the door at all times, closing it slowly and stopping it at dead center without jar or noise.

## Standard Floor Hinge

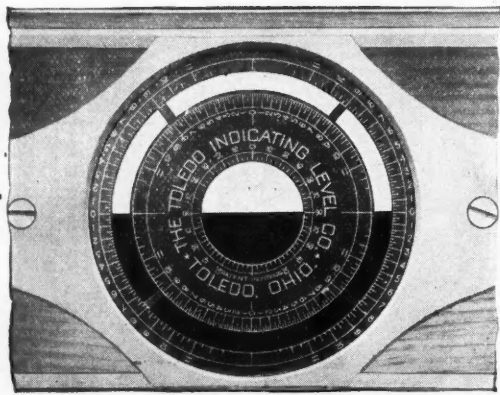
Double Acting Self-Checking

with the 1914 improvements, is easy to install. The weight of the door rests on hardened steel ball bearings insuring easy action. The door can swing either way and the back flop is prevented by the checking mechanism. It combines the features of the spring hinge and the door check and differs from all other makes of swinging door hinges.

The Standard is the safest and most noiseless hinge you can use. It will give great satisfaction in your buildings. Specify and use it. Price is reasonable.

Ask for Information on the 1914 Model

STANDARD MANUFACTURING CO.  
SHELBY, OHIO



## Yes, It's the Level That Talks

### It's All in the Fiery Red Indicator

**QUICK  
SURE  
ACCURATE**

If you're out of plumb or level a quarter of an inch per foot—bingo!—the indicator registers it instantly and accurately, where and how much to the foot. Also registers in degrees deflection from level or plumb.



If Mr. Level were to talk right out and say, "Mr. Man, you're just a quarter of an inch per foot high at the right end," it couldn't be any plainer than the silent indicator shows.

**Carpenters, Contractors,  
Builders, Masons and  
Mechanics everywhere  
unite in saying the  
Toledo Indicating  
Level is perfect.**

There's no guess work. Simply adjust your work according to the indicator and you're through. No further testing—the work is right. One move instead of a dozen. Especially efficient for all kinds of roof and cement work.

#### Needs No Adjustment

The Toledo Indicating Level requires no adjusting. The indicator of the Level is securely fitted into the stock. No chance of the Level ever getting out of order or adjustment. Strongly and rigidly constructed; practically unbreakable.

- No. 105** —24 in. long ..... Price, **\$5.00**
- No. 105A**—24 in. long, all brass bound, Price, **6.25**
- No. 106** —30 in. long, all brass bound, Price, **6.50**
- No. 107** —30 in. long ..... Price, **5.25**

*Ask for general circular showing complete line*

## The Toledo Indicating Level Co.

-----COUPON-----

**FREE EXAMINATION OFFER**

The Toledo Indicating Level Company,  
1941 Nicholas Bldg., Toledo, Ohio

☐ Gentlemen: Please ship me Level No. .... It is understood that after thoroughly testing this level, if it fails to come up to your representations, I have the privilege of returning it to you within five days, carriage collect. Otherwise I will keep and pay for it.

Name.....

Address.....

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

will be taken by that man over the word of anyone else in the world. And, too, they realize that the building contractor is eager to find and use things that shall make his building more perfect. For the building which is satisfactory to its owner is the building which adds to the builder's reputation.

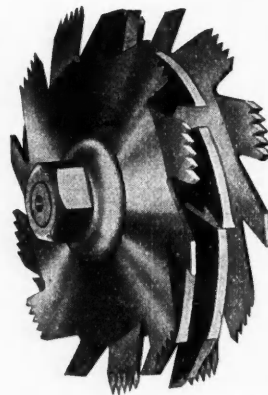
- The companies forming this association are:
- Tremont Nail Company, West Wareham, Mass.
  - Geo. B. Lessig Company, Pottstown, Pa.
  - Williamsport Iron & Nail Company, Williamsport, Pa.
  - E. & G. Brooke Iron Company, Birdsboro, Pa.
  - Van Alen & Co., E. G. Van Alen, Northumberland, Pa.
  - La Belle Iron Works, Steubenville, O.
  - Norton Iron Works, Ashland, Ky.

A letter of inquiry to any of these companies will bring full particulars, prices, samples and names of dealers. It is a movement which we are confident will interest the readers of this publication, and we would advise them to post up *now* on cut nails.



### Dado Head Saves on Millwork

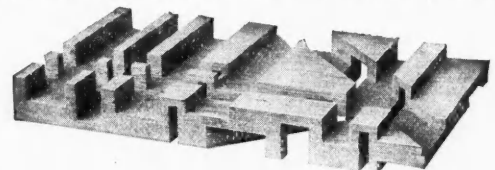
Huther Bros. Saw Mfg. Co., 1101 University Ave., Rochester, N. Y., are making an attractive offer on their dado heads. A photograph of the cutter itself is shown here, as well as of a block illustrating some of the grooves which may be cut with it.



Huther Bros. Dado Head.

The carpenter or builder who uses a cutter such as this in connection with his saw rig, will be able to make many savings on millwork. The Huther Dado Head is made to fit any saw mandrel, or any rig. The two outside cutters are 1/8 inch thick and, both being groovers, may be used together for a 1/4-inch cut. The inside cutters come in thicknesses of 1/16, 1/8 and 1/4 inches, making it possible to secure any combination.

There is no danger of the cutter following the grain in grooving across it; each groove has a smooth, straight edge. That the Huther Dado Head does excellent work is proven by the fact that it is used in U. S. Government shops, furniture factories, planing mills, automobile factories—places where it must meet the most difficult conditions and make good.



A "Stunt" Block Cut with a Huther Head.

An inquiry to the company will bring full particulars about their ten-day trial offer, prices, etc.



### Two Thirds of All Auto Owners Have Annual Income Under \$3,000

"The national income tax returns furnish a lot of food for thought, especially to those of modest resources who have hesitated about buying an automobile," says John R. Buck of the KisselKar.

"It appears that of the cars registered in the United States only about 400,000 are owned by persons having an income of \$3,000 a year or more, while about 887,000 are owned by those who receive less.

"This does not mean that vast thousands of people owning automobiles cannot afford it—not at all. It means, rather,

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Cabin  
Best  
26 in.  
wide.  
WHITE  
Front \$  
Door \$  
A grade;  
6-8; 13-  
thick; 20x  
Plate gl  
in. bevel.  
SEN  
MA

# MR. CONTRACTOR, GET SMYTH'S FIGURES!

WE SHIP LUMBER FROM  
YARDS AT ST. LOUIS,  
CAIRO, MISSISSIPPI,  
ARKANSAS, SEATTLE



Mr. Contractor, the next time you are figuring on a house, barn, garage or any kind of a building, send us a list of the lumber, millwork and material you will need for the job and let us give you our prices.

**Our estimating service is entirely free.** It is built up and maintained to serve you promptly and we will consider it a favor if you will give us a chance to show you how much we can save you on your next bill.

**Our figures will surprise you** and we guarantee that the lumber and materials will be first class and as good in quality and grade as you have ever had from anyone regardless of price.

**It will cost you nothing,** only a little of your time and a postage stamp to get our figures; if they are not right there is no harm done and we will thank you for the opportunity of giving you prices.

**We will serve you promptly** for our service is nation wide. It comprises five big lumber mills and yards; big millwork and other building material stocks, all located at logical points to ship promptly and get the goods to you quickly and economically.

**We have what you and every building contractor wants —** everything in building material, lumber, lath, shingles, flooring, millwork, colonades, cabinet work, steel roofing, roofing and building papers, hardware, plumbing, steam, hot water or hot air heating outfits, furnaces, paint, etc., all at mill prices direct to you.

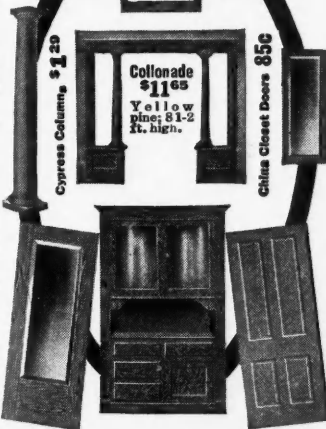
**We firmly believe that our special low prices will enable you to** beat all competition and allow you to make a larger net profit than heretofore. Try us with your next bill and find out.

## MILL WORK—ALL KINDS

For New and Repair Work

Below we quote prices for a few staple standard pieces of mill work which will show you how very low our prices are. Write for Our Special Mill Work Catalog

Medicine \$4.45  
Cabinet  
Best yellow pine, 28 in. high, 20 in. wide.  
Checkrail Windows 68¢ up Glazed  
Hardwood \$3.10 FLOORING per 100 sq. ft. Dressed, matched and end matched.



White Pine Front \$8.85  
A grade: 2-8 x 6-8; 13-4 in. thick; 20x56 in. Plate glass; 2 in. level.  
Large Sideboard \$17.50  
4-1-2x7 ft., all clear yellow pine; with drawers, cupboard, counter shelf, 3 shelf china case, 2 glass doors, banded ceiling back.  
4 Panel Interior 99¢  
Doors up  
See full line in our special millwork catalog.

## TWO BIG SPECIAL CATALOGS

### Millwork—Building Material

We publish a big 112-page special catalog of millwork and building material which illustrates, describes and quotes competition defying prices on complete lines of all kinds of building material. Send for it—its free. It will land you more jobs and make bigger net profits for you than any book you ever saw.

### Building Plans

We also publish a big catalog of building plans which shows over fifty up-to-date house and barn plans that can be built complete for \$425 up. All styles of houses are shown including the most artistic bungalows which we have ever seen. Every building right up-to-date with splendid architecturally pleasing lines. We give full detailed information about our plans, show layout of the rooms, closets, etc., so that everything will be perfectly clear to you. You will get lots of pointers from this special catalog and can show it to your customers to assist them in selecting their line.

The prices for the buildings are for all lumber, millwork, hardware, sash weights, nails, sheet metal, building paper and paints.

### Read About This CHICAGO CONTRACTOR

In one of the suburbs of Chicago we have supplied one contractor with lumber and material for over fifty bungalows and houses. Mind you this man has the whole Chicago market at his command but gives us the preference because he saves big money on lumber and material by buying it of us. He is a cash buyer, knows values and trades here because it pays him to do so. We are supplying contractors in all parts of the United States with building plans, lumber and material because they find us the best in the business. It will pay you big to let us estimate your bills and get our special catalogs for reference and consultation.

### Builder's Books

Wonderfully instructive books for experienced contractors or amateur builders. Order direct at the prices below or write for our special book catalog and read full description and details there.  
Book on Carpentry 67¢.  
On Bricklaying 69¢.  
Construction Detail 89¢.  
Contractor's Guide and Estimator 98¢.  
Book on Cement and How to Use it 67¢

### GET OUR PRICES

Wholesale Prices that beat them all. Let us show you. Showing complete lines of the goods and prices that beat them all. Let us show you.  
Sheet Steel Roofing, \$1.69 per 100 sq. ft.  
Sheet steel siding, \$1.60 per 100 sq. ft.  
Wall board \$2.00 per 100 sq. ft.  
Wall paper, 5c double roll up  
Concrete mixers, \$19.95 up  
Builders' hardware, full line  
Building paper, 3c for 500 sq. ft.  
Hot water heating plants, \$115.00 up  
Steam heating plants, \$100.00 up  
Hot Air heating plants, \$47.50 up  
Plumbing supplies, full line  
Heating supplies, all kinds  
Carpenter's tools, full line  
Screen doors, 97¢ up  
Galvanized eave troughs and fittings and every item used by builders at lowest prices.

### Ready Roofing 59¢

For 108 Square Feet  
STEEL ROOFING \$1.69  
For 100 Square Feet  
Our prices for ready roofing, metal roofing and all goods of this nature are the lowest and our guarantee the longest and most liberal. Write for our free Special Roofing Catalog and see. Don't buy before you get our price. We also headquarters for Wall Board and ornamental steel ceiling. "Waydown" Prices for everything.

### WE GUARANTEE OUR PAINT 5 YEARS

Write for FREE Book of 125 Sample Colors. If you need paint or varnish for any purpose whatever, before you buy write us and say, "Send me your special paint color sample book" that shows you over 125 SAMPLE COLORS of Smyth's 5 yr. guaranteed paint and varnish for every purpose. No better paint made, regardless of name or brand; 1 gal. covers 250 sq. ft. with 2 coats. Prices lowest; house paint 89¢ a gal. barn paint 66¢ a gal., floor paint 99¢ a gallon.

### BATH ROOM OUTFIT \$36.40

This price includes a heavy coated white enameled bath tub 5 ft. long, 30 in. wide with a 3 in. roll rim, ornamental legs; heavily coated white porcelain enameled 18x21 in. lavatory, low down pattern syphonic action closet complete with tank and accessories necessary to install it ready for use. Full details about this wonderful bargain and about all our other bath room outfits, bath tubs, closets, kitchen sinks and plumbing goods of all kinds are given in our special Plumbing Goods Catalog which we will send to you upon request. It will only cost you to send for this book and have it on hand to refer to as occasion may demand.

SEND YOUR MAIL TO **JOHN M. SMYTH MDSE. CO.,** 150 to 187 W. CHICAGO, ILL. Madison Street

that a great percentage of the American public has come to look upon motoring as a comfort and a convenience that pays dividends in health and efficiency. Most owners find that the expense of maintaining an automobile is easily met by pruning other indulgences, less attractive and beneficial.

"A great majority of those of limited means who buy cars are thrifty folks, primarily proved by the fact that they have the money to buy a car in the first place. You will find most of them improving their condition during their ownership of the car, the next best possible proof."

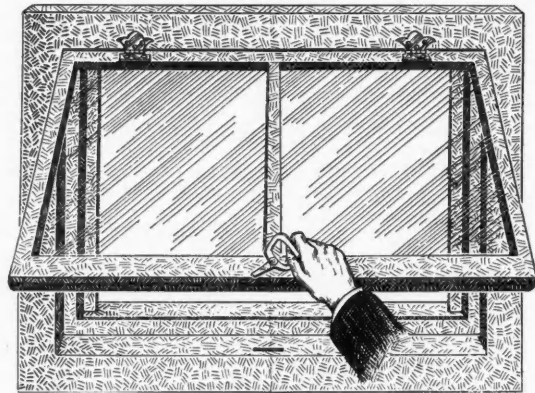


### A Galvanized Steel Cellar Window

As a general thing, cellar windows are about as "ornery" as a window can be. Especially in the Spring—the very time when you most need to open them and ventilate the basement, after the long Winter—does the cellar window refuse to behave. The dampness of the ground, with which it is nearly on a level, swells the frame till muscle, cuss-words nor anything will move it.

And they don't last long. The continued swelling and shrinking helps the rotting process—before you know it, new frames are needed. Now come a firm of manufacturers, Shrauger & Johnson, 430 Walnut St., Atlantic, Iowa, with a galvanized steel frame cellar window. These frames are galvanized so that they will not rust; they require no attention from the day the window is put in.

There is no swelling—which means no more tugging and wrestling with a stubborn window—and no shrinking—which means filling up the cracks with newspaper or cloth. Certainly Shrauger & Johnson deserve credit for this. Their well-known "Chief" line of metal building materials has made them a popular firm in the building world, because every article is made to wear. Catalogs may be had for the asking.



New Galvanized Metal Cellar Sash and Frame.




### New Contract Documents Ratified

Word has been received by J. M. Vollmer, Secretary of the National Association of Builders Exchanges that at the Builders Exchange, Philadelphia, March 8th, the Joint Committee of the American Institute of Architects and the National Association of Builders Exchanges ratified the contract documents that have been considered by these two organizations for the last two years.

President Lewman, in a telegram, stated that he had officially signed, approving the architects' new form of contract and that it was much fairer to building interests than the previous draft and was all that could possibly be expected at this time in the way of eliminating drastic arbitrary powers that existed in the documents governing building construction.

A little over two years ago a resolution was passed by the Builders Exchange of Louisville, carrying with it a recom-

PATENTED DEC. 29, 1914

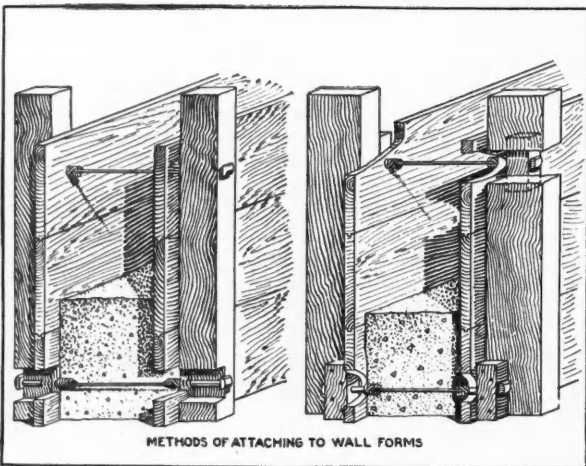


**TYSCRU**

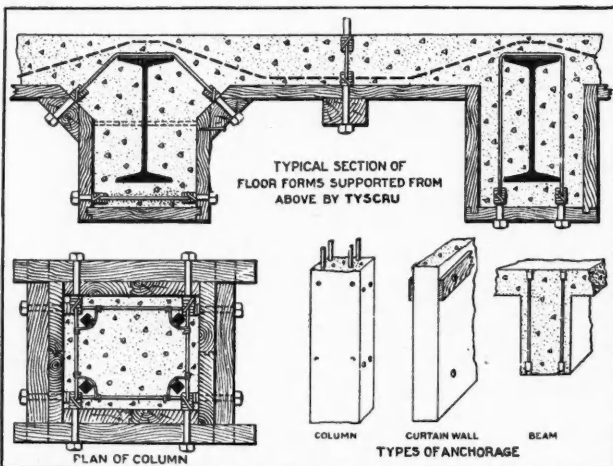
PATENTS PENDING

TRADE MARK

**THE TIE THAT LEAVES AN ANCHOR**



METHODS OF ATTACHING TO WALL FORMS



TYPICAL SECTION OF FLOOR FORMS SUPPORTED FROM ABOVE BY TYSCRU

PLAN OF COLUMN

COLUMN CURTAIN WALL BEAM

TYPES OF ANCHORAGE


**QUICK—SURE—ECONOMICAL**

**A REINFORCEMENT—A SPACER—AN ANCHOR**

Write for Prices and Discounts to

**UNIT-WALL CONSTRUCTION CO., Inc. DEPT. N.**

1328 Broadway, New York





## This Book of Bungalows, city and suburban homes, cottages, farm buildings, etc., will be sent to you free on request.

Jud Yoho, the Bungalow Craftsman, says of our Book of Modern Homes: "The wide range of the designs shown and their adaptability to varied climates should enable anyone in any section of the country to choose just the home that would best suit his individual requirements."

We will mail this book free and postpaid on request to all readers of the American Carpenter and Builder. Simply write us a postal card and say, "Send me your Book of Modern Homes No. 56A200." Almost every design in this book has already been built many times, proving the plans to be accurate. The builders say that we saved them money on material and gave them better quality than they could secure elsewhere. **COMPLETE PLANS, SPECIFICATIONS AND BILL OF MATERIAL FOR ANY OF THE 117 HOUSES IN OUR BOOK OF MODERN HOMES CAN BE SECURED FOR A SMALL DEPOSIT OF \$1.00.** Should you purchase material from us this \$1.00 will be allowed on your order, thereby making the plans free.

No matter what kind of a house you are going to build we can save you money on the material. Let us make you an estimate free and without the least obligation on your part. Send us any bill you may have received from any other concern and let us prove to you, as we have already proven in thousands of cases, that we can cut your building expenses down at least 25 per cent. Big stocks of lumber, mill work and other building material, always on hand ready for immediate shipment, enable us to give you **QUICK SERVICE.** We are the only concern manufacturing and selling direct to the consumer everything required in the building line, with the exception of cement, brick and plaster. Let us send you free and postpaid our big Book of 117 Modern Homes. Write for it today. *Ask for Book of Modern Homes No. 56A200.*

## Sears, Roebuck and Co., Chicago

mentation in contract documents. This resolution was endorsed by the various National Organizations connected with building and interested in financial ways, such as Credit Men's Association, Bonding Companies, etc.

Co-operation was heartily tendered by all of these organizations and at the Washington, D. C. convention held in 1913, the National Association of Builders Exchanges started a campaign for the adoption of the recommendations.

A series of meetings have been held with the American Institute of Architects and at the National Association convention held in Columbus, O., January 26th, 27th and 28th, 1915, a tentative form was submitted by the architects to the builders. Several important recommendations were offered by the builders and were submitted to the joint committee at their meeting held in Philadelphia, as above stated. These recommendations are now incorporated in the new form.

Just as soon as the new documents are printed they will be promulgated for general use. This is the most important step taken by builders in a great many years and will be a great benefit to owners and investors and will establish the building industry upon an ethical plane. It secures for all concerned a more reliable and better managed method of doing business.

The new documents provide for arbitration of all matters in dispute and make many other changes that have heretofore perceptibly increased the cost of erecting buildings.



### Miles Mixer Making Good Out on the Job

From Mr. H. G. White, Clarion, Iowa, we receive the photograph shown here. It was taken on one of Mr. White's recent curbing jobs, and shows some of the crew and the Miles Simplex mixer that is helping Mr. White secure these choice contracts.

Mr. White writes: "Some of the brother contractors are having quite an argument over the superior points of the batch mixer or the continuous mixer—as the case may be. There's no chance for any of them to argue with me—I'm neutral. When I first heard the claims put forth by the



"Simplex" Mixer on Street Curb Job at Clarion, Iowa.

Miles folks, I said to myself, 'Say, that sounds reasonable.' Then when I looked the machine over, I said, 'It is reasonable.' So I bought one of their Simplex machines—and now I've got both a continuous mixer and a batch mixer in one. And that little old machine is certainly plugging right along on the job—nothing ever bothers it or ever sticks it."

The machine referred to is the Simplex Mixer put out by The Miles Mfg. Co., 309 East Franklin St., Jackson, Mich. In designing this machine the manufacturers have secured the rolling motion for their mixing chamber which is such an acknowledged advantage. The material is automatically measured and fed into the drum.

A word of inquiry to the above address will bring complete information about this mixer.

(Trade Notes Department Continued to page 136)



SIX years ago these columns were made wrong size; ever since they have lain as shown here open and exposed to the weather with no protection save the coat of primer placed on the metal before shipping.

## UNION METAL COLUMNS

"THE ONES THAT LAST A LIFETIME"

Stood this test without rusting, peeling or deteriorating in any way.

Wood columns would have split and rotted to pieces but the open hearth steel with its coating of spelter cannot split, check, rot, warp or open at the joints.

When placed in position in a building and protected by a coat of paint these columns will last as long as the building itself.

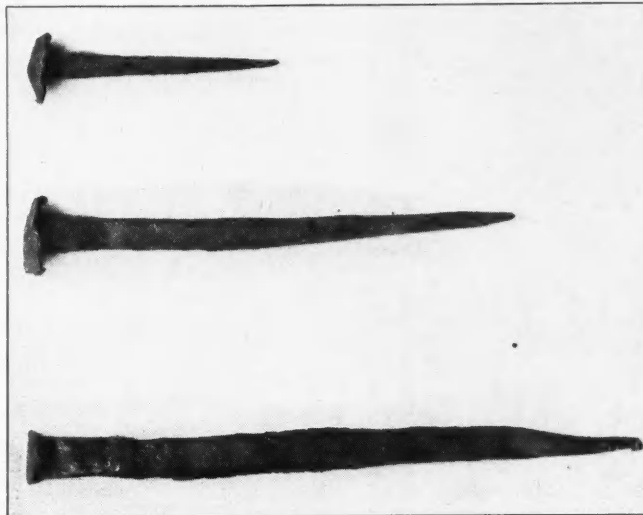
Union Metal Columns have entasis and stopped flutes. They are made in all sizes and in ten designs, true to the classical orders of architecture.

*A Handsome Forty-Page Book of Installations on Request.*

**The Union Metal Mfg. Co., Canton, Ohio**

# 275 Years of Continuous Service

Cut



Nails

This picture shows the remarkable durability of Cut Nails. The longer nail has been in use 276 years and is still bright and free from rust. The other two have been in service 200 years and are in the same perfect condition. What more convincing test is wanted of the unequalled lasting qualities of Cut Nails?

## The Test of Time

is the only test by which the durability of a nail can be judged. Are you building for permanence with time-tried nails or are you using nails that rust out in a few years? The reason all old buildings stand up so well and are so permanent is because they were built with cut nails.

### The U. S. Government Test

proved conclusively that Cut Nails are far superior in holding power than wire nails. This test was conducted by the government at the United States Arsenal at Watertown, Mass. The tests were made in competition with wire nails, in all kinds of woods. All lengths were used, under all conditions. The reports show that on all the tests Cut Nails showed a superiority of from 47% to 135%.

