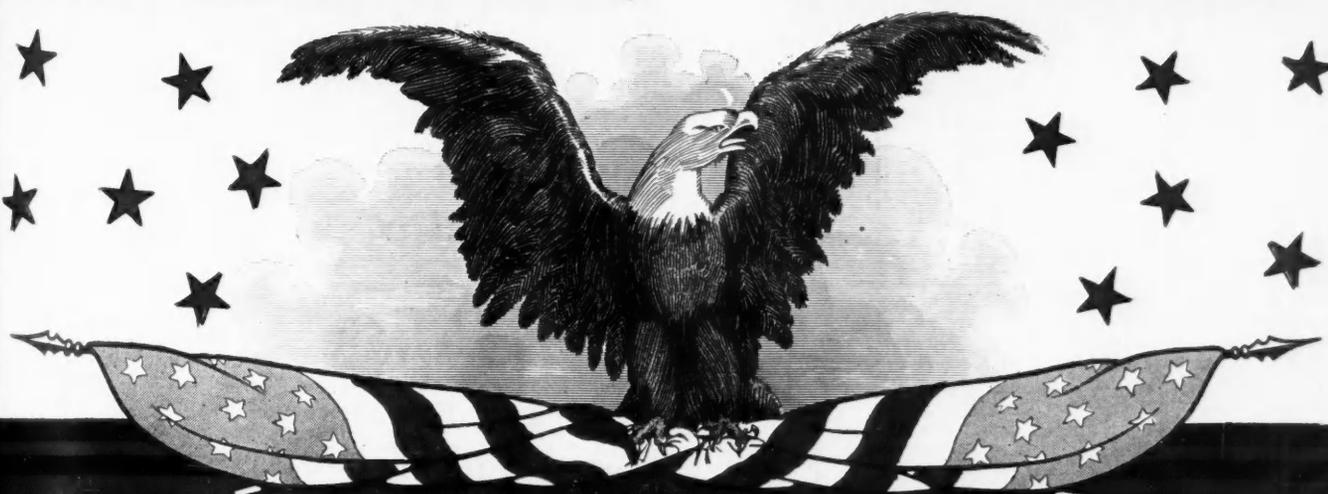


JANUARY 1916

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# AMERICAN CARPENTER AND BUILDER

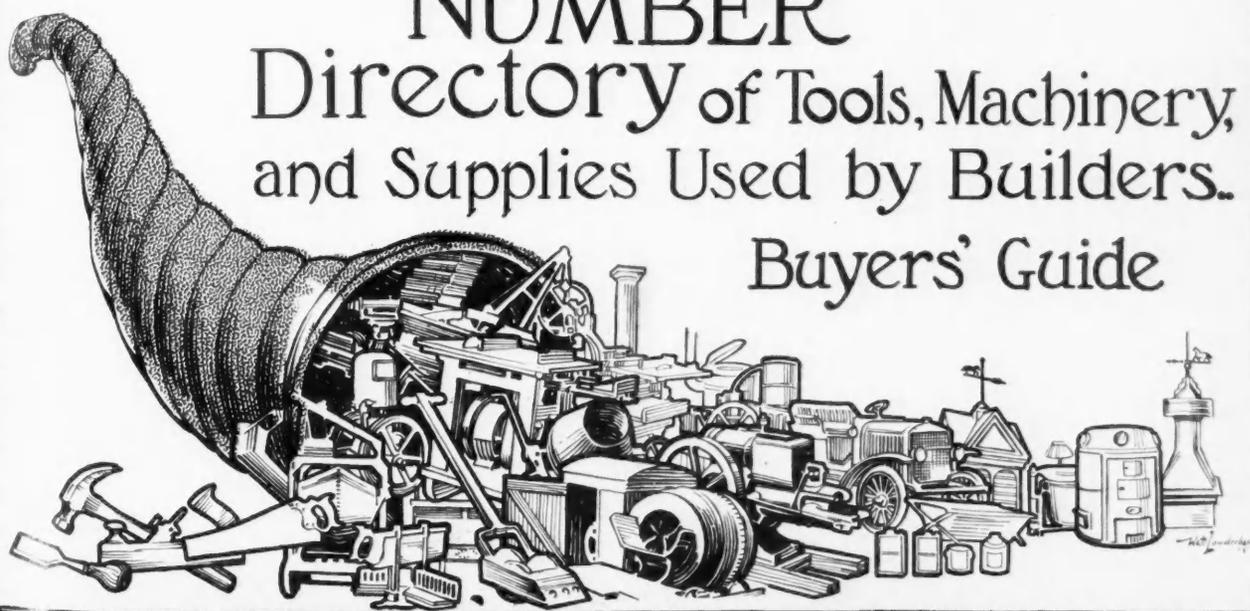


THE WORLD'S GREATEST BUILDING PAPER

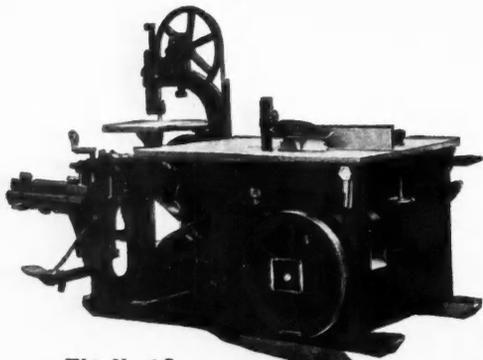
## BUILDERS' SUPPLY NUMBER

Directory of Tools, Machinery,  
and Supplies Used by Builders.

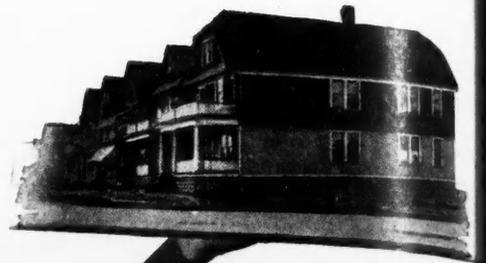
Buyers' Guide



Price 20 Cents



This No. 6 Saw Rig did all the millwork in the building of these five duplex houses.



Write  
for  
Catalog

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and increase the efficiency of your working crew.

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Put yourself on the right side of every bid you make. You have the choice of eight different rigs to pick from, and you want to get your order in early, if you want prompt delivery.

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Each and every outfit guaranteed to give satisfaction or return at our expense.

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## Eight Complete Sizes of C.H.&E. Portable Saw Rigs

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Complete attachments, steel and wood frame, 3 H.P. gasoline engine, ripping capacity 2" lumber.

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Complete attachments, steel frame 4 or 5 H.P. gasoline engine, ripping capacity 3"-4" lumber

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Complete attachments, wood frame, 4 H.P. gasoline engine, ripping capacity 3" lumber.

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Complete attachments, iron frame, 6 H.P. gasoline engine, ripping capacity 6" lumber.

### No. 7 Baby Portable Saw Rig

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### No. 9 Portable Swing Cut-off Saw

Steel frame 6 H.P. gasoline engine, cross-cutting capacity 12"x12" timbers.

### No. 5 Rapid Cut-off Saw

Iron frame, cross-cutting capacity 18" wide.

Each outfit can be fitted with electric motor instead of gasoline engine, as per order.



**C** HESHIRE **H**ASE **&** **E** DWARDS

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER



## A New Year's Thought

**T**HERE is no good reason why good resolutions should be confined to January 1st. And as a matter of fact, most of us are making good resolves—vowing to do better—very nearly every day of the year.

For the most part we don't make good, at least not as good as we hoped; but still, first and last, there is some progress; and that is the way character and reputation are built up.

No, we don't decry the New Year's resolution; rather we want to see it held to and often remembered.



**H**ERE is our best suggestion for a resolution or slogan for our readers and for all other carpenters and builders who would advance—

"KEEP POSTED."

Be wise, keep posted. Make sure that your information is up-to-date.



**D**ON'T be so covered up and engrossed in the details of your every-day work that you are blind to the Main Chance in present-day building. Try your best to get a broad outlook onto the present-day building industry. It is the biggest work, and holds the biggest opportunities offered in any line.

Study and work to be bigger than your job, and you will find your job will grow bigger.

We have the pleasure of writing this New Year's message to you the day before Christmas; and we could ask no better Christmas gift for Our Folks than the disposition to look at their work in a big way and appreciate its opportunities.

### Directory and Buyers' Guide

**T**HERE are numerous items of building supplies and equipment that are only occasionally wanted by builders, and these items are seldom seen advertised. Yet they are important when wanted. The result is that builders are frequently up against it to know just where to go for such infrequent goods.

OUR DIRECTORY appearing in this issue has been compiled and is here presented to meet exactly this need. It lists the best concerns, gives trade names, and calls attention to important materials and builders supplies that are seldom advertised.

Keep this Directory Number of the AMERICAN CARPENTER AND BUILDER for future reference. You will find these lists very handy to use and the information contained reliable.

### Next Month Farm Building Number

**W**E have a treat in store for our readers in our February Number. It will be our Second Annual Farm Building Number; bigger and more complete and more elaborate than last year. There is one illustration alone in this issue of the magazine worth the price of admission! The city man and the architect, as well as the small city and rural builder, will find this Farm Building Number extra valuable and interesting. Do not miss it. Tell your friends about it. It's going to be good.

**A**ND once again, remember that New Year's thought—"Keep Posted." With very best wishes.

Editor, AMERICAN CARPENTER AND BUILDER.

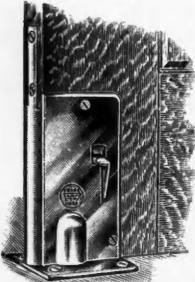
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MARK

**SPRING HINGES  
REPUTATION**

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



**Chicago "Relax" Spring Hinges**

are in great demand. They are substantial in construction and readily applied. The **EXCLUSIVE FEATURE** of spring action release, allowing the door to be placed at any desired position and automatically re-engaging when the door is closed, is of recognized merit and utility.

Send for Catalogue C32. It fully illustrates and describes the most complete line of Spring Hinges manufactured

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CHICAGO

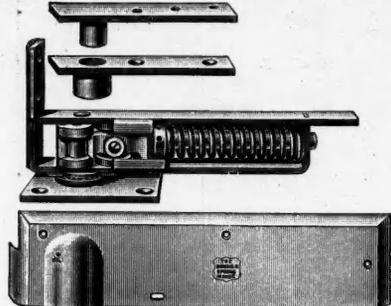


NEW YORK

**BOMMER**

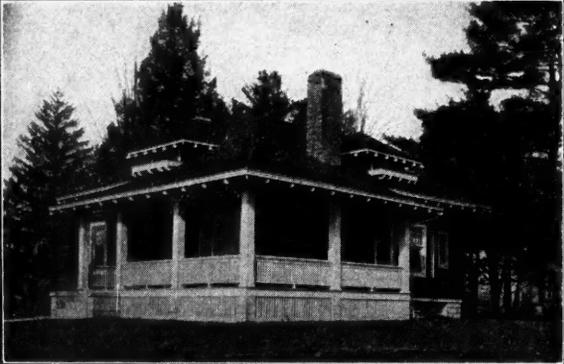
**Floor Surface Spring Hinge**  
For Double-Acting and Single-Acting Doors  
Release and Holdback Ball Bearing Alignment Device

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



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

*Your Hardware Merchant Can Supply Them*  
**Bommer Bros., Manufacturers Brooklyn, N.Y.**



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

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

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

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Your REPUTATION?**

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**Saw Set**



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

**CHAS. MORRILL**                      94 Lafayette Street  
NEW YORK

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**VOL. XX** **JANUARY, 1916.** **No. 4**

**Plan to Visit Chicago, Feb. 12-19**

**T**HERE'S one event each year that no contractor living in the North Central States can afford to miss—the Chicago Cement Show.

For eight years regularly this exposition has had the distinction of being the *big* show of the year in the construction field.

This year, the Ninth Chicago Cement Show is to set a new record; in size it will be the biggest, since it will fill the Armory as well as the Coliseum, and for instructive interest to contractors, builders, and architects more elaborate plans are being laid than ever before.

**Joint Exhibit of Cement Companies**

Twenty-six cement companies shipping cement within 1000 miles of Chicago, have entered into an agreement to participate in a \$10,000 exhibit of concrete products which will occupy the entire south half of the Armory. The materials for this exhibit will be drawn from the resources of practically the whole cement industry, including the Association of Ameri-

can Portland Cement Manufacturers. All duplication of effort by cement companies will be eliminated by a Joint Exhibit plan which will enable the cement manufacturers to install such a display of concrete products as has never before been attempted. Unquestionably, this joint exhibit should set forth the possibilities of concrete in such a manner as will enable the visitor to acquire a broad and intimate knowledge of the uses of cement.

The Second National Conference on Concrete Road Building will be held at the Auditorium Hotel, Feb. 15-18, in connection with the Show, and has led an unusually large number of manufacturers of road building equipment to install large exhibits. It is the intention to have on display at the Show, such specimens of concrete road work as will be discussed at the Conference.

Efforts are being made to induce the manufacturers of machinery to make exhibits of the products of their machines. The Show has grown to be a machinery rather than a products show, and to enable the architect and builder to study the possibilities of concrete,

particular attention will be paid to products. The surface treatment of concrete will be featured, and demonstrations of bush hammering, acid treating, brushing with water, and other methods of treating surfaces, will be taught, in a sort of School for Builders, which will be a part of the Joint Exhibit.



### Cut Nails Hold Roofs in Hurricane

**I**N the recent hurricane in New Orleans many roofs were destroyed and ripped to pieces by the winds. One of the puzzling features of the destruction, that was observed in various places, was the fact that not nearly all the roofs were torn up. Often houses in the same yard were in striking contrast to each other. One would not be damaged and the other would have many of its shingles torn away.

Investigation showed the reason for this, and proved once more that the strength of the roof is in the nails. The roofs constructed with cut nails are reported to be in good condition, while the wire nails lacked the holding power to keep the shingles in place. The fault did not lie with the shingles, but with the nails that were holding them in place.

There is some talk of revising the New Orleans building code so that shingles treated with fireproof paints can be used on new houses in the residence district. To obtain the best results under these conditions we would strongly recommend that cut nails be specified for fastening the shingles in place. They never wear out anyway and they can't blow off if cut nails are driven thru them.

The failures of shingle roofs are often blamed on the shingles when the fault is with the nails that were supposed to hold them on. If New Orleans wishes to make permanent roofs out of wooden shingles, the best plan to follow will be to specify cut nails for this purpose. They last and hold as long as the shingles.



### New Building Era in Prospect

**A**S the time approaches for the National Convention of the Builders' Associations of the nation, to be held at Baltimore, Md., February 22, 23 and 24, 1916, the building fraternity is impressed with the strong probability that these deliberations will be looked back to as marking a memorial turning point in the method of conducting building operations.

We find the leading architects advocating contract reform with full arbitration for all questions, the builders strenuously working to attain the same end, and many leading real estate journals that support and protect the owners' interests insisting upon their universal use, for building improvement.

This is a striking situation that a reform which the builders conceived and inaugurated less than three years ago, in order to better building conditions, should now be so fully approved and earnestly supported by the leading architects, and owners and all interests

concerned. It emphasizes the point that their policies possessed merit, and that this reform must have been conducted upon intelligent diplomatic and firm lines.

It is so unusual for all interested parties, especially when their interests are at times in opposition, to have been so harmonious in eradicating these obsolete methods, and acting as a unit. This is an indication that they are all satisfied, and that the builders' ideas and policies were well founded, and best for all concerned.

The Baltimore Convention will assemble under these conditions with its members having a feeling of pride in their past accomplishments and a confidence in the future that will be an extremely important factor in guiding their deliberations, and insuring the successful execution of their conclusions.

The realization of the many needs for improvement, and the cure of unbusiness-like methods current in the builders' vocation are apparent, and has created a deep impression, resulting in everyone fully appreciating their manifest duty for action to be taken upon these questions for their rapid and permanent cure.

Never before has a convention assembled where the necessity for advancement and improvement, and obligations to the owner and the public, were so apparent, and so fully realized, or have had such a wide study and preparation for their solution. Out of such thoughts are bound to grow important policies. Practically every building organization of note, whether members of the National Association or not, will be represented at the Baltimore Convention, and these representatives will come fully prepared to consider intelligently these important matters, and formulate plans to place the building business on the same commercial plane as other important branches of commerce and industry. To attain this end, the architects and builders are fully co-operating in a sincere and friendly manner.



### Institute Urges Monumental Federal Buildings

Washington, D. C., Dec. 15.—"It is entirely possible for the Government to build Government buildings that will be monumental in character, artistic in design and meet every requirement of utility."

This was the declaration of Charles A. Coolidge, of Boston, chairman of the committee on Government architecture, in his report to the American Institute of Architects here. He outlined a program for a campaign to be waged by the Institute to convince the Government that Federal buildings in Washington and elsewhere should take their places alongside of those in Old World capitals and cities.

The committee's report disapproved of the use of brick in public buildings, holding that it was not appropriate either in point of beauty or durability. The report declared that it was unnecessary to depart from architectural beauty in constructing Federal buildings, and the general utility of the structure would not be impaired by making it artistic in construction.

The report recommended the standardizing of postoffice buildings in smaller cities, and urged the general employment of marble, granite or stone in construction.

E. G. DOUGHERTY.

# MORE WINTER WORK



Practical suggestions  
for  
keeping the   
coming in during  
the Winter Months

## Winter Building Campaign Progresses

NUMEROUS ADVANTAGES TO ALL CONCERNED.—ARCHITECTS, BUILDERS, SUPPLY PEOPLE, AND OWNERS—  
WINTER BUILDING EFFORTS WIN INCREASING FAVOR

AS advocated in this department the past four years, there has this winter developed a general movement to promote "More Winter Building." Material men, architects, builders and the other architectural and building papers have taken it up.

If more winter building can be developed it will give manufacturers an opportunity of continuing normal operations through the usual dull months. It will be of direct benefit to general contractors and their employees. It will be particularly acceptable to designing architects and engineers. Moreover, there is the opportunity for distinct advantage to the building owner, for the reason that many manufacturers will be in a position to offer inducements in the way of lower prices on building material.

The contractors may see fit to accept winter work at a lower contract price in order to hold together their organizations. The architect might also make a lower charge for the directing and handling of work carried on during the winter.

It is a known fact that masonry work and reinforced concrete work can be carried on successfully during the cold weather. The writer knows that structural steel has been carried thru to a successful conclusion during the winter months at an erection cost as low as would have applied to the same work done during the summer.

### Habit to Blame!

MODERN BUILDING CONDITIONS FAVOR WINTER  
ACTIVITY RATHER THAN HIBERNATION—  
WHICH IS BRANDED AS RELIC  
OF PAST

By Architect H. Jerome Darling, Detroit, Mich.

THE present vogue of winter building appears to be simply a matter of evolution. The human race clings to a habit and will do things in a certain way simply because it was done in that way by their forefathers. There was a time when winter building was almost unheard of, but each year is gradually producing more winter work.

### Decision Rests with Owner

The question of winter building is one that must of necessity be decided by the owner himself, and he

is generally not sufficiently well informed to take the chance. All the facts must be put up to him in a form which he can readily understand before he will release his capital in a venture which to him would seem to promise more successful execution in warmer weather.

All kinds of mason work are now carried on successfully at all times during the winter. Some of the very largest and most important buildings in Detroit were erected during the winter. Buildings of reinforced concrete construction, depending almost entirely upon concrete for support, are erected in the dead of winter. The Trussed Concrete building, opposite the postoffice building, is one of the many of this class which were erected during the coldest months of the year. Mortar will not set as rapidly in winter as in summer, but I am of the opinion—judging from demolished buildings which were erected in winter, and from the assurance of prominent mason contractors—that mortar used in winter will become more durable than mortar used in summer. One reason for this may be that brickwork laid in summer will absorb the moisture from the mortar before the mortar has had time to set.

### Reduction of Cost Possible

It is an accepted opinion of the public in general that contracts for winter work can be let at a lower price than at any other time of the year; all things being normal. I am not alone in the belief that about 10 per cent of the cost of building can be saved if contracts are let during the winter.

If the owner's money is drawing low interest, it might be well for him to consider, with other savings, the greater earning capacity this same money would show invested in his proposition for the period that it would otherwise practically be lying idle.

During warm weather rush seasons the contractor is forced to employ incompetent mechanics whom he weeds out in the winter when work becomes slack. The man who erects his building in the winter has the advantage of securing this higher class of workmanship. Furthermore, as the contractor and architect are not

rushed with the same amount of work as in the summer, each can devote more of his individual time to the construction of the building.

**Better Woodwork is Possible**

All woodwork which enters into construction of a building is far superior when installed during cold weather, the atmosphere being much dryer than in summer. Much of the moisture in the form of rain which is absorbed by the rough woodwork during warm weather, becomes snow in winter and is easily cleaned off before any material damage can be done. The moisture absorbed by the rough woodwork in summer will not dry out until sometime after the building is completed and decorated. When this moisture dries out floors and partitions often settle, causing cracks.

One of the greatest objections to summer building is the absorption of moisture from the air by the interior wood finish. This interior finish is one of the most important features of a building, and greater

care and skill must be employed in its installation than with any other part of a building. It is always subject to more close inspection as long as a building stands, and it is important that every precaution should be employed to preserve the highest class of workmanship in the building as a whole. The moisture absorbed by the finish woodwork in summer will dry out later and cause joints to open, doors to shrink, panels to crack, and the work to assure the character of a building that literally has been thrown together. On the other hand, heat is maintained in the building erected in the winter and, as a result, moisture is kept out and the finish remains in a first-class condition.

The facts I have mentioned are some of the important influences working to produce a larger amount of winter building. I believe that when the public becomes aware of the advantages of winter construction, building operations will continue actively thru all seasons of the year.

## **PRIZE LETTER: Repairing and Remodeling a Specialty**

HURRY-UP METHODS THAT PLEASE CUSTOMERS AND INSURE PROFIT—MONEY IN WAGON REPAIRING

Butte, Mont.

Winter Work Editor, "A. C. & B.":

Will elucidate how I keep the coin coming my way during the winter months. First, as my letter-head states, repairing and remodeling is my specialty. I have a very extensive business in that line. I look after the work for the largest real estate firm in town, several smaller ones, and a line of private customers in size work, from fitting a key to remodeling the whole building.

If the job can be completed on the day order is received, it is never put off until the next. I put the man or men into an automobile and rush to the job, complete it and rush away, therefore satisfying my client, and at the same time keeping the expense down to the minimum—which counts here where the scale is \$6.50 to \$9.00 per day.

Second, while living in Minneapolis, Minn., I had a nice line of customers amongst the team owners. In October I would go over all their sleighs, ice racks,

etc., and in November they would haul in their wagons, drays, vans, etc., and during the winter months I would repair same, have them painted and as good as new for the spring work. Any carpenter living in a city where they have snow enough for sleighing can easily do a good business repairing wagons if he starts out and looks for the business. It took me several years to build up a business that kept me busy all winter, but I succeeded in doing so along that line.

I subscribed for the AMERICAN CARPENTER AND BUILDER the first year of its publication and have taken it ever since. I have practically all the books published by Wm. A. Radford, and was one of the first purchasers of Radford's "Cyclopedia of Construction," and sold several sets by inducing my workmen to buy.

I keep posted on new material, tools, etc., by reading the advertisements in the AMERICAN CARPENTER AND BUILDER.—THOS. N. BAILEY, Contractor and Builder.



IND. PHONE 6912

## **THOMAS N. BAILEY** **CONTRACTOR** **AND BUILDER**

**Repairing and Remodeling a Specialty**

Residence: 1520 Second Ave., South

OFFICE: NO. 1 EAST GRANITE STREET

Butte, Montana,.....

## **PRIZE LETTER: Makes Show Window Back Grounds of Wall Board; also Remodels Store Fronts**

Buffalo, N. Y.

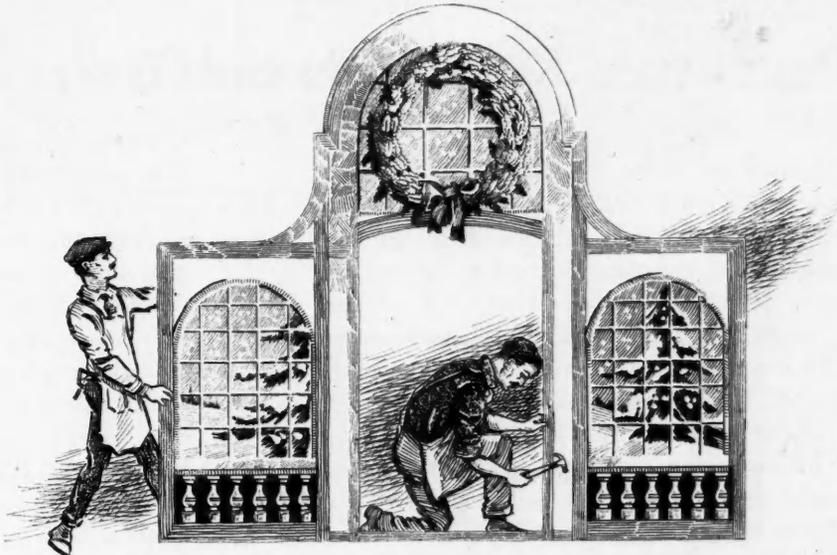
Winter Work Editor "A. C. & B.":

Last fall, I sent you some winter work ideas, which have worked out successfully with me.

This fall, I have a suggestion which is the best idea I have had yet, to drive the so-called "quiet month" out of a contractor's calendar. I refer to backgrounds. It is a well-known fact that many of the smaller department stores have not proper backgrounds for their windows, and when approached on the subject of "portable window backings," are ready to order.

My system is to make up artistic backgrounds of wall-board, which can be taken out easily. Most orders are from three to six different kinds of backs for different displays, and these backs are especially desirable for small windows. I have worked up about thirty different designs, and the customer orders from blue-print designs in the same manner as he would from a catalog. The selling price of the backs ranges from \$1.50 to \$5.00 per square yard, according to the amount of work and kind of decorating.

A good metal store front is also an excellent proposition, as architects soon get used to specifying your front, and even tho you lose the general contract, you are sure of getting the metal sub-contract from the



Makes Attractive Store Window Background Out of Wall Board.

successful general contractor. Practically all store front remodeling in this city is done in the late fall and early spring, and is really "winter work."

GEO. M. PETERSON,

Contractor and Builder.

## **PRIZE LETTER: Got His Start Making Screens**

Hamlin, N. Y.

Winter Work Editor "A. C. & B.":

I have had hard luck with my eyes. I can't stand the lamp light, so you see my evenings are not spent



"Hired Another Man—Using the Attic as a Shop."

on books or magazines. I was working for one man for three years—a contractor. Finally we ran short of work, and it was time for me to look and see what I could find to do. I had taken a course in the I. C. S., and was getting along nicely, and liked to study carpentry and building. All of a sudden my eyes went blank—that put a damper on my study, you may bet. Was that way for three days, two days stone blind. The study ceased immediately, although I have not stopped learning.

Well, I had a call to go and fix a door, only a couple of hours' work; but when that was done I talked window screens to the party, and made about \$20.00 worth of screens for him. Then his neighbor came around and asked me to make him a couple, and they were made. Finally I struck out and got orders for screens, and hired another man, using the attic in my house as a shop. It wasn't long before I got a call to build a porch for party No. 1, and laid over 30 sq. yds. of cement wall, besides remodeling storage.

When spring came it proved to have been a good winter for me, better than if I had been working for Mr. Contractor. Since then I have been going it on my own hook. Sometimes it cuts deep, but I suppose

we all have hard luck. It builds us up, and makes men of us. I have worked for myself almost two years, and have had very good luck. I built one cottage this spring on the lake shore, also a garage; then farther up I built a bungalow, 36 by 44 ft., 9 ft. post, and have done quite a lot of other work, such as building cellar walls and plastering houses. Sometimes I had two gangs of men.

Am now working on a lumber shed size 44 by 60 ft., 12 ft. post, and have two more houses on the lake shore to remodel, also a barn to fix over, chicken coop to build, and something is always coming up. I have four men most of the time. I want to get a wood-working machine for making screens, because there is money in the work, and I will then have it for next season.

S. W. CONNER.

## **PRIZE LETTER: Keeps Books and Figures Costs for Contractors**

—, Wis.

Winter Work Editor "A. C. & B.":

I came to this country in March, 1910, from Denmark, my native country. The first summer I moved around from one place to another and lost considerable time. When winter came I was laid off, and was out of work for four months. Then I attended night school, and took up a course in bookkeeping, which I finished the following winter. The year after I took a course in drawing and English.

In the spring of 1913, a contractor asked me if I would help him with his bookkeeping, which bothered him considerably as he had never studied that art; although he had been very successful and is doing work for thousands of dollars or more every year.

to better advantage than by studying books and magazines about the building business. I learned, for instance, the use of the steel square from the AMERICAN CARPENTER AND BUILDER, the first building paper I ever saw.

Now as to the result; while many of my fellow workmen have never had time to attend night school or money enough to buy books or magazines, and tools, I have as fine a set of tools as any one of them. I have also learned bookkeeping, some drawing, algebra, and English, and I have saved my money. Today I have in cash, first mortgage bonds, and bank deposit \$3,401.27.

Take my advice, and stay away from the saloons, and keep an exact account of your income and expenses.

LOUIS JENSEN.

[Address withheld by request.—EDITOR.]



### **\$3000 House Planing Competition for Cleveland Building Show**

AN architectural competition of the most practical kind will be held in connection with the First American Complete Building Show, in Cleveland, O., Feb. 16 to 26, under the direction of the Cleveland Chapter A. I. A., in co-operation with the Chamber of Commerce, Cleveland Art Assn., Builders' Exchange, Society Advocating Fire Elimination and other civic bodies.

The competition is for a workingman's home to cost not more than \$3,000 complete, exclusive of land and embellishments. There are seven prizes, the first being \$200. The contest is open to all materials.

Rules of the competition call for six rooms, with basement under entire house. It is the aim of the committee to obtain designs that are in every way practical; and awards will be made upon this basis.

All drawings must be in by February 1.

Instructions regarding the contest may be had by applying to The Complete Building Show Company, 356 Leader-News Bldg., Cleveland, O.

R. P. STODDARD, Gen. Sec'y.

EDITOR'S NOTE: Architects and draftsmen among our readers will be interested in knowing about this \$400 prize contest. The fact of its being backed by civic bodies removes it from commercialism and should open the way to general participation in it.



During January I am sitting in a warm room getting out the balance sheets.

Since then I have done his bookkeeping in my spare time, and have learned many things about the contracting business that I never could have learned otherwise. In January and February, when many carpenters are out of work and having a hard time in getting the credit and debit side to balance, I am sitting in a warm room getting out the balance sheet for the year before, and figuring out the cost of the different jobs, while the dollars keep rolling in.

I have also found that I cannot use my spare time



**Artistic Home with Decorative Front**

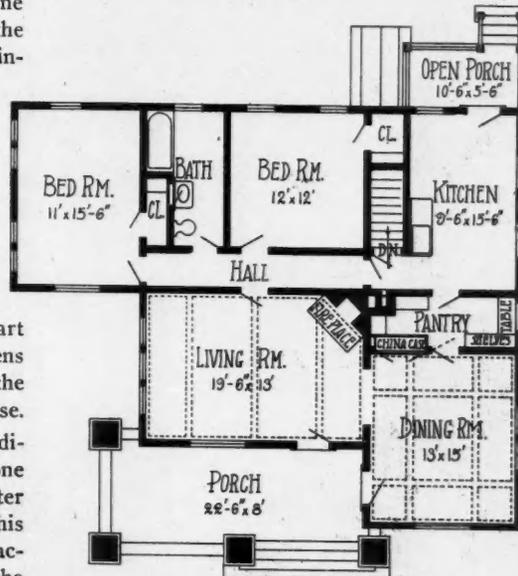
There are several distinctive features that set this home off by itself and give it character and distinction. The porch and the front gable combine to give an artistic effect; also the arrangement of the rooms is out of the ordinary.

The appearance of the porch shows that there has been some thought put on this important part of the house. The paneled stucco gable, with the three small windows in the center; the rough faced brick in the porch pillars and foundations; the brackets, and the projecting beams form a combination that is certainly attractive and unusual. The low roof and heavy pillars of the porch give it a built-in cozy appearance that will be much appreciated in the summer.

There are two entrances into the

house from the front porch. One opens into the dining room and the other into the living room. The dining room occupies the right front part of the house, while the living room is directly back of the porch. Both these rooms have beamed ceilings, tho the design is varied in the two rooms. One of the most attractive features of the living room is the fireplace, which is placed diagonally across the corner. In the back part of this room is a door that opens into a back hall connecting up the rooms in the back part of the house.

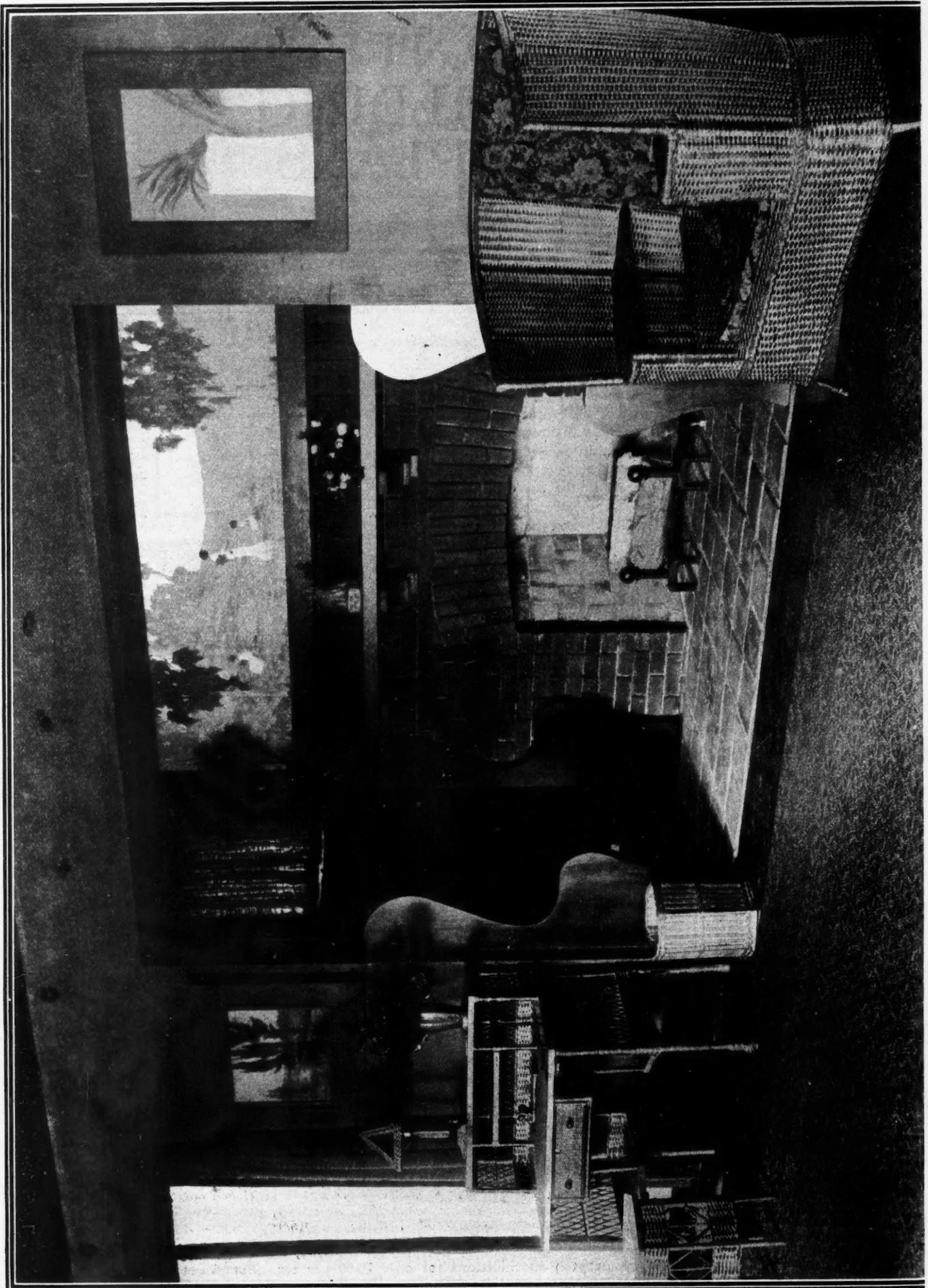
The beams in the dining room divide the ceiling up so that there is one large rectangular panel in the center surrounded by smaller panels. This is a simple and artistic way of placing the beams. In the back part of the dining room is a built-in china case.



Floor Plan, Size 45 ft. 6 in. by 37 ft.



Good looking little Bungalow home of five rooms. Size, 45 feet 6 inches by 37 feet. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$6.00 per set. Blueprints consist of basement plan; roof plan; main floor plain; 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. 6753.



Brick Fireplace and Tile Hearth Cozy Corner "Model Intensive Farm" at the San Diego (Pan.-Calif.) Exposition.  
Note Effective Mural Decoration for Over-Mantel Treatment.



**Comfortable Eight-room House.** Size, 32 by 42 feet. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$10.00 per set. Blueprints consist of basement plan; roof plan; first and second floor plans; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6750.

**Eight-Room Bungalow with Garage to Match**

Here is an exceptionally commodious story-and-a-half bungalow, containing six rooms and bath on the first floor and two rooms and bath upstairs. An extra amount of closet space is included.

An attractively designed door such as the one shown in this design always makes a good impression on anyone entering the house. It puts everyone in a mood to appreciate the interior.

This door has three glass panels across it and they vary in length from left to right. The one on the left being the shortest of the three. There are also broad brass plates at the top and bottom of the door and a heavy brass knob and plate to match. The whole combination makes a door that lends distinction to the house.

The front part of the house is occupied by two rooms that may be used together whenever occasion demands. These two rooms are the living room and a den or library. The two rooms are connected by a double sliding door. The den can thus be cut off from the rest of the house if the man of the house desires to do some of his office work at home. When the door is open it leaves a large unobstructed space across the front of the house which will

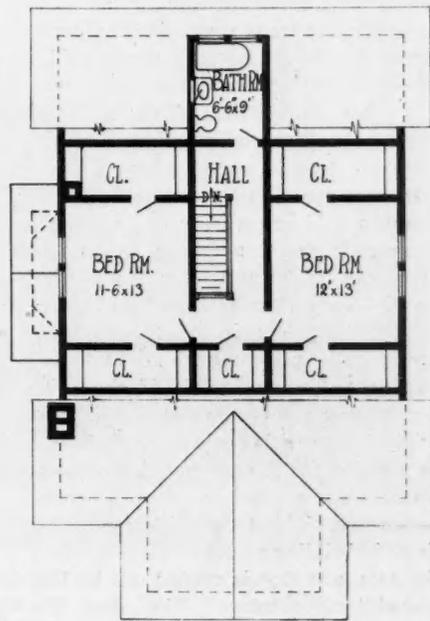
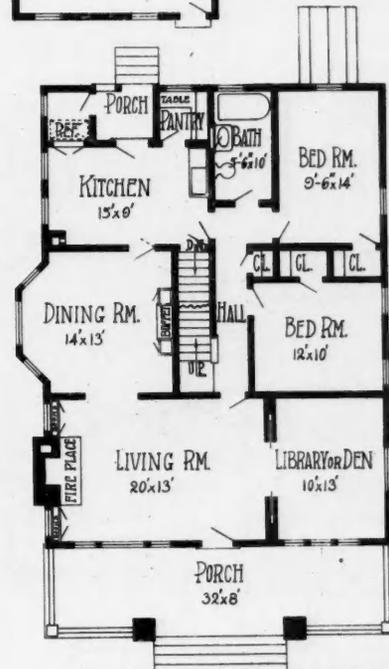
be very useful in entertaining. The dining room will add to this space also.

This lower floor plan also calls for two bedrooms, a bathroom, and a kitchen.

On the second floor there are two more bedrooms and bath-

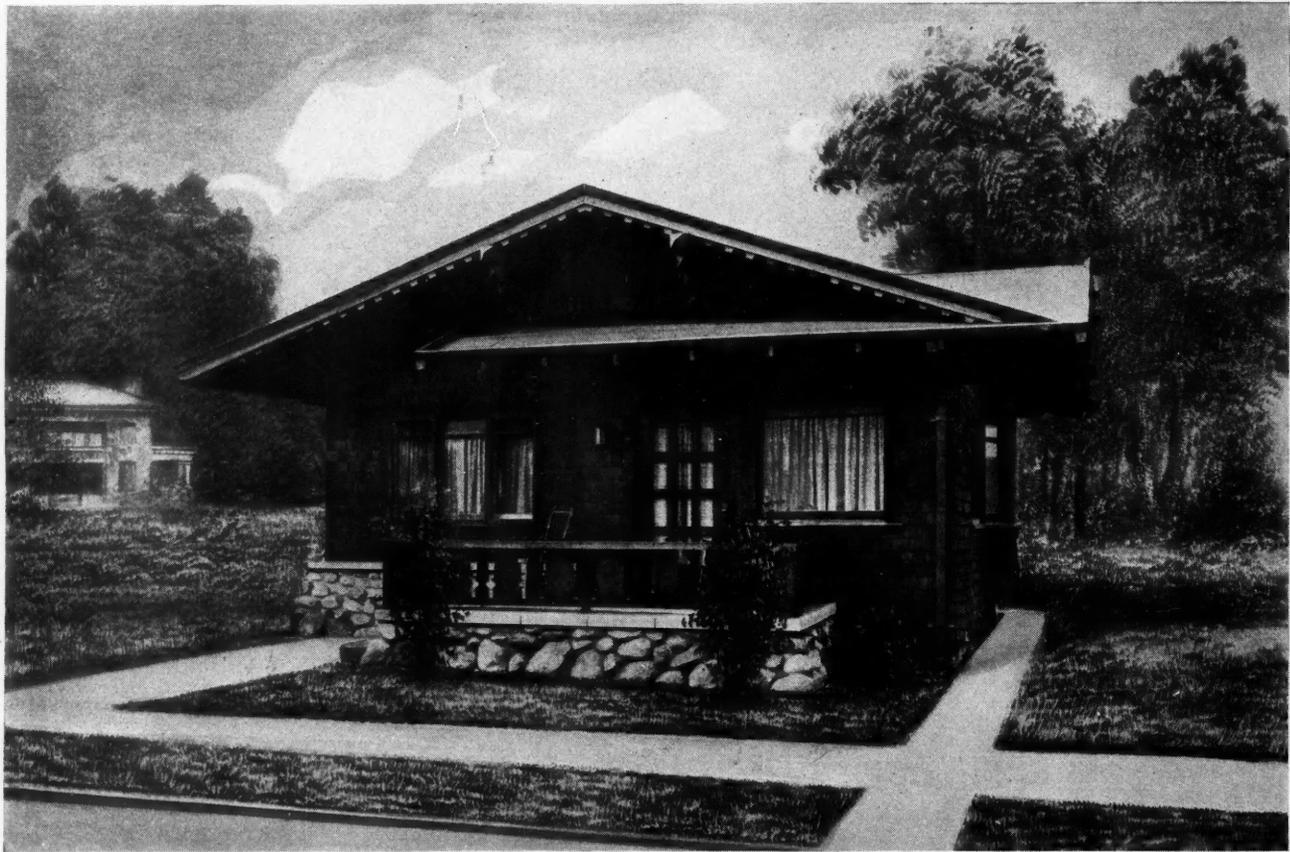
room. Plenty of closet space is provided on this floor for all purposes.

Back of the house is a garage which also serves the purpose of a tool shop. Along the back wall there is a tool case and also a work bench. If a hot water or steam heating plant is installed the garage can be heated from the house plant.



Floor Plans of House, Size 32 by 42 ft.

Note Effective Mural Decoration for Over-Mantel Treatment.



Artistic Shingled Bungalow of characteristic Japanese design. Size, 36 feet 6 inches by 39 feet. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$7.00 per set. Blueprints consist of basement plan; roof plan; main floor plan; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6755.

### Little Japanese Bungalow

The greatest point of attractiveness of bungalows lies in their simplicity. Many bungalows are made in a rather ornate and decorative fashion, but the best are of the type shown here and make their appeal thru their simplicity and hominess. The broad, flat roof, with its wide overhang, the projecting rafters, and the shingled sides all seem to combine to make something that more nearly fulfills the average person's idea of the latest word in a small home than any other combination. This is one of the reasons for the popularity of the bungalow type of construction.

In a warm climate a bungalow such as this would be set close to the ground because it would not be necessary to provide a basement to house a heating plant. Many changes have been forced on the bungalow in its travels from warm southern climates to all kinds and varieties of climates. It is the price that it must pay for its popularity. The original type of bungalow would hardly be practical for the parts of this country, where zero weather is often a winter occurrence. This type is followed many times in building summer cottages where the only heat that is needed can be furnished by a fireplace. The rough finished walls are also often used for sum-

mer cottages; but where the bungalow is to be used the year round, the interior of the walls is finished in the same way as in other types of houses.

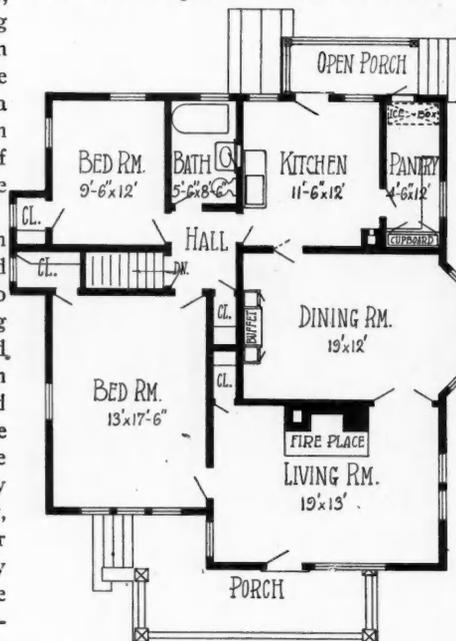
In this plan the bungalow is not placed directly on the ground, but is just raised enough so that a good basement can be provided with head room

for the kind of heating plant that is desired. The best plan is to place the furnace under the dining room, where it will be near the center of the house. The basement also acts as an insulator against the cold of the ground in the fall and spring when a fire is not lighted. An outside entrance to the basement is always a desirable feature of a house when there is a furnace to take care of.