Try Cut Nails on you next job. They will last as long as the building and make a better building. Get these nails at your Dealer or if he doesn't carry them

Write to Nearest Manufacturer Listed Below for FREE Samples and Name of Nearest Local Dealer

## CUT NAIL MFRS.

Tremont Nail Co., . West Wareham, Mass.  
 Geo. B. Lessig Co., . . . Pottstown, Pa.  
 Williamsport Iron & Nail Co., Williamsport, Pa.  
 Norton Iron Works, . . . . Ashland, Ky.

E. & G. Brooke Iron Co., . . . Birdsboro, Pa.  
 Van Alen & Co., E. G. Van Alen, Northumberland, Pa.  
 La Belle Iron Works, . . . . Steubenville, O.

The  
INCOMPARABLE  
FIVE

Contractors, to whom  
quality appeals, will  
be pleased to study the  
specifications of the

Number Five

EUREKA  
BATCH MIXER

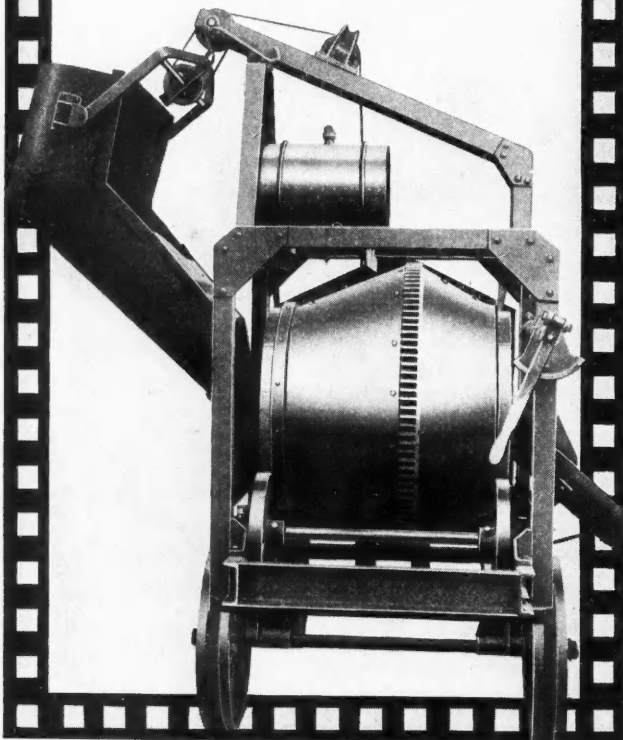
"Quality Wins"

Quality and approved en-  
gineering standards have  
been incorporated into this  
mixer to a remarkable de-  
gree. Your inquiry for bul-  
letin will receive immediate  
attention.

EUREKA MACHINE CO.

"Builders of Quality Mixers"

103 HANDY STREET  
LANSING, MICH.



The "Safety First" Lighting Fuel

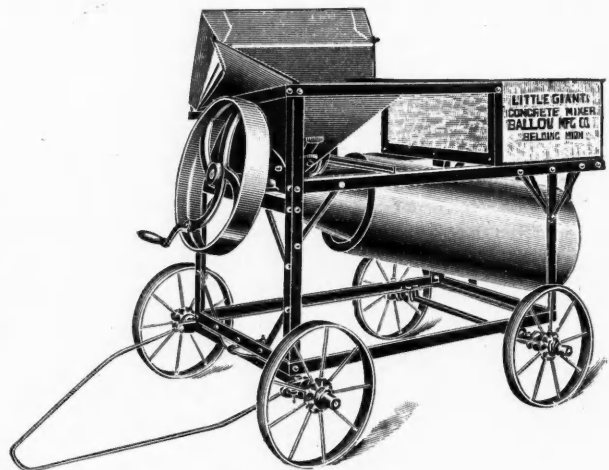
A very economical method of lighting the city or country residence and outbuildings is offered in the "Brilliant Kerosene Gas Lighting System." The system consists of a tank in which the gas is formed from the action of air and kerosene, and hollow-wire piping. The Brilliant Gas Lamp Co., 1009 B-S Wabash Avenue, Chicago, have developed this method of lighting. Complete information—prices, etc., will be mailed on request.



"Little Giant" Mixer Lives Up to Name

There are numberless construction jobs for which a hand mixer is exactly suited. On such jobs the use of a larger power machine would not be so economical. The Ballou Manufacturing Company, Belding, Mich., have given the building world in their "Little Giant" a hand-power mixer that meets the requirements. A hand-power mixer has a neat job on its hands in making good. It must turn out perfectly mixed concrete; it must be reasonably easy to run; and it must still be constructed to stand up to its work. That the "Little Giant" does all of this is proven by letters received from men who are using it.

Proportioning of materials is given much attention with this mixer. The hoppers are set upon a heavy rubber conveying belt, which forms the bottom. Materials are fed down into the drum through adjustable doors in each hopper. By using common care, operators have been able to keep the variation of the mixture down to one-half of one per cent.



"Little Giant" Mixer.

The drum is set on an incline of 13 degrees, and mixes by rotary motion. Angle iron ribs throw the mixture thoroughly, and it is kept dry till two-thirds of the way down the drum. Here the water is sprayed in—and provision is made that no discharging is done till the mixture is exactly right.

The hand wheel on the "Little Giant" is made to take a belt. A good many builders have an engine, and should it be desired, nothing is more simple than to couple up the "Little Giant." And it is plenty strong enough to stand up under the extra load of running full capacity under engine power.

The Ballou power mixers—also "Little Giants"—are made to handle the larger jobs where power is most economical. The whole line is made with the one thing in view, of satisfying the man who buys and uses the machine—not just for one, or two, or three seasons, but for good.

To convince the man who needs their machine, the Ballou Company is making a remarkable trial offer. Full particulars of this offer, as well as prices, and other information should be inquired for. The company's address is Belding, Mich.



# Republic "Six"

## The Builder's Right Hand Man

Light enough to be moved easily anywhere on the job, yet strong enough to stand the hardest usage, this splendid Mixer will put in your foundations, lay your sidewalks and floors, build your curb and gutter, or do a hundred-and-one odd jobs at such a low cost that it will astonish you. It's cheaper to own than renting, and it's always ready when you want it. It's a big profit maker for the contractor, builder, sidewalk, silo and bridge maker. A bigger, better machine in every sense of the word than any mixer of the same size, regardless of price.

### Make Your Own Comparisons

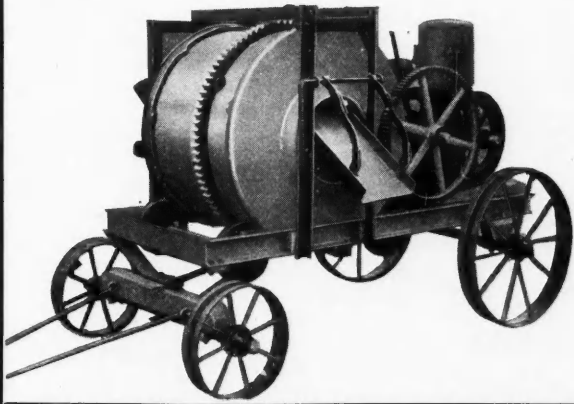
If you were to build a mixer yourself you'd use 5" channel for strength; you'd put on 30" rear wheels with 4" wide tires for easy hauling over soft and rough ground; you'd use 10" trunnion rollers for smoothness of operation and for saving of power; you'd use a Frost-proof, dirt-proof and trouble-proof Engine to avoid delays; you'd have the friction clutches and the engine enclosed and run in oil to keep out the dirt; you'd have a low charging hopper, or a gearless hoist to save labor in loading; you'd have all parts oversize to stand up, avoid breakages, and give long life. In fact, if you knew good concrete construction as we do, you'd build a mixer like the Republic "SIX."



### Put Your Equipment in The Money-Making Class

Get the profits that are going to the other fellow. Get your work done when you want it. You can just as well make that 45 to 60 cents per yard that you are paying others, or losing by hand mixing, by owning a Republic "SIX." It's up to you to meet competition by modern methods and money-making machinery.

Write for more particulars and see our big strong Guarantee before you buy. You can't go wrong on this Outfit. You may save \$50 or \$100 or more by spending two cents for a postage stamp to learn more about this splendid Machine. Just sign your name to the enclosed coupon and mail today.



### Republic Iron Works

100 Capitol Nat'l Bank Bldg.

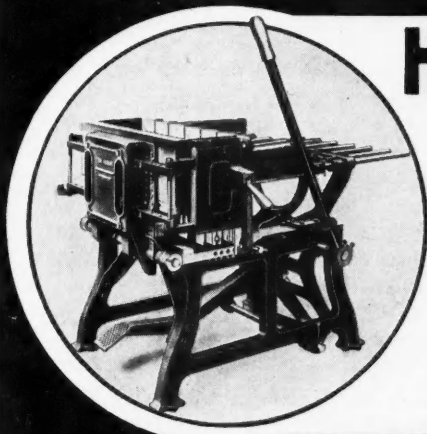
LANSING, MICH.

EASTERN OFFICE:  
645 Wabash Bldg., Pittsburg, Pa.

Republic Iron Works,  
Lansing, Mich.  
Please mail me full particulars  
in regard to the money-making  
Republic "SIX" Mixer. We  
may buy about.....  
(date)

Name.....  
City.....  
State.....

# HOBBS BLOCK MACHINE



ON request we send the Hobbs catalog and a folder illustrating porches and houses built with Hobbs block. This literature is "different" and any concrete man will find it mighty interesting. After you read it you understand why the Hobbs has the largest sales of any block machine and what is more you appreciate that a Hobbs gives its owner a tremendous advantage, for it does so many things that other machines cannot do. Investigate.

## The Hobbs Concrete Machinery Co.

724 Smith Building Detroit, Michigan

### Automatic Locking Device for Dumbwaiters Patented

Patent papers have recently been issued to Mr. Robert M. Sypher of the Chelsea Elevator Co., 334 West 36th St., New York City, covering an automatic device for locking the dumbwaiter at any position in its hatchway.

A casing is attached beside the elevating sheave of the dumbwaiter, and inside this is an expanding brake ring. In a jawed opening of this brake ring on a pivot pin, fits the square head of a lever, the side and opposite end of which are lugged. Cleverly arranged lugs fastened to the outer casing, and to an arm fast to the end of the shaft, engage the lugs on the lever mentioned, forcing it to turn on its pivoted head. The corners of the square head then press upon the jaws of the brake ring, expanding it to locking against the outer casing. When power is applied, the lugs on the casing again engage the lever lugs, turning the lever back on its pivot till the square head again rests square with the jaws of the brake ring opening.

This little device is a great improvement upon the common methods of fastening the dumbwaiter, and one which will no doubt be used to make even greater the popularity of Chelsea elevators and dumbwaiters. A letter to Mr. Sypher in care of the company would bring the interested inquirer full information and drawings of their improved dumb waiters.

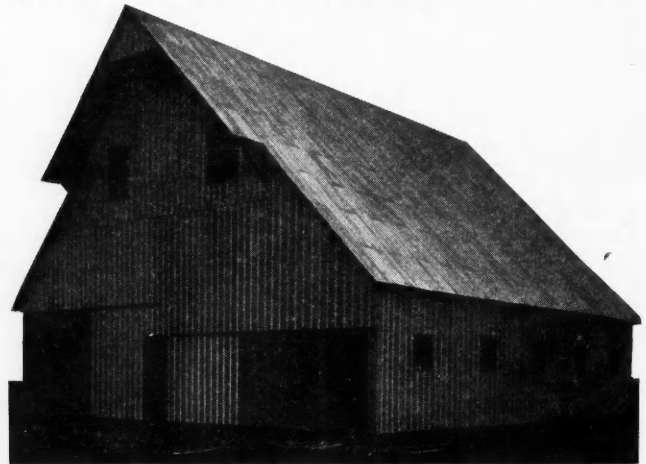


### Metallic Batten Strips Add to Appearance of Barn

One of the most attractive appearing barns we have recently seen is shown in the photograph. The sides were painted red, and the Metallic Batten Company's batten strips were used. These strips are made of galvanized iron, and the combination

of red sheathing board and white strips certainly makes a fine looking barn.

While a man may be proud of a nice-looking barn or shed, naturally he has more important reasons for choosing a batten strip, or other material. The strip manufactured by this company meets every requirement. It is not unneces-



Fancy Barn Striping by Using Galvanized Metal Battens on Red Painted Boards.

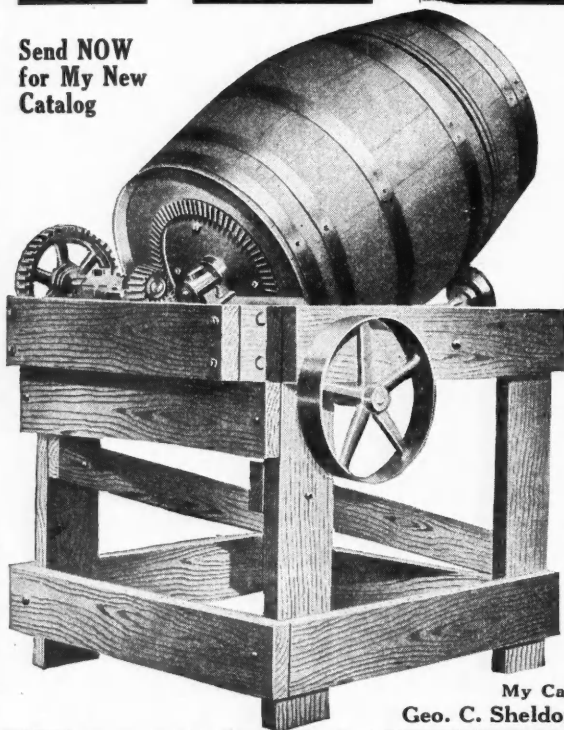
sarily heavy, but the material is of a quality to last, and it lies so flat to wall that there is no interferences with sliding doors.

The design is such that contraction or expansion of the wood is taken up within the strip—no strain being put upon the nails or boarding. In this way there is no splitting of the strip, or of the sheathing itself.

More complete information, prices, etc., may be secured by addressing the Metallic Batten Company, Owensville, Ind.

## Get My Blue-print Plans For **FREE** This Batch Concrete Mixer

Send NOW  
for My New  
Catalog



This is a Thoroughly Tried Proposition Which You Can Build Yourself for as Low as \$11.50 Complete

Here's just the thing for foundations, walks, cellar floors, plaster, mortar—just the one piece of equipment you need to enable you to fill your present contracts more efficiently and to enlarge your business to take in work that you can't even bid on at present.

### Sheldon's **HOME MADE** Mixer

Does the finest work—equal in every respect except quantity to any \$100 ready-made mixer. One man mixed 3,000 sacks cement last summer with one. Hundreds of farmers write me enthusiastically about it. Runs by hand or 1 h. p. engine; mixes 2½ cu. ft. per batch; tilting dump discharges into wheelbarrow. And costs less than a cheap suit of clothes.

Just drop me a line and I'll send to you, by return mail, complete blue-print plans and full instructions for making one of these mixers. It tells plainly exactly how to cut and fit the lumber, etc. I'll sell you a complete specially designed set of irons to complete the mixer. But, get the blue-prints, instructions and my catalog, all free.

My Catalog Also Gives Prices on Machines Completely Built Ready to Run  
Geo. C. Sheldon, Pres., SHELTON MFG. CO., Box 320, Nehawka, Nebr.



# Have You Received Your Copy of Louden Barn Plans?

*It is stored with Practical, Money-Saving Information Every Barn Builder Needs*

### The Service We Offer You

Louden barn plan service will help you build better barns. It will help you build them more economically. It will enable you to approach your client with plans to meet his individual needs. It will enable you to secure more barn contracts.

We make no charge for preliminary plans and suggestions, or for advisory service.

Write today for further information about Louden Barn Plan Service.

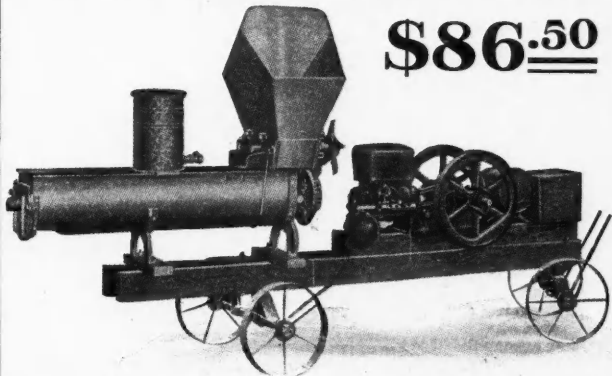
### Our Book of Barn Plans

LOUDEN BARN PLANS contain the most valuable collection of practical barn plans ever published. Its 194 drawings and photographs illustrate practically every phase of modern barn construction; drainage, concrete work, strength of materials, lighting, ventilation, etc. The published price of LOUDEN BARN PLANS is \$1.00; it's free to you if you build barns.

You need this valuable book—Write for your copy today.

**LOUDEN MACHINERY CO., 5603 Fourth St., Fairfield, Iowa**

**WHY NOT  
BUY A REAL MIXER FOR  
\$86.50**



After trying out the different type batch mixers for several years the continuous mixers are coming back. A real continuous mixer with a conscience has been proven to be more accurate than a batch and more economical to operate. We are showing here our new Machine that is designed especially for Block and Tile plants and that small job that is a nuisance, but must be taken care of. Hitch it behind your automobile. You can make more real money on the small jobs, if you are properly equipped, than on the large competition jobs. We make all styles and sizes, from \$26.00 up. Buy this Automatic Mixer today. The proportions can be changed in one minute and the feed is absolutely accurate. Price for **Hawkeye Jr. Automatic Concrete Mixer** on Trucks with 1½ H. P. Water-cooled Engine complete ready to run, Capacity 40 yards per day, \$86.50. Price on Skids, \$45.00. Write for our free Catalogue of Mixers and Block Machines.

**Farmers' Supply Co., Janesville, Ia.**

## At Last!

### A Real Builders Mixer

A Mixer for the average job. A Mixer that a man can turn or you can belt your gasoline engine up to it and run it. A Mixer that is most reasonable in cost and that every contractor can afford.

### THE LITTLE GIANT

**Continuous Concrete Mixer** with a man turning it will deliver 3 to 4 cubic yards an hour and hitched up to an engine turns out twice as much. It has an automatic proportioning feeding device that is positive and accurate. The **Little Giant** is solidly and well-built and will last a life-time.

#### Our FREE Trial Offer.

Get the details about this Free offer before buying a Mixer. It is most liberal and we leave it all up to you. Write for our Catalogue and the Free Offer.

**BALLOU MFG. CO.**

Belding, Mich.

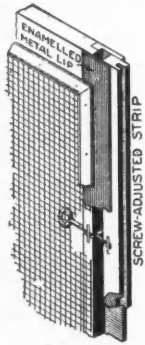
Price  
Only  
**\$75.00**



# The WHEELER SCREEN

is truly "Self-Fitting"  
by its Screw Adjustment

You will find three troubles in every non-adjusting screen. (1) errors of the opening (no man can make two openings of the same size); (2) weakness of the wooden slide-tracks used by all sliding screens, except the "Wheeler", (3) swelling and shrinking of all window frames in wet and dry weather.



Corner showing Screw Adjustment

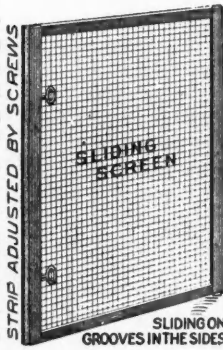
## We End All Troubles

No matter what trouble comes up, whether it be the error of the carpenter or imperfect window frames, no matter what the weather, merely push out the Adjustable Strip in the side by means of Thumb Screws located at the top and the bottom. These Screws enable you to push out this Adjustable Strip—more at the top—less at the bottom—until the Screen *exactly fits*. With these troubles ended, conveniences of all kinds at once follow and the "Wheeler" outpoints all others on any and all features. To the Contractor they afford *two profits*—the usual margin, another in the *saving over cost of fitting and painting the edges of all others*. They fit without touch of a tool at one-tenth the cost of other installations.

Corner showing Screw Adjustment

## Big Money Selling Our Screens

You can make more money absolutely, selling the "Wheeler" Adjustable Screens to your customers than by making other screens. Keep your men busy at other work. Let us take care of your Screen orders and you will have this much clear profit. Don't lose money and the time of your high-priced workmen. You actually make \$5.00 to our \$1.00, because we allow you the big-single profit on each individual house-order, since that is the only way for us to get hold of the little-many profits on the 100 house-orders from the tens of towns.



SLIDING ON GROOVES IN THE SIDES

## Prompt Shipments

Special and automatic machines, on an acre-and-one-half of floor space, reduce time of filling orders to days where others require weeks; speed is limited only by the time required for drying the finish specified. Three days after receipt of order is our *average* on White-Pine-Painted Goods.

### Don't Delay—Screen-Time Is Soon Here

We want a live reputable carpenter and builder in each town to act as our agent. These Wheeler Adjustable Screens are very popular and you will reap the benefits of their popularity in the way of big profits.

Write today for our proposition.

**Wheeler Screen Co.**  
Geneva, Illinois

## New Building Material Catalog Out

In a recent mail we have received the new catalog of the Webber Lumber and Supply Co., Fitchburg, Mass. It is a well-gotten-up book of 150 pages, covering the building supplies in which this company deals.

Among the items described and illustrated are: doors, window screens. French windows and casement sash, sash, blinds, colored art sash, exterior and interior finish, and furniture. Several beautiful colored plates show the designs and combinations which may be had in the colored sash.

This company has just completed additions to their plant, and will be compelled to add even more. When finally finished, the plant will cover 14 acres.

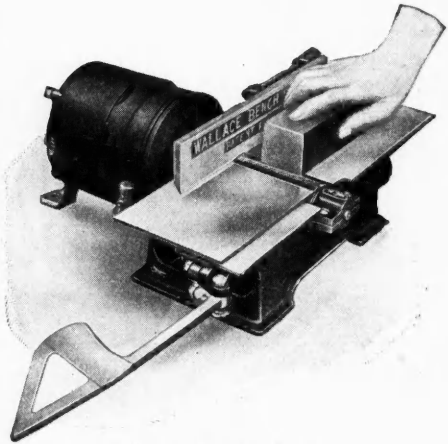


## Safety Guard for Wallace Bench Planer

A fool-proof safety guard for planers has recently been perfected by J. D. Wallace, 525 W. Van Buren St., Chicago, and is now announced as an important part of the equipment of the Wallace Bench Planer.

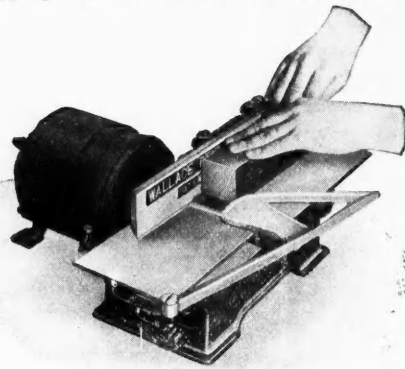
The name, Flap and Shutter Guard, is descriptive of the device, which consists of two independent parts, clearly shown by the illustrations.

The Flap is an aluminum casting, swinging on top of the tables. It is held against the stock by a concealed spring, and covers the unused parts of the cutting knives. When special work, such as rabbeting, is done, it can be swung off the table to the rear, as shown.



Guard Swung Open.

The Shutter is a part of a steel tube which envelops the cutter head. The lip of this shutter rests on top of the front table, and it is pushed around under the rear table, snapping back over the knives when the cut is finished and



Guard Covering Knives.

the stock releases it. One view shows the throat opening completely covered, the other shows it about half open.

The important thing about the operation of the shutter is that any "kickback" of the stock being planed causes the shutter to snap back over the opening, as fast as the stock goes back.

Nearly all planer accidents are caused by "kickbacks" and the shutter guard automatically makes such accidents impossible.

In the combination of the Flap and Shutter guards, the shutter is designed to stop the accidents, and the flap is included to prevent careless and inexperienced operators putting their fingers into the unused part of the knives, this addition making the device absolutely "fool proof."



**YOU!  
YES, YOU  
CAN GET IT**

# \$300 MONTHLY for YOU

**BE MY GENERAL AGENT IN YOUR COUNTY! GET INTO AN HONEST, DIGNIFIED BUSINESS of your OWN!**

The man who makes big money doesn't depend upon his own efforts. He organizes other men and makes a profit from their labor, too. I show you how to do just that. Give you valuable exclusive sales territory absolutely free. Put you in a position to manage a large crew of successful agents and make fat commissions on their work as well as yours. With the fastest selling specialty on earth—with the help I can and will give you, and with money rolling in from your own sales and the sales of from six to ten men working under your direction—**YOU SIMPLY CAN'T HELP BUT SUCCEED.**

You are an opportunity seeker. All you want is the chance. I know you will do your part. If anyone will convince you that he can establish you in a paying, honest, dignified business where big money is practically sure, you'll take the job, won't you? All right, I'll take you up on your own proposition. I'll appoint you as my representative on that very basis. I'll convince you that we've got the best selling specialty in existence. I'll prove to you that when you secure the exclusive representation for your county that you're not entering into a dinky, paltry agency proposition. You're putting yourself in line for an amazingly big paying business of your own with profits of from \$30 per week upward.