The front porch is built up on a foundation of cobble stones and presents an attractive appearance. Instead of having the steps leading directly to the front, the steps are on the side and the door is in front. Little touches such as this are what make the bungalow so different from other houses.

The living room, dining room and kitchen occupy one side of the house, and the two bedrooms and bathroom are on the other side. The living room and dining room are connected by double swinging doors which are placed next to the fireplace. The living room is well lighted, but there is plenty of wall space that can be decorated with some well chosen furniture.

In one end of the dining room is a large curved bay and directly across from this is a buffet. Back of the dining room is a well arranged kitchen and a pantry.



Floor Plan of Bungalow, Size 36 ft. 6 in. by 39 ft.

## Roomy, Homelike Bungalow of Five Rooms

There is on great hobby in room arrangement that many people have. In planning a home, nearly everyone will insist on one large room with a fireplace in it. The beauty of this idea is that it is so practical. There is nothing more necessary to the home than a room where everyone can meet, and where there is plenty of room to entertain visitors.

In this age of the world we know that surroundings have a marked effect on people and show their influence on both their mental and physical characteristics. A man does twice as much work and is twice as happy in a modern daylight factory as in the old, dark and dismal ones.

A room such as the living room in this design plays the same part in the home life. It is the meeting place of the family where the associations have their important effect on the developing character of the children. It is also the place where friends and relatives are entertained and where the social part of the community life is kept up. It is rather necessary, therefore, that this room be of good size and as comfortable and attractive as possible.

The living room in this design is 27 by 13 feet, which gives ample room. In the back wall is a big brick fireplace. Plenty of wall space is provided for some well chosen furniture that will harmonize with the decorative scheme

that is chosen. With a bright, cheerful fire burning in the fireplace this room will more than live up to its name as a living room.

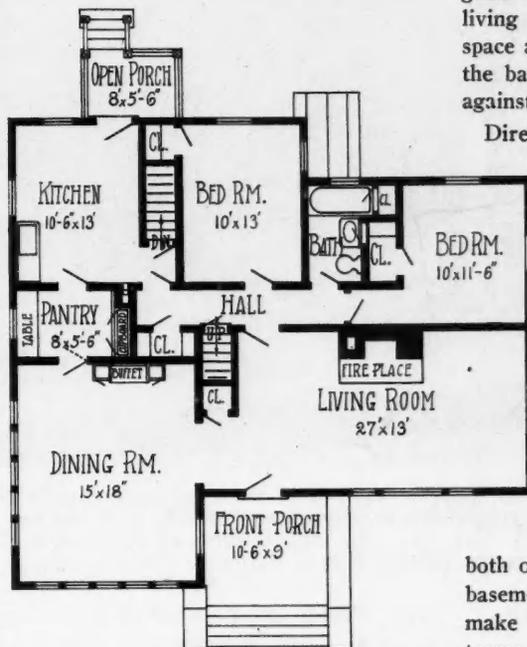
The exterior of this design is finished in typical bungalow style. The roofs have a very flat pitch with eaves that extend out on all sides. The gable extending toward the front of the house has the right side slightly longer than the left so as to cover the small front porch. The walls are covered with

shingles. The steps to the front porch are rather wide and present a pleasant, inviting appearance.

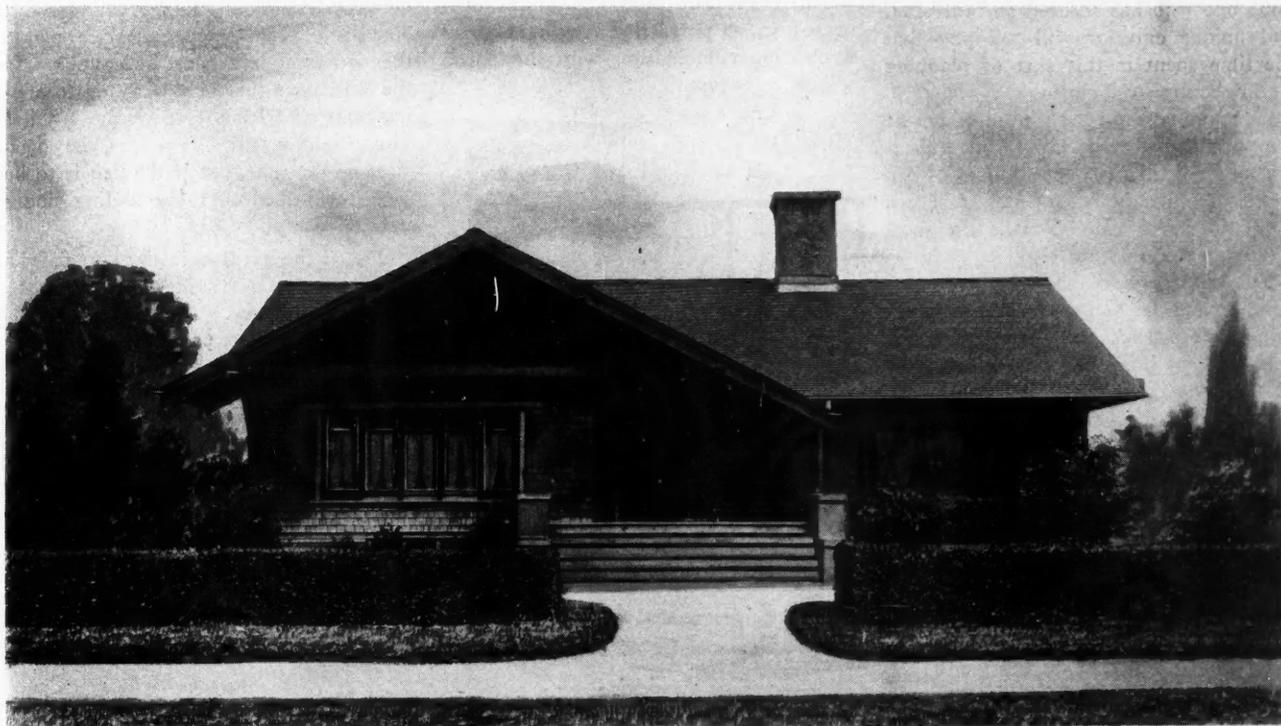
The entrance to the house is into the living room which is connected to the dining room by a wide opening. The dining room might serve also as a sun parlor because of the many windows that are placed in the walls. Along the front there are four windows, with five along the side and one opening out onto the front porch. The dining room is of good size, and being connected to the living room makes an unusually large space across the front of the house. In the back part is a buffet which is built against the wall.

Directly back of the dining room is a pantry that is a most necessary adjunct of the kitchen. Under the window in the pantry is a table, and across from this a small cupboard. The sink in the kitchen is placed near the pantry so that dishes will not have to be carried far. Small details such as this are what make a kitchen a pleasure to work in.

The house is set up high enough so that a good basement can be provided. There are both outside and inside entrances to the basement. The outside entrance will make it unnecessary for everyone to tramp back and forth thru the kitchen in getting to the basement.



Floor Plan, Size 43 ft. 6 in. by 38 ft. 6 in.



Generous Bungalow with attractive room arrangement. Size, 43 feet 6 inches by 38 feet 6 inches. We can furnish complete set of blueprinted working plants and typewritten specifications for only \$6.00 per set. Blueprints consist of basement plan; roof plan; main floor plan; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6754.



Six-room Bungalow with large porch. Size, over main walls, 35 by 41 feet. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$6.00 per set. Blueprints consist of basement plan; roof plan; main floor plan; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6749.

### Six-Room Bungalow with Large Porch

The exterior decoration of a house should always be given special attention; one who has secured an individual and unique exterior will tell you that the time spent in this sort of planning is time extra well spent.

On many types of houses the design of the porch will be the key to an attractive and distinctive appearance of an exterior. In a house such as is shown here, the porch can be made the most striking exterior feature.

The effects that are obtained with porches may be due to several different things. Sometimes it is the size of the porch which impresses people with the idea that it is a sort of a summer cottage in connection with the house itself. A small porch is often so artistically planned and arranged that it adds a distinctive touch to the exterior.

The porch shown in this design is fairly large and it also attracts attention because of the unusual and attractive way in which it is laid out. It extends along two sides of the building; but is much wider along the front than along the side. The part of the porch on the side seems to be a cozy little alcove set off by itself. Instead of the usual porch railing, a heavy wall is built up, decorated with belt courses in an artistic way. The wall can be made of

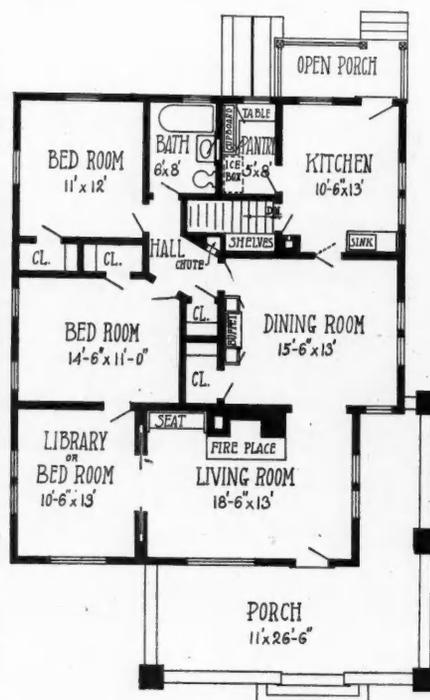
rough faced cement brick if desired. The wall is built into pillars at intervals which support square white columns which in turn support the roof.

The front and side gables are decorated in an attractive way and form a pleasing combination with the porch wall.

The living room is entered directly from the front porch. It is connected to the dining room by a cased opening. The fireplace is set in the interior wall between this room and the dining room. The little seat by the fireplace makes the corner into a cozy little nook. In the wall near this seat is a double sliding door that leads to a library or den. These doors will, of course, be open most of the time, but if the den is to be used for a bedroom the sliding doors will be useful.

One of the great objections to flats is that they are never designed so as to allow any privacy. All halls are eliminated as much as possible and the rooms open into each other in such a way that no part of the house can be cut off from the rest. With a plan such as is shown here, a few doors can be closed and the bedrooms and bathrooms are shut away from the rest of the house, and yet they can be readily reached thru the small hall in the back part of the plan. This hall opens into the two bedrooms, the bathroom and the dining room and thus makes each part of the house readily accessible from every other part.

The closets in this design will be a great joy to the house wife. One is provided in each of the bedrooms and there is also one in the dining room and one in the hall.



Floor Plan of Bungalow, Size 35 by 41 ft.

## Family House of Nine Rooms

A cozy little nook is a most desirable feature to have in a house if it is at all possible to include it in the plans. It makes a quiet and attractive corner in which to read or just to sit and think. These little nooks are sometimes built merely as a small seat set back alongside the fireplace. Sometimes they are alcoves and other times they are really a part of the living room and are large enough to hold the fireplace and some bookcases.

The one shown in this plan is of the last type. It is separated from the living room by a colonnade which contains a small bookcase on each side. Another bookcase could be placed along the wall opposite the seat. The seat extends from the fireplace along one wall under the windows. On the opposite side of the fireplace is a small bookcase. This nook will either serve as a cozy, secluded corner or it can be considered as a part of the large living room.

The living room is very attractive and is well lighted so as to be bright and cheerful.

The basement is a very important part of this design. In a house as large as this one, a good basement is necessary for several reasons. In the first place, it is desirable to have an efficient and satisfactory heating plant; and this cannot be accomplished unless there is plenty of head room. The basement under this house should also be large enough so that it can be used for various other purposes. A laundry should be built and careful attention to its design with re-

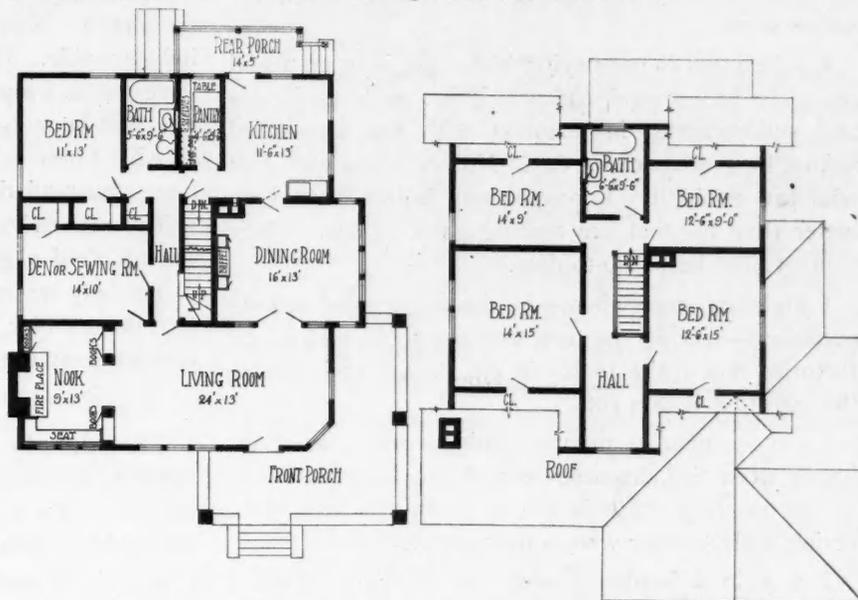
gard to convenience will be time well spent. In some corner, as far from the heating plant as possible, a store room should be provided for fruits and vegetables. A small workshop could also be provided in some part of the basement that is not being otherwise used.

The basement is reached by stairs that open into the back hall on the first floor. All the rooms on the first floor, with the exception of the dining room, can be reached thru this hall. A back hall such as this has a marked effect in preserving the privacy of each of the rooms, as it is not necessary to go thru other rooms to reach any one room.

One bedroom is provided on this floor and also a bathroom. The den or sewing

room can also be pressed into service as a bedroom if the occasion demands. This will hardly be necessary, as there are four more bedrooms on the second floor. Another bathroom is also located on the second floor.

On the opposite side of the house from the bedroom, on the first floor, is the dining room and the kitchen. The dining room is connected to the living room by double swinging doors. A large convenient buffet is built against one wall of the dining room opposite the windows. There are three fairly wide windows along the wall and also a smaller one that opens to the front porch. There is also another small window opposite this.



First and Second Floor Plans of House, Size 38 ft. 6 in. by 41 ft.



Nine-room house with stone porch trim. Size, 38 feet 6 inches by 41 feet. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$10.00 per set. Blueprints consist of basement plan; roof plan; first and second floor 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. 6752.

## The Man Who Keeps in a Rut in the Prime of Life Doesn't Need a Grave-Digger at the End

THE MAN FROM THE LUMBER YARD

Far be it from us that anyone would ever have cause to censure the "A. C. & B." for not having held up the lamp of progress. We stand on the watch tower searching all quarters for good things for our readers.  
—EDITOR.

I HAVE a cousin who runs a hotel in a small town in Missouri. There is a livery stable in connection. Some time since I made him a brief visit. I noticed that he did not always stop to wash his hands, and never changed his clothes, when he came in to help wait on the table after doing the stable work.

His business is not paying him. He is in an awful rut. He has several characteristics, such as inertia and stubbornness, in common with the long-eared animal he grooms every day. No one stops with him who can avoid it. I know many hotels located no better than his that are making good money. Their management keeps up-to-date.

I find him everywhere—in the pulpit, and among publishers—among the men that use tools, and in the factories that make tools—in city, town, and village, the man that is in a rut.

I see the man of natural ability working as if his hands were tied, because he will not adopt a labor-saving machine. He is like a man in a sack competing with another who is untrammelled.

I was in a hardware store in Michigan about a month ago and overheard a man ask for a saw, stating that he had always used that saw and that his father

before him had used it also.

It may be that the saw he bought was the best to be had; but I didn't like his reason. There are very few things in the manufactured line that my father used that are good enough for me.

In his day the pen was the sole means of correspondence. Now, the dictaphone, and typewriter are indispensable. He sent a messenger; I telephone. I have got to keep up-to-date on my work, or competition will bury me. The rut-habit grows on one, that is why I am especially anxious to reach the young men who read these letters.

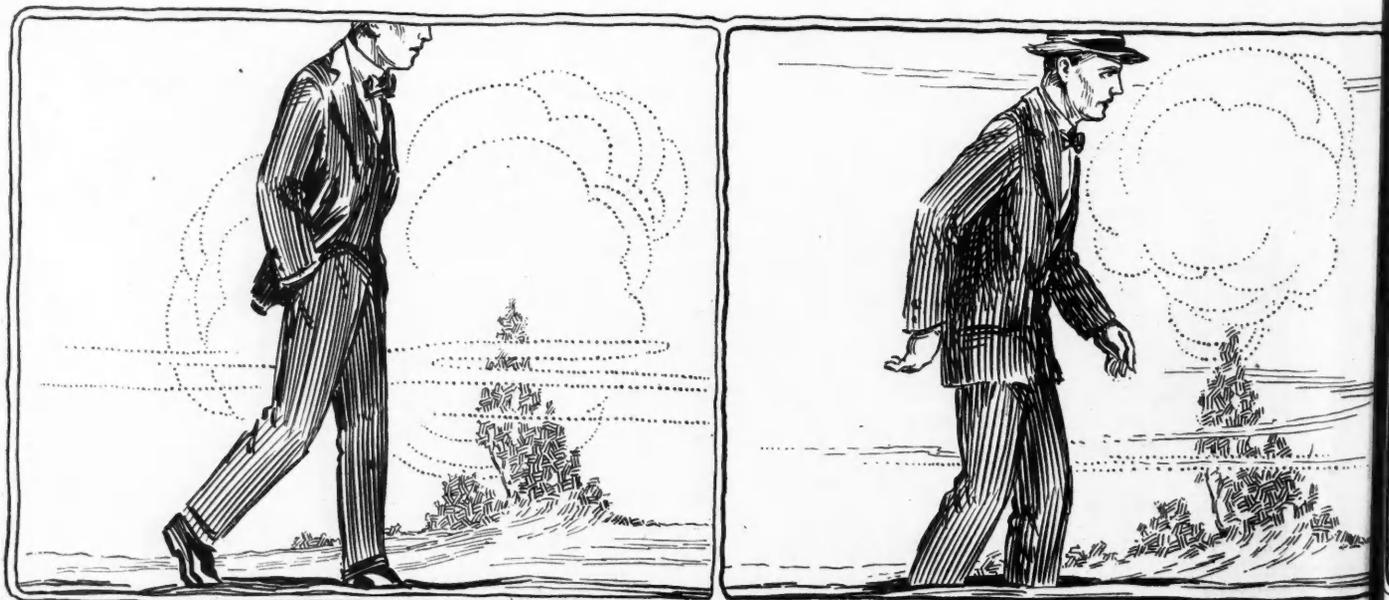
The man who keeps in a rut in the prime of life doesn't need a grave digger at the end.

The only reason some manufacturers, whose product is classed under the "has-beens" continue on earth is that so many users are in a "rut."

### Educating the Head

The man who would be 100 per cent efficient must begin by educating the head. There is no better head education for a tool user than is to be found in an enterprising builder's magazine.

I wish you could meet the Editor of the "A. C. & B." There may be more like him. I doubt it. He said to me, "Regardless of cost I want the best in ideas



The Man who keeps in a Rut in the Prime of Life

and suggestions—the best that is helpful in every department for my readers.”

For centuries the human mind has been working out our plans for houses, creeds of living and philosophies of life.

Life is too short for you to work out these problems for yourself. No matter how good a head you have you must plant good seed. You use care in selecting the seed you plant in your garden.

You should censor carefully the ideas you plant in your gray-matter. Keep your mind open for impressions.

**Eyes that See**

I was recently in the office of a young man who is breaking into the contracting game. There was hanging on the wall an elevation of a residence of a peculiar style. He saw I was interested in it and asked me to inspect the building which he was just completing.

The building stood at the intersection of three streets. It was arranged so that the entrance to the kitchen was as attractive as the front entrance; not having that back porch effect. On the side opening onto the yard, there was a sun-parlor below with sleeping-porch above.

I congratulated him on having been able to make such a clever design, as to cover all of the objectionable points and to utilize all the good features of the locality.

He disclaimed credit for having originated the plan, saying that he always used the other fellow's brains when he could.

It seems that he had been visiting in St. Louis, and was walking through a residence section. He saw an intersection of streets exactly as there was in his

home town. He was impressed with the way in which the city architect had utilized that particular space, and made a memorandum book record of the details. When he returned home he made up an elevation of the plans, placed it before the owner of the corner, and secured the contract for the building.

I see so many young fellows with a “nobody-at-home-expression.” The young contractor mentioned above will make good because his mind is always on the alert. Having eyes, he saw.

**Educating the Hand**

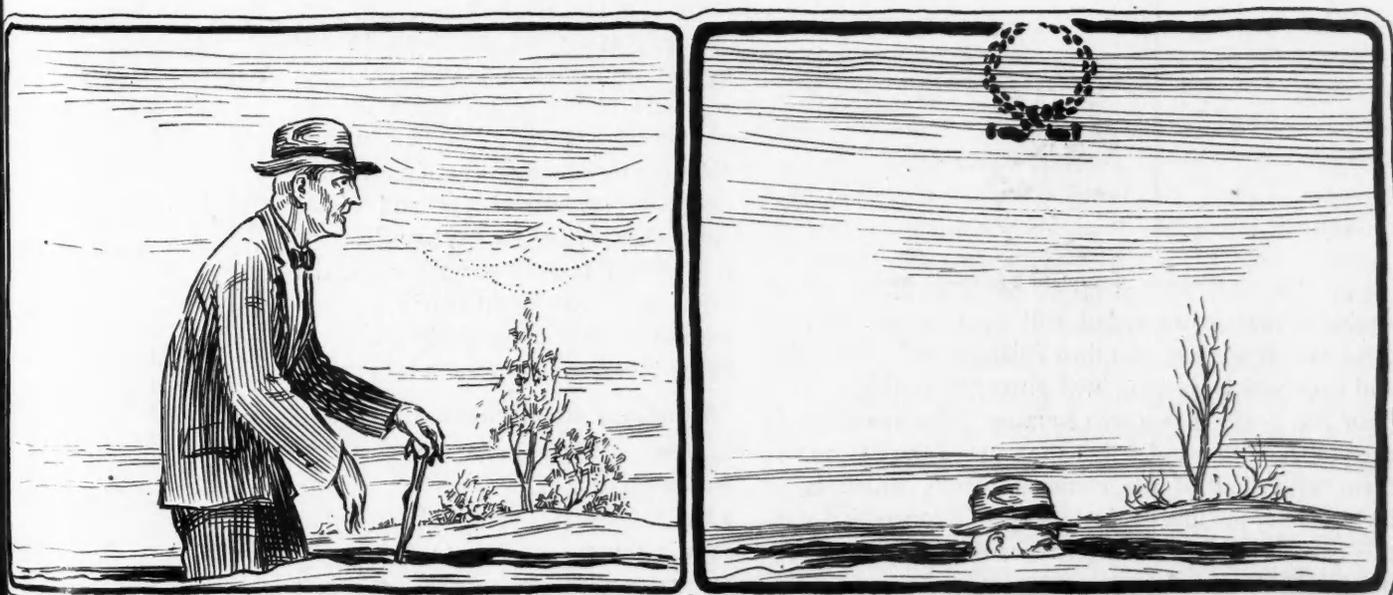
I read somewhere that Paderewski would not present a new piece to his audience until he had played it over a thousand times. Possibly that thoroughness was the reason he commanded a larger wage than our United States President.