## Over 70% Are Without Bath Rooms

In country and small towns and cities, the percentage is vastly greater than that. These people have gone without the exhilarating, invigorating health-giving bath simply because until now they could not get it. They have used all sorts of makeshifts, sponge baths, wooden, zinc and metal tubs of various kinds. Heavy, clumsy, unsanitary, in-the-way tubs. Lugging them in and out before and after the bath. Taking up valuable space all the time.

I have invented a practical bath tub that can be used in any room—bedroom—sickroom—kitchen—anywhere—a tub that can be sold at a price within reach of the masses—a tub that is light and yet durable, one that can be folded up and stood up in any corner when you are through with it.—**THE ROBINSON STEELINE PORTABLE BATH TUB.**

I wish I could show you this wonderful tub. Look at the picture. See how it folds up after the bath. Pick it up with one hand and stand it away in a corner just as you would an umbrella. Isn't that the climax of convenience? In use it's as stable as the stationary tub—as luxuriant a submergent bath as any city bathroom affords. Can't tip or splash, equipped with a handy self-emptying device—plenty of room—just the right shape—simple—perfect—absolutely ideal.

### YOU MAKE \$5.00 ON EVERY SALE

Think of it. What's the use of wasting your time and effort pushing some specialty that sells for a few cents, when the same time and energy will make you \$5. You get exclusive territory. We protect you. Give you county rights. No cost to you to secure exclusive territory. Then you can appoint sub-agents. If you are a hustler you can make more on this proposition than many a high-class salesman makes on a straight salary. In fact there is no limit to what you can earn. Just one sale a day means \$30 a week. Think of that—two a day means \$60 a week.

**NO EXPERIENCE NECESSARY** I don't care if you have never had a day's selling experience in your life. I know that you can sell this tub and sell it fast enough and often enough to make big money. I know it because fifty per cent of my best representatives are men and women and even boys and girls who never sold a dollar's worth of any kind of goods in their life before they started to work for us.

This is no fairy-tale. No dream of mine. Every word I write is founded on what has been done by the representatives who are now working for me. I know that they are just ordinary men and women. I know that if they can sell these tubs as they are selling them that YOU can do the same thing—that YOU can make the big money just as they do. I want to tell you all about it—what my men have done and what you can do. Let me send you full descriptive matter about my goods and convincing testimonials from others I have helped to succeed.

Write today—NOW this very minute—either a postal or letter. These exclusive county agencies won't last long. Pick one of these plums while you can—NOW!

**H. S. Robinson, Pres., THE ROBINSON CABINET MFG. COMPANY**  
798 FACTORIES BLDG., TOLEDO, OHIO. For Canadian Territory Write Our Canadian Branch at Walkerville, Ontario, Canada

Send no money. Just name on penny post card for free tub offer. Hustle!

I tell you people are simply falling over each other to buy these tubs. All you have to do is to show them and write out the order. In the country and smaller towns practically every home is a prospect. Even in the city it is surprising how they sell. Right here in Toledo, Mr. N. J. Smith is averaging two sales a day. Used to work in a hardware store at \$65 a month; now he makes that much every week. You can, too. I will send you the records of lots of men who are making big money—just ordinary men and ordinary towns.



**DEMONSTRATING TUB FREE**

I grant credit—Furnish a sample. Help you out—Back you up—Don't doubt

—Don't hesitate—on't hold back—You can't lose. My other men are building homes, bank accounts, so can you Act then quickly

## PARQUETRY FLOORING

DIRECT FROM MILL

**EASY TO LAY**

### Profitable to Carpenters and Builders

The tremendous balance of favor on the side of Parquetry Floors more than overbalances the slight difference in cost!

If you buy Federal Parquetry the difference is slight indeed!

Among Contractors, Builders and Architects Parquetry is recognized as the one highly desirable floor stock.

Federal Parquetry is the finest quality of Kentucky White Oak, perfectly milled, accurately matched and uniform in color, character and design.

Talk Parquet flooring—it helps land the jobs.

You can make money laying Federal Parquetry.

Ideal for dancing floors.

Write for Special Carpenter's and Builders's Circular No. 98.

**FEDERAL PARQUETRY MFG. CO., Inc.**

Offices: 175 5th Ave., New York      Mills: Lexington, Kentucky

Agents wanted wherever we are not now represented

## SNOW GUARDS

### Save the Gutters

The gutters or eaves of any building will never be torn away by sliding snow and ice if equipped with snow guards. They also prevent snow and ice from sliding and dropping on passers-by, thereby insuring owners against damage suits. They are very low in price and the protection they offer to eaves and gutters as well as persons is well worth their small additional cost.

**Can be put on old or New Roofs**

Made in three styles, the "CLASON" and the "H-B" guards for new roofs and the "H-B" two-piece guard for old roofs.

**FREE Sample for the Asking**

In order to better acquaint you with Snow Guards we will send you FREE Samples, together with a circular showing their application.

**CLASON METAL WORKS, Providence, R. I.**

"CLASON" Guard for New Roofs.

"H-B" Guard for New Roofs.

"H-B" Two-piece Guard for Roofs Already Laid.

### First Infantry Armory Leased for 1916 Chicago Cement Show, in Addition to Coliseum

Because of the remarkable increase in the demand for space at the last two Cement Shows, the Cement Products Exhibition Co. has found it necessary to secure the First Infantry Armory in addition to the Coliseum and the Annex for the 1916 Show. It was evident when all of the space in both the Coliseum and the Annex was assigned at the drawing on February 12, that something had to be done in order to accommodate all the manufacturers who wish to exhibit. To the one hundred exhibitors who applied for space in time to participate in the drawing, all of the space available in the Coliseum and the Annex was assigned. This meant that forty manufacturers who exhibited at the Eighth Show as well as the seventy other applicants who could not be accommodated with space, would have been unable to exhibit had not more space been provided, and led to the rental of the First Infantry Armory, which offers sixty-eight additional spaces—almost enough to accommodate all of the applicants for space at the Eighth Show.

The rental of the Armory, however, necessitated a change in the dates set for the Ninth Show. Under the new arrangement, following the practice of the Automobile Show, the Ninth Cement Show will open at 2 P. M. on Saturday, February 12, 1916, and will close at 11 P. M. on Saturday, February 19. It is believed that the providing of two Saturday afternoons will enable the Chicago architects, engineers, contractors and builders to attend the show without serious interference with their regular business. Ample time has been provided for the installation and removal of exhibits, both in the Coliseum and the Armory.

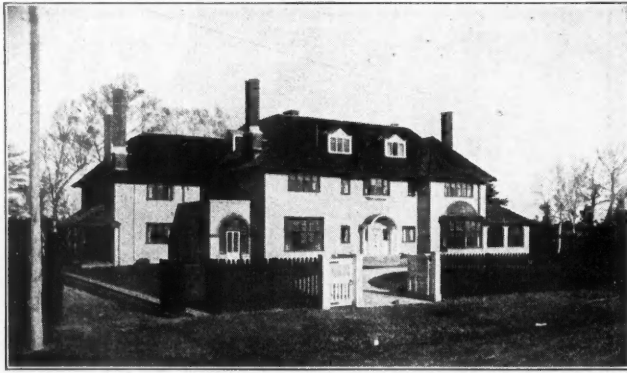
### Artistic Treatment of Cement Surfaces

By A. M. MacMurray

The rapidly increasing popularity of concrete construction in the way of buildings of all kinds as well as of stucco finished houses has naturally brought up the question of the treatment of the exterior cement surfaces with a view to giving them something akin to artistic effect. Many of the leading paint manufacturers throughout the country have endeavored to solve the problem by making a paint applicable to cement and which, when applied, would give a durable, pleasing exterior finish without showing a painted effect and which at the same time would be unaffected by dampness or alkali action.

Much thought has been given to this matter by Wadsworth, Howland & Co., Inc., Boston, Mass. They have proven by practical demonstration to the satisfaction of leading architects and building contractors, that the base of such a compound must be of a concrete nature. The only medium, it is said, suitable to such a base is one which does not contain an oil which is affected by alkali, and one which would evaporate immediately upon application, leaving the base of the coating an integral part of the surface and not as a skin coating like ordinary paint. The point is made that the Bay State Brick and Cement Coating for cement, brick and plaster made by this concern is manufactured from such a base and does not turn yellow.

This cement coating is offered in many pleasing tints and therefore opens an unlimited field of possibilities for the architect, the contractor, or the owner who seeks an artistic, pleasing and harmonious effect on these surfaces. In the accompanying illustration represents the residence of S. S.



All buildings in both views have all stucco work waterproofed with CERESIT Waterproofing Compound.  
George & Moorehouse, Architects, Toronto.





Other Ceresit products are: Weather-wear Roof Coat, Floor Hardener, Damp-proof Plaster Bond, Damp-proof Coating, Stone Backing, Ceresitol.

## A Menace to Health!

Many eminent authorities on sanitation and health say unanimously that dampness in buildings is as serious a *menace* to health as defective plumbing.

Leading architects and contractors now realize the many advantages and benefits of damp-proofing, and are specifying that concrete, cement and stucco side walls and basements be waterproofed.

CERESIT—(the everlasting waterproof)—is recognized as standard by foremost engineers. For the sake of safety, permanency and economy specify CERESIT.

### Ceresit Engineering Service

Let our able staff of engineers co-operate with you in solving your waterproofing problems. Ask for complete and specific data.

**Ceresit Waterproofing Co.**  
910 Westminster Bldg. CHICAGO

MADE IN U. S. A.



Betsy Ross House  
Philadelphia

**The Care of a National Landmark**

Betsy Ross made the first American flag here in 1777. In 1905, when the house was about to be demolished, it was saved and presented to the city of Philadelphia as a gift from over a million Americans. Philadelphia now preserves the Betsy Ross house for the nation by protecting it against time and weather with paint made of

**Dutch Boy White Lead**

and pure linseed oil. The same good judgment will preserve and beautify the houses you plan. Specify Dutch Boy White Lead and Dutch Boy Linseed Oil. They can be mixed especially for your houses and tinted any color. Low cost, long wear, best protection are the money-saving and satisfying results.

Ask for folders "B." They include specifications and color chart.

**NATIONAL LEAD COMPANY**  
 New York Boston Cincinnati Cleveland  
 Buffalo Chicago San Francisco St. Louis  
 John T. Lewis & Bros. Co., Philadelphia  
 National Lead & Oil Co., Pittsburgh



**Architects, builders,  
 electricians, plumbers!  
 —here's just what  
 you need**



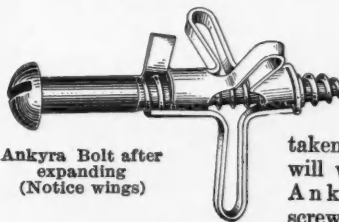
TRADE-MARK

**The screw-hold with a  
 thousand uses**



Ankyra Bolt ready for inserting

The ANKYRA Expansion Bolt is indispensable in up-to-date building construction. With it you can drive wood screws into expanded metal laths, hollow tiles, metal window sashes, lath and plaster, metal window frames, concrete walls—in fact anywhere a screw is needed.



Ankyra Bolt after expanding  
 (Notice wings)

It's the screw-hold with a thousand uses. Holds with a bull-dog grip.

The screws can't work loose, but they can be taken out and replaced at will without losing the Bolt. Ankyra is a permanent screw-hold. It can't work

loose. The nut is an integral part of the Bolt. Useful in many places where a screw would otherwise be impracticable. Has the combined principles of a toggle bolt, expansion bolt, and anchor bolt.

ANKYRA Bolts are made for No. 8, 10, 12, 14, 16 and 18 Wood Screws. They are especially valuable in plumbing, electrical work, steam-fitting, and for bath room fixtures, etc.

Send for samples **FREE**  
 also booklet

**ANKYRA MFG. CO.**  
**Philadelphia**

**ANKYRA MFG. CO.**  
 149 Berklev St.  
 PHILADELPHIA

Please send without cost or obligation to me, samples and booklet describing Ankyra.

Name .....

Address .....

State .....

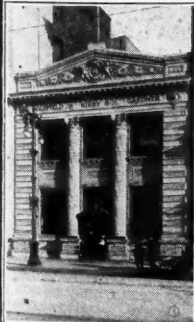
**Build For MOST  
 Comfort!**

Build for more satisfied customers by urging your customers to Linofelt their homes, buildings, barns.

Applying Linofelt saves you the cost and the labor of applying both back plaster and building paper. Linofelt takes the place of both. Cost no more than back plaster alone. Keeps cold out in winter and keeps heat out in summer. Vermin-proof, odorless and sanitary.



Linofelted Home of Dr. Andrew McCauley  
 Fairmont, Minn.



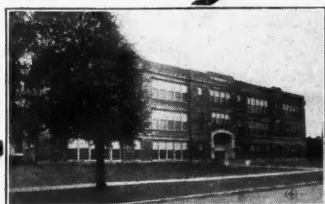
Linofelted Structure in Winnipeg, Canada. The Oldfield-Kirby-Gardner Building.

**LINOFELT**

"BETWEEN YOU AND THE WEATHER."  
 (Copyright, 1914, by Union Fibre Co., Winona, Minn.)

Linofelt is a building quilt made of pure flax fibre 1/4 inch thick placed between layers of Kraft paper. Its use in any building effects an actual saving of 40 per cent of fuel bills every year, when applied according to our simple specifications.

The Linofelted Howe School, Green Bay, Wis



**Write Today for Free Books**

telling all about Linofelt. Also about Lith Insulation—the material that practically all Central West cold storage plants and creameries are now using. Ask particularly for a FREE cloth-bound book "Insulation for Cold Temperatures."

**UNION FIBRE CO.**

118 Union St.,  
 WINONA, MINN.



Improved Interlocking. Rust Proof—Fool Proof

## Do You Use a MEASURING RULE?

**T**HEN YOU will be glad to hear of the "INTERLOX" MASTER SLIDE RULE, the only one whereby *inside* measurements of doors, windows, etc., can be taken rapidly and accurately. Best for outside measurements of walls, ceilings, etc., as it can be extended and closed instantly. The exact measurement is always given, as indicated by arrow in cut, without adding or subtracting. Saves time, temper and trouble.

This is the **only interlocking** Slide Rule. Liberal proposition to dealers and agents.

### GET QUANTITY PRICES

Many concerns use large quantities for their employees, to ensure accuracy. Others use the "INTERLOX" as an unique advertising premium with their name and trade-mark printed in colors on the rule and stamped in gold on the handsome pocket case we supply.



Progressive hardware dealers display this "INTERLOX" sign

### USE THIS COUPON TO-DAY

If your hardware dealer hasn't the "INTERLOX" MASTER SLIDE RULE, send us the coupon below, together with 15c per foot for the rule (in any length from 2 to 8 ft.) and it will be sent prepaid.

DAHL MFG. CO., 51-G East 42d St., New York

Gentlemen:—Enclosed find..... for which send me, prepaid, one.....ft. "INTERLOX" MASTER SLIDE RULE, at 15c per foot. (Please write plainly.)

My Name .....

My Address.....

My Hardware Dealer's Name .....



Residence of S. S. Kresge, Detroit, Coated with "Bay State."

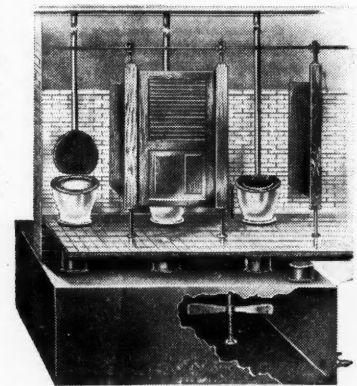
Kresge, Detroit, Mich., after being coated with Bay State Brick and Cement Coating.

We would suggest your sending for their booklet No. 30, which contains a great many photographic illustrations of buildings in practically every state in the union upon which this material has been used. It also contains a color card showing the various colors in which it can be obtained and from which practically any desired shade can be made.



### Solution of Sewage Problem for Rural Schools, Churches Summer Resorts, Lumber Camps, etc.

One of the greatest problems of sanitation today is that of sewage disposal in the rural districts. This is especially perplexing in connection with public buildings, such as churches, Grange halls etc., where large numbers of people congregate and the spread of disease from the outside closet is most dangerous. Because of the frequent outbreaks of typhoid fever during the month of September traceable to the water supply at summer resorts, health boards have taken most stringent methods against the outside closet at these recreation places. Many people have given up their usual vacation trips because of the danger of contracting disease at these places. The illustration above shows a multiple chemical closet system especially adapted to use in public buildings where water or sewers are not available.



Multiple Chemical Closet System Adapted to Schools, Churches, Lumber Camps, Etc.

As the chemical used in the tank is eighteen times stronger than carbolic acid, the sewage is absolutely sterilized before leaving the tank and can be disposed of without danger. Health officials approve this treatment. The chemical also has a liquifying action, so the contents of tank may be drained off the same as water. Contractors and builders doing work in suburban or rural districts will do well to get details of this system, as it solves a great problem in rural building.

Inquiries addressed to the Dail Steel Products Company, 730 Main Street, Lansing, Mich., will receive prompt attention.



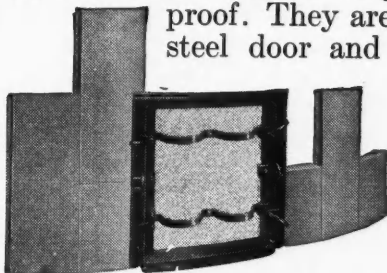
# Get Into a Profitable Business

You are overlooking a big money-making opportunity if you do not investigate our proposition. No business pays as big profits as the manufacture and erection of Perfection Concrete Stave Silos.

You don't need much capital to get started and by our plan you can do most of the work in your back yard, or on the farm. No factory required. No previous experience or ability required. Every farmer knows the big saving and earning silos make for them and it's only a question of getting the best.

## Perfection Concrete Stave Silos

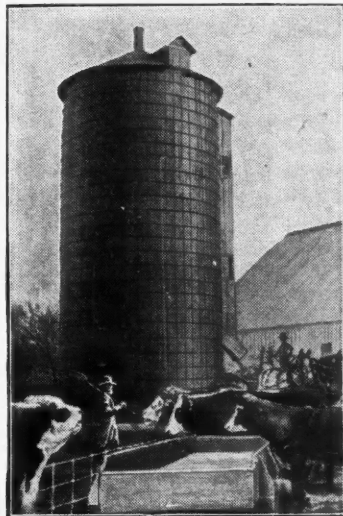
are better than others. They are strong and durable, and water-proof. They are the only "wet mix" stave silo with steel door and door frame on the market. The "wet mix" overcomes all the difficulties and disadvantages of the dry mix. Our specially constructed steel and iron door and door frame cannot be beat.



Sectional View Showing the Construction

### Get Our Proposition

*Write immediately for full particulars. Exclusive territory and Big Profits to the right men.*

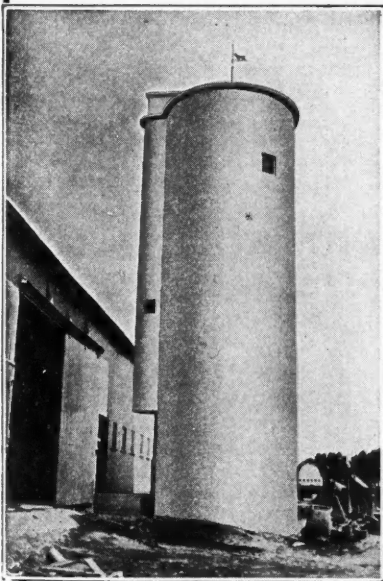


## Perfection Concrete Stave Silo Co.

507 Clapp Block

Des Moines, Iowa

## MORE PROFITS IN SILO BUILDING



Silo and Water Tank (Holding 5084 Gals.)

Write for 1915 catalog and prices.

We will give you **SPECIAL PRICES**

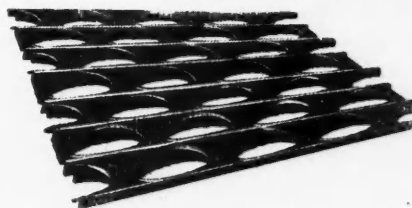
on ALL OUR EQUIPMENT providing the order is received by March 18, 1915.

We Cut Your Expenses

**50%**

**Conklin Construction Co.**  
750 West Main St., HARTFORD, MICH.

## Bostwick Truss-Loop Metal Lath



**THE BEST**

For Fire Resistive Construction  
of  
Barns, Silos, Boat Houses,  
Garages

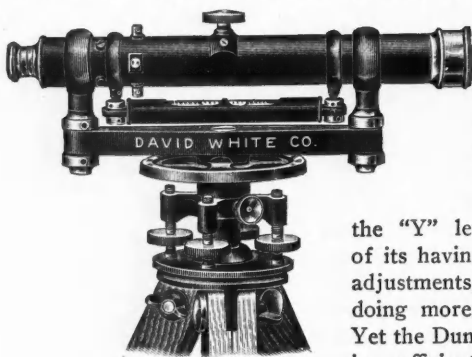
**OVERCOAT** Your Frame  
Buildings with Metal and Plaster  
for Exterior Fire Protection

When Building Write us for Fireproofing Costs.  
No Charge. No Obligation.

**The Bostwick Steel Lath Co.**  
NILES, OHIO

### The Dumpy Level

The chief advantage of the Dumpy Level, recently placed on the market by the David White Co., 419 E. Water St., Milwaukee, Wis., and which is illustrated herewith, is its great



New Model Level.

strength and rigidity. The adjustments of this instrument are also more permanent than that of the "Y" level, although the "Y" level, on account of its having more intricate adjustments, is capable of doing more accurate work. Yet the Dumpy Level, which is sufficiently accurate to meet the needs of the average contractor, is becoming more of a favorite because of its ability to stand rough usage without injury to the instrument or its adjustments.

The David White Company further points out that this level is but one of its many styles of instruments designed especially for the contractor and builder, all of which are shown in their new free illustrated catalog which will be gladly sent post paid to all interested contractors. Write for your copy.



### Steel Scaffolding Saves Life, Money, Time

The use of steel scaffolding brackets should be thoughtfully considered by every man who is connected with building. A great many lives are lost in this country, yearly, through faulty scaffolding on buildings; a great deal of money

is practically wasted in lumber for scaffolding; and even more time is unnecessarily put into the construction of scaffold work.

To the man interested, the American Steel Scaffold Co., Dept. 7, Detroit, Michigan, has a word to say. They have seen the need for something to save the carpenter or builder these great losses. Their answer has been the Wheeler Safety Scaffold Bracket, constructed of T steel to last a lifetime—light in weight, but tested to carry 2,000 pounds. It is built to fold up compactly, thus doing away with the objection that permanent scaffolding is not portable.

Before starting in earnest on this season's work, it would be a mighty good plan to write these people. They will give you some interesting facts, and complete information concerning their product.



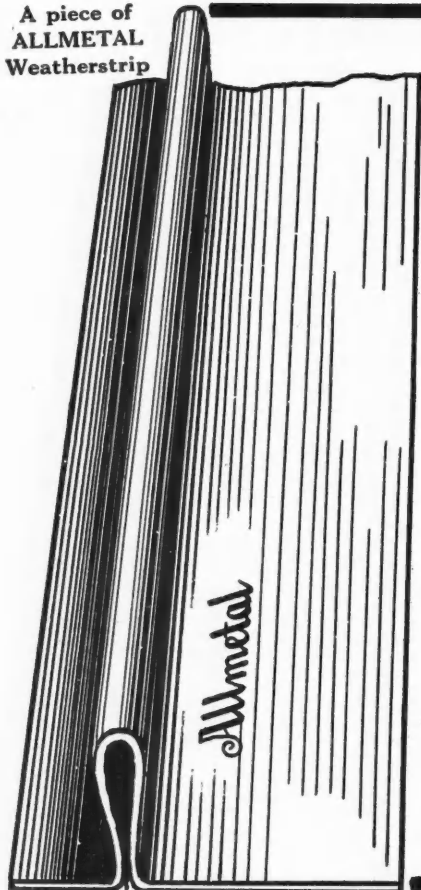
### Johns-Manville Co. Gets Big Pipe-Covering Contract

The pipe insulation contract for the new Utah State Capitol at Salt Lake City, for which R. K. A. Kletting was the architect, and Jas. C. Stewart Company, contractors, was recently awarded to the H. W. Johns-Manville Company.

The high pressure pipes will be covered with J-M Asbestos-Sponge felted pipe covering, a product made up of laminations of felt composed of asbestos and finely ground sponge. The materials being naturally cellular, they form the basis for the claim that this covering confines more "dead air" cells than any other covering—and therefore possesses higher heat-insulating value.

The heating pipes will be covered with J-M Asbestocel pipe covering, which is built up on the arch principle. Sealed air channels run around the pipe, instead of parallel with it, thus preventing the circulation of air and consequent heat radiation.

A piece of  
ALLMETAL  
Weatherstrip



There is nothing complicated about

## Allmetal WEATHERSTRIP

That's why it is so popular with Carpenters and Builders—because it is easily installed and once installed lasts as long as the window. ALLMETAL Weatherstrip is made entirely of zinc or bronze, the most durable metals known—metals that do not rust or corrode.

### Put ALLMETAL WEATHER STRIP on all your new buildings

Tell your customers how this weatherstrip can save 20% to 40% of their coal bill. How it eliminates draughts and the necessity of storm windows. They will gladly have them put on. Here's where two profits come in for you. You make a profit installing them and a neat profit on the strip itself. We let you have ALLMETAL Weatherstrip at factory prices direct. This way you can build up quite a local business selling and installing ALLMETAL Weatherstrip.

### Are You the Man?

We have a live money-making proposition to offer a hustling Carpenter or Builder in every locality—but you must be a "Live Wire" and be able to take care of the business. If you think you are the man, get in touch with us today.

Allmetal Weatherstrip Co.

226 West Madison Street : CHICAGO, ILL.

## Mr. Carpenter and Builder

*Do you wish to substantially increase your yearly income?*

**Good! Now we can talk business**

PERHAPS in your town or county where you are acquainted and now doing business, our metal weather strip is not represented.

WHY NOT TRY to secure the exclusive right of furnishing and installing our metal weather strip in your territory.

YOU buy the strip on the per foot basis and install same at a handsome profit.

**Our weather strip is the easiest sold on the market**

Because—It is the strongest and gives greatest protection.

The meeting-rail strips are double nailed and tight. Our spring bronze is extra heavy gauge and straight. NO KINKS.

The All Brass Threshold has conquered the door bottom problem.

When writing for our proposition—tell us something about yourself, also territory desired.

**Niagara Metal Weather Strip Co.**

737 Main Street - BUFFALO, N. Y.

## Diamond Flexible Metal WEATHER STRIPS

are easier to sell than the old style rigid strip because they are so much better in use—and it doesn't take much argument to convince owners why they're so much better. Carpenters and Builders can develop a big business selling these. \$3,000 to \$5,000 a year is quite possible, because every purchaser of Diamond Strips will be so satisfied that he will gladly boost them to other owners and tenants.

Diamond Weather Strips mean so much more added comfort that no prospective purchaser will begrudge their small price.

Where Diamond Strips are used the windows don't stick or bind, and the sash can be removed when necessary without displacing the Flexible Weather Strip. Another thing is that all openings are made air tight and wind, dust, moisture and noise haven't a chance to get in. They have been known to effect an economy of from 20% to 40% in fuel alone, because less heat is required in rooms protected by Diamond Weather Strips.

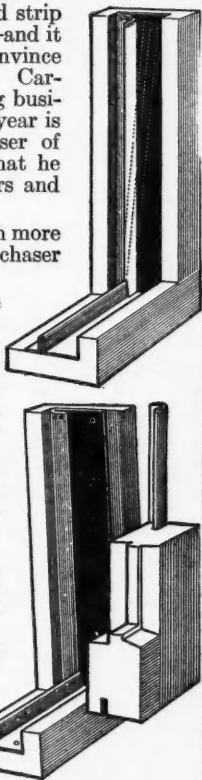
And it's not only residences that use them. Large public buildings—schools, churches, hospitals, etc., are always in the market for these products. We make all kinds, suitable for all style of windows and doors.

Being made of zinc and highest grade spring bronze, they never rust, and last for years. Can be put in old buildings as well as new ones.

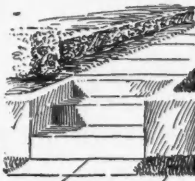
THE  
Diamond Metal Stamping Co.

626 Kerr Street,

COLUMBUS, OHIO



## FOR EVERLASTING CONCRETE WORK



You must have Portland Cement that is pure, live, active and great in binding power. When you build of concrete you build for permanence, and you cannot afford to skimp on the quality of the material you use.

Specify ALPHA and be sure. ALPHA on a bag means something more than 94 pounds of Portland Cement. It stands for exact proportioning of superior raw materials, exceptionally fine grinding, thorough burning, and correct ageing. In all ALPHA Plants the chemists are supreme. They make hourly tests, to be absolutely sure of uniformity, fineness and strength. The result of this extra care is that

# ALPHA

The Guaranteed Portland Cement—The High-Water Mark of Quality

is stronger, goes further and is cheaper in actual use than ordinary Portland Cements. ALPHA is warranted in composition, fineness and tensile strength to more than meet the U. S. Government requirements and all other standard tests. Be careful, the Government advises in Bulletin 481, "to select some well known make guaranteed by the local dealer to meet the standard specifications for cement of the U. S. Government."

ALPHA is an exceptional Cement, made by a Company of twenty-four years' experience, whose policy has always been to manufacture the best, strongest, safest Portland Cement that can be produced. You can be absolutely sure that the grip of the concrete will be everlasting when you use ALPHA—the Guaranteed Portland Cement. Don't accept something said to be "just as good." A little difference is a big difference in a product like cement.

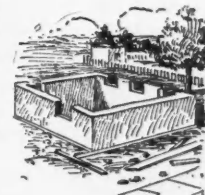
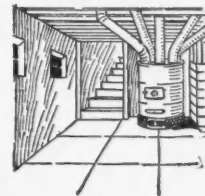
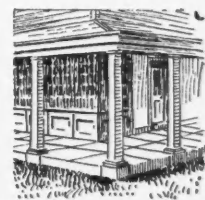
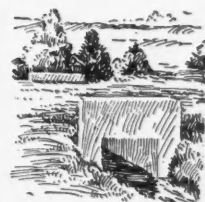
Six great plants on six trunk-line railroads; capacity, 25,000 barrels a day; storage for 2,000,000 barrels.

Send for the ALPHA Book No. 10, giving valuable information about cement and concrete work generally. This illustrated book tells how to do stucco work, how to build concrete barns, silos, ice-houses, and other small concrete buildings, walks, tanks, storage cellars, steps, etc.

**Alpha Portland Cement Co.**

General Offices: Easton, Pa.

Sales Offices: New York, Chicago, Philadelphia, Boston  
Pittsburgh, Baltimore, Buffalo, Savannah



Specify ALPHA and be SURE



The Untrained Man

The Trained Man

## Your Future Depends On Yourself

A few years hence, then what? Will you still be an untrained, underpaid laborer, or will you be a specialist in your chosen line of work where you can earn more in one day than the untrained man earns in a week?

Your future depends upon yourself. You must decide now. To hesitate, to put it off, or to be undecided means that you must plod the hard road of disappointment, poverty, and failure. To mark and mail the attached coupon is the first step to promotion and success.

The only way to keep out of the dollar-a-day class is to get the special training that will command the attention and a better salary from the man higher up. The International Correspondence Schools have shown to thousands the way to positions of power and increased salaries. They can do the same for you.

Your future is before you. Are you interested enough in it to learn how the I. C. S. can fit you for a real big job? No matter where you live, how little you earn, or what your previous education has been, the I. C. S. have a way of helping you. For over 23 years the I. C. S. have been helping young men to increase their earnings and to rise to positions that insure a better income.

The 400 or more letters that are sent to us every month reporting increased salaries, prove our ability to help you.

Choose a high-salaried future and

**Mark and Mail the Coupon NOW**

### International Correspondence Schools

Box 910F, SCRANTON, PA.

Please explain, without further obligation on my part, how I can qualify for a larger salary and advancement to the position, trade, or profession before which I have marked X.

Architect	Estimating Clerk	Automobile Runn'g
Arch'l Draftsman	Civil Engineer	Foreman Machinist
Contract'g & Build.	Surveying	Sh.-Met. Pat. Drafts.
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Structural Eng.	Mechanical Eng.	Bookkeeper
Structural Draftsman	Mechanical Drafts'n	Stenographer
Plum. & Heat. Con.	Stationary Eng.	Advertising Man
Supt. of Plumbing	Electrical Engineer	Window Trimming
Foreman Steam Fit.	Electric Lighting	Commerc'l Illustrat'g
Plumbing Inspector	Electric Railways	Civ. Service Exams.
Heat. & Vent. Eng.	Concrete Const'r'n	Chemist

Name \_\_\_\_\_

St. and No. \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

Present Occupation \_\_\_\_\_

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

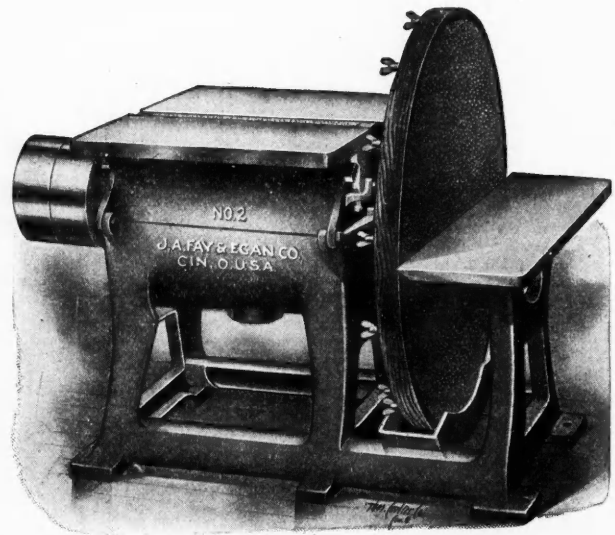
### A Sander for Carpenters and Builders

The now general use of sawing, planing and wood-cutting machines in the shops of carpenters and builders throughout the country, has saved many hours of valuable time, which, converted to other purposes, has resulted in increased profit.

Inside work, after being cut to form, however, should be finished up perfectly smooth by sandpapering.

Realizing the great amount of time that could be saved to the carpenters and builders on this operation, and taking into consideration also, the various kinds of sanding that the average carpenter and builder must do, the J. A. Fay & Egan Co. designed a machine that would take care of all this different kind of sanding work that arises, and at the same time, be made and sold at a price well within the means of any such shop owner.

The result is their No. 2 Iron Frame Hand Feed Drum and Disk Sandpapering Machine, which is really a Universal Sander. Large, flat pieces must be sanded over a solid table with revolving drum set between the table openings, and as you will see in the illustration, this has been worked out very nicely. You will note, too, that they have made these



No. 2 Iron Frame Drum and Disk Sand-Papering Machine.

tables on hinges, so they can be thrown back, exposing the surface of this curved drum, so that any kind of curved work can be sanded just as readily as the flat work.

Then there are a lot of irregular shapes, extra large pieces, drawer ends, etc., that have to be taken care of in this line of work, and for this purpose, the large flat disk with the angling table is provided.

The whole machine is very compact, taking up small floor space and requires very little power to operate it; can be driven from a line shaft or from an individual motor. There is practically no up-keep expense to it, as it is sturdily constructed throughout and has no part to wear or break. The cost of sandpaper is very small, and the sandpaper coverings on the drum and disk will last for quite a long time.

During the past year, the J. A. Fay & Egan Co. have sold a large number of these machines to carpenters and builders throughout the country, and they have, in every case, given the greatest satisfaction, and borne out the promise that they would affect just as big savings and increase profits of their users as much as the Fay-Egan Sawing, Planing and Wood cutting machinery has done.

Further information with reference to this machine may be obtained upon application to J. A. Fay & Egan Company at their address in Cincinnati, 545-565 West Front Street.



## You Can Make More Money

**Globe Fencing** is Profitable for you and will appeal to your customers.

Easy to erect. Can be mounted on any style of post and uneven ground. We have many combinations of materials suitable for front, rear or division fencing — all of A1 materials.

**Globe Fencing** makes attractive appearing yards. Lets in the sun and permits a freer circulation of air.

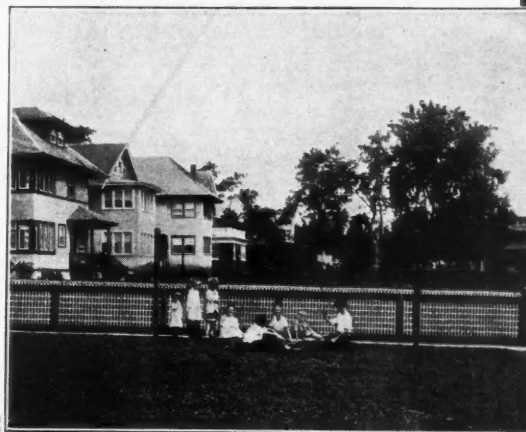
Promotes sanitary conditions. Encourages the growth of flowers and vegetation.

Every **Globe Fence** you erect will lead to other orders from neighboring owners. It recommends itself on sight.

Let us send you catalog and special discounts to carpenters and contractors.

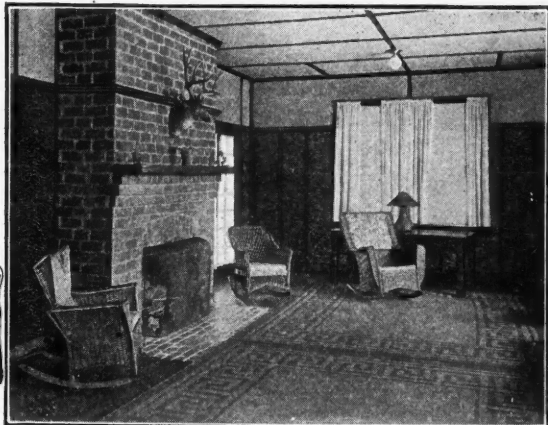
**Globe Fence Company, (Un-Inc.)**

20 - 22nd St., North Chicago, Ill.



## CAREY CEIL-BOARD

*Backed by the Carey Name and Fame*



is the only moisture-proof wallboard made today. Some others are sized on the surface—Ceil Board is moisture-proof throughout. Cut into it and test it. We will gladly send samples.

Ceil Board may be had already finished in Golden Oak, Mission Oak and Circassian Walnut—also plain finishes for painting and wallpapering.

**THE PHILIP CAREY COMPANY**  
General Offices 1021 Wayne Ave., Lockland Cin., Ohio  
OFFICES & WAREHOUSES IN PRINCIPAL CITIES.



## This Book Is As Necessary As Your Saw



Do you know how to apply wall board correctly? Can you give an estimate without figuring? Do you know how it should be decorated?

**IT ANSWERS THESE QUESTIONS AND HUNDREDS OF OTHERS**

The photographs in it, which cover practically every use of wall board, will give your customers an exact idea of the results to be obtained with

## PLASTERGON WALL BOARD

If the photographs do not carry the idea, there are suggestive designs for walls and ceilings that are bound to please.

A complete table of sizes with the area of each panel, number of panels to the bundle, square feet per bundle and the total weight, is also shown.

**The Most Complete and Unbiased Treatise  
on Wall Board Published**

Every one interested in wall board—Contractors particularly—should have this new book. You can get a copy by sending your name with that of your lumber or builder's supply dealer, or both, to

**The Plastergon Wall Board Co.**  
101 Fillmore Ave., TONAWANDA, NEW YORK

### New Wrinkle Prevents Leakage in Side-Lap of Corrugated Roofing

We illustrate a little device which prevents leakage between laps in the Patent V Crimp, and Patent 3V Crimp roofing manufactured by the Moeschl-Edwards Corrugating Company, Covington, Kentucky. Literally, it is a "new wrinkle."



Patent Leak-Proof Joint for Corrugated Sheets.

It has been established by experiment and experience that where two flat surfaces come in contact, capillary attraction will occur. This is particularly true of corrugated sheets which are so formed as to make a side lap that encourages leakage by capillary attraction and is only overcome by lapping the sheets on the side for several corrugations. This is expensive, as half the metal involved in the lap gives no covering surface. No corrugated roofing in which the sheets are lapped but one corrugation on the side has ever proven weather tight—invariably leakage occurs. In the construction of Patent Corrugated Roofing, any moisture that may be driven over the side lap can not fall within the building. It falls into the gutter formed in the outside edge of the under crimp and is carried down to the eave.

The construction of the outside or lapping edges of Patent Corrugated Roofing affords such rigidity that they will not mash down when the nail is driven through. This occurs in the ordinary corrugated roofing in which the corrugations are made shallow to economize in cost. As shown in the illustration, the nail is driven through the highest point of the crimp. The slight depression in the head of the under crimp removes the double thickness immediately under the nail, and makes nailing much easier.

This company manufactures an extensive line of roofing and corrugated metal. They will be very glad to give complete information, prices and their liberal proposition upon inquiry.



### Oak Flooring vs Carpets

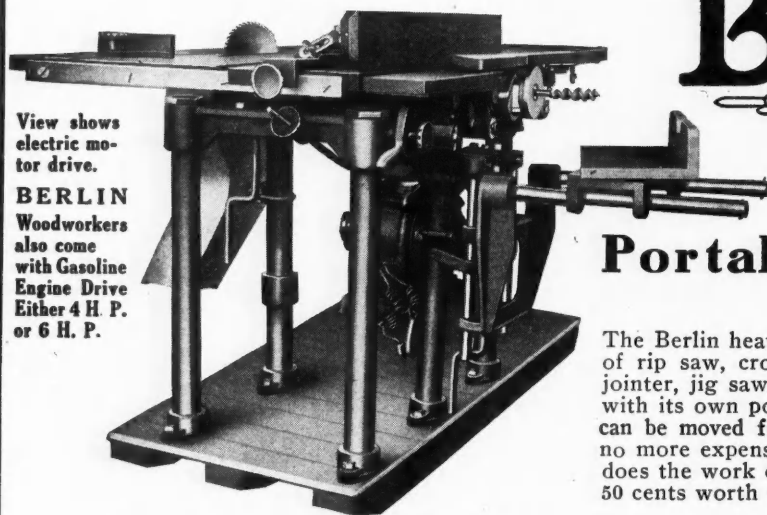
By W. L. Claffey

The average home builder is very often misled in regard to prices on oak flooring— $\frac{3}{8}$ -inch thickness oak flooring, which makes a very serviceable and beautiful floor, is cheaper than carpets. A yard of carpet is 27 inches wide by 3 feet in length, thus a carpet yard contains  $6\frac{3}{4}$  square feet. Carpet sells at from \$2.00 to \$9.00 per yard. A fair average of good quality of carpet would be about \$3.00 per yard. The best grade of  $\frac{3}{8}$ -inch clear quartered oak flooring by 1 $\frac{1}{2}$ -foot face or 2-foot face can be laid and polished for \$1.50 per carpet yard. This is one-half the price of carpet. Carpets over the entire floor is a product of the past and rightfully, too. Oak floors with rugs meet the demands of people that know how to have their homes look up-to-date. Oak flooring beautifies any home and combines more taste and a greater degree of refinement than any carpet that was ever made.

The living, renting and selling values are vastly increased by oak flooring;  $\frac{3}{8}$ -inch thickness is used very extensively for reconstruction work where it may be laid over old soft pine floors or carpets without in any way interfering with the woodwork of the room.

The standard thicknesses of oak flooring are  $\frac{1}{16}$  and  $\frac{3}{8}$  inch. The former comes in 1 $\frac{1}{2}$ , 2 and 2 $\frac{1}{4}$ -inch faces and the latter in 1 $\frac{1}{2}$  and 2-inch faces. The  $\frac{3}{8}$ -inch thickness when laid has all the appearance of heavy flooring.

Oak flooring is hygienic and is very easily and economically cared for after being laid. No modern home nowadays is complete unless floored with oak flooring.



View shows electric motor drive.

**BERLIN**  
Woodworkers also come with Gasoline Engine Drive Either 4 H. P. or 6 H. P.

# BERLIN



## Portable Woodworking Mills

The Berlin heavy duty portable Saw Rig is a combination of rip saw, cross cut saw, dado saw, grooving machine, jointer, jig saw, boring machine, sander and emery wheel with its own power plant so conveniently arranged that it can be moved from job to job in a light spring wagon at no more expense than a carpenter's tool box. It actually does the work of twenty men with one operator and 20 to 50 cents worth of gasoline.

### Designed and Built for Durability plus Portability

The Berlin Saw Rig is easily moved from job to job—but strong and rugged enough to withstand the hardest service building contractors may put it to. Frame and main bearings are cast semi-steel, made in one piece without joints. Frame is then supported by two-inch extra heavy pipe legs on wood skids, which makes a very strong, rigid construction. "Berlin" Gasoline engines are four cycle, horizontal water cooled engines and have built-in magnetos, eliminating battery and ignition troubles. These engines are easily started in cold weather and are accessible by simply raising the wooden table. Machines are equipped with highest grade saws, knives and accessories.

#### Guaranteed for Two Years

All Berlin Saw Rigs are guaranteed against defective workmanship or material for a period of two years. During this time any broken or defective part will be replaced free of charge. Write for detailed specifications and information. The BERLIN Saw Rig is unsurpassed for combined durability and portability.

**SCHAEFER MFG. CO.**

**BERLIN, WIS.**

# Straight Talks on Durametal Weatherstrips

☞ You contractors—carpenters and building owners—why not buy weatherstrips direct from the manufacturer and do your own installing?

☞ By our unique plan, we have cut out the usual big selling expenses, which enables you to buy direct from us, make a profit on the strip and good money on the installation besides.

☞ Durametal Weatherstrips have been successfully sold for over 10 years and have stood every possible test. Their durability and simplicity makes them superior to all others.

☞ Made of best heavy zinc, and fully guaranteed. Write for samples and prices now before you turn another page. There's money in this for YOU.

A few agencies open to responsible, live, local contractors and carpenters.

**Durametal Weatherstrip Co.**  
10 E. Austin Ave. CHICAGO, ILL.

## Your New Buildings Should All Be Equipped With **PULLMAN** METAL WEATHER STRIP

It's a superior metal weather strip and pays you big profits to handle and install it. We give carpenters and builders exclusive territory and special factory prices. Why not handle a high grade line of Metal Weather Strip?

Pullman Metal Weather Strip is easy to install and is durable and efficient. Write for our special proposition we offer to carpenters and builders. Don't put it off.

**Pullman Metal Weather Strip Co.**  
22 York Place  
York, Pennsylvania



## The "Rustless" Rule

**A Revelation in Lightness, Durability, Compactness, Convenience and Low Price!**

Here's the rule that every carpenter and builder has waited for. Won't rust, weighs little; fits the vest pocket, yet opens up to 2, 3, 4, 5 and 6 feet; costs less than steel rules, yet is just as durable; has large figures and accurate graduations; has permanent legibility.

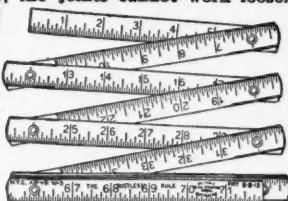
The "RUSTLESS" Rule is made of Luminio—a special alloy of aluminum, with a bright polished surface that will never tarnish. The rule weighs about one ounce to every lineal foot, is not bulky, and folds up into six inch lengths; the joints cannot work loose.

Buy one from your local dealer. If he cannot supply you send us the price of the Rule wanted and same will go forward to you promptly postage prepaid.

Prices—2 ft., 50c; 3 ft., 75c; 4 ft., \$1.00; 5 ft. \$1.25; 6 ft., \$1.50.

Send for printed matter.

**Reliable Stamping Co., Inc.**  
369 Seventh Street  
Buffalo, N. Y.



# Save 50% on Your Building Material Bill!

NO shrewd Contractor or Builder can afford to be without our newest catalog of guaranteed Millwork and Building Material. It's the best thing of its kind ever published. Has 3,000 superb illustrations and 8,000 dollar-saving prices—Buy your material from us, we ship direct to you and there are no jobber's or middleman's profits to pay. We sell at wholesale, guarantee satisfaction and safe delivery.

H. B. Mungler, Pres't.

## 8000 BARGAINS

Everything in Lumber, Flooring, Doors, Windows, Mouldings, Porchwork, Building Paper, Hardware, Tinwork, Roofing, Paint—All at Wholesale Prices! Buy From Us Direct And You'll Save 33 1-3% to 50% On Everything You Buy.

### PLAN BOOK OF MODERN HOMES

Illustrates 50 up-to-date modern houses and barns ranging in price from \$400.00 up and tells how to secure free blue prints, specifications, itemized bill of materials, complete with price. Our method of furnishing material complete saves 50% in price and 100% in trouble and worry. Get our 2 Great Books Today.