There was nothing more remarkable in his educated fingers, than in the educated hand of the brick-layers, who were sent over to England some three years ago to complete a large factory building in record time, to earn a bonus for the contractor.

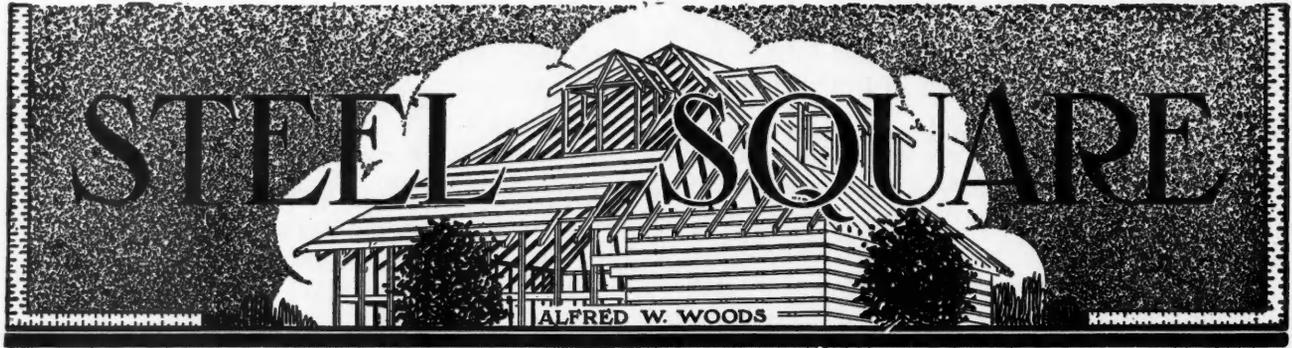
They quadrupled the speed of any English masons. As I recall it, the Englishman used eighteen motions to lay a brick; the American laid it with four and a half. The Americans were helped also by their trowels.

The favorite English trowel is narrower at the heel and shorter than the favorite American trowel for speeders. The latter is so balanced as not to give any wrist strain. It butters just right, whereas the English is stiff at the point. Our boys went prepared in head, hand and tool.

Being 100 per cent men they out-distanced all competitors.



Won't need a Grave Digger at the End!



## Possibilities of the Steel Square

TO FIND THE LENGTHS OF RAFTERS WITH THE SQUARE WHERE THERE IS A FRACTIONAL PART OF A FOOT IN THE RUN

By A. W. Woods

WE have a letter from a reader in Minnesota, in which he says he understands steel square work in roof framing fairly well, except where there is a fraction in the run and especially where there are hips and valleys to be reckoned with. We have covered this phase of the question time and

shown to be 13 and 17 respectively. (Neither of these are absolutely correct but near enough for practical purposes.) That is the reason these figures are used for the seat cut for any pitch the building may have. In this, we have taken the  $\frac{1}{4}$  pitch for illustration purposes and the lines from 12-13 and 17 on the tongue to 6 on the blade represent the length of the rafters for a one foot run of the building.

Now coming to the fractional part of a foot run, suppose it to be 8 inches; then a plumb line from eight cutting the runs as shown, and their lengths transferred to the tongue of the upper square will be found to be  $8\frac{8}{12}$  and  $11\frac{4}{12}$  respectively and continuing on up, cutting the pitch lines and all above these points will represent the corresponding lengths for an 8-inch run.

Now, for an example, say, the run of the building is 9 feet 8 inches. We place the square 10 times at the figures mentioned for one foot run and at the last placing, lay off the seat cut line, then slide the square back along this line till 8 rests at the point where 12 was before, paying no attention to the figures on the table, and the latter will rest at the proper place for the plumb cut. Proceed in like manner for the hips, using the figures that give the respective seat and plumb cuts, then slide the square back to  $8\frac{8}{12}$  and  $11\frac{4}{12}$  for the respective hips, and the lengths of the rafters will be properly cared for.

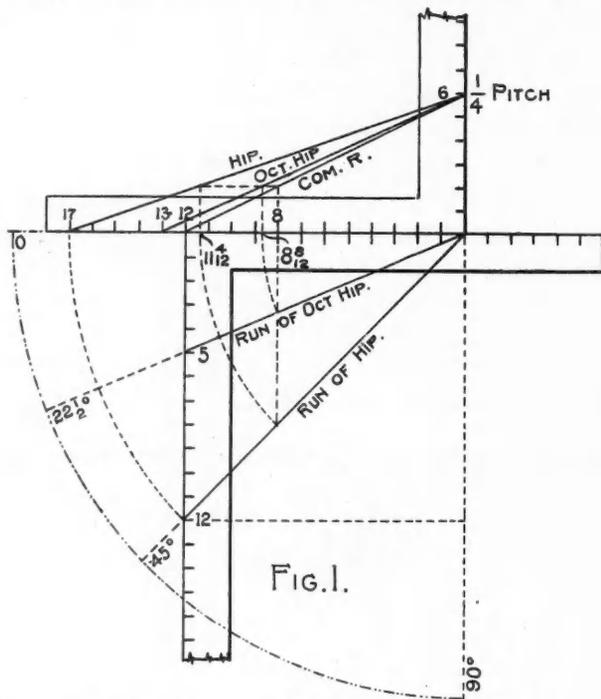


Fig. 1. Diagram to Explain Fractional Runs.

again in various ways, but will try it again, using a different illustration, and then finish up with some odds and ends which we hope will prove interesting.

In Fig. 1 are shown two squares. The lower one is used to show the angles that the runs of the hip rafters form with that of the common rafter, which is 12 inches along the line of the tongue. In connection with this is also shown what determines these angles in connection with circular measurement, as noted in degrees. In this are shown only the runs for the octagon and square cornered building in comparison to the run of the common rafter for one foot; and these lengths when transferred to the upper square are

### Something about Pitches

Now, we are going to branch off and show some things not generally known about pitches. In Fig. 2 are shown the

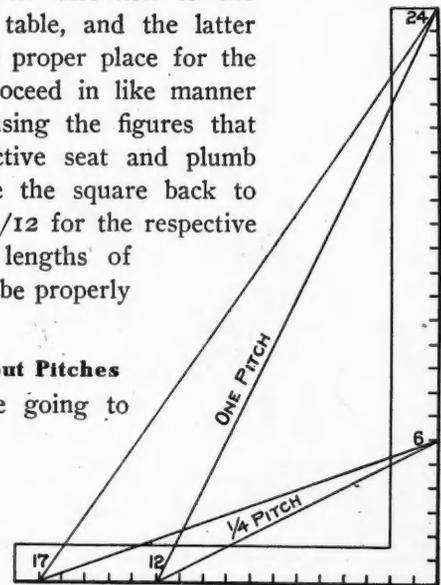


FIG. 2.

Fig. 2. Some Cuts for One-fourth and Whole Pitch, Except Reversed on Square.

itches for the common and hip rafters for the  $\frac{1}{4}$  and one, or whole, pitch. If we were to ask what is the difference, we fancy we hear the echo coming back,—why a good deal of difference! Yet the figures representing them give identically the same cuts for the common rafter but reversed on the square.

Passing on to Fig. 3, we find the length of the rafter for the  $\frac{1}{4}$  pitch to be 13.4164, and that for the whole pitch to be 26.8328, which is just double that of the  $\frac{1}{4}$  pitch. If you do not believe it, transfer its length to that of the whole pitch and a plumb line from this point will intersect 6 on the tongue; or by throwing out a horizontal line, it will intersect 12 on the blade, thus showing the rise of the former to equal half the run of the latter, and vice versa for the run.

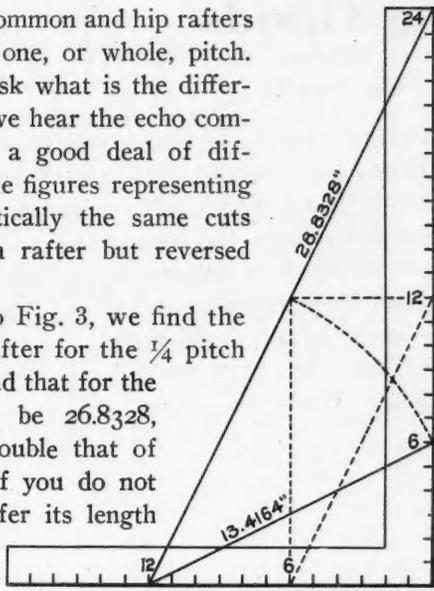


FIG. 3. Rafter Length for One-fourth Pitch Just One-half That for Whole Pitch.

If we draw a diagonal line through the parallelogram thus formed we will have four right angle triangles filling the space covered by the whole pitch, thus proving that the area covered by the former is one-fourth of that covered by the latter. There is a reason for this, which is fully explained in Fig. 4. We leave it to you to study out.

There are seemingly some queer things in the subject of pitch. A half is a half any way you take it, but a  $\frac{1}{3}$  is also  $\frac{3}{4}$ ; a  $\frac{3}{8}$  is also  $\frac{2}{3}$ ; a  $\frac{1}{24}$  is also equal to six whole ones; and yet it is all clear enough when you look at it in the right way.

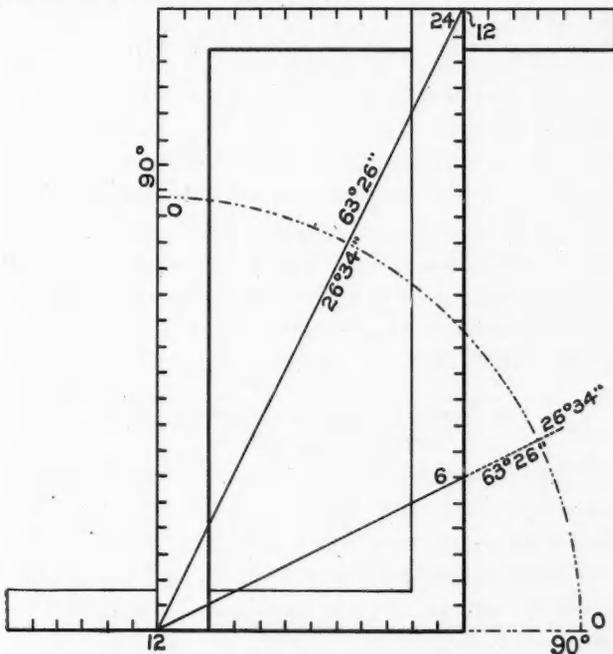


FIG. 4.

Fig. 4. Area of Gable Triangle Formed by One-fourth Pitch Rafter is Just One-fourth That Formed by Whole Pitch Rafter.

Pick-ups on the Job

By H. J. Blackledge

WHEN I began the carpenter business at about six- or seventeen years of age I had one of the best pocket knives I ever owned. And naturally I wanted to use it. One day the foreman came around. He watched me a few seconds. Meantime I was fairly blushing with pride at the way I was showing him how to use my knife. Suddenly, "Shut it up, Kid! Haven't you got a coping saw?" "Yes." "Get it out then and use it. If I catch you coping moulding or anything else with jack knife again you'll go home." And yet only a few weeks ago I saw a man of fifty using a jack knife to cope base with! And you can get a coping saw for twenty-five cents with blades at about ten cents a dozen! Leave your jack knife at home, "young 'un."

MY partner and I have found a short cut in cutting rafters that I think is worth while. We took some poplar, three-eighths by six and three-eighths by ten, about eighteen inches long and made T-shaped templates, using the six-inch for the stem and the ten-inch for the top of the T. Then we cut the ends of the template with the commonest rafter cuts. On the top piece at one end we cut the plumb and level cuts of common rafter, quarter pitch. At the other end we cut the plumb and level cuts of the hip, same pitch. Then we turned it up and on the stem cut the top or bevel cut of the jacks for quarter pitch. Each cut was plainly marked with heavy black writing and then the whole was shellaced. Another template was made for third pitch and one for half pitch. However, quarter and third are about the only two we use much, altho sixth is used a good deal in this section. On the top of the template we glued a neat typewritten table of the lengths of common and hip rafters from one to twenty-foot or run—at the pitch of that particular template. Of course they are awkward to carry around and take care of, but the saving in time on even one roof is a decided item.

ANOTHER table that we have found of great saving is that of jack rafters. This consists of the lengths of the first jacks, at four different pitches, for twenty-four to thirty-six inches apart. For instance: jacks to be 30 inches apart—first one will be 2 ft., 9.5 inches long. The next one will be twice that length and each succeeding one 2 feet 9.5 inches longer. This is at quarter pitch. At third pitch, the first one would be just three feet long; next one six, etc. (Will be glad to send in the whole table if anyone cares for it.)

ANOTHER exceedingly useful table is one we use in figuring contracts. It was a forerunner of the "A. C. & B." Estimating Blanks, but not as elaborate. We began in a small town where there was no need of all the articles they have enumerated. But we did need a list of the material used in small cottages

Continued to page 56.

## Showing the Goods

EFFICIENCY IN THE SALES OFFICE OF BUILDER OR ARCHITECT

By Kenneth C. Cardwell

**A** GREAT many architects, and a still greater proportion of builders who are pretty good architects themselves, are considerably more efficient in the technical, working side of their business than they are in the equally important, but much-neglected, merchandising side, as it may be called. In other words, while they can develop ideas and work them up into plans and specifications, and, later, into actual, substantial structures, in a way that will please the most exacting, they find some little difficulty in selling their ability to prospective builders.

Of course, in the case of the conscientious, ethical architect, the limitations of his professional code prevent any very active selling campaign; and this, perhaps, is quite as it should be. But in the case of the builder there is no such limitation. And even in the case of the architect, there are certain things which may and should be done, to make more plain the way of the customer to the desired end, which is a contract for the designing and construction of his building. Yet, in the average office, much remains to be

*Here is a record of some investigations which I have made recently among architects and builders with reference to their facilities for showing work which they have done. Only one of a number follows the plan outlined for preserving a good record of designs, by photographs and drawings. And yet it seems to me that this is the most obvious means in the world of saving time and trouble, and showing prospective builders a number of designs in a short time.—The Author.*

desired in the matter of showing the prospect what he wants, or ought to want.

### Take a Selling Tip from the Up-to-Date Merchant

Merchants, for instance—the ordinary run of merchants, who sell not merely brains and ability,

but actual goods, from bread to brocades—learned long ago that one of the most effective means possible of getting business is to show customers their goods in an attractive manner. Everybody knows that the desire to buy is very frequently born of the sight of something desirable, seen in a merchant's window, and that one's choice of a purchase formerly thought of is even more frequently guided by the same sort of suggestion.

That is why expert window-trimmers, or advertisers, as they now insist they should be called, get large and luscious salaries; and it is a realization of this fact which led a big dry-goods man to declare, not long since, that he considered his show-windows to be of equal value, for advertising purposes, with his newspaper advertising, which costs him an astonishing sum each year. In fact, there is hardly any room for argument on the proposition that attractive display of the goods to be sold is one of the most powerful agencies in accomplishing the sale.

Of course, the builder can't very well use a window-trimmer in his business, as a means of showing people what he can do in the way of putting up an attractive house; although, at the same time, it can readily be demonstrated that something in this direction is far from impossible. But it is still highly desirable to be able to show the prospective builder, who may or may not give you the business, that he will probably do worse if he goes farther; and it is sufficiently obvious that the one best way of showing him this highly valuable point is to present to his admiring view an attractive example of good building, and to be able to say, proudly, "This is my work."

### Not Always Convenient to Run Out on Inspection Jaunt

If the prospective builder aforesaid has plenty of time, and if the builder himself has plenty of time, this kind of demonstration is not especially difficult, altho it sometimes involves some trouble, and always the possibility of loss of the prospect's interest. The builder—or architect, inasmuch as all this applies equally well to the architect—if he has a car, can lead



He Had Plenty of Money. . . . But Found Nothing That Looked Good to Him.

his hoped for customer to it, and whirl him out to the house he wants to show as a specimen of his work; or he can trust to the plebeian but inexpensive street railway, and take him to the desired spot in more leisurely, but much less satisfactory, fashion.

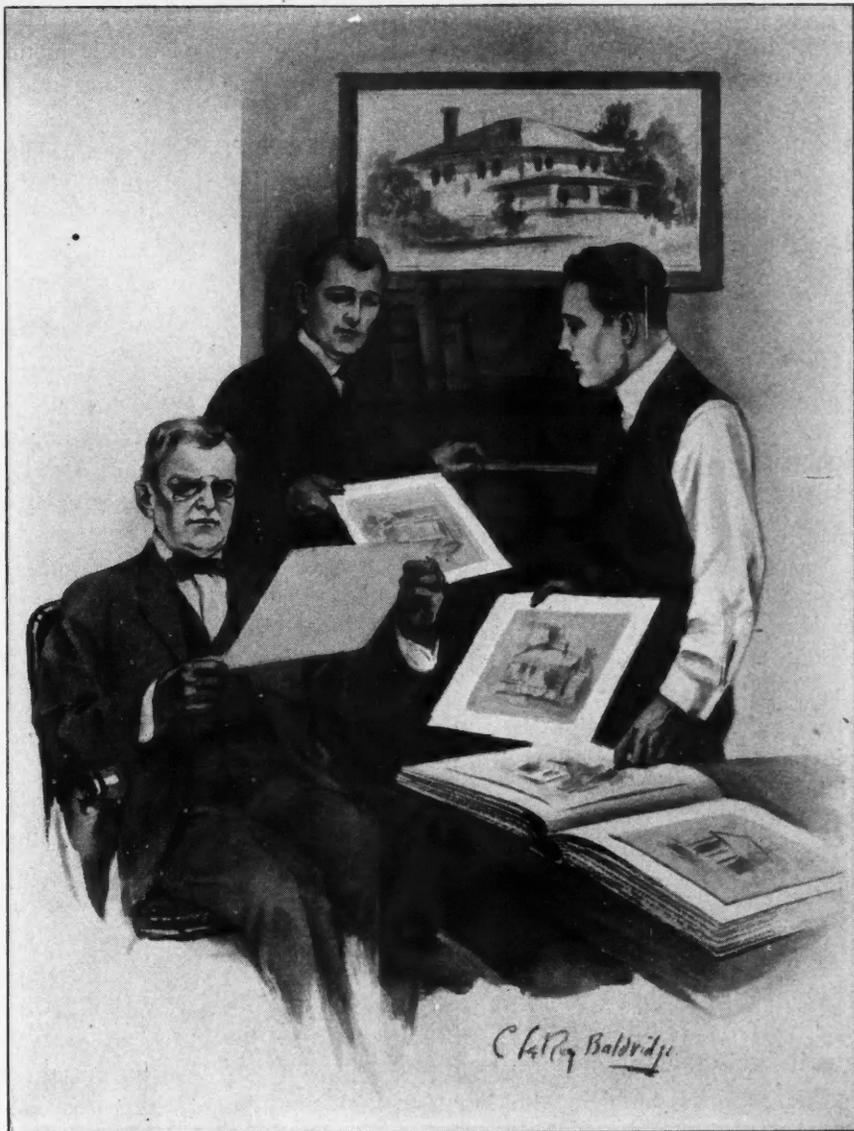
This does very well where all circumstances are favoring; but how about the case where the man who wants the house is "shopping around," as he frequently and not unwisely does? What if he is making the rounds of the architects and builders, with the idea of getting a general notion of what they have done and can do, and does not care, at the moment, to devote the time required for long trips hither and yon? Perhaps he intends to come back, if he feels that it is worth while, and inspect in detail some house which might meet his idea of what he wants; but what if, in the meantime, some enterprising chap nails him to a contract?

This can happen; nay, it does happen, every day. The builder who may have constructed, out in some distant suburb, the very house which the prospect would like, does not get a chance to show it, because some other fellow has had the good business sense to prepare his showing right in his office. And the other fellow who does this is, to that extent, the better entitled to the business, because he has used the best means at his disposal of proving his ability. He has taken pains to show his goods attractively and convincingly.

#### A Sad Case—and a Typical

The loss of a rather desirable client by a perfectly able architect on a certain occasion illustrates the point exactly. In this instance the man who wanted to build, a substantial retired business man with plenty of money, had a sort of general idea of what he and his wife wanted in the way of a big, comfortable house, but naturally couldn't express it in the shape of drawings, or even in understandable architectural terms. But he would know it when he saw it, or something like it.

That is why he visited this architect's office. He had heard of the architect as being a good one, who had constructed some handsome residences, and knowing of no other—the average man, it should be remembered, has little occasion to come in contact with archi-



The Ideal System is to Have Photographs Mounted on Linen and Ready to Show.

ects and builders until he requires their services—he naturally went to the one he had heard a good report of. Now, it was unfortunate that on this occasion the architect was not in the office, altho it is entirely possible that even if he had been his lack of tangible evidence of his work would have hampered him fatally in closing with the visitor.

At any rate, finding the architect out, the would-be builder managed to convey the idea that he would like to see and get an idea of some of the better houses which the architect had built. Pictures, he thought, would be more satisfactory than anything else, altho floor plans and elevation drawings would also be interesting. And, being a business man, he simply took it for granted that something of this sort would be available.

However, little evidence of this sort was available, as the office man, the stenographer and the pair of draftsmen, after various hurried consultations, finally informed each other and the visitor. Yes, there were

a few pictures—a very few, which were unearthed from dusty corners and miscellaneous file drawers; there were still fewer drawings, and these only of jobs just completed or still under way. And examining these feeble attempts at showing the goods, with something like irritation, the visitor found nothing that looked good to him, and left. Moreover, he did not come back, which is the saddest part of all.

**Here's the Answer—Photos Mounted on Linen  
and Bound into Book**

Now, there is a builder in the same city who has met with signal success in his work of putting up houses, either on order or for the market, who undoubtedly owes much of his success to the fact that he uses first-class, intelligent, effective business methods in every department of his work. And most especially does he see to it that when a man gets into his office, with the purpose of making arrangements for the building of a house, he does not get out again without having seen a good many attractive examples of what that builder has done. The chances are that in the process the prospect will see something that just suits him; and that means that the deal is as good as closed, right there.