### Hardware

Get our money-saving prices on reliable building hardware—You take no risk—our designs are standard and every item is fully guaranteed—Our regular lock sets carried both in genuine bronze and steel—Just get our prices.



**\$838** We will furnish complete all lumber, shingles, millwork, hardware, spouting, paint—everything except masonry and labor to build 6-room house. Plans free. 113.

### Economy Rubber Roofing

2 Ply, 45 Lbs. Guaranteed 7 Yrs. \$1.35  
3 Ply, 55 Lbs. Guaranteed 10 Yrs. \$1.60  
Rolls Contain 108 Sq. Ft.  
Free from tar. Made from long woolen felt saturated and coated with pure asphalt.

### Storm Sash

Double windows save their cost each season in coal bills. All sizes in stock. Clear White Pine, Glazed. 72c Net up. Storm Doors \$1.50 Net up. Write for FREE BOOK.

**CHICAGO MILLWORK SUPPLY CO.**  
1422 W. 37th Street Chicago

Fill In This Coupon Now DATE  
Mail It To Us

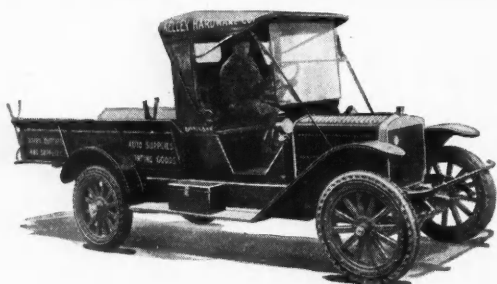
Chicago Millwork Supply Co.,  
1422 W. 37th Street  
Chicago, Ill.

Gentlemen—Please send your Books checked below, to—

Name .....

Address .....

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



## How To Select The Right Truck

To select the right motor truck for your needs, it is wise to be governed largely by the experience of others.

If you will inquire carefully among carpenters and builders using KisselKar Trucks, you will find that they are satisfied that they chose the best.

They will tell you that their KisselKar Trucks are running continuously and consistently, more efficiently and more economically than others.

# KISSELKAR TRUCKS

*in Six Sizes*

Let us point out to you in detail the superior construction and workmanship of KisselKar Trucks.

Let us give you the names of others in **your line of business** who have found them money-savers and money-makers.

Let us send you a copy of our truck portfolio illustrating hundreds of these sturdy vehicles as they appear in the service of owners.

**The more carefully you investigate trucks the more certain it is that you will select KisselKar Trucks.**

## Kissel Motor Car Co.

546 Kissel Avenue, - - HARTFORD, WIS.

New York, Chicago, Boston, Philadelphia, St. Louis, Milwaukee, St. Paul, Omaha, Minneapolis, Baltimore, Pittsburgh, Cleveland, Detroit, San Francisco, Los Angeles, Seattle, Buffalo, Rochester, Columbus, and 300 other principal points.

### The Fox No. 4 Floor Scraper

With ten years' experience in the manufacture of floor scrapers and floor scraper blades, the Fox Supply Company of Brooklyn, Wisconsin, are now putting on the market the Fox No. 4 Floor Scraper, shown in the accompanying illustration.

The Fox No. 4 Floor Scraper is of few parts, yet perfect in every detail. The simplicity of its construction places a practical floor scraper on the market at a price that will be attractive to every man at the trade.

A first-class mechanic appreciates quality in tools whether it be a saw, chisel, or jack plane; and particularly so with floor scrapers. Not alone must the action and balance be right, but the temper of the cutting edge of the blade must absolutely be right. The Fox No. 4 Floor Scraper combine the above features and in addition has exclusive features not found in other machines.

The body of the Fox No. 4 Floor Scraper slides on the floor like a plane, in-



Fox Floor Scraper.

ensuring a cut of uniform depth, the bottom of the scraper is planned and corrugated, thus avoiding any possible suction and making it 50 per cent easier on the operator. A rubber cushion lies directly over the blade, which takes up

all vibration and prevents chattering when scraping hard and cross grain flooring. The frame is of gray iron, carried on two 7-inch rubber tired wheels. The handle is adjustable to suit the height of the man operating it.

The blades are made of a grade of steel rolled to their order and tempered by a special process at their factory. The blades combine both hardness and toughness, the very essential point in scraping blades. The cutting edge is 6 inches and one-half dozen extra blades go with each machine.

The Fox No. 4 Floor Scraper weighs 100 pounds and is one of five sizes made by this concern.

A very interesting folder on re-sharpening floor scraper blades will be mailed to any one making request direct to the Fox Supply Company, Department "A," Brooklyn, Wisconsin.



### 100 Years of Sargent Manufacturing

This year marks the completion of a full century of manufacturing enterprise of the Sargent family, founders of Sargent & Co., the hardware and tool manufacturers of New Haven, Conn.

It was in 1814 that Joseph Denny Sargent, a prosperous farmer of Leicester, Mass., decided that during the winter months when work was slack on his farm he could utilize the time of his "hands" by giving them a chance to make cards for carding wool and cotton. From this small hand-carding business to a factory with 3,600 skilled employees on the weekly pay-roll, all in 100 years, is an industrial achievement of which any company might be proud.

While the manufacturing enterprises of the Sargents date back 100 years, the present Sargent & Co., in its present location at New Haven, dates back just 50 years, the original buildings of the present group having been erected in 1864.





**I**T'S no trick to put up BEAVER BOARD. An apprentice could do it if he followed the instructions that come with the material. Get your headers in right and nail on the board according to a plan for paneling worked out by the owner, yourself, or our Design and Decoration Department. Then paint, put on decorative strips—and you're ready for the next job. This crack-proof, permanent wall-board rids the owner of lath and plaster troubles and makes money for you.

Sized and moisture-proofed, both sides. Saves paint. Write today for Free Book and a piece of the Board, painted.

**The Beaver Board Companies**

United States: 219 Beaver Road, Buffalo, N. Y.  
 Canada: 419 Wall St., Beavertale, Ottawa.  
 Great Britain: 4 Southampton Row, London, W. C.  
 Branches in Baltimore, Chicago, Cleveland, Detroit, Indianapolis, Kansas City, Minneapolis, New York, Omaha, Philadelphia, San Francisco

**BEAVER BOARD**  
 WALLS & CEILINGS



**Re-reinforcing Your Concrete**

**H**ERE'S the problem solved for architects, engineers and builders—how to prevent the disintegrating and corroding effect of water seeping through concrete.

**Bay State Brick and Cement Coating**

does it, because it's an absolutely waterproof coating. Keeps concrete, stucco or brick walls dry, makes them more enduring and preserves the metalwork.

*Comes white and in beautiful shades. For interior walls, too.*

Get the experience of other engineers and builders—it's all in our free Booklet 30.

**WADSWORTH, HOWLAND & CO. Inc.**  
 Paint and Varnish Makers  
 Boston, Mass.



Trademark Reg. No. 94745.

**Is More Than a "Wall Board"**

because it handles so easily, saws smooth and clean, does not warp, shrink, crack or break, always lies flat and straight. It is the ideal material for:

- lining garages and outdoor sheds for warmth.
- lining summer cottages (helps keep them cool).
- quick repair partitions.
- enclosing rooms in attic or cellar.
- building dust-proof closets and cabinets.
- panels in wainscoting or beamed ceiling.
- shelves, drawer bottoms, cabinet backs, and 1001 other purposes.

It's the center core of kiln-dried wood slats that makes **Compo-Board** so strong, durable and satisfactory in so many ways.

It's this same patented feature of construction that makes genuine **Compo-Board** so easily identified. Look for this wood core when you buy and avoid disappointment.

Sold by dealers everywhere in strips four feet wide and in lengths one to 18 feet long, as desired.

Write for interesting book and free sample piece.

**Northwestern Compo-Board Company**

5777 Lyndale Ave., No. MINNEAPOLIS, MINN.



**In Justice to Yourself**

Most likely you know about the merits of Genuine Bangor Slate. Almost everybody in Buildingdom does. They are as standard as American gold dollars.

But have you ever considered what you have to lose or to gain if you have not yet accepted our invitation to let us submit our plan of co-operation?

It will help you build up more business, more profit. It will get you in touch with the most desirable customers in your community.

There is no obligation in letting us talk it over. Isn't it worth the postage to you to find out particulars? Fill out, detach, sign and send the attached coupon today, while this matter is on your mind.

To ignore this invitation is like letting money slip away that you might just as well have.

**Genuine Bangor Slate Co.**  
 Quarries: Bangor, Pa.  
 Easton, Pa.

Genuine Bangor Slate Co., Easton, Pa. April, 1915.  
 Please send information.

Signed .....  
 Address .....  
 City ..... State .....

George Henry Sargent, President of Sargent & Co. at the present time, is one of the four sons of Joseph Denny Sargent. In the organization at the present time are also members of the third and fourth generations of Sargents.

To the people of New Haven the Sargent concern is noted for the watchful care they take of their employees. They have not had a serious fire in the factory in the 50 years of its existence. The number of employees injured at work has been so small compared to other industries that when the firm has been called upon to produce figures before insurance commissioners, the latter have had difficulty in crediting the facts submitted. For years before the Employers' Liability Act went into effect this company paid compensation, medical and hospital service for employees injured while at work.



### Lock Framing Timbers to Concrete Foundation

To successfully connect his framing timbers to a cement floor or foundation has long been a serious problem with the carpenter and builder. Ordinary toenailing does not work—as a result many an otherwise good job must be done over, causing dissatisfaction to all hands.

The Ross Studding Socket is made to solve this problem in the simplest possible way. It is a plain socket of the right size to hold various size timbers, in one piece with a "root" which is driven down into the damp cement. Naturally, when the cement has set the socket is as solid as the foundation or floor itself.

It looks to be another money and time-saver for the man who builds, well worth investigating. The manufacturers are G. M. Ross and Co., 344 Broad St., Grinnell, Ia. They offer a nice proposition to dealers, as well as to the carpenter and builder.

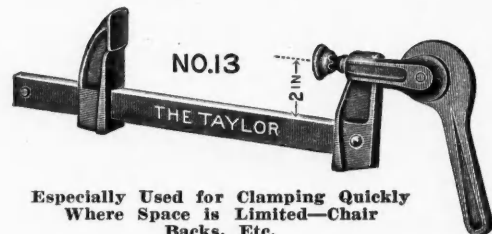
### Eccentric Steel Bar Clamp with Self-Locking Grip

These illustrations show two new clamps which have just been introduced by the James L. Taylor Manufacturing Company, of Poughkeepsie, New York.

The bar is made of steel, tested to an elastic limit of around 3,500 pounds. The sliding jaw of each clamp is pro-



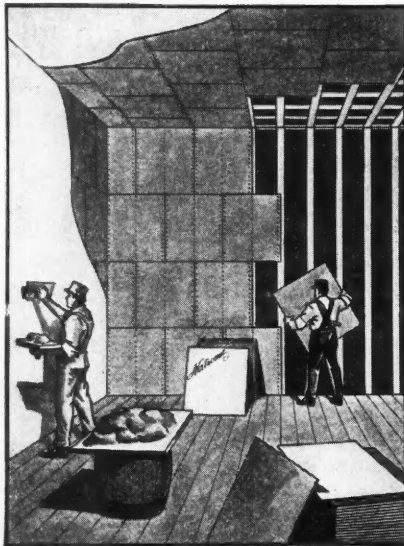
Designed Particularly for Clamping Chair Seats and Sashes, and for Cabinet Work.



Especially Used for Clamping Quickly Where Space is Limited—Chair Backs, Etc.

vided with a self-locking, quick-acting gripping device, making them positive in grip. This feature distinguishes the clamps from eccentric clamps which have previously been on the market.

For the man who needs a quick, handy, light clamp, at a reasonable price, this company makes an attractive offering. Catalog No. 11 and descriptive literature may be had by dropping them a card.



#### OTHER USES FOR NATIONAL PLASTER BOARD

##### Sheathing

It is a cheap and efficient sheathing making a perfectly tight and rigid wall.

##### Wall Board

Paper can be applied to it exactly as it would to plaster, and the board will not buckle or warp.

## Why Wait for Lathers?

Here is a material that any workman can apply faster than the lather can put on lath.

It is non-flammable, fire retardant, cannot warp and uses less plaster than lath, saving both material and time for the contractor.

### THE "National" BRAND Plaster Board

This board comes in sheets 32x36 in. and 5-16 to 3-8 of an inch thick. These are nailed to the studding as shown in the drawing, plaster can be applied the minute the wall is up and will bond with the plaster board perfectly, making a firm, strong, sound-proof wall.

Write for a sample and be your own judge.

**The National Plaster Board Co.**  
1408 Rockfeller Bldg. Cleveland, Ohio

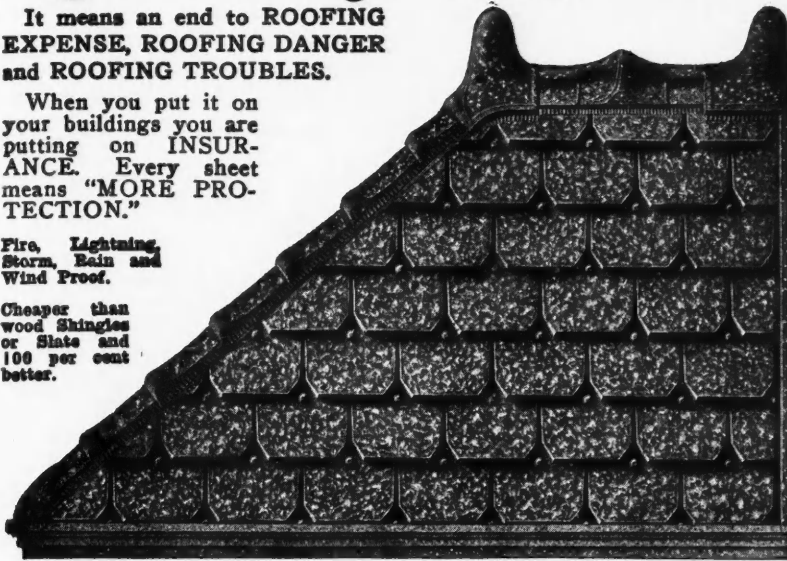
# Quality The DICKELMAN EXTRA Distinguishing Trade Mark Metal Tile and Shingles

It means an end to ROOFING EXPENSE, ROOFING DANGER and ROOFING TROUBLES.

When you put it on your buildings you are putting on INSURANCE. Every sheet means "MORE PROTECTION."

Fire, Lightning, Storm, Rain and Wind Proof.

Cheaper than wood Shingles or Slate and 100 per cent better.



Consist of 99.9% pure, open hearth iron. This combined with perfect galvanizing, enables us to give you a roof that will last! Over a quarter century experience is back of all our products, which include corrugated, V-cripped and roll Roofing besides shingles and other metal specialties.

### DEFIES THE DESTRUCTIVENESS OF TIME

Here is an investment that pays unusually large dividends to

## Carpenters and Builders

Galvanized Shingles can be laid by a Carpenter or Roofer quicker than any other material. No soldering required, just nails; the lock and flange take care of the rest. Under no condition can any of our DICKELMAN EXTRA Metal Shingles or Tile ever blow off.

No little bills to pay for Soldering and Painting on account of Leaking. Once on, on for a life time.

Reduce the cost of insurance, being both fire and lightning proof. Lightning was never known to strike or injure a building covered with a metal roof.

Can be successfully laid by any workman who will read and follow our printed instructions. No solder is used; only a pair of snips and a hammer are needed.

Write for FREE CATALOG.

Offers many valuable roofing suggestions. Explains "Dickelman Quality" and guarantee.

THE MOST BEAUTIFUL ROOF IN THE WORLD.—Ornamental and Lasting.

Many different designs in painted tin, galvanized or copper. Easy to lay, economical, beautiful.

If you are a builder and contractor, let us know, for we have a profit-sharing arrangement which we make with builders, and it would pay you to ask us about it.

The Dickelman Manufacturing Co., Department "C" Forest, Ohio

# SAFETY REYNOLDS SHINGLES



Contractors and Builders will find these shingles more adaptable for roofs above one-quarter pitch than any other shingle of any type. They are flexible, and will work perfectly on roofs as thatched effects, will bend around shapes and always give satisfaction. They never disappoint. They are the original asphalt shingle, and have been on roofs for more than ten years. They are guaranteed for ten years and will last much longer.

WRITE FOR BOOKLET AND SAMPLES OF COLORS

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

# FIRST

THE ROCK OF AGES CLEFT FOR YOU

RED GREEN  
PURPLE BLACK  
**SHELDON'S SLATE**

THE ROOF FOR AGES ALWAYS NEW

ECONOMICAL — ARTISTIC — FIREPROOF

Outlast the building. First cost, only cost. The only roof you can afford to consider for a permanent investment. Artificial substitutes bring endless expense for upkeep. Post a postal and get posted.

F. C. SHELDON SLATE CO., Granville, N. Y.



Make Money Faster and Easier than You Ever Did

before, by handling W. & C. Metal Shingles. We have a special selling proposition to make to one live man in every town in the country, and its acceptance puts the acceptor in a position to make a great deal of money easily

## Walter's and Cooper's Metal Shingles

are proof against fire, wind, storm, snow, rain, lightning, rust and decay; will not curl, check, split, rot, crack, blow or drop off, and are long lasting. Cost no more than wood shingles. Ask for catalog and selling plan.

National Sheet Metal Roofing Co., 339-345 Grand Street, Jersey City, N. J.

## One Pound JOHNSON'S Paste Wood Filler *Free and Postpaid*



**F**ILL out and mail the coupon and receive in return a 1 lb. can of Johnson's Paste Wood Filler. There are no strings tied to this offer—all we ask is that you use the material we send you on a piece of work—a pound is sufficient for filling 40 sq. ft.

Johnson's Paste Wood Filler is made from pure linseed oil, the best Japan Dryer and finely ground Metronite-Quartz from our own mine. It is put up in cans ready for use in the following shades:

<i>Natural No. 10</i>	<i>Antwerp Oak No. 40</i>
<i>Golden Oak No. 20</i>	<i>Green Antwerp No. 50</i>
<i>Dark Oak No. 30</i>	<i>Mahogany No. 70</i>

When jobs are to be finished in colored effects you can save the cost of the stain coat by using one of the colored shades of Johnson's Paste Wood Filler. It stains and fills in one operation.

Johnson's Paste Wood Filler does not become hard in cans—will remain usable indefinitely after thinning, and may be wiped with ease in from fifteen minutes to six hours after application. These three advantages over other brands, together with its absolute filling quality, forming a perfect oval pore, make Johnson's Paste Wood Filler popular with the artisan.

Hundreds of barrels of Johnson's Paste Wood Filler are sold every year to fine furniture manufacturers who demand the best materials for finishing the beautiful furniture and pianos they put on the market.

### INSTRUCTION BOOK

We will also send you free a copy of our 25c color Instruction Book. This is the work of famous experts. It gives full information on the proper method of finishing all wood. It will prove good, profitable reading for every progressive painter and decorator.

Please send me free and postpaid a 1-lb. can of Johnson's Paste Wood Filler No. . . . ., also booklet "The Proper Treatment for Floors, Woodwork and Furniture."

Name .....

Address .....

City & State .....

Fill out and mail to  
**S. C. JOHNSON & SON**  
"The Wood Finishing Authorities"  
RACINE, WIS.

## Screens That Do Not Rust and Are Nearly Invisible

Screens are splendid things. There is nothing so nice as a good porch, screened in from flies, mosquitoes, and other winged pests, on which a person can sit of a fine summer's afternoon or evening, and enjoy life. But—there are screens and screens. And there is nothing quite so disagreeable as to have a screen which rusts overnight from the dampness of the air, and which ruins everything *touching* it, after a rain.

The Gilbert & Bennett Manufacturing Company, 277 Broadway, New York City, or 38 South Dearborn Street, Chicago, have a screen which does not rust. They call it "Pearl" wire cloth—and the name seems to fit. By a secret, patented process these people make a screening which is absolutely rust-proof. The wire is smooth surfaced, and stays so. No painting is required from the time the screen is put up until you're through with it. Another feature which is important, the wire is so fine and smooth that it does not bother the eye looking through it. With screens which *do* rust, the wire becomes thicker and thicker from the coating of rust and there is finally a real annoyance to the sight. Of course this "Pearl" screening wears much longer than wire not rust-proof.

In addressing the company for information, samples, and prices, mark the letter for the attention of Department R31.



## A Unique Prize Contest for Boys

Prize contests are nothing new. But there is something decidedly new in the prize contest announced by the Smith & Hemenway Co., Inc., of 156 Chambers St., New York, for the largest number of articles and designs made with their "Red Devil" glass cutters.

When the words "manual training" are mentioned, there rise before the mind's eye the images of things made of wood or metal. Messrs. Smith & Hemenway, after conferring with a number of manual training educators, felt that not enough attention was being paid to the possibilities of glass working. Hence this prize offer, which deserves the thanks of the educational world and the thanks of parents who want to develop inventiveness and originality of mind as well as manual skill on the part of the boys.

And the boys themselves! Won't they feel proud of their handiwork! Proud of what they have accomplished! Proud of the many useful and beautiful things they can make with glass for mother, father, sister, playmates and—last but not least—themselves!

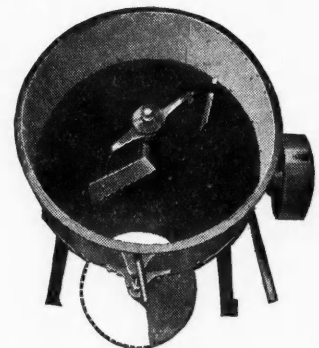
As the contest closes on May 31, enrollments should be sent in promptly.



## Mixing Done in Plain Sight of Operator

There is no top, or cover to this mixer—two views of which we show. The mixing chamber is built in the shape of a tub, and is stationary. Two arms—one traveling at the outside edge of the drum and the other in a smaller circle near the center—shoves the batch around by means of flat blades set at an angle with each other.

Unloading is done automatically. A door is set into the bottom of the drum, operating on a pivot. A turn of the pivot handle and the revolving shovels throw the mixture out through the door. The trucks, or skids, on which



Inside View of "Frank" Drum. Showing Door for Unloading.



### Carpenters and Builders

Satisfy your customers and increase your business by using

#### Hudson Asphalt Shingles

The work you do and the materials you use are the main factors of your success.

Slate surfaced in colors red and green, they are permanent, leak proof, artistic and fire-resisting. They will not crack or warp and are easily laid.

Send for samples and booklet A

Asphalt Ready Roofing Co.

Room 453

9 Church St., NEW YORK

## When You Want — Tiles and Mosaics

*Write*

For Bath Rooms, Kitchens, Hallways, Drug Stores, Ice Cream Parlors, Banks, Buffets, Walls, Wainscoting, Store Entrances.

Artistic Designs and Superior Quality

We carry a most complete line of Ceramic Mosaic Floor Tile and Sanitary Glazed Wall Tile for every purpose. Our designs are unusually artistic and correctly executed. The quality is **Lorenzen**—the best guarantee a builder can get. You can depend upon our prices being right.

Let us estimate on your next job or furnish you with an original design. At any rate, write for our Catalog No. 51 on Tiles and Mosaics. A postal will bring it and it is invaluable for your files.

Our large booklet, "Vogue in Fire Places" the most comprehensive and complete catalog ever issued on Fire Places should also be in your files. Write for it.

Send for our Discount Proposition to Carpenters and Builders

**Chas. F. Lorenzen & Co.**  
103 Washington St. CHICAGO

## Indestructible Roofing



GOthic TILE

### FIREPROOF—the Government Demand

The government is revolutionizing the roofing trade. Each year another state demands that all builders must use fireproof roofing. Swing into line! Get the big business coming your way. Make yourself independent by handling

### MONTROSS METAL SHINGLES

They are absolutely rust and fireproof, beautify the home, and have proved themselves the roofing material of the moment. It will bring more business to you by the recommendation of satisfied customers. Our selling plan is exceptional and will make one live man in every town independent by placing him in **Business for Himself**. We are co-operating with you to the fullest extent and will be glad to furnish you free, the expert advice of our engineers, on estimating. Just send us the roofing measurements. Write now for information. Address:—

MONTROSS METAL ROOFING CO., 102 Erie St., Camden, N. J.



## Lumber and Building Material at Wholesale

**Mill Prices:** We want every contractor and home builder to write us for our lumber catalog. It will give you our latest wholesale prices on all grades of lumber delivered to your station, and will explain to you our liberal plan of doing business.

Lumber bills and mill work furnished promptly and accurately for all kinds of buildings at lower prices than ever before quoted. Estimates furnished promptly. Send us your bills for our low delivered prices.

**Book and Samples Free.** Write us today for our up to date price catalog and information whether you wish to buy or not. Asphalt roofing and shingles sold at less than factory prices. Write for samples.

HOME LUMBER & SUPPLY CO., 343 S. Dearborn St., Dept. 6088 Chicago, Ill.

## Why Not Place With Us the Responsibility of Both Quality of Shingles and Evenness of Stain?

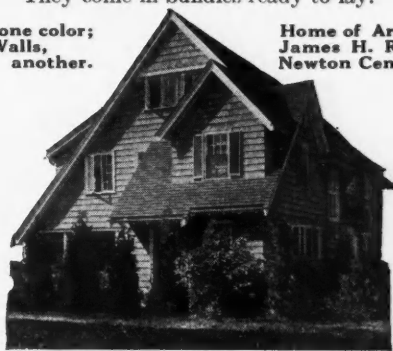
Save the annoyance of making three parties responsible by using

## "CREO-DIPT" STAINED SHINGLES

17 grades. 16, 18, 24-inch. 30 different colors. They come in bundles ready to lay.

Roof, one color; Side Walls, another.

Home of Architect James H. Ritchie, Newton Center, Mass.



"CREO-DIPT" Shingles have been repeatedly specified by Mr. Ritchie. On his own home, he remarks, that 18-inch shingles on side walls were laid 8 inches to the weather and show no signs of curling, as is so often noticed in other shingles.

We select best cedar shingles and when thoroughly seasoned, we creosote them by our special process and stain them any color desired. Earth pigments are ground twice in pure linseed oil. No aniline dyes. You pay for no waste in shingles—no waste in stain.

Save time, muss and expense of staining on the job. Last twice as long as natural wood or brush-coated shingles. Pleasing effects from different color tones on roof and side walls.

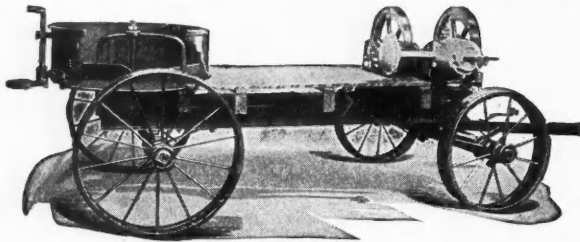
Write today for sample colors on wood and book showing "CREO-DIPT" houses in all parts of the country by prominent architects. Many good lumber dealers carry popular colors in stock. Special orders taken care of promptly.

**Standard Stained Shingle Co.,** 1028 Oliver Street, North Tonawanda, N. Y. (Branch Factory in Chicago for Western Trade)

the mixer is mounted are high enough to permit a wheelbarrow being placed under the discharge door. Even at that the drum is so low that loading is not hard.

For the tile or block maker who requires a semi-dry mixture, this machine is especially valuable. The fact that the batch is always in sight, and that the operator may even feel the mixture makes it easy to keep the moisture exactly right.

The capacity of the machine is one-eighth yard, which may be thoroughly mixed in one minute. Either trucks or skids as mounting may be had. With the trucks, a two-and-one-



Frank No. 2 on Trucks with Cutaway View of Drum.

half horse power gasoline engine is furnished. Transmission is through a friction clutch. Wearing parts are of crucible steel; the drum and shovel blades are of heavy gauge sheet steel.

The Frank is an interesting machine for the contractor or builder who is in need of a mixer this size. It is said to do splendid work, is economical—in operation-cost, and in first cost, and is very easy to move from place to place. For inside work on large jobs, too, it is a fine buy—taking up but little room. More complete information should be asked of the manufacturer—Frank Manufacturing Company, 209 West Second Street, Des Moines, Iowa.

### A Worth-While Builders Hardware Catalog

The carpenter or builder is a critical catalog reader. Information must be clear, complete, and correct in order to gain his approval. Illustrations must show the goods in a truthful manner. The product itself must be sensible and honestly made.

Such a catalog is that just issued by the National Manufacturing Co., Sterling, Ill. This company is entering upon their fifteenth year. And the wonderful growth they have made prove that their products have lived up to everything said in their catalogs. Beginning in 1901 with a small, two-story building, they went to work manufacturing builders' hardware of the very highest quality. They made it a rule to treat every customer and business associate right.

By 1907 the business had grown so that it was necessary to build an addition, five times larger than the original space. That held them—till 1910, when they doubled their working space, and put up a great warehouse shed, besides. And now they are completing a handsome office building, five stories high, and twice as large as the original little shop.

Sherardizing, the new rust-proofing process, is now being used altogether by this company on their big line of hinges, door hangers, latches and other articles of building hardware.

Every carpenter and builder should have the catalog handy, for reference—the time necessary to drop them a line will be well spent.

THE AMERICAN CARPENTER AND BUILDER joins with a host of friends in wishing The National Mfg. Company continued success.



### New Type Smith-Chicago Mixer

The T. L. Smith Company, Milwaukee, Wis., in taking over the line known to the contracting trade for many years as the Chicago mixer, have added some new features of con-

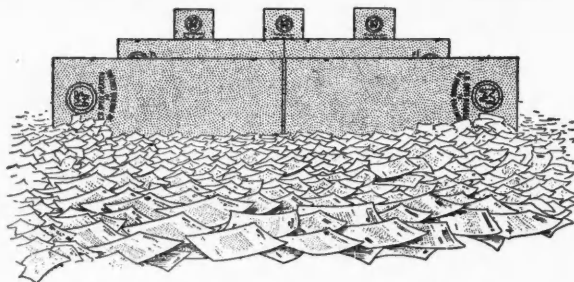
## OCEANS OF PRAISE

have come from the users of

# MF ROOFING TIN



C. B. OPEN HEARTH  
16  
32 POUNDS COATING



C. B. OPEN HEARTH  
16  
32 POUNDS COATING

Fearing neither wind, storm nor rust, and due to its unexcelled durability, MF ROOFING TIN is truly the "dreadnought" of the metal world. Be sure to specify MF ROOFING TIN.

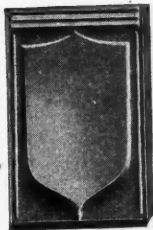
Write for interesting free booklet "Copper Bearing Steel—A Discussion on Corrosion"

## American Sheet and Tin Plate Company

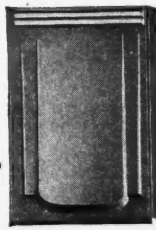
General Offices: Frick Building, Pittsburgh, Pa.

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



**THE "SWANEE"**  
The Southern Favorite. Furnished either in 10"x14" or 14"x20" sizes.



**THE "CHIEFTAIN"**  
The Tile Design. Furnished only in 10"x14" size.

**Designs That Satisfy  
Material That Lasts Longer  
The Construction That is Water-Tight**

The rapidly increasing demand for ornamental roofings that are distinctive in design, fire-resisting and durable has popularized metal shingles.

Since the use of Metal Shingles has become so general, the inventive minds have worked out designs that produce splendid architectural effects not possible to secure in any other kind of roofing.

**Material for Metal Shingles**

Berger Metal Shingles are furnished of galvanized rust-resisting Toncan Metal, galvanized open hearth steel or Terne plate of any standard weight coating—that is a shingle for every roofing need. For choice architectural patterns that are durable and non-leakable as well as easiest to put on, select Berger designs and satisfaction is assured.

Write for our new Shingle Catalog

**The Berger Mfg. Co.**  
The Largest Sheet Metal Manufacturers  
Canton, Ohio

Boston New York Philadelphia St. Louis Minneapolis San Francisco

**\$595** For This **ALADDIN** Complete



Contains porch, hall, living-room, dining-room, two bedrooms, bath, kitchen and closets—a cozy and charming home. This particular Aladdin Bungalow has delighted many owners. It is built in almost every state and never fails to have a host of admirers. Wouldn't you like to know more about it—to build it for your customer? The big Aladdin catalog describes it fully and tells also of many others, larger and smaller. Shall we send you this book?

**BIG MONEY BUILDING ALADDIN** Read-Cut **HOUSES**

Leading carpenters everywhere are making more money by building Aladdin Houses. You can do general contracting and be the leading contractor in your city. Aladdin Houses are complete. You get all material necessary for completion of the house—all material is cut to fit—no rough work. All you do is drive the nails—just the building. The price of every Aladdin House includes sills, joists, studding, cut to fit; building paper; sub-floors, rafters, roof sheathing, siding, cut to fit; outside finish, flooring; lath and plaster or plaster board; inside finish, doors, casings, base board, windows, sash, glass, nails of all sizes, locks, hinges, tin flashing, paints, oils, varnishes, stains, putty and shellac, with complete drawings, illustrations and instructions for erection—The Complete House. The big Aladdin Catalog No. 790 tells all the interesting facts.



**North American Construction Co.**

797 Aladdin Avenue BAY CITY, MICHIGAN

**G. F. T.**  
**Slate**

**ROOFS  
Can't Wear Out**

Because they are solid rock clear through. Fifty years of service won't make it look worn or dilapidated. In fact, its looks improve with age. Then, too, it is absolutely fireproof and greatly lessens insurance rates. G. F. T. Roofing Slate is by far the lowest cost roofing in the long run because there are no up-keep costs, the first cost is the only cost.

Our 1915 illustrated 40-page Book on Slate will be ready for distribution March 1st. It contains valuable information for everyone interested in the roofing question. Send for your copy today.

**SLATINGTON SLATE CO.**  
Slatington, Pa. (Est. 1852)

**CON-SER-TEX**

THE IDEAL COVERING FOR SLEEPING BALCONIES PORCH FLOORS AND ROOFS

Before you lay your first roofing job, put on your first porch covering, or re-lay any old roofs this Spring

**INVESTIGATE CON-SER-TEX**

It costs very little. It is easy to lay, and adheres tightly to the surface, giving the porch, the roof, piazza, or sleeping balcony a neat, clean, trim look. It is the ideal covering for the garage roof and outhouses.

CON-SER-TEX is a scientifically treated cotton duck which is waterproof, and will not mildew, absorb moisture, nor shrink.

Write for generous sample today.

**William L. Barrell Company**  
8 Thomas Street :-: New York

Chicago Distributor: Geo. B. Carpenter & Co. Wells and Michigan Sts.  
California Distributor: Waterhouse & Price Co. San Francisco, Los Angeles

# Typewriter Sensation

## \$2 Dollars a Month

Buys a Genuine Standard No. 2

### Smith Premier Typewriter

and at \$71.20 less than the Manufacturer's Price



Never before has anything like this been attempted. Dealers get \$3.00 a month rent for this make of machine, not nearly as perfect as the one we will send you, and you pay only TWO DOLLARS A MONTH AND OWN IT.

### A-Guaranteed-Typewriter-\$28.80

I have sold nearly 1,200 of these beautiful Smith-Premier Typewriters to Contractors and Carpenters through advertising, and each of my customers had this Typewriter on three days' trial before deciding to buy it.

High-grade machines only, complete outfit, nothing extra to buy, no strings of any kind to this offer. Just think of buying such a typewriter for \$8.80 down and \$2.00 a month. Cash price \$27.40. Thousands of people have paid \$100.00 cash for Smith-Premiers.

It's standard, by many considered the best typewriter ever built. A key for each character, so each character printed is always the same; a brush for cleaning the type built into the machine; the tilting carriage instantly throws all the writing in plain sight. Comes to you with complete operating instructions, tools, waterproof cover, practice paper, everything ready. It runs beautifully. Writes as perfect and clean cut a letter as quickly and as easily as any machine bought for \$100. It's wonderfully simple, a child can operate it with half an hour's practice and rapidly attain speed. It's strongly built and will give you years and years of honest service and complete satisfaction.

### Send the Coupon and I will Ship You this Smith-Premier Typewriter

When the Typewriter arrives, deposit with the express agent \$8.80 and take the Typewriter three days and try it. If you find it to be the best Typewriter you ever saw, satisfactory in every respect, keep it and send me \$2.00 each month, until our special price of \$28.80 is paid. If you don't want to keep it, return it to the express agent, and he will give you back your \$8.80, and return the Typewriter to me. I will pay the return express charges.

You won't want to send this Machine back after you have seen it and tried it. You can't imagine the perfection of these Machines till you see one, and the price is \$71.20 less than the catalogue price, and it is guaranteed just as if you paid \$100.00.

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 \$28.80 is paid. Without sending any money write me now to ship you this Typewriter for free trial.

This coupon states the terms. Fill it out and send it now, today. You can't lose, and it's the greatest economical typewriter opportunity you will ever have.

-----COUPON-----

HARRY A. SMITH,  
905-231 N. Fifth Ave., CHICAGO, ILL.

Ship me a No. 2 Smith-Premier f. o. b. Chicago as described in this advertisement. I will pay you the \$20.00 balance of the SPECIAL \$28.80 purchase price, at the rate of \$2.00 per month. The title to remain in you until fully paid for. It is understood that I have three 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.....

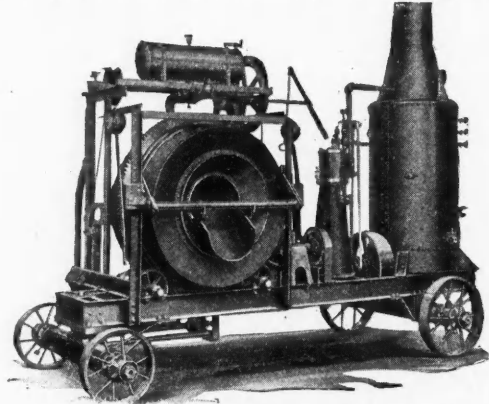
Address.....

Shipping Point.....

Amer. Carp. & Bldr., April.

siderable importance. These new models, comprising the Smith-Chicago line, embody all the points learned during the past fifteen years of mixer designing.

Heretofore, the design of a non-tilting drum mixer has always been compromised at several points; for instance, it has been impossible with a non-tilting mixer to project the dis-

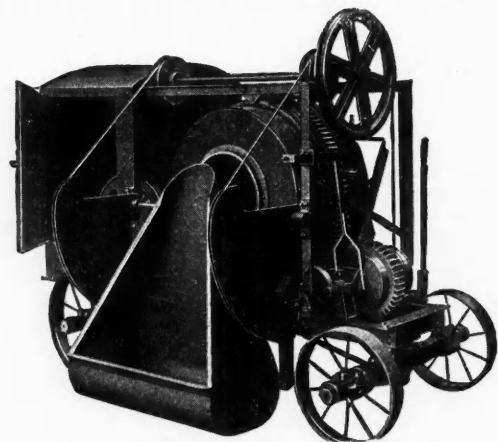


Smith-Chicago Mixer with Steam Engine.

charge chute very far. It is generally necessary to move the batch over to the discharge side, and this has materially affected the thoroughness of the mix.

We understand the designers of these new model Smith-Chicago mixers have overcome this, as well as the usual splashing, by providing a very long and exceedingly steep discharge chute which projects two-thirds of the way through the drum. The length and steep angle of this chute are made possible by the concave face of the drum.

Using this chute, they have been able to locate the mixing blades centrally with angles the same on both sides. These blades are scoop-shaped with high converging sides which pour the batch to the center of the drum. The action of these blades, combined with the action of the drum itself, distributes



No. 5 Smith-Chicago Special with Hoist.

the load evenly, producing a theoretically correct and thorough mix without splashing. At the same time, the chute is long and steep enough to discharge the entire contents of the batch in from 15 to 20 seconds.

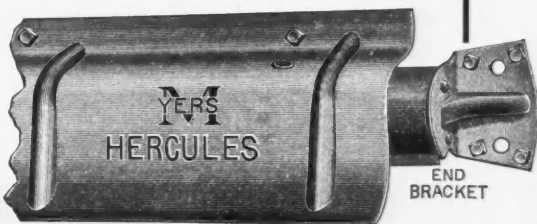
The illustrations show two popular models in this line of mixers. One is the Smith-Chicago mixer mounted on steel truck with steam engine and boiler power charger and enclosed water tank. This view shows the chute in discharge position. The other view is the popular No. 5 Smith-Chicago special. It is mounted on steel trucks with gasoline engine hoist. It is power charger. View shows skip raised in discharging position.

The T. L. Smith Company have prepared a 16-page illustrated catalog describing the complete Smith-Chicago line. Users of power mixers will do well to obtain a copy.

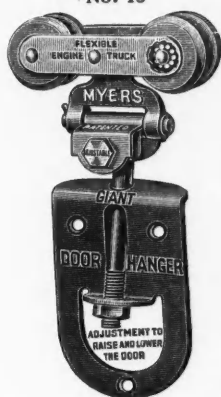


*Always in the Lead*

**MYERS  
HERCULES DOOR HANGER TRACK  
AND GIANT DOOR HANGERS**



Myers Giant Door Hanger No. 15



GIANT AND HERCULES  
TUBULAR DOOR TRACK  
AS USED IN COMBINATION.  
HERCULES COVERED TRACK  
OVER DOOR OPENING ONLY.

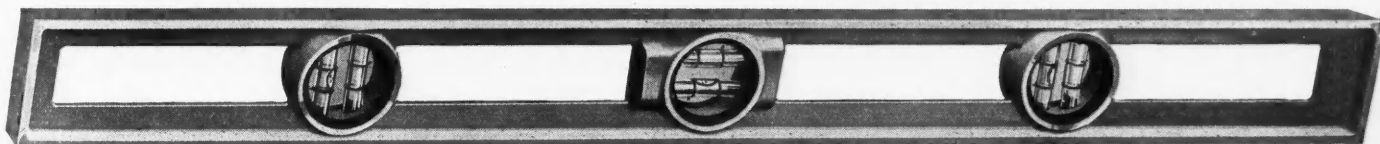
Myers Hercules Track ends the many conceivable troubles attributed to door hanger tracks. Let us tell briefly just what this means. **Myers Giant Door Hangers and Tubular Steel Track** solved more door difficulties than any others ever offered to the trade. Now comes the **Myers Hercules Track**—an improvement over the Giant—ready for barns, sheds, garages or other buildings.

This Track is a combination of the Myers Giant Tubular Girder Steel Track with a stiff ribbed steel shield or hood securely riveted to the top of it. The shield served a triple purpose—it fits snugly to the side of building, thus stiffening the track and taking the place of brackets—it prevents ice and water collecting on top of the tubular track and brackets—it extends down over top of the doors, protecting them from dripping water and shutting out the weather. End Brackets complete the system. They fit ends of track snugly, acting as braces and preventing nesting of birds or accumulation of dirt in the track.

Myers Hercules Track can be installed separately or in connection with regular Myers Giant Track—full lengths for entire door race or over doors only when closed using Giant Track for end lengths.

See that your customers equip their buildings with Giant Adjustable (up or down and in and out) Door Hangers and Hercules Track. They are different from all others and will give unequalled service and easy doorways. Write for special circulars. Address Dept. B.

**F. E. MYERS & BRO.** ASHLAND OHIO  
PUMPS—HAY TOOLS—DOOR HANGERS



30" IDEAL—4 Plumbs—2 Levels—Use Any Position

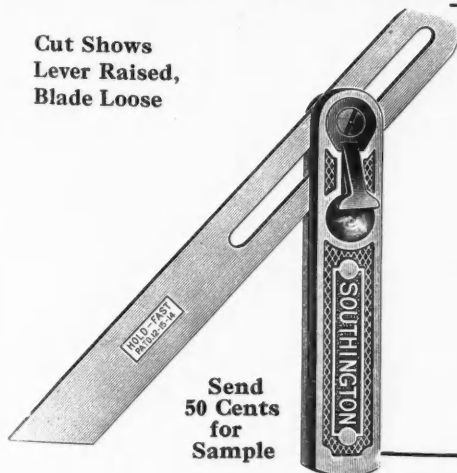
**IDEAL ALUMINUM LEVELS**

IDEAL ALUMINUM LEVELS will be your choice eventually, because they are best adapted for your requirement. No experiment. **Write today for Special Low Introductory Price, and Big Circular** showing full line. Sold by mail only—Saving you jobbers and dealers profit. Why pay more.

**IDEAL LEVEL WORKS**

**Detroit, Michigan**

Cut Shows  
Lever Raised,  
Blade Loose



Send  
50 Cents  
for  
Sample

**The "HOLD-FAST"**

IRON-SLIDING T BEVEL

An entirely new, patented device for holding the Blade rigid—which it does do.

MADE ONLY BY

**The Southington Hardware Co.**  
SOUTHINGTON, CONN.

Also

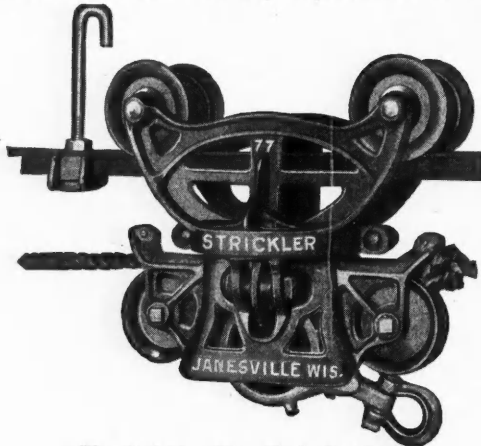
Wood Screws—Carpenter's Squares—Try Squares—  
Mitre Squares—Levels and Other Tools

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

**Up-to-the-Minute Barn Equipment**

Modern farming requires modern tools. Schools and farming publications from one end of the country to the other are constantly impressing upon the farmer that he must have proper equipment to make a success of his business. And this condition makes it necessary for the building contractor to keep posted on the new developments in the farm equipment world, if he hopes to have his share of the big farm building business that is starting now.

The Strickler Hay Tool Co., Janesville, Wis., are manufacturers of a large line of hay tools and barn equipment. Right in the front ranks of any improvement in this field,



The Strickler Hay Fork Carriage.

the Strickler people will be found—they are spending a great deal of time and money in turning out tools and equipment that will really help the farmer in his business. Their catalogs afford a lot of valuable information to the man who expects to be interested in farm building, and may be had for the asking.

The Strickler hay forks are specially constructed to give speed, and safety in handling hay in the barn. Then there is a Strickler hay sling, by means of which the rack-load of hay may be taken up in two or three bunches, and dropped in the mow in just the shape it was loaded on the rack.

Litter and feed carrier systems, sanitary barn equipment—including stanchions, maternity pens, hospital pens, water trough systems, and mangers complete the line of this manufacturer.

The big illustrated catalogs they will gladly send you free, will help a great deal in planning the farm building work for this season.



**Two Profitable Machines**

A popular floor surfer and cove base machine are those manufactured by the Chicago Builders Specialties Company, 450-470 Old Colony Building, Chicago, Ill.

The "Northern Floor Surfer" is for grinding terazzo, mosaic, marble, concrete or any kind of composition flooring. It is built in two sizes. The larger machine, fully equipped with gasoline power, weighs 1,000 pounds. This machine has four rubbing discs which hold 16 carborundum blocks, 4, 3 and 2 inches in size. These blocks revolve at about 250 revolutions per minute. Over each one of these discs is a heavy 10-inch spring from which pressure is derived to screw the carborundum blocks down to the floor. The machine comes on a four-wheeled carriage with wide faced wheels, which enables the operator to push the machine in any direction with utmost ease. One of the main points of advantage of this machine is that the operator can go right up into a corner and rub the floor all along within an inch of the base-board. This eliminates a lot of hand rubbing, which is necessary with a machine that can only go within 5 or 6 inches of the wall.

The "Northern Floor Surfer" is equipped with any kind



THE COLLAR



ON THE NAIL



IN PLACE



IN THE CLAW

# Save Dollars

by Using

## PULL-EASY

TRADE MARK

# NAIL COLLARS

Whenever you are erecting any temporary work, such as Scaffolds, Concrete Forms, False Work, etc., why slip **PULL-EASY Nail Collars** on every nail you drive. Then when you want to dismantle the work, the heads of all the nails will be projecting, so that it will be an easy matter to get a good grip with the claws of your hammer or nail-puller and they will slip out easy, without spoiling or marring the wood and in a jiffy—no prying—no cussing—no time lost. **PULL-EASY Nail Collars** are made in three sizes to fit all common wire nails. Size No. 1 fits 4d, 5d, 6d, 8d and 10d wire nails; No. 2 fits 10d, 12d, 16d and 20d wire nails; No. 3 fits 30d, 40d, 50d and 60d common wire nails.

**Write for Your FREE Sample Package**

Try them out yourself. We feel sure a trial will demonstrate their money-saving features. Ask for **FREE Sample Package No. 12.**

**Wagner-Behm Company**  
 Room 1201, 20 East Jackson Boulevard  
 CHICAGO, ILL.

View shows how the Collar keeps head of nail projected, so that the claws of a hammer or nail-puller get a good grip.





## Stanley Ornamental Surface Butts No. 165

*Save Time and Labor  
and Please the  
Owner*

The Ornamental leaf screws on the surface of the door, saving half the time of mortising. The slotted ball tip can be unscrewed and the pin reversed so that the butt can be used on either right or left hand doors. Packed with Oval Head Screws which fit into the countersink and hold the door firmly. Round head screws will not hold the doors securely in place and if not screwed in straight will cause trouble. The screw head is liable to break or the head will meet the butt on an angle so that it is impossible to draw the butt tight to the door. This makes an unsightly appearance.