It is all a matter, first, of making proper record of the work done, and, second, of preserving the record in understandable and get-at-able shape. It enables the builder—or the architect—to show, in a very satisfactory way, the kind of work he has turned out, and in a very considerable number of cases it cinches the deal. And it is all merely a matter of good photographs and drawings; only this and nothing more.

There are few builders who do not occasionally take photographs of their work; but there are still fewer who, having secured such photographs, take the pains to preserve them in such shape as to form a valuable asset in the landing of future business. The pictures lie around the office, usually unattractively mounted on heavy cardboard, for a period; and then they are either lost or destroyed, having done virtually no good to the builder. The same is true of drawings. After having served their original purpose they are destroyed and the work represented in them never has a chance to help things along as it might have done.

**Get the Photo Habit. It Pays**

The builder referred to above has a better way than this. He has a first-class picture taken, not merely of one now and then, but of every house he builds. In most cases, in fact, he secures photographs of the house from several different angles, so that an excellent idea of it can be gained; and, further, wherever there are any interior details of special interest, such as a good fireplace or chimney-piece, an unusually attractive diningroom, or a luxurious bath, he gets pictures of these also.

These are preserved carefully in book form, being

bound permanently so that they cannot be lost. Each picture is mounted on flexible cloth—any good photographer understands this much-used method of preserving pictures—and can be handled, in the book, without the slightest chance of injury. Moreover, a separate index of the houses, classified by the name of the owner, gives a fairly good reference to the places, in case the memory of the builder or of the person showing the book fails.

**Working Drawings Preserved in Good Shape**

The same plan is followed in reference to most of the drawings. The tracings, whether of floor plans, elevations or details, are kept in a big cabinet, bound together and lying flat, so that they can be handled without much difficulty. And while these are not referred to nearly so often as the books of photographs, because the photographs are shown first, they are of even greater value when wanted.

For instance, the customer, roaming at his heart's content through one of the bound volumes of pictures, comes across a series of four or five, showing various exterior and interior views of a semi-bungalow which embodies the very features he wants. He promptly and enthusiastically says so; whereupon he is shortly referred to the original tracings, giving him every detail of that house. And if he does not "sell himself" on the proposition, with very little delay, it is because he never really intended to buy or build a house.

"Of course we take customers out to see houses we've built, wherever it's desirable or necessary," said the builder. "But this record of pictures and plans we have makes that trouble unnecessary, in a great many cases. We can show the goods—and sell 'em, too—right here in the office; and you've no idea how it helps to develop a deal. I know that not many builders, and very few architects, take this trouble. That's their business; but it's my business to build houses, and to sell them; and as far as the selling goes, I believe I'd rather lose the power of speech than to give up my little scheme for showing, in convincing detail, how my work looks."



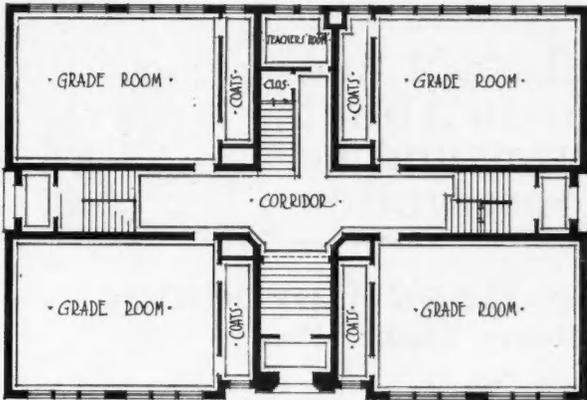
**Pick-ups on the Job**

*(Continued from Page 53)*

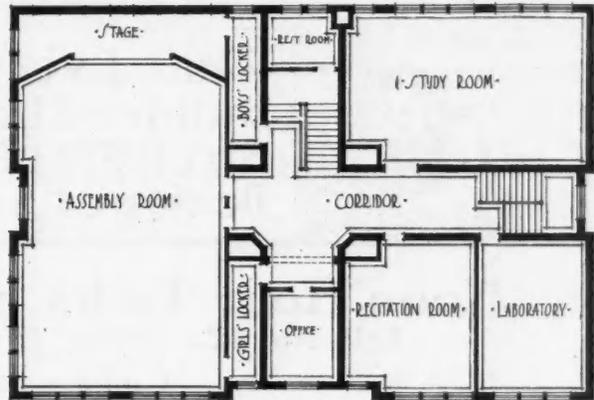
and bungalows, so we sat down and began with the mudsills and went right thru to the ridge boards. Just as a sample, here is one paragraph of that table: "Studding—Studs, headers, cripples, double or triple corners, backing, bridging, wainscote and plate-rail bridging, corner braces, braces over openings; plates outside and partition, single and double." You see, the subject of studding is pretty thoroly covered. And so we treated each part of the building. After that we did not "forget" various pieces, as we had been doing before. Another list was made up for hardware of every ordinary kind used.

# Proposed School to be Constructed at Shannon, Illinois

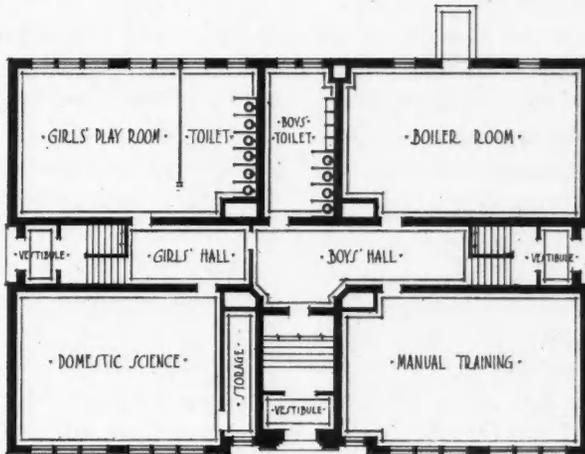
ARCHITECT'S DRAWINGS PROVIDE FOR TWELVE ROOMS, INCLUDING ASSEMBLY HALL, LABORATORY, AND MANUAL DEPARTMENTS



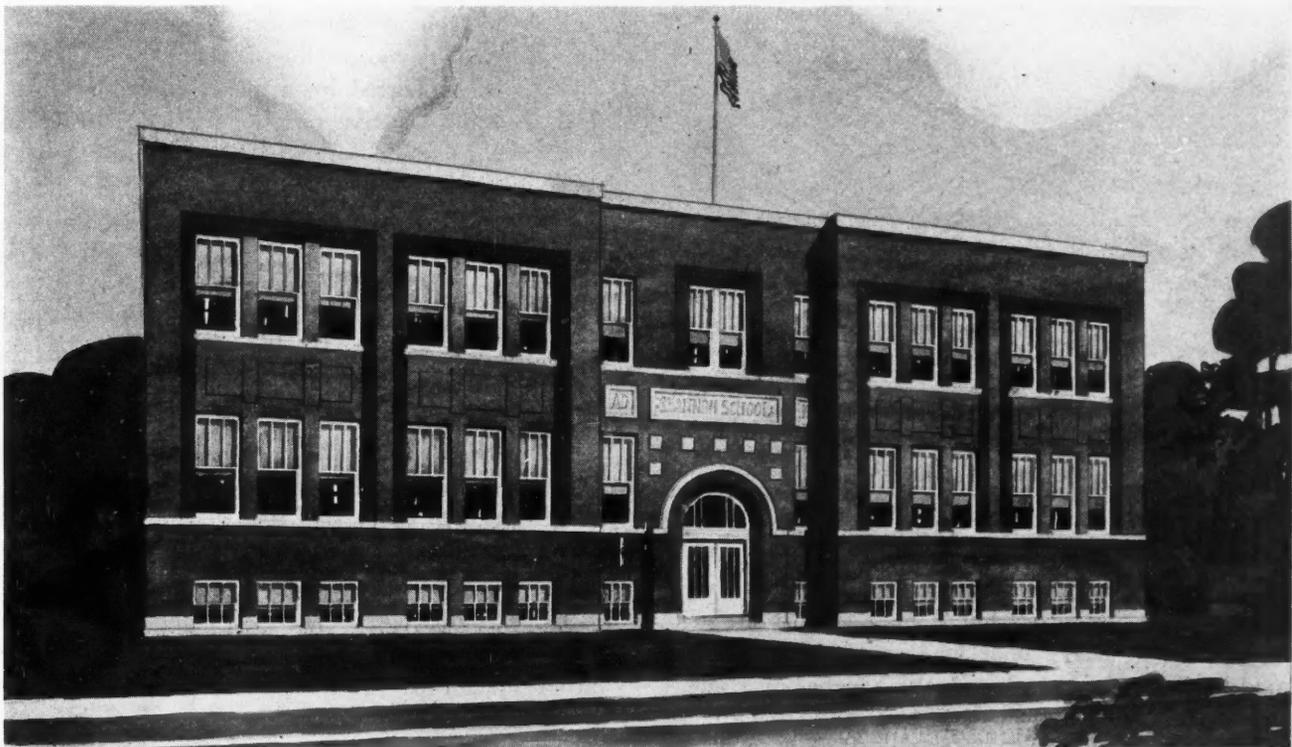
• FIRST • FLOOR • PLAN •



• SECOND • FLOOR • PLAN •



• BASEMENT • PLAN •



Rendered Perspective of Proposed School for Shannon, Ill. A Design by the Well Known School House Architect, Mr. G. W. Ashby, of Chicago.



## Noon Hour Talks by the Boss Carpenter

### Talk No. 42. Other Types of Heavy Timber Floors—

#### Construction Series No. 6

THE BOSS TELLS ABOUT TWO OTHER TYPES OF HEAVY TIMBER FLOORS USED IN THE MILL CONSTRUCTION TYPE OF BUILDING

“YOU will remember,” said the Boss, “that we discussed a type of timber floor in Talk No. 40. That type of floor is used to a considerable extent in buildings where the column spacing is not large and where the floor loads are of medium amount. In this talk, we will consider two other types of timber floors, which may be used for greater column spacing, or where the allowable floor load in pounds per square foot is larger. It will be remembered that the floor in Talk No. 40 was laid direct upon the main girders, and that no smaller beams were used in any part of the floor. The floor boards were laid with the large dimension horizontal and keyed together by  $\frac{3}{4}$ -inch by  $1\frac{1}{2}$ -inch hardwood splines.

“The first type of floor is similar to that shown in

on each side. This bevel provides a finish to the under side of the floor where this surface is to form the ceiling of the room below. Care should be taken to see that the planks are spiked in such a way as to prevent cracks between the planks. This will prevent dirt from passing from one floor to the other, and also provides a better fire-resisting surface.

“The floor slab, when in place, should be covered with two or more layers of waterproof paper, and then a  $\frac{7}{8}$ -inch to  $1\frac{1}{4}$ -inch hardwood top floor should be securely nailed down to serve as a wearing floor. This top floor should extend across the direction of the lower floor, and preferably in the direction of the greatest travel. Tongue-and-groove flooring may be used if desired, but square-edge boards will be easier to replace when worn.

“The ends of the planks at the walls may be supported by a girder placed near the walls, or may rest upon a ledge of brickwork built out from the face of the wall at the proper height.

“Later, we will figure the details of a floor of this type as in our previous problems.

“Another type of heavy floor is that shown in Fig. 74. This type is used in stores and office buildings where but few columns are desired, and where the floor loads are not large. It is also used in factories and storehouses to some extent. It will be noticed that the floor boards are fastened to beams of medium size which in

turn are carried by the main girders. The hangers or stirrups shown are of steel or malleable iron and designed to carry the load which comes on them with a proper factor of safety. The tops of the beams and girders are all in the same place so as to prevent spaces between the bottom of the flooring and the carrying members. One of the most important points in the mill construction type of building is to

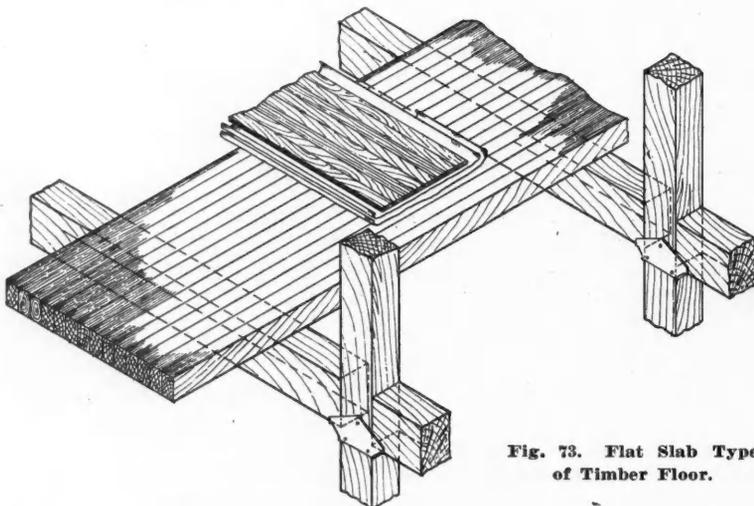


Fig. 73. Flat Slab Type of Timber Floor.

Fig. 73. This floor is supported by the main girders as in the previous case, but is intended for use with long spans or heavy floor loads. The floor may be made up by laying on edge planks 2 inches or 3 inches thick and from 6 inches to 8 inches wide. Each plank is securely spiked to its neighbor when it is laid and helps to build up a solid timber floor slab. The edges of the planks are surfaced and given a slight bevel

have no concealed spaces of any kind which could prove troublesome in case of fire.

"The least thickness of floor boards allowed in a floor of this kind is  $2\frac{3}{4}$  inches when dressed. The smaller beams must be at least 6 inches thick and have at least 72 square inches of cross-section. This gives a 6-inch by 12-inch beam as the smallest size. This latter rating also applies to the main girders, but

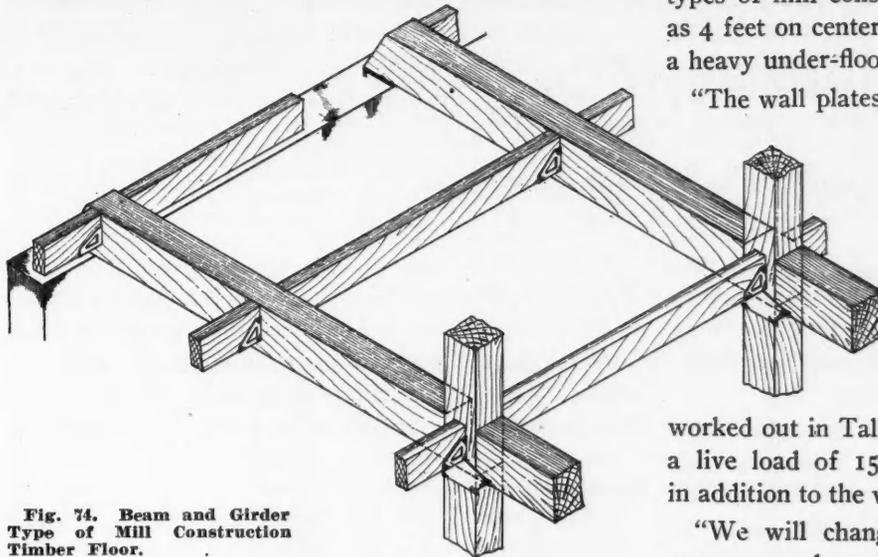


Fig. 74. Beam and Girder Type of Mill Construction Timber Floor.

owing to the ordinary length of span between centers of columns, the girders will be of large size.

"The floor boards are laid horizontally in this floor, and are preferably of the splined or tongue-and-groove type. A limiting width of 9 inches is often specified for these boards. All material is surfaced on both top and bottom surfaces with no unfinished surface exposed in any part of the wood structure. A smooth wood surface offers better resistance to fire than when rough.

"The ends of all girders are supported by iron or steel wall plates or post caps as in the cases shown in Talks Nos. 40 and 41. A top floor is used over the lower, or carrying floor, and two layers of waterproof paper inserted between the two floors, as in previous cases. Fig. 75 shows a larger detail of the hangers used to hold the beams in place.

"The main carrying girders should be single stick if possible. This feature of the design may be carried out with timber sizes up to 14x16 inches. Timbers 7 or 8 inches wide and 16 inches deep are often used in pairs side by side. The two timbers are planed and bolted together closely so as to prevent an air space between the two pieces. The bolts are placed about four times the depth of the piece apart. Some designers prefer to leave a  $\frac{3}{4}$ -inch air space between the two pieces, but this practice has been found to be objectionable in some instances, especially in case of fire. The space between the timbers forms a pocket which violates one of the fundamental principles of standard mill construction.

"The size of the smaller beams will depend upon the load to be carried and the number of beams used in each span of the main girders. These beams should be spaced as far apart as the load will permit so as to keep down the amount of material on the ceiling, and to allow better lighting in the rooms of the structure. It is often specified that the smallest spacing of such beams shall be 8 feet on centers, but in some types of mill construction, they are spaced as closely as 4 feet on centers. This latter spacing is used when a heavy under-floor is not desired.

"The wall plates, post caps, base plates, wood posts, and other details in all of these forms of construction are of the same general type as described in previous talks.

"Now," said the Boss, "we will figure the sizes of members needed in the first general type of floor described above, when applied to the problem that we

worked out in Talk No. 40. In that problem, we used a live load of 150 pounds per square foot of floor in addition to the weight of the floor structure.

"We will change the general design by omitting every second post along the length of the building shown in Fig. 65, Talk No. 40, thus making the size of the bays, or panels of floor, 16 feet by 16 feet. The main girders will extend across the width of the building, as in our previous problem.

"For the case where plank laid on edge, as in Fig. 73, is to be used, we will assume that stock is 3 inches thick. To find the depth of the stock, or the thickness of the main floor, we will use Formula (A) of Talk No. 38.

$$\frac{X \times b \times d \times d}{6} = \frac{Wl}{8}$$

The detail of this formula has been explained in previous talks. If yellow pine is used, and of a quality such that 1,000 pounds per square inch is a suitable value for the working unit stress, the value of X will be 1,000.

"A strip of floor 1 foot wide and 16 feet long, loaded with 150 pounds per square foot, will have a total load of 2,400 pounds. The length of the strip to use in the formula will be 192 inches. Filling in the formula given above, we will have

$$\frac{1,000 \times 12 \times d \times d}{6} = \frac{2,400 \times 16 \times 12}{8}$$

$$d \times d = 28.8$$

$$d = 6 \text{ inches (approx.)}$$

"This is the thickness of the floor before we have considered the weight of the material itself. Adding the weight of a 6-inch main floor with a 1-inch top

floor to the 2,400 pounds used above, we would have  $7" \times 12"$

$\frac{12}{12} \times 16' = 112$  board feet of floor strip, each

board foot weighing 3 pounds, or 336 pounds to be added to this 2,400. Putting 2,736 in the place of 2,400 in the calculations above and solving, we find that the new value of  $d \times d$  is 32.8. This new value does not change the 6-inch size which we found.

"Our floor would be made of 3-inch by 6-inch plank laid on edge and supported by the main girders which extend across

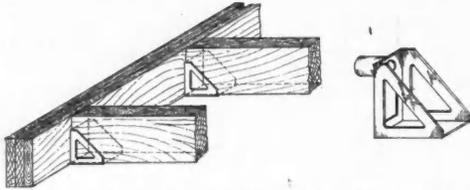


Fig. 75. A Type of Beam Hanger Used with Beam and Girder Type of Timber Floor.

the building. The planks are laid so as to break joints at frequent intervals, and are securely spiked as described above.

"The size of the main girders will now be calculated. We will assume that a quantity of yellow pine will be used in the girders that will allow a value of 1,300 pounds per square inch for the value of  $X$  in the formula. The load supported by one girder will

$16 \times 16 \times 150 = 38,400$  pounds. The weight of the beam that carried by a panel of floor 16 feet square, or floor slab itself will be  $16 \times 16 \times 7$  board feet multiplied by 3 pounds per board foot, or 5,376 pounds. Adding this to the weight on the floor, or 38,400, the total weight  $W$  to be used in the formula is 43,776 pounds.

"If we decide that we do not desire to use a depth of main girder greater than 16 inches on account of the interference with head room in the building, thus making higher ceilings and higher walls necessary, we will fill in the formula using  $d$  as 16 inches, and solve for  $b$ .

$$\frac{1,300 \times b \times 16 \times 16}{6} = \frac{43,776 \times 16 \times 12}{8}$$

$$b = 19 \text{ inches (approx.)}$$

This means that two 10-inch by 16-inch timbers planed and bolted together will be needed to carry the load. While it is not generally advisable to use beams or girders with the width greater than the depth, in this instance it is necessary unless the distance between centers of columns across the building is lessened.

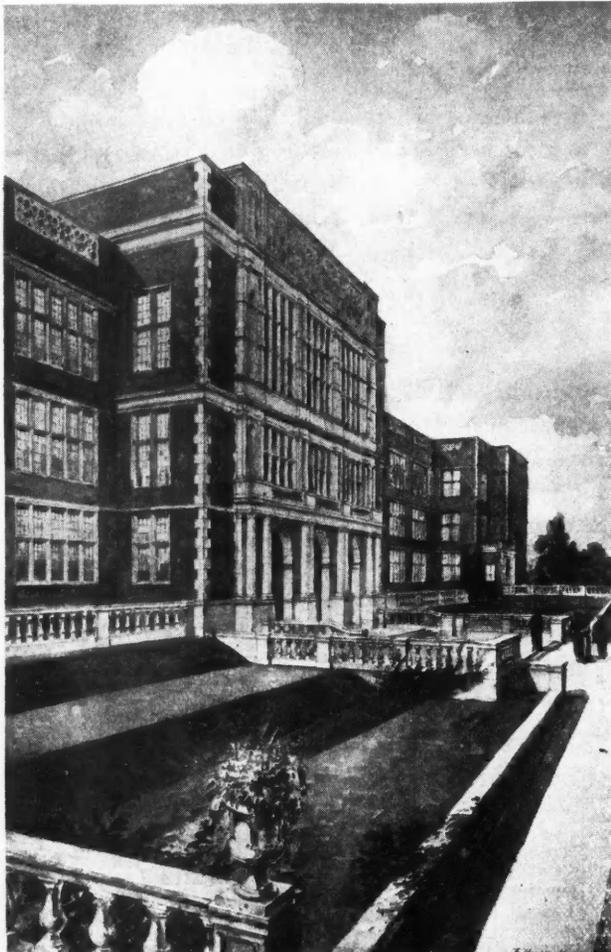
"Next time," said the Boss, "we will figure the members of the other general type of floor referred to above, and see what size of columns will be needed with these changes in the design of our building."

#### Washington's New High School

The new \$1,250,000 Central High School structure, now approaching completion in the national capital, is said to be the most modern and commodious for educational purposes in the United States. It covers two full blocks, and will accommodate 3,000 pupils. The building contains 5,500,000 cubic feet of space. It is built in the Georgian style of architecture, and is rectangular in shape. It stands fifty feet back from the sidewalk, and on either side are broad terraces, 156 feet wide. A portion of the site is devoted to an immense athletic field and stadium, constructed thruout of concrete and seating 6,000 spectators.