The handsome, dignified, Beveled Edge design harmonizes with the popular designs of hardware. Made in all finishes.

Write for Booklet "A" describing this and many other lines of "Stanley" Quality Hardware.

**The Stanley Works**  
New Britain, Conn.



## This Draw Knife is All One Piece

This fine draw knife is the only *one-piece* draw knife made. *It has never been successfully imitated by anyone.* It has the perfect balance that puts the right pull in your hands for a wafer-thin pine shaving or a big bite out of tough oak. Try it out like we ask everyone to try out all

## KEEN KUTTER Tools

on a make-good basis. If it doesn't prove all we say in quality and workmanship, the dealer is authorized to refund the price paid for it.

Send for our Home Furniture Design Booklet No. L 976. If not at your dealer's, write us.

**SIMMONS HARDWARE COMPANY**

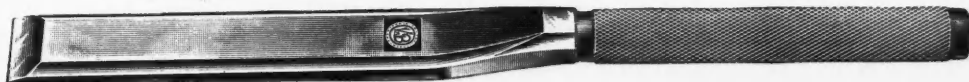
St. Louis    New York    Philadelphia    Toledo  
Minneapolis    Sioux City    Wichita



Draw Knife, No. KGP—German Pattern—8 in. Price \$1.25

Don't break the blade of your Wooden Handle Chisel prying off Interior Trim, etc.  
**Use the V. & B. ALL-STEEL WOOD CHISEL**

PATENTED



Should be in every Tool Chest.  
It's all in the Taper.  
Will not break or take a Set.

Size	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$
Price	.50	.55	.60	.70	.80	.90

Ask your dealer for this Chisel. If he cannot supply you, write us.

**Vaughan & Bushnell Mfg. Co. - 2130 Carroll Ave. - Chicago, Ill.**

SUIT  
ANY  
CLIMATE  
Inexpensive  
to Build

## STILLWELL CALIFORNIA BUNGLOW HOMES

HOUSES  
THAT  
SELL  
QUICKLY  
ANYWHERE

3 BIG PLAN BOOKS for \$1.00 Postpaid

"REPRESENTATIVE CALIFORNIA HOMES"

50—\$1600 to \$6000—50c

"WEST COAST BUNGALOWS"

51—\$600 to \$2000—50c

"LITTLE BUNGALOWS"

31—\$300 to \$1700—25c

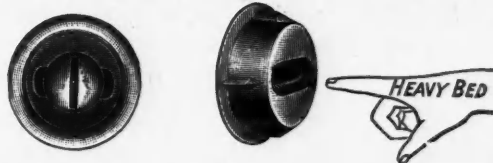
We sell books and blue prints on a Money-back guarantee



E. W. STILLWELL & CO., Architects, 4364 Henne Bldg., Los Angeles

## IVES PATENT WINDOW STOP ADJUSTER

Prevents Drafts, Dust and Window Rattling



The only stop adjuster made from one piece of metal with solid ribs and heavy bed that will not cup or turn in tightening the screw

Descriptive circular mailed on application

**THE H. B. IVES CO.**

Manufacturers of Builders' Hardware  
NEW HAVEN    ::    ::    CONN., U. S. A.

# GODELL-PRATT

## 1500 GOOD TOOLS

### Whenever You Need a Hole

Mr. Punch is the handiest tool ever built for quickly making a small hole. It's a *tool* all through and is built for long, hard use. Weighs only half a pound--you can carry it in your pocket.

Mr. Punch is an automatic drill. You push down and a spiral twist drives the drill. The tool steel bites through the hardest oak as easily as through soft pine. There are in the handle eight tool-steel drill-points of different sizes, seen through numbered holes. Drills are released through a hole in top plate.

## Mr. Punch

*You Push—He Twists*

Goodell-Pratt Co. make 1500 good tools. Their goodness is proved because good mechanics use them everywhere. These tools are guaranteed. Among them are

Hack-Saws	Micrometers
Saw Sets	Gauges
Grinders	Lathes
Punches	Bit Braces
Levels	Squares
Calipers	Vises
Screw-drivers	

Pay \$1.50 for Mr. Punch at hardware stores or send price to us for direct shipment. Send for book on tools that every mechanic needs.

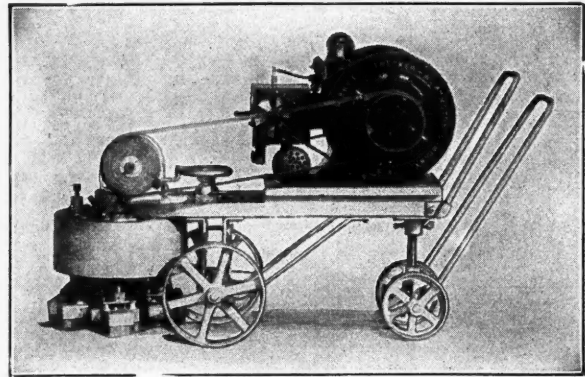
**Goodell-Pratt Co.**

*Toolsmiths*

Greenfield, Massachusetts



Actual Size  
of Holes



The "Northern Floor Surfacer."

of power desired, but gasoline is recommended because often the contractor will get a job in a building where there is no electric power, or if there is electric power the current may not suit his motor. With a motor there is also the disadvantage of stringing wires through the corridors, etc. The gas engines put on these machines are simple and reliable—air cooled, which eliminates the carrying of water. Guaranteed to operate under any conditions for any length of time and give perfect satisfaction. Engines are all equipped with high tension magneto which eliminates battery trouble. Kind of power is optional with the purchaser, as the "Northern Floor Surfacer" gives the same results with electric motor or gasoline engine.

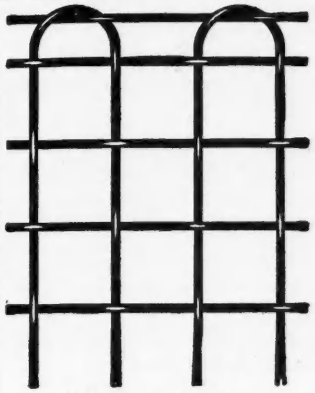
This surfacer is absolutely a one-man machine. A comparison of costs in rubbing floors by hand as against the Northern Floor Surfacer is here given:

To surface 750 square feet of floor by hand, rubbing will require 115 hours, at 45c per hour, or \$51.75. This is 7c per square foot. With the "Northern Floor Surfacer" it will require 10 hours' labor, at 45c per hour is \$4.50 plus 75c for gasoline and lubricants is \$5.25. This is much less than 1c per square foot. With such a material saving it can be readily seen where this machine would pay for itself very quickly.

The smaller size is the same as the larger machine, except it has three stones in each shoe instead of four, and is very popular on account of its weight, only 425 pounds, and the ease with which it can be moved from job to job.

The "C. B. S. Cove Base" machine for rubbing cove base will pay for itself as quickly as the floor surfacer. This machine was only put on the market a year ago and already they have hundreds of testimonial letters from some of the largest concerns in the business. This has two arms, each independent of the other and each arm controlled by a clutch, so that both can be operated at once or one arm be run and the other kept idle. This machine can also be equipped with gasoline or electric power. Gasoline engine is same as used on floor surfacer with high tension magneto. Machine is mounted on trucks with four roller bearing wheels which can be moved very easily as operators move along the base. In regard to capacity of this machine, much depends upon the condition of material to be rubbed, but with both the floor surfacer and base machine, it makes no difference how long the material has been laid, they will surface them quickly.

Under ordinary conditions, the C. B. S. Cove Base machine will rub 500 lineal feet of 6-inch cove per day. Contractors who are familiar with the high labor cost of rubbing base by hand will appreciate the enormous saving which this machine effects. The arms on the Cove Base machine are connected in such a way that they can be swung around in any direction and as they are of steel shafting, they will never kink or break.



Wright Japanned Lathing

## Wright Wire Lathing

### For all Time—For all Buildings

Prominent architects who specify Wright Wire Lathing know it is the most economical, for it lasts indefinitely if properly applied and covered. The fact that Wright Wire Lathing was used in the Municipal Building, New York City, and many other world-famed structures, is positive proof of superiority. Let your specifications read Wright Wire Lathing, whether building a skyscraper or a modest dwelling. The lathing here shown illustrates Wright's Japanned Lathing. Other finishes are Wright's Plain and Galvanized. Our Catalog W, describing lathing and its application, free on request. Write for it.

WRIGHT WIRE COMPANY, Worcester, Mass.





THE LIGHTNING SHINGLER—Doubles Your Speed, Guarantees Accuracy

No man can compete with you, laying Asphalt Shingles with the "Lightning Shingler." Simply nail the spacers to your straight edge the width of asphalt shingles apart. Then slap in a carton of shingles into place faster than two men can nail. For the next row shift straight edge to bring shingle joints in proper position—and let 'er go. The result will be a beautiful, accurately laid roof.

Price \$7.75 a Set or \$4.00 Half Set. Express Prepaid

A Full Set consists of 300 Spacers and three dozen Hanger Straps, for straight edge. This amount takes care of big jobs. The Half Set handles smaller jobs. Send in your order now or write for descriptive circular.

J. H. WIEKAMP, 533 Webster Street, MISHAWAKA, IND.

## It Has the Looks of Wood Paneling

but not the high price. Cannot be distinguished from real wood except on very close inspection, because

### CAL-CO-CRAFT

is an exact reproduction of wood on paper. Gives the color, grain and finish of the natural wood. Applied like wall paper and paneled off with simple moulding strips. Splendid for use in halls, dining rooms, churches, clubs, etc. Compared with the effect, the price is absurdly low. Ask for samples in the various finishes.

Dept. C

## The Cott-a-lap Co.

Chicago, Ill  
Walkerville, O., Can. Somerville, N.J.

# Only A Penny

Invested in a Postal will bring you full information and prices about



## Blue Valley Unfading Roofing Slate

World's Fair Premium Slate Blackboards. Electrical and Structural Slate. Get in touch with us today.

BLUE VALLEY SLATE MFG. CO., Ltd.

Box 472 SLATINGTON, PA.

## 15 Years On The Market Never A Dissatisfied User

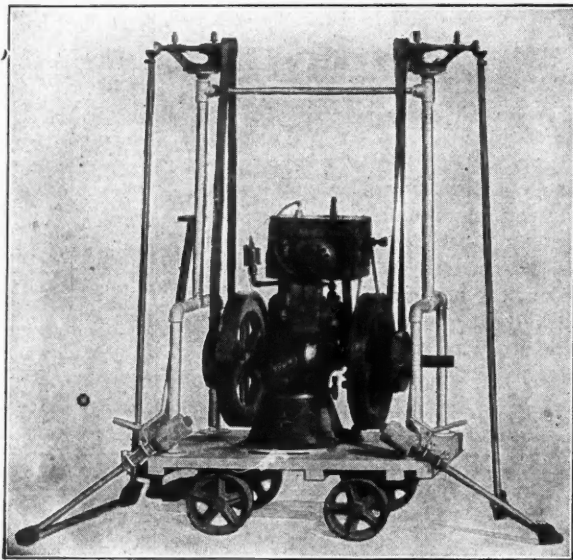
Queen Cupolas have that record. We've been making them for more than fifteen years and they are today giving satisfaction to thousands of farmers. Not a single user dissatisfied.

### Queen Cupolas

satisfy because they do what a cupola should do—ventilate your barn. They're strong, handsome, durable and highly efficient. Light in weight and easily put on. Made of high grade galvanized steel. Rain proof. Snow proof. Rust proof. Birds' nest proof. Write for our catalog and 30 days' free trial proposition.



Queen Cupola Mfg. Co., 405 Peck St. Cresco, Iowa



The "C. B. S. Cove Base" Machine.

Oil cups are located so as to give the best lubrication and machine will never overheat. This machine has also been successfully used as a surfacer for concrete walls and ceilings. It will grind off the marks on a wall or ceiling left by the forms, and make same perfectly smooth, thus eliminating costly hand rubbing and in many instances save cost of plastering, which is sometimes necessary.

Catalogues and booklets on the Floor Surfacer and C. B. S. Cove Base machine will be sent to anyone interested by the Chicago Builders' Specialty Company, 450 Old Colony Building, Chicago.

**"First Lessons in Concrete Work" a Mighty Valuable Free Book**

For the man who knows practically nothing of concrete work; for the man who knows something of it, but wishes to know more; or for the man who has a good knowledge of it, but wishes to check up that knowledge—for these men and all others interested in concrete the T. L. Smith Company, 3123-C Hadley St., Milwaukee, Wisconsin, has published a handbook entitled "First Lessons in Concrete Work." It is, indeed, a "peach" of a book.

There are twelve chapters: "General Use of Concrete—Definitions and Methods," "Mixing Concrete—Methods and Tables," "Foundations—Excavations, Forms, Tables," "Walls—Types, Bracing, Reinforcing," "Sidewalks—Methods, Proportions," "Floors—Placing, Finishing, Drainage," "Driveways," "Cold Weather Concreting," "Water Tightness," "Cost of Concrete Work—Tables," "Machine vs. Hand Mixed Concrete," and "Information." And this list does not begin to do justice to the fund of valuable information contained under the different headings. Detailed drawings are put in everywhere, too.

While complete information concerning the well-known Smith line of mixers is catalogued in the book, it is practically a text-book on the mixing and use of concrete. As is customary with The T. L. Smith Company, everything about the book is first-class. The paper is strong, the binding is good, the illustrations are clear and well-drawn, and the printing is attractive. That the information is exact and up-to-date, goes without saying. It is written in plain, everyday style—with no complicated engineering terms.

It is certain that the demand for "First Lessons in Concrete Work" is going to be very large. Our readers should be among the first to drop the Smith people a line, asking for it. Copies will be mailed free.

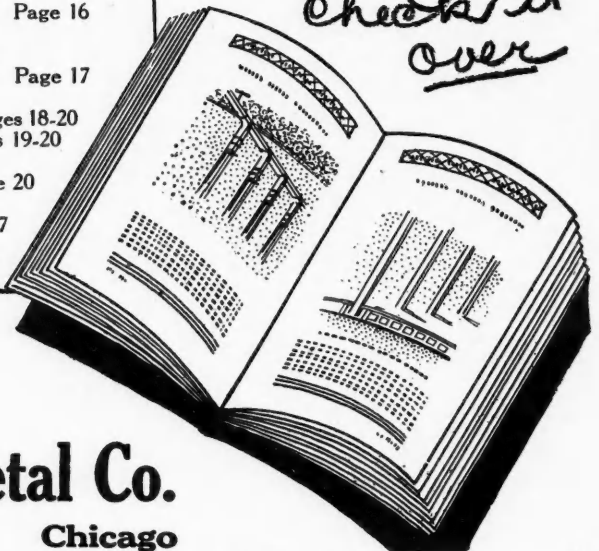


Send for this Manual of Metal Lath Construction Today.

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*This Table of Contents speaks for itself. Just check it over*



Ask for Booklet 33

**North-Western Expanded Metal Co.**

903 Old Colony Bldg. - - - Chicago

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We guarantee safe delivery. We guarantee absolute satisfaction. We save you 1/2 regular prices. Think how buying direct will increase your profits. Write us at once if you live east of the Mississippi River. Ask for the big Free Book.

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4914 Clyde Street  
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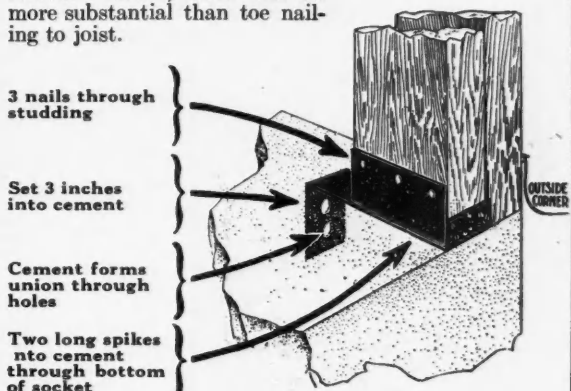


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## Hold Forever

—the easiest, quickest, surest, most substantial method of anchoring studding to cement floors.

Takes but a minute or two to set them in the fresh cement, and once the cement is set, the Sockets hold forever. Easier, better and far more substantial than toe nailing to joist.

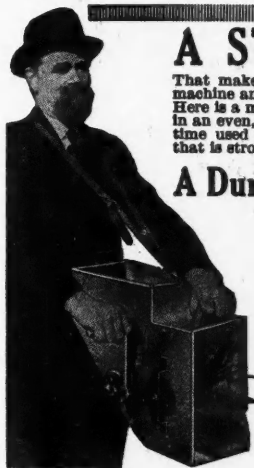


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That makes Stucco Work easy and simple. With this machine any man can apply all Stucco Finishes. Here is a machine that will apply Cement Plaster or Stucco in an even, uniform coat. Taking only a fraction of the time used in applying stucco by hand and making a wall that is stronger and far superior to hand work.

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With this Automatic Stucco Machine you can apply a coat of durable stucco at the cost of a good painting job, with the advantage of endless durability. Why not get in on the remodeling business? This machine can do the work of twenty men doing stucco work by hand and do it better.

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Maybe you're a busy man now, but I can show you how to make more money this year—easy. Just by doing a little headwork yourself, buying a few tools and hiring a few laborers, you can

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either as a regular business or a side line in connection with other work you are now doing. \$200 to \$300 is all the capital that's required—and that's all you'll need. I'll give you the benefit of my experience and show you how to get started free. Write tonight for catalog (B) and full details of my proposition

**E. W. La PLANT, President, La PLANT-CHOATE MFG. CO.**  
620 Eastlock Court, CEDAR RAPIDS, IOWA

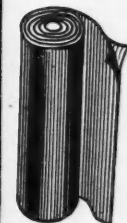
# WE'RE READY FOR YOUR ORDERS

THE building season is on in full swing. Our large stocks of brand new building materials are waiting for you. If you haven't seen a copy of our large new Catalog of Building Materials send for it now. We feel sure that our prices and the reputation of our goods is going to make this year the largest in the history of this company. We are headquarters for all kinds of lumber, flooring, dimension studding, rafters, etc. All grades of flooring, ceiling, outside and inside window frames, door frames, interior trim, shiplap, siding, doors. In fact everything that goes to make up any building.

### Our Large Builders Material Catalog FREE

Get this Catalog and you'll know why "To Huberize is to Economize." It is fully illustrated and should be in the hands of every Contractor and Builder. Write for it today.

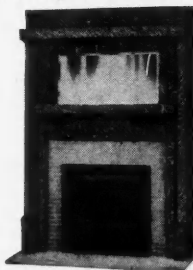
**The Huber Builders Material Co.**  
45-49 Vine Street  
Cincinnati - - Ohio  
No. 1240. In Plain Oak, Quartered Oak and Maple Mahogany.  
Price in Q. O. .... \$19.06  
Send for Special Mantel Catalog.



Roll Roofing  
2-ply, 65c per roll  
3-ply, 85c per roll

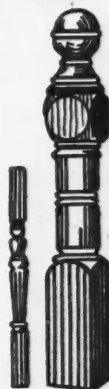


Cap Mould  
Per 100 feet,  
\$2.20



Builder's Hardware Century Front Door Set. Bronze finish. Our catalog shows each. .... \$1.50

We handle a complete line of paints, varnishes, stains, shellacs, etc. Our paints are the highest quality and we guarantee satisfaction. Our catalog shows complete line.

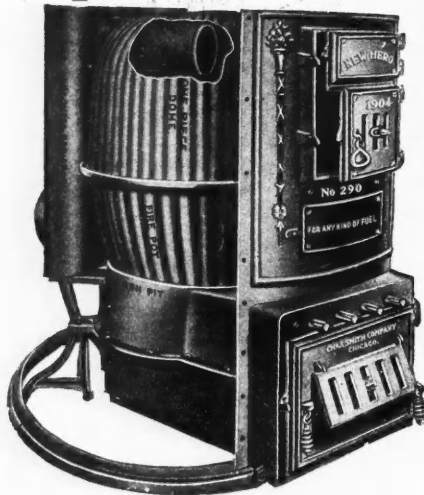


Porch Newels, 31c to 72c  
Spindles .... 1 1/2c

## 50% More Heat The New Hero

The Furnace with the greatest amount of direct heating surface, due to its corrugated dome. These corrugations increase the heating efficiency fully 50%. All castings heavy and substantial and few joints. The immense fire dome and feed section being cast in one piece.

If you have your customers best interests at heart specify and install these **New Hero Furnaces**. Results will tell.



**Liberal Commissions to Contractors and Builders**

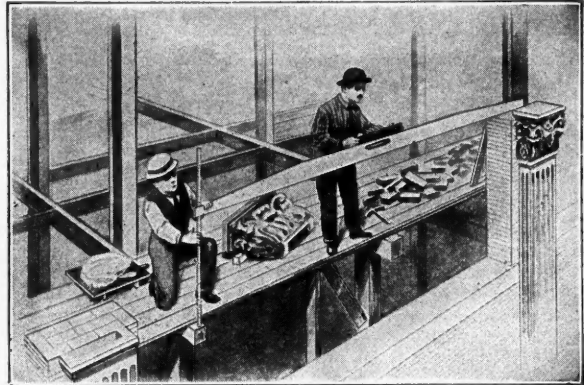
Let's get together and both profit by it. We have high-grade heating plants, and seek your co-operation. Our proposition is unusually attractive. Get in touch with us.

**Charles Smith Co.**  
57 W. Lake St.  
Chicago, Ill.

### The "Simplex" Line Level

The illustrations show a new time-saver for the carpenter and builder. It is a level—small enough to be carried in the pocket, and yet arranged to do the work of a 16-foot straight-edge.

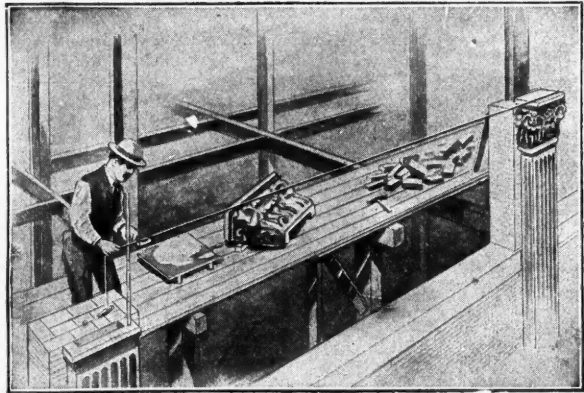
The old way of leveling up two points some distance apart required at least two men, and a lot of time. This little level



Two Men Needed in the Old Way.

was designed to cut down that loss of time and labor. By stretching a line between the points, and hanging the level on it, the true level may be found easily and quickly, by one workman.

It is made of aluminum—light but strong—and comes packed in a neat leatherette case. A clamp for attaching to



One Man with a Line Level.

pocket rule or steel square is furnished. In that way it makes a very handy bench level, or plumb rule.

Prices and catalog may be had by writing to the manufacturers—Jos. Woodwell Co., 201 Wood St., Pittsburgh, Pa. These people also make a very complete line of woodworker's tools—every one made of high-grade material, and made to give long service.

### Manufacture of Concrete Pipe a Profitable Business

The cement industry has grown to such an extent that nearly all branches are taking an important part in the development of the country. One of these businesses is the manufacture of cement pipe for drainage, water supply, sewerage, etc.

This industry is increasing with great strides. The great advantage of this business is the small capacity required to establish a good, profitable business. A few molds and a place to make the pipe are all that are necessary.

Concrete pipe have the advantage of not requiring great stocks made up in advance, as they can be handled within a couple of weeks, and the expenditure for molds is very small, and this business therefore offers great possibilities both as

## Hot Water Heating

For Contractors



Contractors who have jobs calling for something unusual in the heating line, better quality and designing will find it to their advantage to investigate the Andrews Systems. Our plants are "cut to fit" each job and shipped complete ready to screw together. A carpenter's helper or any man handy with tools can install it, following our instructions. Thousands of our systems have been so installed.

**ANDREWS STEEL BOILERS UNLIKE OTHER BOILERS**

There are talking points in these boilers which cannot be afforded by others. They are made of plate steel like large power boilers. None have so much fire travel—none so easily cleaned. Very durable. Burn any grade fuel and less of it. Boilers sold alone if desired.

**We Make Estimates Free and Take All Risk**

All the labor of estimating is taken off your mind. We do this and charge you nothing if you don't land the job. Try us on your next job. 360 days' free trial, guaranteed by bond, given with each plant. Liberal profit allowed you.