The building is faced with dark rough face brick and Bedford stone trim. The interior arrangement is planned on an elaborate and extensive scale. There are auditoriums, class rooms, laboratories, music rooms, drawing rooms, gymnasium for girls and gymnasium for boys, work shops for manual training, large dining and lunch rooms, libraries, rest rooms, hospital, lecture rooms, machine shops, amphitheater holding 2,000, and a large drill hall for the cadet companies.

The cost of the building, including site and equipment, will exceed \$1,250,000. The plans were drawn by William B. Ittner, of St. Louis. The building was erected by William Dall, of Cleveland. Snowden Ashford, municipal architect of the District of Columbia, has supervised the construction.—ALFRED T. MARKS.



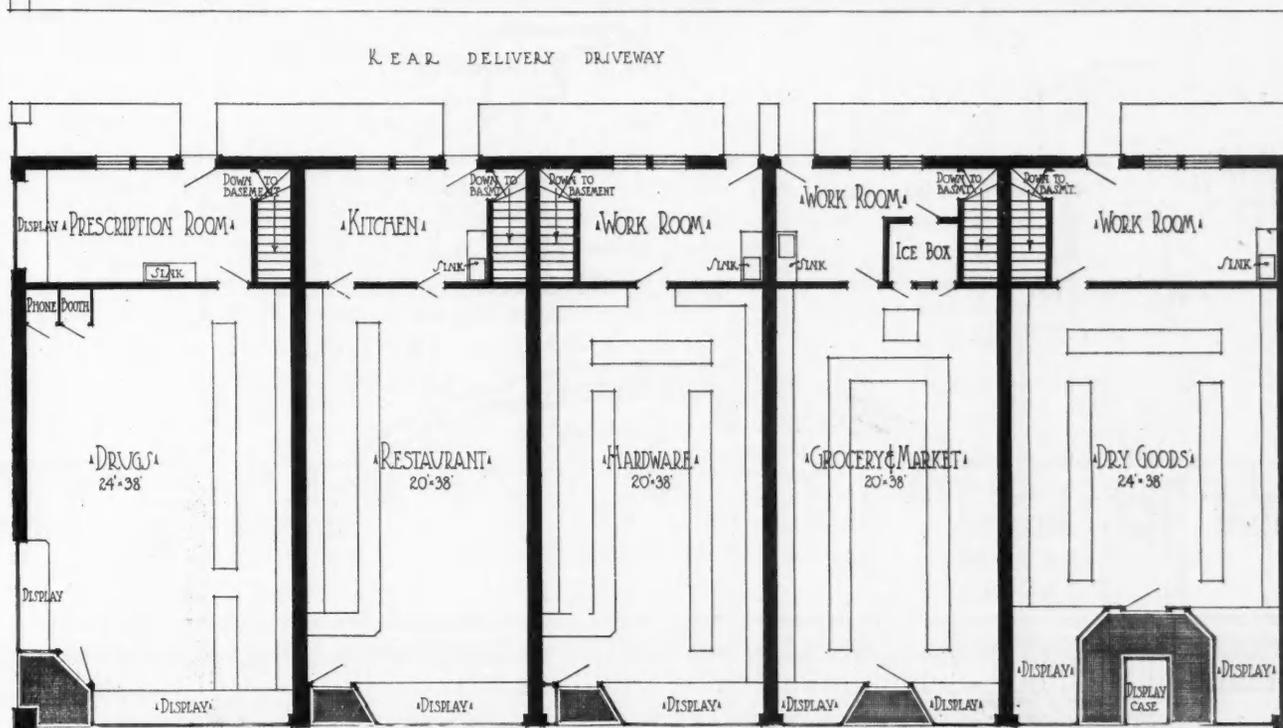
New \$1,250,000 Central High School, Washington, D. C., Showing Main Entrance and West Wing.

# MISCELLANEOUS BUILDING PLANS

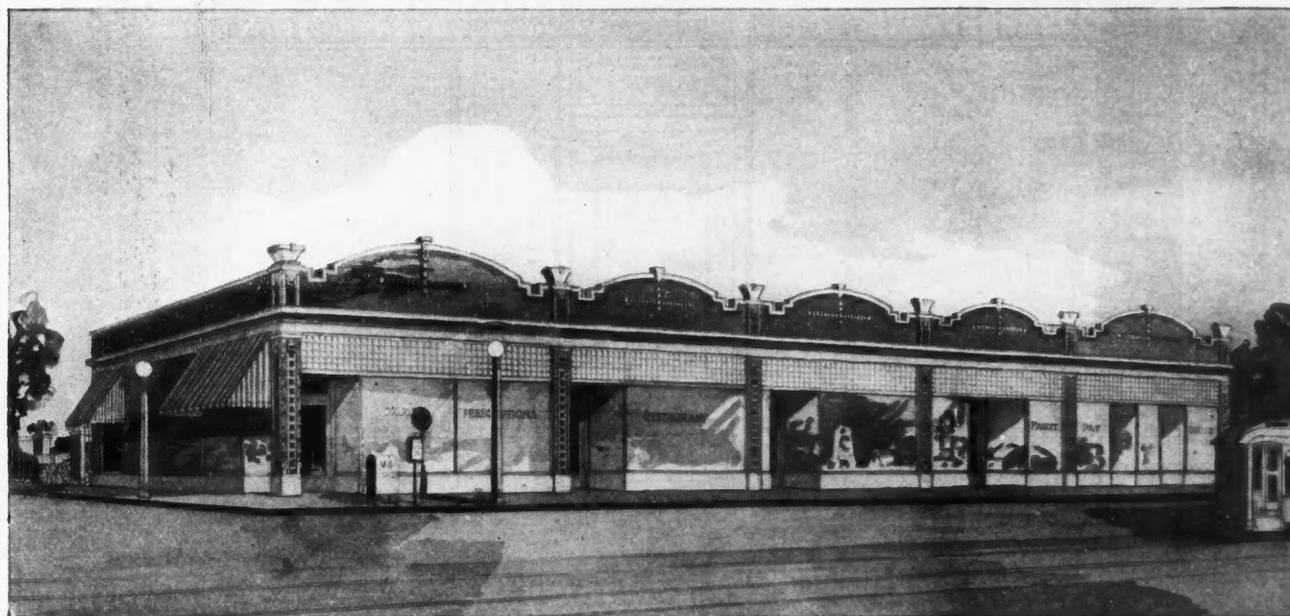
## A Block of Store Buildings

FOURTH OF A SERIES OF DESIGNS OF PUBLIC AND BUSINESS BUILDINGS OF VARIOUS KINDS, WITH PERSPECTIVE VIEW, CONSTRUCTION DETAILS, AND FLOOR PLAN

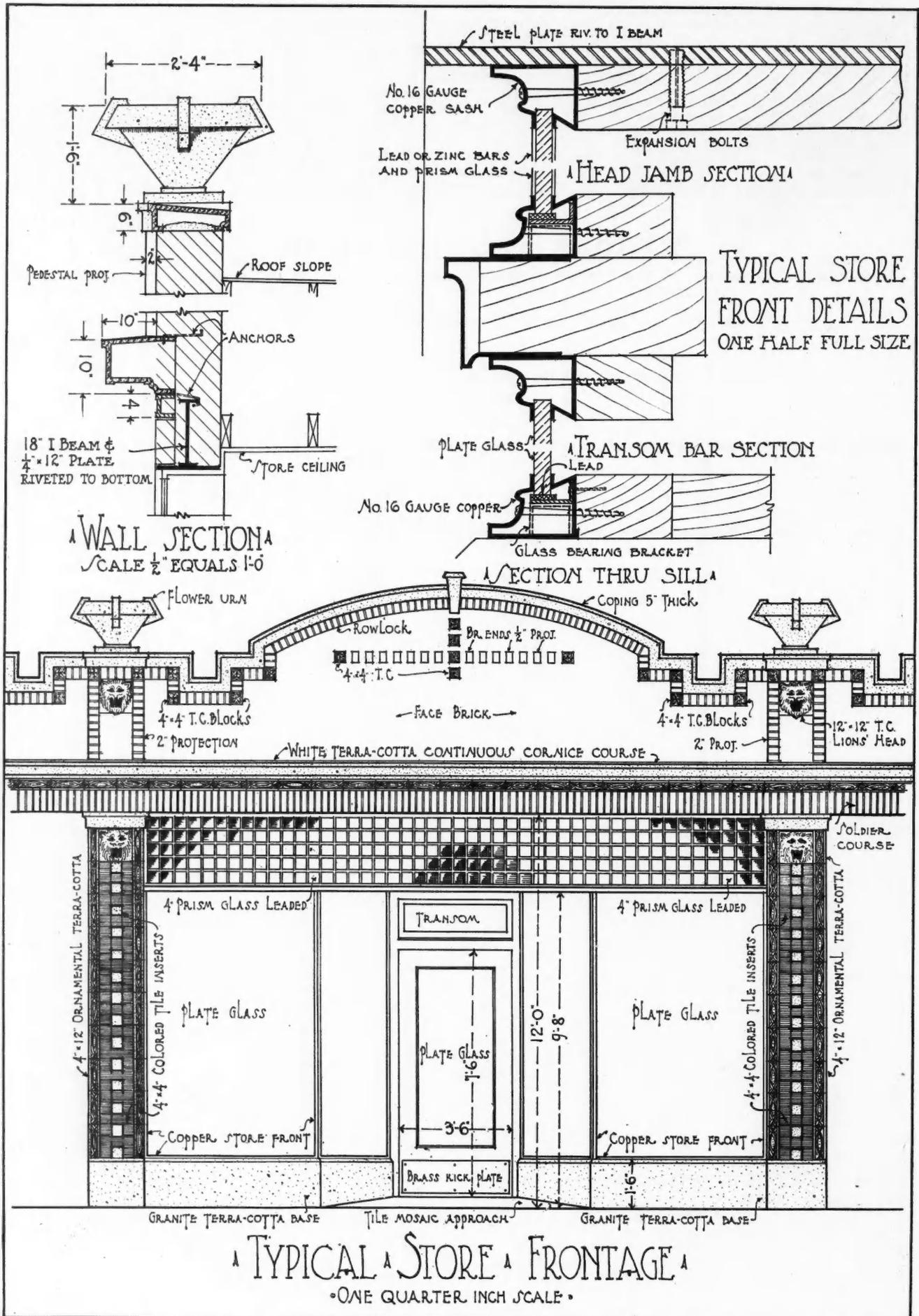
For Details See Pages 62 and 63



Suggested Plan Layout for Block of Modern Stores; Note Variety of Display Window and Entrance Arrangements.

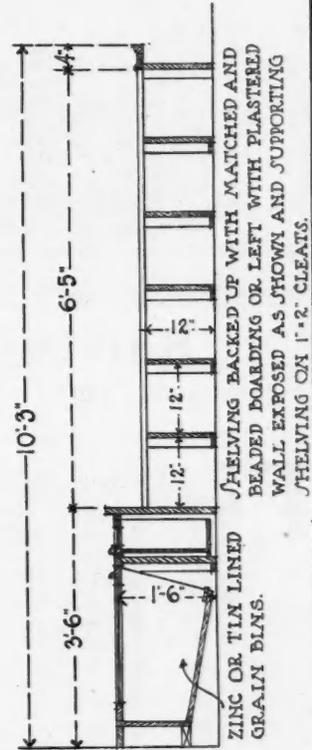
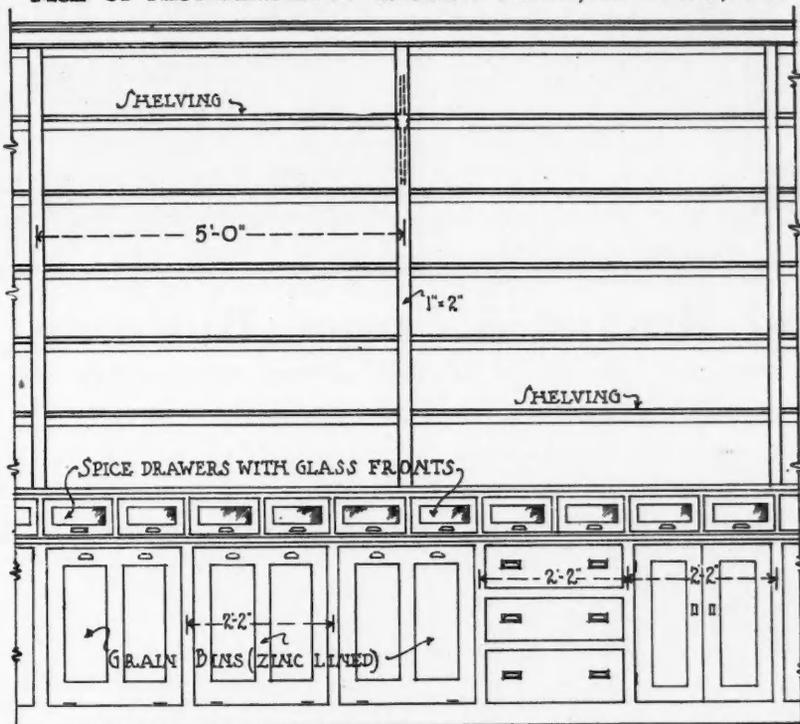


Block of Five One-Story Stores to Occupy a Corner Lot, Size 114 by 50 Feet; Maximum Daylight Store Front Construction with Prism Glass Transoms. White Enamel Terra Cotta Trim. When Writing About This Design, Please Refer to No. 6760. Price of Blueprints and Specifications on Application.



Details of Store Front Construction for Design No. 6760 as Illustrated on Page 61.

NOTE: A SPACE OF ABOUT 2 FEET IS NECESSARY BETWEEN CASE TOP AND CEILING FOR THE STORAGE OF MISCELLANEOUS PACKING BOXES, PLACARDS, ETC.

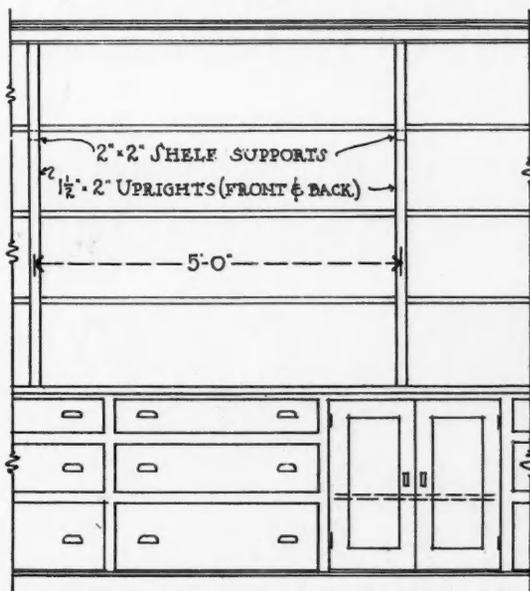


## A TYPICAL GROCERY STORE SHELVING & CASES A

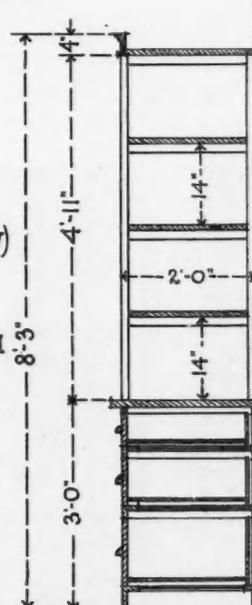
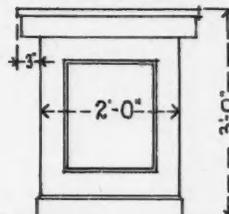
STORE FIXTURES ARE COMMONLY BUILT-UP OF YELLOW PINE (VARNISHED OR PAINTED), OAK (VARNISHED) OR BIRCH (STAINED MAMOGANY). THESE DRAWINGS SUGGEST A TYPICAL STORE FIXTURE ARRANGEMENT FOR GROCERY & RETAIL DRY GOODS STORES.

## A SECTION A

THRU SHELVING, SPICE DRAWERS & GRAIN BINS.



THIS COUNTER (END VIEW) CONTAINS DRAWERS AND OPEN SHELVING SIMILAR TO ELEVATION OF WALL CASES.



## A TYPICAL DRY GOODS STORE SHELVING, COUNTER & CASES A

• SCALE  $\frac{3}{8}$  INCH EQUALS ONE FOOT •

• THRU SHELVES & DRAWERS •

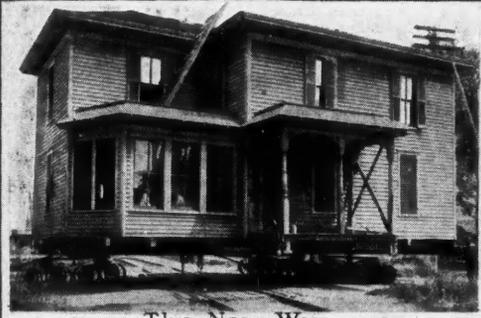
## MODERN HOUSE MOVING METHODS

For the Carpenter and Builder



The Old Way

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



The New Way

## Raising and Moving a Frame Building

LABOR-SAVING TRICKS CULLED FROM THE EXPERIENCE OF THIS EXPERT MOVING CONTRACTOR AND EQUIPMENT MAN—CHAPTER I.

**T**HE moving of buildings from one location to another is a task that the contractor is often asked to tackle. There are good methods and poor methods of moving—ways that will cost you time and money and other ways that will make big profits for you.

The better way is the one I will tell you about. There are tricks in house moving—the same as in other trades. Fig. 1 illustrates how to save time in raising and getting the building on the trucks, by running the trucks and tracking out on an incline. In this particular case I saved raising this building two feet. That meant money to me. It was an easy pull—for with a single line and 10-foot sweep you have 50 h. p., adding a single-wheel pulley will give us 100 h. p., two pulleys 150 h. p., etc. You, therefore, see that the pulling out onto the foundation on the incline tracks was easily done by adding two pulleys. Only takes a few minutes to connect up the additional pulleys and by pulling out on an incline you will save yourself

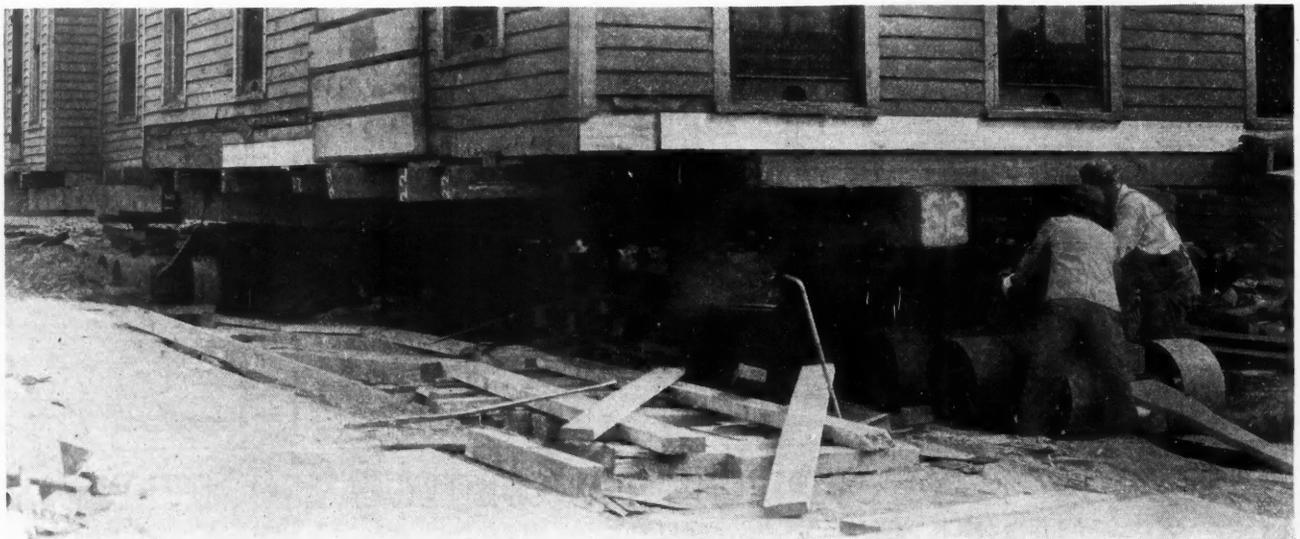
a day's work in raising—save two days in hauling extra blocking—which you would have to haul both ways—to and from the job—saving the work of five or six men.

Note how the outside cross sills in the front are keyed down by placing a 2-inch board between the cross sill and the house sill. This is important because it saves the house sill from springing when the building is let down, the weight of the house falling on the cross sill and springing it.

Be sure to run a good tracking for the trucks, from the foundation to the street because the intervening ground is always soft.

Fig. 2 shows the building half way off of foundation. Everything is going fine; this also illustrates the track runway being laid from curb to street. Dangerous—have four by six lash. Not necessary to keep entire length of track level because the three-point method of loading takes care of this.

You will see in Fig. 3, that the house is entirely off



**Fig. 1. Running the Trucks and Tracking Out on an Incline. This Plan Saves Time and Money in Shortening the Distance That the Building Has to be Raised. In This Instance Two Feet Were Saved in Raising the Building Which Amounts to a Day's Work.**



**Fig. 2. Building Half Way Off of Its Foundation. The Track from Curb to Street Does Not Have to be Exactly Level as the Three Point Method of Loading Takes Care of This.**

of its foundation. Note how the front truck has been turned all the time and the rear trucks are starting to turn. This building was 28 ft. by 64 ft. The pulling line is at the corner, saving the time of resetting the capstan.

The right hand view of the building is shown in Fig. 5. Please note how the rear end of the running sills have been sprung, also how the house is being

Perhaps you have noticed how the right hand corner of this building seems to sag a little. This means the house is leveling itself up. It can't possibly tip over with the three point loading method, because the center axis is not straight through the center of the building, but follows the line of the running timber. To tip this building over you would have to put it on a slanting roadway of about 40 degrees. Even then



**Fig. 3. Building Entirely Off Foundation. The Front Truck Has Turned and the Rear Truck is Starting to Turn. The Pulling Line is at the Corner and Thus Saves the Time of Resetting the Capstan.**

carried in a straight line. You will note how I used a 2-inch block between the running sill and the cross sill. I have tapered this block down to a shingle from the end of the running sill to the truck because I did not wish the rear of house back of rear trucks to spring; therefore, the springing of the main 12x12-inch running timbers avoided any chance of rack.

Always observe this point in loading building and you will be able to move a building any distance over rough ground with practically no damage to the house. Load the building on three points at the start and spring your sills properly. Three point loading takes the humps out of rough roads.

You will see in the illustration how I have stationed the rear trucks in about one-third the length of the house. This allows all the trucks to carry the same load. The center cross sill I have sprung one and a half inches between the rear and front trucks, this was done to prevent the house from sagging in the center.

I always take the chimney tops off, to level off the roof. This is to prevent the danger of some one getting hurt because of wires and tree limbs.

Turning a corner as in Fig. 4 with a long, heavy house used to be a mighty hard task with loose rollers, but today with trucks and modern tools it is as easy as pulling on a straight way.

the house wouldn't tip over, but would slide off its foundation of timbers.

The view in Fig. 6 gives you a very good side view of a house properly loaded, the method of taking a hitch at the rear of the running sill and the ease with which the corner is being turned. Within reach the truck tongues are chained to the running timbers, but



**Fig. 4. Turning a Corner with House Mounted on Trucks. The House is Leveling Itself up as Shown by the Sag at the Right-Hand Corner.**



Fig. 5. Note the Springing of the Rear End of the Running Sills and Also that the House is Being Carried in a Straight Line. The Three Point Loading Combined with the Springing of the Running Sills Protects the House Against Racking.

in turning they are loosened up and each truck is cut separately. Be sure to cut in the right direction in going around the corner, seeing that each truck makes its circle at a given point. You will note that the inside truck cuts a smaller circle.

When going up a steep ridge slide over a tracking, "safety first" is a good slogan or motto, and I play safe on all my work. You will note in Fig. 6 that a 4 by 6 block is trailed back of each truck. These act as stubs or brakes to prevent the building from going backwards. By using this safeguard no matter what

the wall. While building your cribbing to run your house over the cellar, the best way is to take a tapeline and measure from the corner of your building to the center of your truck, then draw a chalk line across your cellar the same number of feet. Follow the same method at the rear end also. Then measure the side of your wall. By following this style you will never have any blocking to change, and everything will hit right on the spot and you will always get your truck bearings in the center of your cribbing. The building will not settle either way. If it should settle

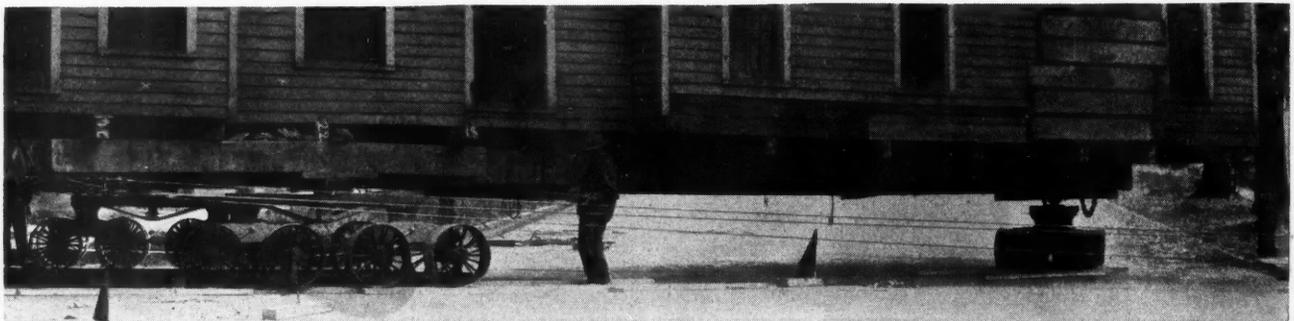


Fig. 6. Close View of the House as Properly Loaded. The Truck Tongues Are Chained to the Running Timbers Except When a Corner is to be Turned When Each Truck is Cut Separately.

breaks the building will not give an inch.

Going down grade, chain the rear wheels of the back trucks to the running sills. This will hold the building while going down a steep grade and is much safer than a snub, for you have the same tension in sliding all the way down.

When your building has reached its new location and you have to put it over a cellar, put your foundation in up to the grade line so as to let the building down to its proper height without interfering with

at all, it will settle straight down, which doesn't make much difference. Don't let the building settle on one side, this is dangerous. This method of standing the building on its foundation will take you only about thirty minutes.

*NOTE. Mr. LaPlant will be glad to answer questions and give personal advice direct by mail to any of our readers. Questions and answers of general interest will also be published in this Department. Address him care of Editor.*



# CEMENT BUILDING CONSTRUCTION

## Concrete Cribbing for Retaining Wall and Similar Construction

DETAILS OF A TYPE OF CONSTRUCTION THAT POSSESSES MANY POSSIBILITIES

By H. Colin Campbell, C. E.

**A**LTHO various types of concrete units have been used for a number of years in crib and retaining wall construction, not much publicity has been given to this method of construction. Such units resemble rectangular timbers, like railroad ties or bridge ties, in shape and size and are rein-



Fig. 1. Concrete Cribbing Units Are Cast Like Fence Posts. Iron Dowels Loose Fitting Into Holes Lock the Ends in Place When in Use.

forced in a manner similar to that used for reinforcing concrete fence posts. One type of crib unit is shown in Fig. 1. This consists of an 8 by 8-inch concrete beam reinforced against tension in the lower face, while light rods are placed in the top to protect against unusual strains in lifting and placing. This, of course, makes it necessary to so mark the unit when casting that the correct side to lie down may easily be recognized. These units have so far been made up to 8 feet in length.

Where intended for use only as open cribbing, the spaces between units as they are corded up are not filled; but for some retaining wall work, it is of course necessary to close up these spaces. Then one set of units is cast with mortise depressions in their upper and lower faces so the fillers, which are also reinforced and cast with tenons to fit into these mortises,

may be held in position against sliding out from earth pressure.

Concrete cribs have been in use for some time for breakwater construction on the Great Lakes. The War Department had made successful use of them and therefore in a way they may be said to have passed the experimental stage. In breakwater crib construction, of course, the cribs do not act as retaining walls but as receptacles for stone. In all use of these units the longer ones, forming the crib proper, are held in place by steel dowel pins which drop through in one unit and into other holes extending part way into the unit below.

One of the first uses of this type of construction was made when replacing wood cribbing holding an earth fill that carried the Pennsylvania Railroad tracks near and past the historic Block House at the corner of Liberty avenue and Water street, Pittsburgh. This concrete crib construction replaced the old and rotting wood construction shown in Fig. 2. At this point, the tracks were about 15 feet above the surrounding level and the new crib or wall now built of concrete units is 8 feet wide at the bottom and 6 feet at the top. The method of erecting or assembling the units is suggested in Fig. 1.



Fig. 2. Short Lived Timber Cribbing at Liberty Avenue and Water Street, Pittsburgh, Replaced with Concrete Cribbing.

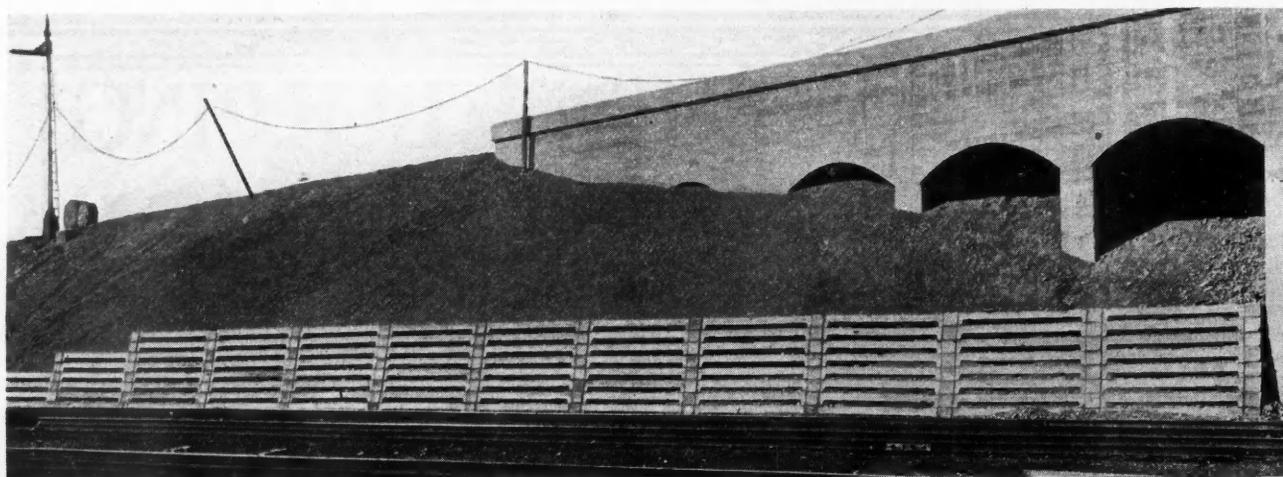


Fig. 3. Concrete Cribbing Used as Retaining Wall Along Belt Line Railway, Near Seventy-ninth Street, South Chicago.

Similar use of these units has been made by the Bessemer & Lake Erie Railroad in building a retaining wall to hold a fill underneath the concrete platform surrounding its storehouse and office building at Greenville, Pa. In this construction, a wall from 8 to 9 feet was erected from header units extending back 6 feet at the bottom and 4 feet at the top. The State Highway Department of Pennsylvania has also made use of concrete units in retaining wall construction at Connemaugh, Pa., where the highway follows heavy fills. Before the concrete cribs were used, this section of the road was subjected to bad erosion from overflow wash during periods of high water.

Another illustration (Fig. 3), shows a similar type of retaining wall construction accomplished with concrete crib units, that has been employed by the Chicago and Western Indiana Railroad and the Belt Line Railway Co., of Chicago, just south of the overhead bridge at 79th street, South Chicago.

Concrete units for crib construction, for retaining wall construction, or embankment facing, have many possibilities. Here is a unit which if properly designed and constructed represents permanence. The same principles of selection, proportioning, mixing and placing of materials, should be applied to constructing these units as would be used in fence post manufacture; that is, the concrete should be a rather wet mixture somewhat wetter than described by the word "quaky."

One feature of the adaptability of this construction is that if the holes admitting dowel provide for a loose fit, the construction can be easily dismantled and moved elsewhere if occasion demands, without any waste of material; in other words, a retaining wall can be temporary or permanent as desired.

If permanence is intended, then thin grout should be poured around the dowel pins in the holes to protect them against corrosion.

One can see the adaptability of unit construction of this class in providing temporary yet durable foundations for buildings that are not intended to be per-

manently located. The ingenious worker will also see opportunities for so designing forms that the heads of units will interlock if necessary when laying up, thus doing away with part or all of the dowel pins. One field of usefulness for this construction would be in making temporary storage bins for sand and coarse aggregates or for coal, and for temporary retaining walls or abutments where foundation conditions in general were not of the best. They would also serve admirably for waterfront cribbing against water erosion. In the latter case, the cribs will furnish forms enclosing still water in which concrete may be deposited to finally form a monolithic wall.



### Details of Unique Fireplace Nook

Work of Ralph W. Ermeling, Architect

THE detail and sketch plate on the page opposite shows an unusual fireplace treatment for the end of a living room. The fireplace with its broad brick chimney is exactly in the middle, with an arched door opening on each side. One of these is for the stairway, the stairs going up back of the chimney with a landing two steps up. The other archway opens into a short hall to the dining room, kitchen and cellar-way—a very convenient arrangement.

The style of finish is in keeping—simple and rugged; suitable for any substantial residence of Elizabethan design.

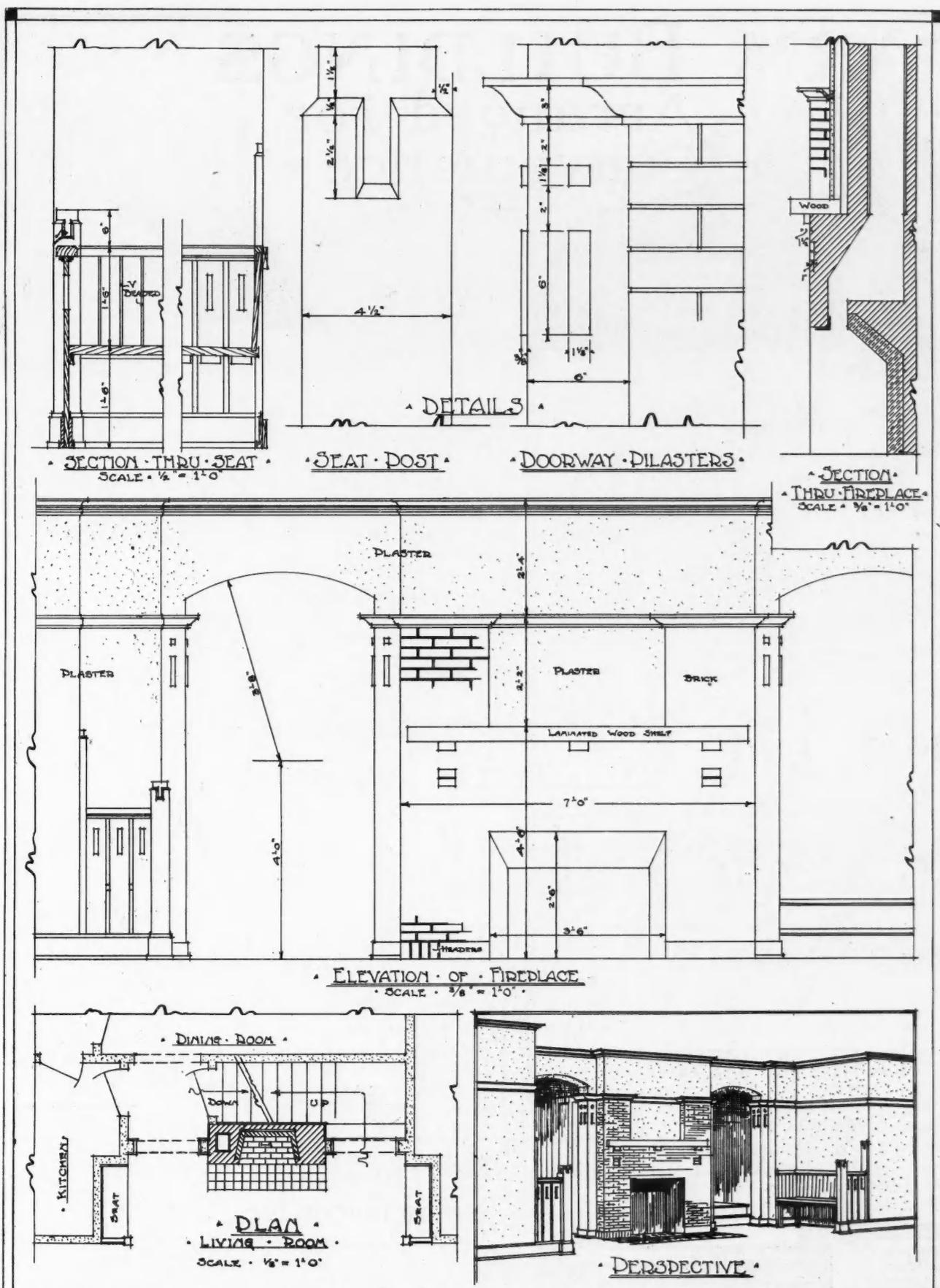
The sketch, partial floor plan, and the several details fully explain this fireplace with its flanking seats. The principal dimensions are lettered in, making these suggestions or helps definite for those who wish to use them.



### Not Any Today

"Please, ma'am," said a servant, "there's a poor man at the door with wooden legs."

"Why, Bridget," answered the mistress in a reproving tone, "what can we do with wooden legs? Tell him we do not want any."

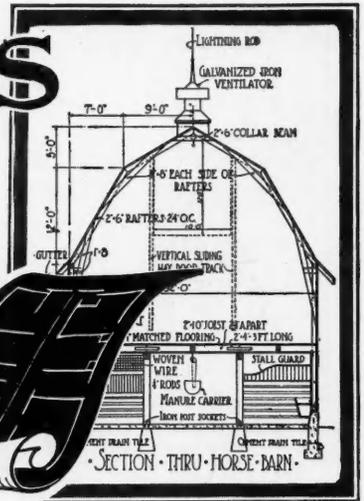


HOUSE INTERIORS : STAIRWAY AND FIREPLACE :

Details of Elizabethan Fireplace Nook in Living Room, with Built-in Seats on Each Side and Stairs going up Back of Chimney.

# FARM BUILDINGS

## Arranged For Convenience -



### Horse and Cow Barn of Medium Size

A medium sized barn to stable both horses and cows on the ground floor is shown in Design A296.

The barn is 30 feet in width and 54 feet in length. It is a wooden structure built on a concrete foundation. The frame work is put together on the plank frame construction plan.

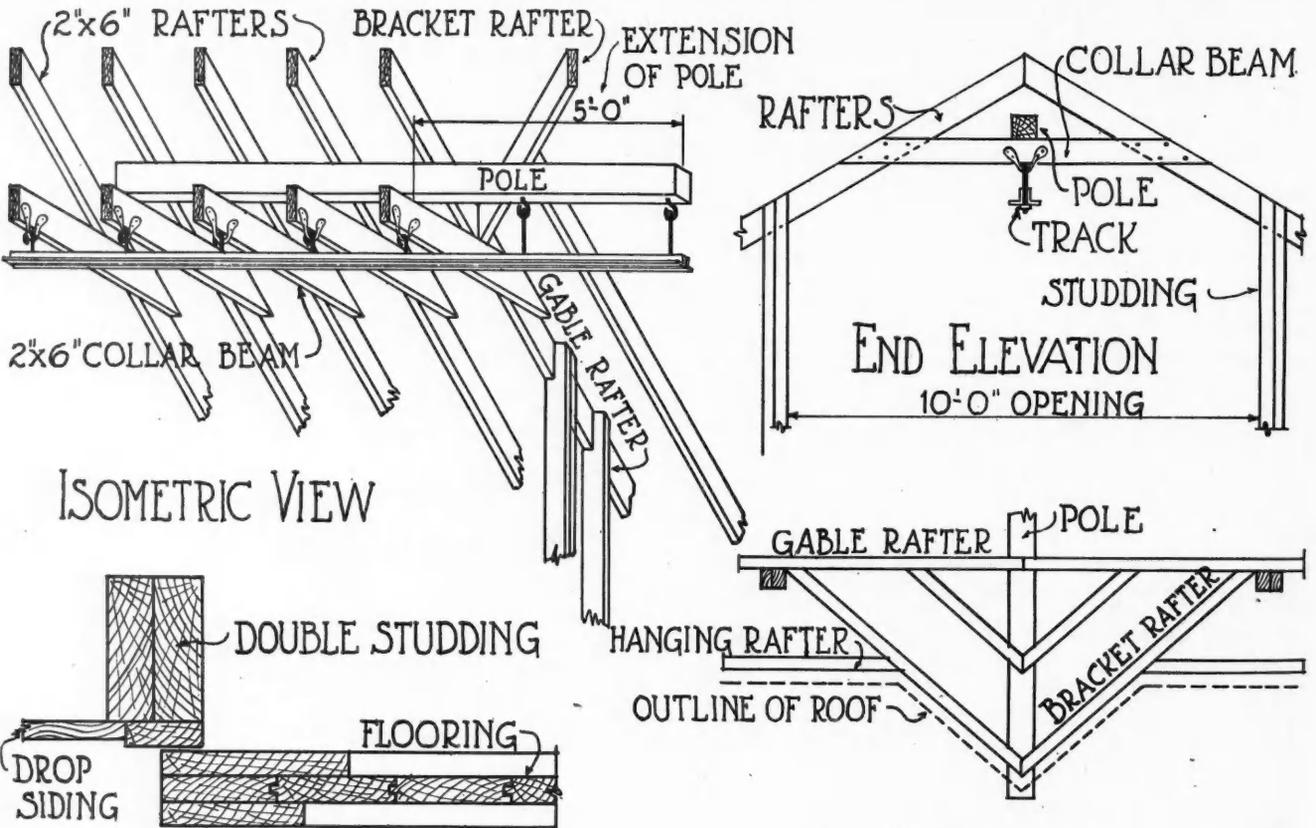
The cow stable is built along modern lines to secure cleanliness and to provide for approved stable appliances to assist in doing the work. There are ten

windows to light the cow stable and five windows in the horse stable. Ventilator flues reach from behind the cows to the metal hood on the roof. There are alleys for both horses and cows running in different directions for convenience in doing the chores.

Above the stable the barn is made into one large hay mow. This mow is big enough to hold a great deal of hay and straw for winter feeding and bedding. The truss plan of building the roof leaves the loft comparatively smooth inside, so that the large mow may be easily filled clear to the peak.

A good steel hay fork track with a smooth running car makes the mowing away of hay easy. A horse fork takes the hay in through the large hay mow door in the horse stable end of the barn and carries it back as far as necessary.

In a barn having a width of 30 feet the horse fork will do practically all of the mowing away, because it may be dumped anywhere along the line of the track, and if it piles up on the center, the hay soon begins to roll off at the sides and will fill in against the outside boarding. Of course, if help is plentiful



DETAIL OF DOOR  
SCALE 1 1/2" = 1'-0"

Details of Hay Track construction for horse and cow barn, Design No. A296. Illustrated on opposite page.

TOP VIEW  
SCALE 1/4" = 1'-0"



Fifty-four-foot horse and cow barn with high gambrel roof and side gable. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$7.00 per set. When ordering, ask for Design No. A296.

at haying time, it is better to have a couple of men in the mow to keep it even. It used to be considered cheaper to mow the hay well in the summer than to pull it out of the twisted hay fork loads in winter. But a great many farmers take the hay out of the mow with the horse fork in the winter time so that the particular way in which the hay is put in makes less difference than formerly.

The detail drawings show the manner in which the 2-inch planks are put together to make the door openings; also the hay track hangers from the collar beams are shown and the projection where the track extends outside under the hood.

This hood supports the horse fork track outside of the building. The hood is self-supporting, because of the angle and pitch of the bracket rafters. The 4 by 4 rests on top of the

last four collar beams and projects as shown in the detail drawing. This 4 by 4 is supported at the end by the hood and the track is supported from the 4 by 4 by screw hooks and eye bolts, made the proper length.

Hardware for hangers comes with the track. It is only necessary to specify the length of projection outside of the building and the manner of hanging the track to the projecting timber.

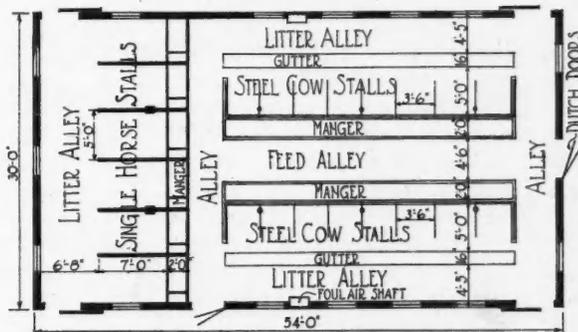
The new steel tracks and improved cars when hung in this manner work to perfection. The handling of hay by modern tools is a different proposition from the old way of doing such work.



### Improved Stable Floors

There are various ways to build stable floors and all will give satisfaction if made in the right way.

In a recent installation three kinds of floors were used in a combination barn. In the cow stable the driveways, feed alleys, and mangers were made of concrete. The cow stalls required a floor that was warmer than concrete. A wood block floor laid in a special wax filler was decided upon. A special floor was also wanted for the horse stalls. The builder recommended a cork brick which was installed and has been most satisfactory.



Floor Plan of Barn No. A296.

### Community Cold Storage Plant

In some sections of the country farmers are building co-operative cold storage plants for the proper storage before shipment of perishable farm products.