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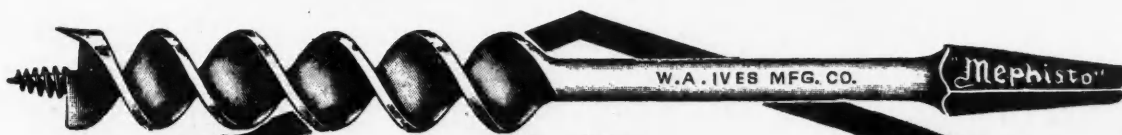
Tells all about heating and our several other lines of modernizing equipment. Learn about our sewage disposal systems to replace cesspools.

**ANDREWS HEATING COMPANY**

1467 Heating Bldg.  
MINNEAPOLIS  
MINN.







**Mephisto**

**What More Can We Say as Manufacturers?**

READ THIS LETTER

The W. A. Ives Mfg. Co.,  
Wallingford, Conn.

Fitchburg, Mass., December 17, 1914.

Dear Sir:—I am sending you under separate cover a No. 9, 11-16 "MEPHISTO" Bit which I was using when I struck a nail. I forced the bit through—it cut the nail off and the nail came out wound around the worm of the bit. I am an electrician and use a good many bits, but have never found any that would stand up the way the "MEPHISTO" Bits do. This bit I am sending you is practically unharmed despite its experience. You may use this as a testimonial if you wish.

Respectfully yours,

FRED A. HAUNANT,  
Care Bruce Huestis Elec. Co.  
Fitchburg, Mass.  
FAH. CEH.

**W. A. IVES MFG. CO.,**

**Wallingford, Conn.**

**A Good Low-Price Drawing Table**

To meet the demand of Contractors, Builders and Carpenters who do tracings and make drawings, we have made up a line of Tables, Files and other Drafting Room Furniture at a price that puts such articles within the reach of all.

The **Drawing Table** on the right is generally conceded to be the best low-price Table on the market.



9 Sizes—\$15 to \$28  
Combination Knock  
Down Table—Drawing Board  
and File Cabinet.

The **Combination Table** on the left is so reasonable in price that we do not hesitate to call especial attention to its advantages.



Several  
Styles  
Fold Out  
of the  
Way  
\$4.50  
Up

Write for Catalog  
State Requirements



**American Drafting Furniture Co.**

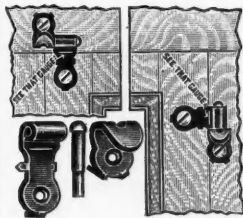
12 Railroad St. - Rochester, N. Y.

Low Price  
Substantial

Ask for Circular of Draftsman's Suit Case Chest

**Watrous Screen Hinge**

Used Either as a Hanger or Hinge.



Only four screws to set instead of twelve. Sagging impossible. Easy to put on or remove. They are equipped with gauge mark which makes mistakes in setting impossible. No mortise needed—this is only one of its big advantages.

Allows screens to be swung out. **Only side hanger made.**

Just the thing housewives have been looking for. Here's an article they will thank you for suggesting.

Full information on this as well as our other screen hardware and wrought Steel Butts sent free. Write for it today. **They are time savers and therefore money-makers for you.**

**WATROUS-ACME MFG. CO.**

Des Moines, Iowa

CHICAGO SALES OFFICE: 180 N. DEARBORN STREET



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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.

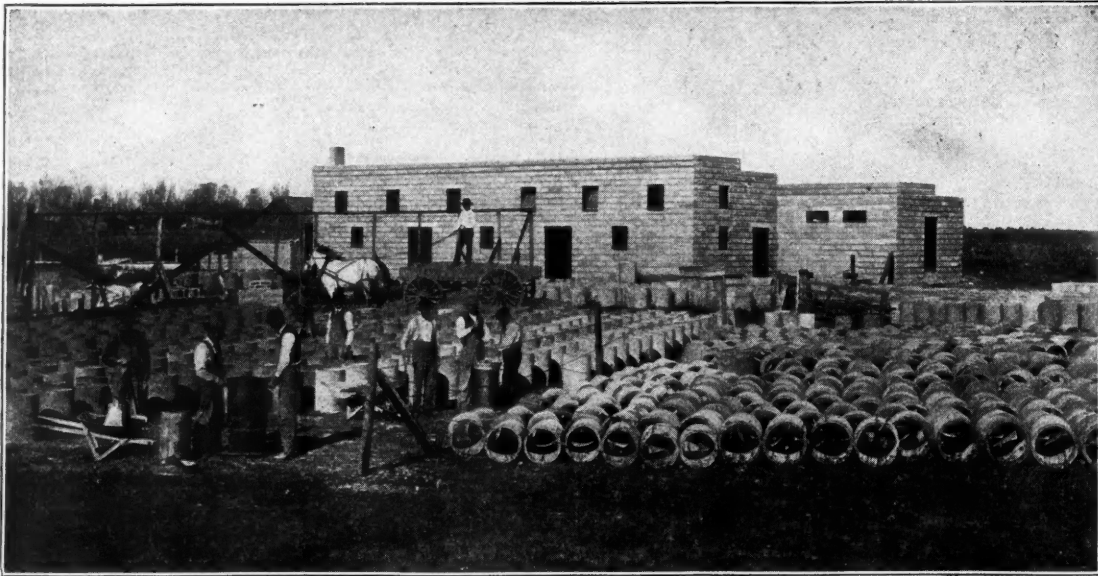
Every design shown has been made by the best architects in the world, who have made a study of home architecture and that alone.

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**American Carpenter and Builder**

1827 to 1833 Prairie Avenue, Chicago, Ill.



A Business-Like Cement Pipe Plant—A Money Maker.

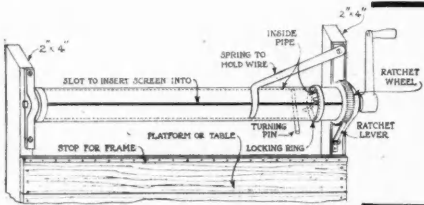
a separate business or as an addition to cement block or concrete plant.

One of the most probable molds and successful ones in use is that made by the Lansing Company, whose molds have been used for putting in over 500 miles of pipe in the City of Mexico, 300 in Brooklyn, 300 in Milwaukee, and 100 or more in Denver. They are largely used by United States Government for the large irrigation projects in the west.

Thousands of small plants are using this equipment and

making money. The view shows an ordinary pipe making plant. In fact, the men are making pipe outside while they build their factory as they find time and means. Each reports good business and success with these forms.

In addition to hand molds the Lansing Co. manufacture power drain tile machines and we would recommend our readers to write the Lansing Company, 1002 Cedar St., Lansing, Michigan, for information on this splendid paying business.



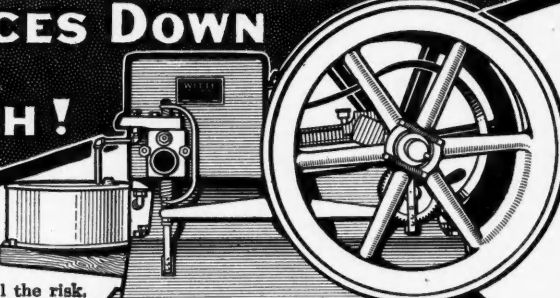
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**THE SCHILLY SCREEN STRETCHER**

Stretches screen wire across the frame evenly and tight as a drum. Screen Frame is laid on the table and butted against stop. Screen wire is then tacked on at the farther end, and by turning the crank, screen wire is stretched tight and evenly. Pays for itself in time and money saved. Write for descriptive circular.

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 2 H-P, \$34.95; 4 H-P, \$69.75;  
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**Ed. H. Witte.**

**HOW TO JUDGE AN ENGINE**  
**READ THIS BOOK BEFORE YOU BUY ANY ENGINE IT IS SENT FREE FOR THE ASKING.**



**"The Evil that Men do Lives after them"**

Quotation from "Julius Caesar"

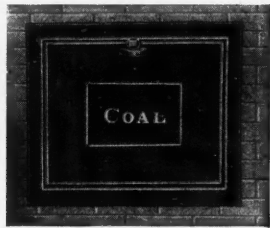
If you fail to install Canton Coal Chutes in the buildings you put up, your customers will never forget. Every time the coal man leaves and they see the broken windows, the battered foundations, the dirtied walls and lawns, they will think of your neglect. A coal chute is only a little detail, but remember it's these little improvements that show you are up-to-date and add to your reputation as a builder.

**CANTON COAL CHUTES**

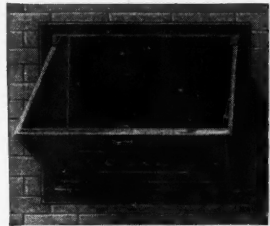
appeal to the builder because of their substantial construction, ease of installation, neat appearance and moderate cost. They appeal to the owner because they preserve the building, are trouble-saving, convenient and can be opened from the inside or outside. They are absolutely burglar-proof and will give continuous satisfaction as long as the building stands.

We send a FREE Booklet showing the Canton Coal Chute and our Complete Line of Builders' Iron Work. If you have not received a copy, write for one today.

**Canton Foundry & Machine Co.**  
Canton, Ohio



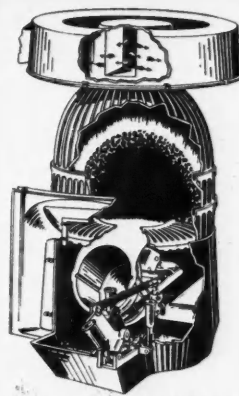
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**Save Money for Customers**



**THE NEW-FEED UNDERFEED**

Reduces Heating Cost 1-2 to 2-3

You give double service and satisfaction when you save money for customers as well as equip new buildings with a heating system that lasts longest and is cheapest and easiest to operate.

You do all this when you recommend and install the Williamson New-Feed UNDERFEED furnace.

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**WILLIAMSON CUT COAL BILLS**  
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Furnaces and Boilers 1/2 to 2/3

This year sees the UNDERFEED principle still further advanced in the New-Feed UNDERFEED. Can be managed by a 12-year old boy. Less work—fewer ashes—less time, trouble and expense every way.

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**THE WILLIAMSON HEATER CO.**

(Formerly Peck-Williamson Co.)

187 Fifth Avenue Cincinnati, Ohio

The Williamson Heater Co.,  
187 Fifth Ave., Cincinnati, Ohio.

Tell me how to cut coal bills from 1/2 to 2/3 with a Williamson New-Feed UNDERFEED.

Warm Air..... Steam or Hot Water.....  
(Mark an X after System interested in.)

Name .....

Address .....

My business is.....

**WATERLOO CAST IRON Coal Chutes**



Protect the house from careless coal men. They are burglar proof—lock only from the inside.

Being made of cast iron, are not affected by the weather.

Wire glass in door furnishes light to cellar. When door is open, the glass is protected by heavy steel, which operates automatically.

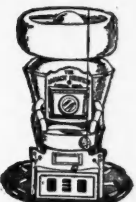
The watertable at the top of chute protects the inside of foundation from moisture. Doors are extra heavy, with three hinges at top, and are made with a beaded edge which extends over the border opening, making a tight joint. Are made to fit any depth wall.

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114 Rath Street

Waterloo, Iowa



**BE OUR AGENT—**

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**Jahant Down Draft Furnaces**  
On 360 Days' Trial

In your business you have the opportunity to make the sales. Jahant Down Draft Furnaces have a record for merit behind them. You are selling a first class article at a saving to your customer.

Send for Free Catalog

**The Jahant Heating Co., 300 Steiner Ave. AKRON, OHIO**

Jahant Down Draft gives perfect combustion. Gives more heat. Saves one-third fuel. Burns from above. Ashes can't clog.

# You LOSE JOBS

**You Can Lower Your Bids Mr. Contractor with a New Way Direct Cooled Engine**

**MANY TIMES Mr. Contractor**

*Because Your Bids Are Too High Labor is Your Big Expense*

***The "New Way"***

**Direct Cooled Engine**

**will reduce your labor cost and do away with all engine trouble. You will get more power with less fuel. It requires little attention.**

**Goes and Goes Right in Any Climate.**

**Guaranteed Against Freezing or Overheating**

**WHAT ONE CONTRACTOR THINKS**

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Gentlemen:—I have one of your "NEW-WAY" Engines in use about three years and I have not as much as had a pin point of trouble as long as I have had it. My 3½ H. P. really does more work than I ever thought it could do. I have been praising the little engine almost to everyone who saw or talked about an engine. I am,  
**JOHN C. KILLAN.**

**RELIABLE — DURABLE — ECONOMICAL — EFFICIENT**

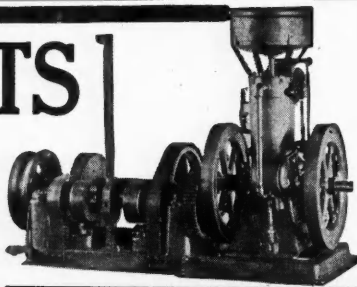
**The Practical Engine for All Class of Work**

Write for Catalog

***The "New Way" MOTOR COMPANY***  
**LANSING, MICHIGAN, U.S.A.**

# HOISTS

An Ebel Hoisting Engine does the work of a large force of men at a fraction of the cost. Built in three sizes—3 to 12 R. H. N. P.



**EITHER BELT OR DIRECT GEAR DRIVE**

Here is a hoist that will soon pay for itself. In these days of strong competition no contractor can afford to be without one. The Ebel is solidly constructed and will never wear out. Write for catalogue giving complete information and details.

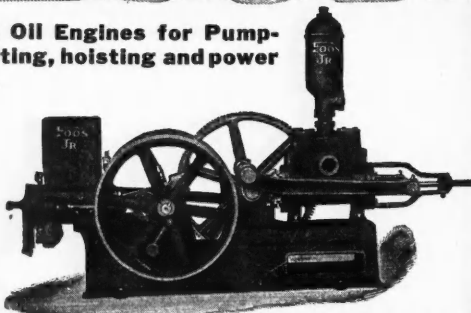
Lansing Motor & Pump Co.

Lansing, Mich.

# THE FOOS

**Gas and Oil Engines for Pumping, lighting, hoisting and power service.**

**1½ to 400 H. P.**

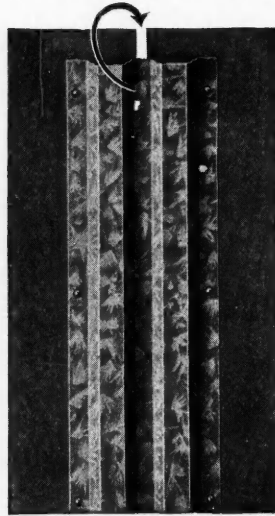


THE FOOS GAS ENGINE CO. SPRINGFIELD, OHIO

## "Art-Kraft" Metal Goods

There are a number of things which make metal shingles desirable as a roofing material. They are fireproof, long-wearing, and good looking.

Some new styles of metal shingle are being placed on the market by the Canton Metal Ceiling Co., Canton, Ohio. They are so constructed as to lock upon each other—making a roof which is proof against wind, rain, snow, and hail. By a clever feature of design, they automatically keep the courses straight when being laid.



Two attractive designs are offered—"Safe-Lock," and "Kant-Leak." Either will make an artistic appearing roof, and will have the additional charm of dependability.

Besides shingles, the Canton line includes "Art-Kraft" Metal Batten strips, "Art-Kraft" Hip Shingles and Ridging, Building Corners, Wall Ties, and other metal building materials. All are



"Art-Kraft" Metal Batten.

made with the greatest care, of the best materials.

The company should be addressed as above, for further particulars regarding price, dealers' terms, etc.



## New Witte Engine Catalog

The new catalog No. 46, of the Witte Engine Works, 1770 Oakland Ave., Kansas City, Mo., is just out. It contains much of interest to every intending engine buyer. The matter on two pages alone, pages 4 and 5, "Lower Cost of Engine Power," shows the big stride made in the last two or three years, in the reduction of cost of dependable gasoline and kerosene engine power. Price making and operation cost are here figured out with striking plainness. Whether any of our readers should ever buy a Witte engine or not, the Witte catalog is worth careful reading, for it shows the interest of the engine user in his possession and use of an engine in a way that everyone ought to see, whichever engine he may later buy. Any of our readers can secure one of the new catalogs by writing for it, to the address given.

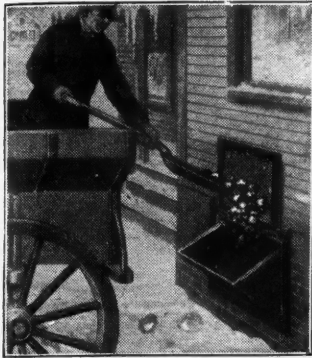


## Roberds' New Oak Wall Board

We have told our readers many times of the practically unlimited number of uses to which wall board can be put; for remodeling old work, or artistically finishing new homes; in the parlor, living room, dining room, den or chamber it is equally effective. In the attic, cellar, kitchen, garage, stable or poultry house, nothing can be so economically applied to walls and ceiling with such uniform satisfactory results.

For a long time The Roberds Manufacturing Co. have been manufacturing and advertising in this paper, their high grade Ideal wall board, in the regular plain surfaces of tan and gray. They have recently produced a new oak finish—something entirely different in the wall board line. This new oak finish is not pasted on. The grain is an integral part of the board itself. Furnished in either 32 or 48-inch widths.

This new oak wall board is made exactly like the other finishes which the Roberds people produce, consisting of



# Majestic Coal Chutes

*For Residences, Hotels, Apartments, Office Buildings*  
**Keep the Building and Grounds Clean**  
*Thousands in Use—Indorsed by Architects and Builders*

The **Majestic Coal Chute** is made extra durable, and will outlast the building. It has a heavy steel body—cast-iron door frame and boiler plate hopper. When open, the hopper comes out automatically, catching all the coal. When chute is closed it sets flush with the foundation. It has a glass door, giving good light to the basement. It locks from the inside and is absolutely burglar-proof.

*Send for New Catalog and Prices*

**THE MAJESTIC COMPANY** 505 Erie Street **HUNTINGTON, IND.**  
 The Galt Stove and Furnace Co., Galt, Ontario, Can.

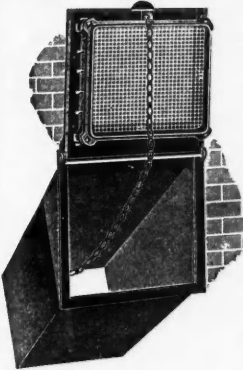
## The "BEST" FUEL CHUTE

**GLASS OR SOLID DOOR**

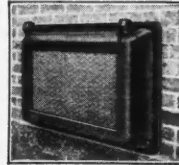
The "BEST" Fuel Chute is insurance against marring of your building. Is made with either glass or solid door. Both are absolutely burglar-proof. When chute is open, heavy screen protects glass from breakage. In warm weather glass can be removed and it serves as a Ventilator, the "BEST" is neat in design and looks well on any building.

**Our New Catalogue**

is ready, illustrating and describing the complete "BEST" Line of Cast Iron Hardware, consisting of Hog Waterers, Chimney Caps and Revolving Chimney Tops, Coal Chutes, Cleanout Doors, Cess Pools, Cisterns and Coal Hole Covers, Stud Sockets, Pump Stands and Folding Step Ladder Stools. This Catalogue will be sent Free on request Write for it. **STERLING FOUNDRY CO., 8 Ave. A, Sterling, Ill.**



THE BEST LINE



## The "Ottomatic" Coal Chute

Patented Sept. 15, 1914

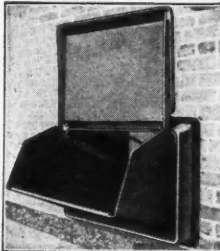
**Fire Proof-Burglar Proof-Fool Proof**

**Best—Indestructible—the One Operation Chute—Locked in Both Positions.**

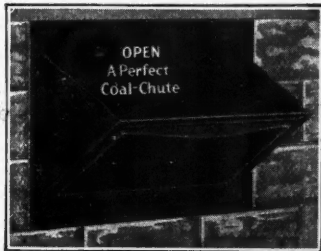
No. 1, 17x24", wt. 100 lbs... \$12.00  
 No. 2, 22x33", wt. 150 lbs... 17.00

**CAN BE PUT IN OLD OR NEW BUILDING**  
 Special Discount to Agents

**THE MAXIMILIAN CO.**  
 844 Monadnock Block Chicago, Ill.



## The Window Chute



Ready for the Coal Man

**For Your Coal Bin**

The Window Chute is a selling feature for any Residence or Building.

**THOUSANDS IN USE--- THE VERY BEST**

**If You Build, Buy, Own**

**Be up to date and Have the Worlds Best**

*Write for Booklet C*



A Light Basement

**HOLLAND FURNACE CO. :: Holland, Mich.**

*World's Largest Direct Installers of Furnaces.*



**The Answer to last month's Puzzle—**

**This Hoist will Save You 25 Cents on every thousand bricks you handle**

**That Means Money Saved— Money in the Bank**

It not only hoists bricks but all building material. Does the work of several men in less time. Saves time and money on every contract.

Put one of these hoists to work now, and the money it will save during the coming season will surprise you.

To learn all about this wonderful hoist will only cost you a stamp—Write for information today.

By the way—we have the most attractive Agency proposition you ever heard of. Details for the asking.

**H. B. Sackett Screen & Chute Company**

Main Office and Warehouse  
 1683 Elston Avenue  
**CHICAGO**

Branch Warehouse  
 197 Medford Street  
**CHARLESTOWN, MASS.**

four sheets of macerated wood fibre cemented together with three layers of specially prepared asphalt cement, making seven distinct layers.

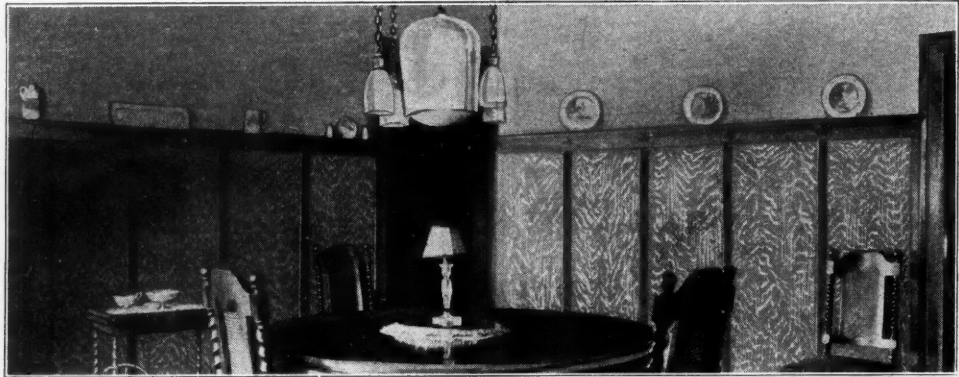
This oak wall board is made in two shades—quarter sawed oak finish, which matches exactly golden oak trim; and mission oak, which harmonizes perfectly with the darker stains. It requires no further finishing, which is an added money-saving idea. For wainscoting, or paneling, this oak wall board is unsurpassed. It can also be used in finishing the walls of offices, public buildings, and makes effective backgrounds for window displays, giving the most artistic and beautiful results at a minimum cost.

The accompanying illustration shows Roberds' Ideal Wall Board as used in paneling the dining room of the home of Mr. Arthur G. Wade, Oak Park, Ill., and the letter from Mr. Wade to the manufacturers is proof enough that this new finish is giving complete satisfaction wherever used.

Oak Park, Ill., March 14, 1915.

The Roberds Mfg. Co., Marion, Ind.

Gentlemen: Enclosed you will find a photograph of the dining room in my home, which is paneled with your oak finish wall board, and finished above the plate with your "Ideal" wall board. I have found your wall board to be a perfect wall covering, superior in every way and very much more economical than the old style lath and plaster. Your



Roberds Oak Wall Board Used in Paneled Dining Room in Beautiful New Residence of Arthur G. Wade, Oak Park, Ill.

oak wall board has given me excellent satisfaction. We find that it is so perfect a reproduction of the genuine wood that most people never detect the difference. From my own experience I can recommend without hesitation, Roberds' Wall Board to anyone who is remodeling, building, or expects to build a home, and will never fail to say a good word for your product among my own neighbors and friends whenever the opportunity occurs.

Wishing you many years of continued success, I am  
Yours very truly,

ARTHUR G. WADE.

We advise all interested readers to turn to another page of this issue on which the Roberds' Mfg. Co.'s advertisement appears, and write them today for catalog, free samples and prices on their complete wall board line; the manufacturers will be glad to give you any further detailed information which you desire.

SARGENT

Other Sargent Quality Tools are described in the Sargent Tool Book, a handbook for mechanics sent on application.

No. 53.

A light floor and veneer Scraper. The clamp binding screw is steel and will not strip. Wood face lessens friction.

A useful and convenient tool. If your dealer cannot supply you, we will send prepaid, on receipt of \$1.75.

For full description of this and other

**SARGENT WARRANTED**

SEND FOR SARGENT PLANE

**SARGENT & COMPANY**

Makers of Squares, Planes and Mechanics' Tools

51 Water St., New Haven, Conn.