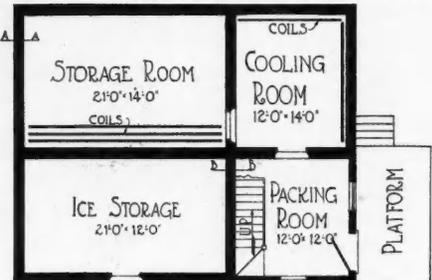
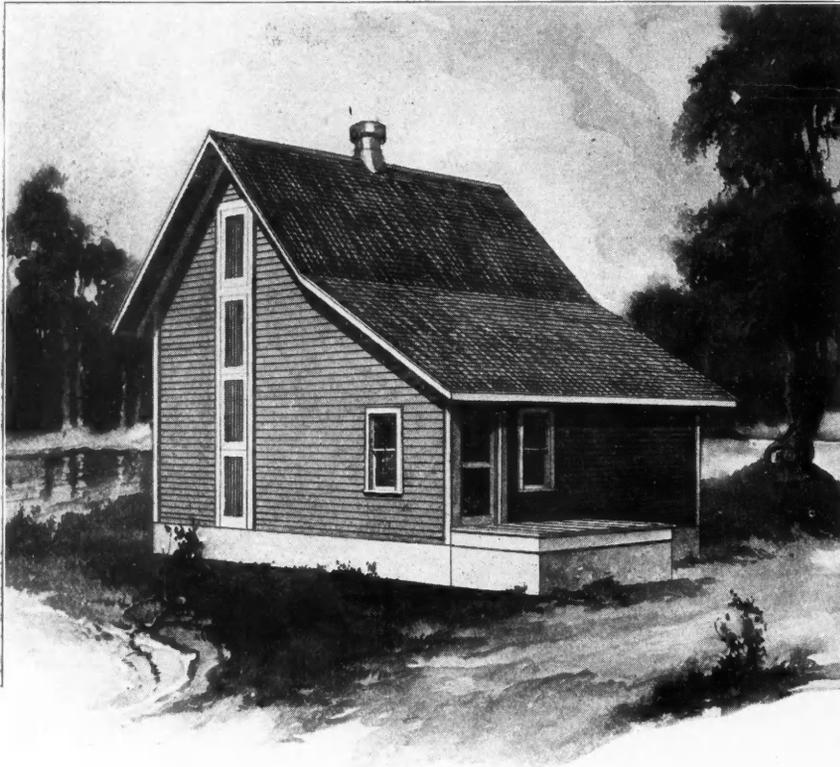
The accompanying illustrations, Design A345, show the perspective and floor plan of a moderate sized, well built

To be satisfactory, a cold storage building requires good construction. This plan provides a good, solid, concrete foundation with walls and footings solid enough to be permanent. There are concrete floors laid as a foundation for the insulation. Above the regular insulation is a carefully made floor of cement.

acts as secretary, so that only one paid officer is necessary. During the busy shipping seasons he may hire what help he needs.

Such community co-operative companies sometimes grow until large refrigerating plants are necessary to handle the business. A great deal depends on the character of the men engaged in the enterprise.

The sheet of details shows how other parts of the building should be constructed and insulated. There are different insulating materials on the market, many of which possess special qualifications for certain parts of a cold storage building. The construction of the walls, ceiling and floors is the main consideration when building a cold storage plant. It is better to put a little extra money into insulation at the time of building, because it saves expense every year the plant is operated. The extra cost pays big interest on the investment as a saving in refrigerating expense. Added to this is the great advantage of preserving perishable com-



Floor Plans.

Community cold storage plant and ice house using best insulated construction. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$5.00 per set. When ordering, ask for Design No. A345.

cold storage building. It is intended to encourage the proper boxing and shipping of farm produce in a way that will secure the respect of purchasers. Produce properly handled, uniformly packed in the proper carriers and shipped in refrigerator cars pleases customers and assures future sales.

The plan of this cold storage plant provides a packing room where the work of handling is done to the best possible advantage.

Next to the packing room is a pre-cooling room, 12 by 14 feet in size. This is for the purpose of taking the heat out of newly arrived fruit and truck from the farms before being loaded into refrigerator cars or placed in the cold storage room proper. In either case this pre-cooling room answers an ante-room to prepare the candidate for further icing.

The cold storage room is 21 by 14 feet in size, with a high ceiling to hold produce in considerable quantity.

The other room in the main part of the building holds the ice.

The walls and ceiling are made the same as the floor, with the exception of the concrete floor underlayer.

Waterproofed insulating board is used all around the cold storage room and the ice room, as shown in the cross sections.

It will be noticed that the packing room and pre-cooling room are built in the annex to the main building and have lower ceilings. The space between these ceilings and roof is utilized for the storage of packing materials.

Such buildings are useful in communities where small fruits and vegetables are grown to be shipped some distance to large market sections. The man in charge of the cold storage plant attends to the packing and loading, so that the packages are uniform and true to weights, measures and grades. The farmers simply grow the stuff and haul it to the packing house in picking trays. The man in charge keeps track of each farmer's account and renders a statement the first of each month.

If the business is small, the same man

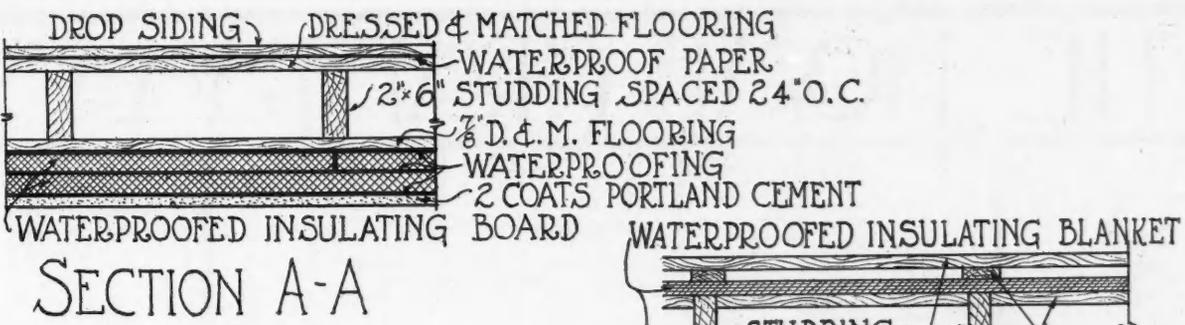
modities in such a way as to prevent direct loss.

### Arranging Barns for Milking Machines

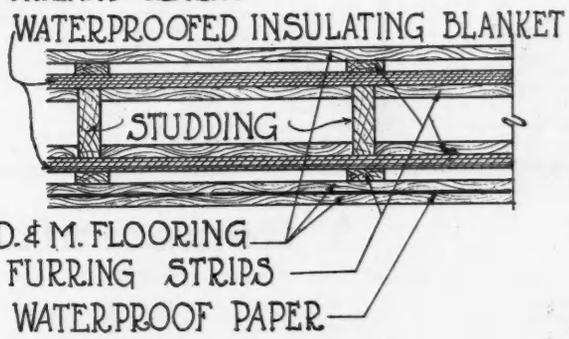
Most of the best dairy men in this country do not think that the milking machine is economical for dairies of less than forty cows. For dairies of thirty cows, however, the milking machine should receive consideration and in many cases it will be economical.

There are types of milking machines now on the market that provide a separate air pump for each machine on the unit plan. This system offers the opportunity to start machine milking in a small way. If it proves satisfactory it can be extended.

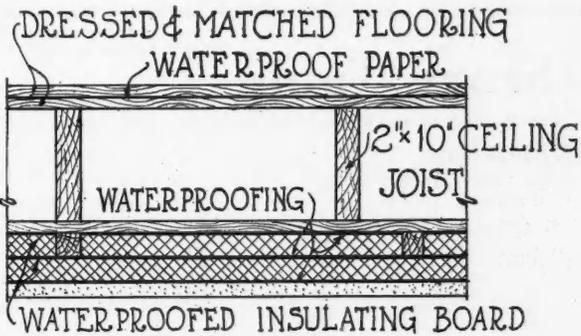
The most difficult cows to milk can be handled by the machine and the easy cows can be milked by hand. It will generally be found that the machine is much quicker and cheaper than the hand method. The machines are now made simple enough so that very little difficulty is encountered in making the necessary connections. Anyone can handle this work



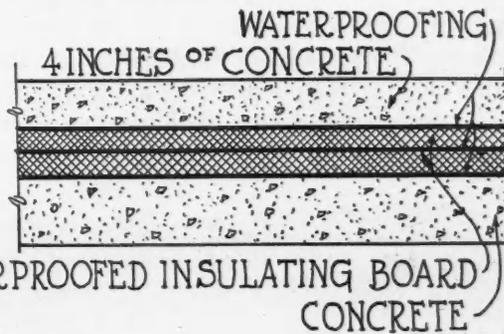
SECTION A-A



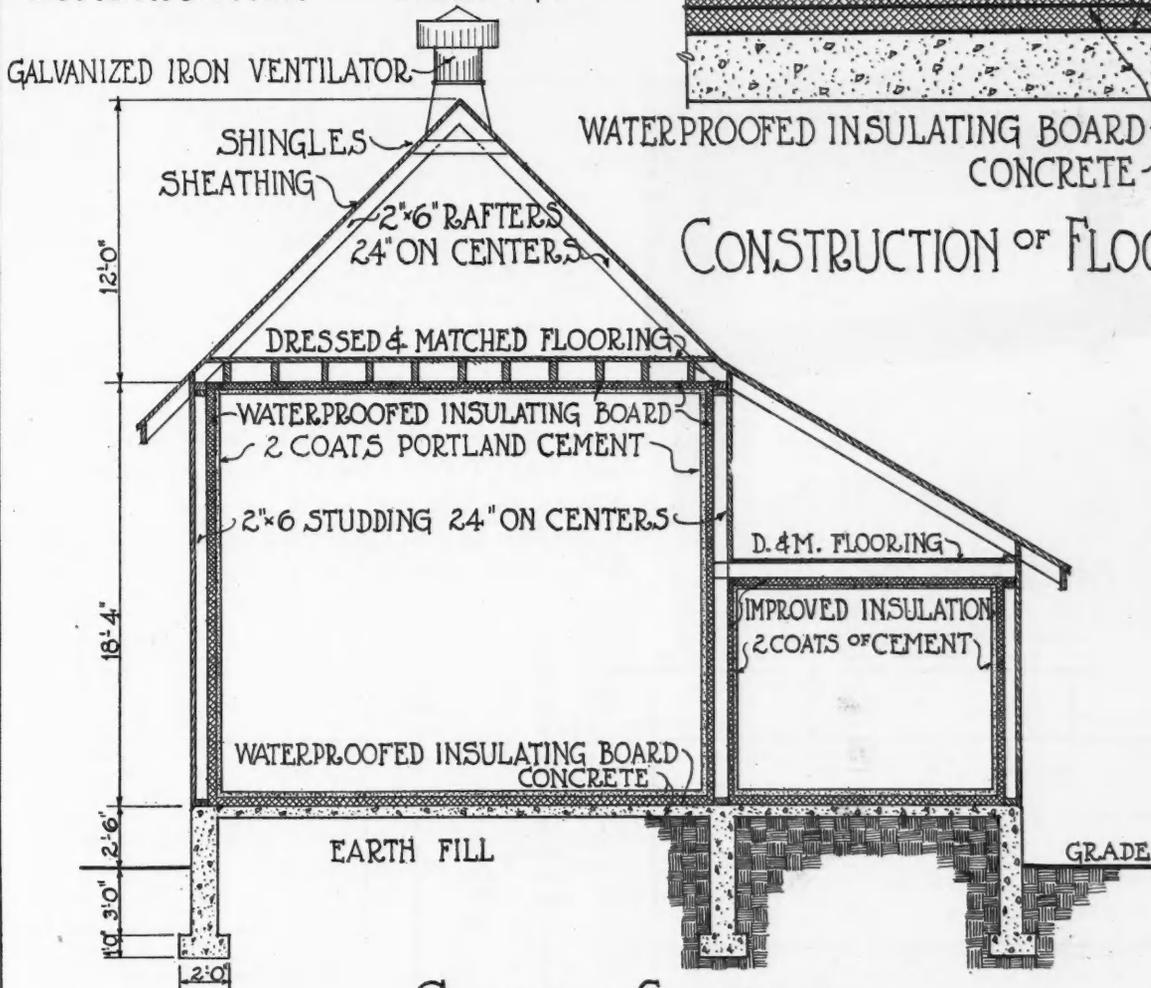
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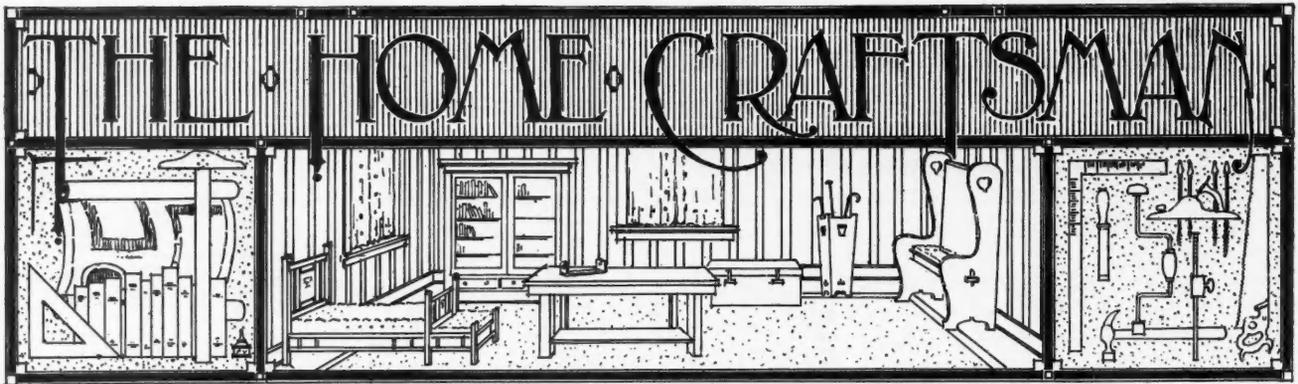
CONSTRUCTION OF CEILINGS



CONSTRUCTION OF FLOORS



CROSS SECTION



## A Homecraft Library Table

HOW TO MAKE AND FINISH THIS MOST POPULAR PIECE OF AMATEUR HAND-MADE FURNITURE

By George E. Chandler

Dept. of Mechanical Drawing, Rochester (Minn.) High School

**N**O other large article of furniture is more easily made than a library table of the craftsman type. The growing tendency of the times toward simplicity is especially noticeable in the table presented this month. Simplicity and good proportion have been carefully studied—yet avoiding the severe lines and crude appearance so often found in crafts-

man designs. The result is particularly pleasing and will harmonize well with almost any type of furniture and room.

### Construction

While oak is the most popular wood, almost any kind of material may be used effectively.

The following pieces will be needed:

STOCK BILL (FINISHED SIZES).

Top—1 piece 1 x 30 x 48.

Legs—4 pieces  $3\frac{1}{2}$  x  $3\frac{1}{2}$  x 26 $\frac{1}{2}$ .

Rails, side, 2 pieces  $\frac{3}{4}$  x  $4\frac{1}{2}$  x 40 $\frac{3}{4}$ .

end,  $\left\{ \begin{array}{l} 2 \text{ pieces } \frac{3}{4} \times 4\frac{1}{2} \times 22\frac{3}{4}. \\ 2 \text{ pieces } 1 \times 3 \times 22\frac{3}{4}. \end{array} \right.$

Stretcher—1 piece  $\frac{7}{8}$  x 10 x 43.

Drawer—

Sides—2 pieces  $\frac{1}{2}$  x  $3\frac{1}{2}$  x 24.

Bottom—1 piece  $\frac{3}{8}$  x  $17\frac{1}{2}$  x 24.

End—1 piece  $\frac{1}{2}$  x  $2\frac{7}{8}$  x  $17\frac{1}{2}$ .

Guides—2 pieces  $\frac{3}{4}$  x  $4\frac{1}{2}$  x 26.

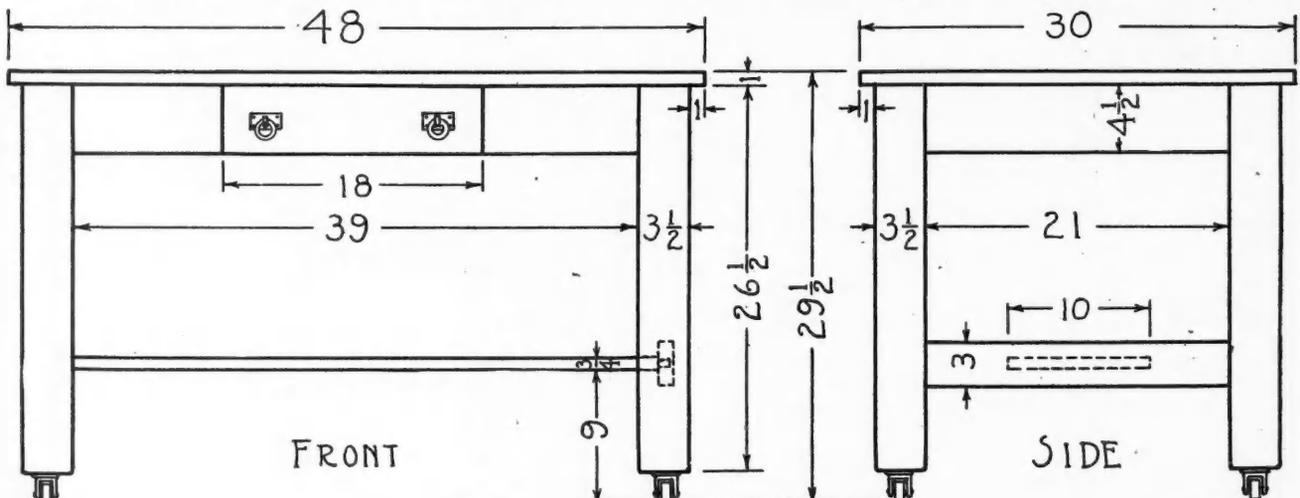
2 pieces  $\frac{3}{4}$  x  $\frac{3}{4}$  x 26.

All tenons on the rails have been figured  $\frac{7}{8}$  of an inch long. On the stretcher  $\frac{3}{4}$  of an inch has been allowed for the tenon.

The legs may be either solid, built up, or veneered. The veneered legs have the advantage of reducing the



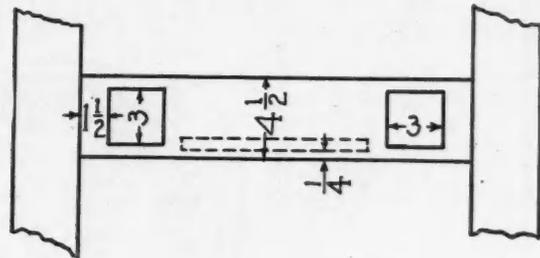
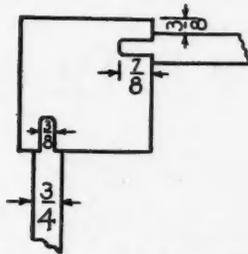
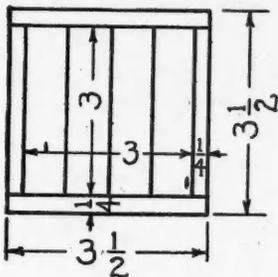
Photo of Homecraft Library Table as Finished.



Dimensioned Details of Homecraft Library Table.

weight to a considerable extent; and, if properly done, will never check or crack. The veneering may be easily done as follows. A center or "core" is glued up of soft wood—usually white pine. This core should be 3 inches square when finished. Material  $\frac{5}{16}$  of an inch

a thin coat of shellac and two or three coats of wax. If a filler is desired, it is most easily mixed with the stain and applied in one treatment. Allow the filler to dry until it appears "flat"; then rub off the surplus filler with excelsior or burlap, working across grain as much



Details of Leg Construction for Desk.

thick is now glued on two sides and then on the other two sides. The additional  $\frac{1}{16}$  of an inch on each side allows for dressing and finishing to dimension. A veneered leg is usually as easy to make as a "built up" one, and is certainly much more satisfactory in the long run.

In constructing the drawer the rails should be assembled and glued in the usual manner. The location

as possible. A thin coat of shellac should now be applied. Allow this to dry over night and sand lightly with number O paper.

Wax or varnish may follow this for the finished surface.

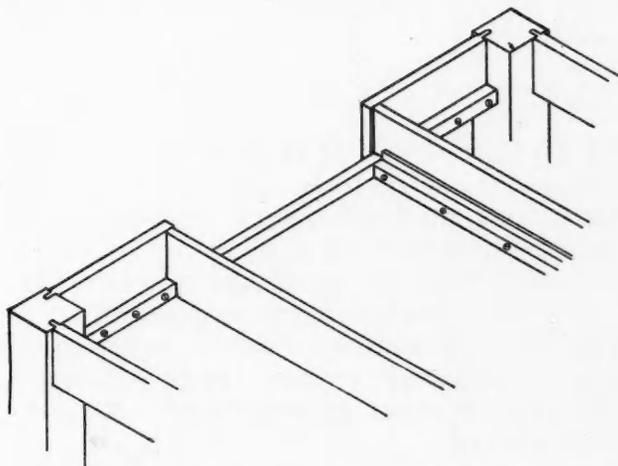
For the drawer pulls, either wood or a simple design in brushed brass is attractive.



### Portable Knockdown Classrooms

**S**MALL portable buildings, each a classroom in itself, form a novel and decidedly practical feature of the Los Angeles schools. In case of overcrowding in any building, it is possible to accommodate one or more classes in these structures, which can be set up in a very short time either in the playground or on some lot near the school. This does away with a problem found in every growing city.

In Los Angeles the portable classrooms have been used when the regular building in a district was de-



Sketch of Desk Before Top is Put on.

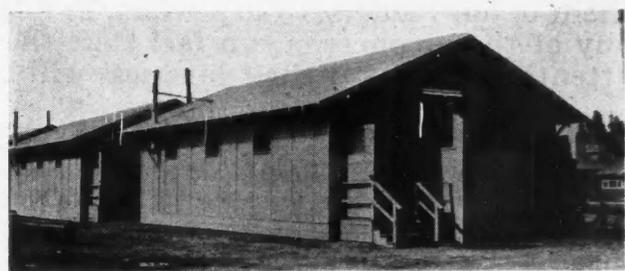
of the drawer should next be laid out on the side rail and a strip  $\frac{3}{4} \times \frac{3}{4}$  screwed on the inside at the bottom of the rail. This holds the frame rigid so that the drawer front may be sawed out, and also provides a stop for the drawer when finished.

A modified type of end rail is shown in one of the sketches. While slightly more difficult to make, it gives a unique and pleasing effect. All necessary dimensions are shown.

Please note that 2 inches has been allowed for the fitting of casters on the legs. If they are not desired, add  $1\frac{7}{8}$  inches to the length given in the stock bill and fit with "domes of silence."

### How to Finish the Table

If oak or chestnut is used for the material a stain either in the fumed oak or dark golden oak may be used. A very pleasing effect is obtained by finishing the wood "open grained" and applying only the stain,



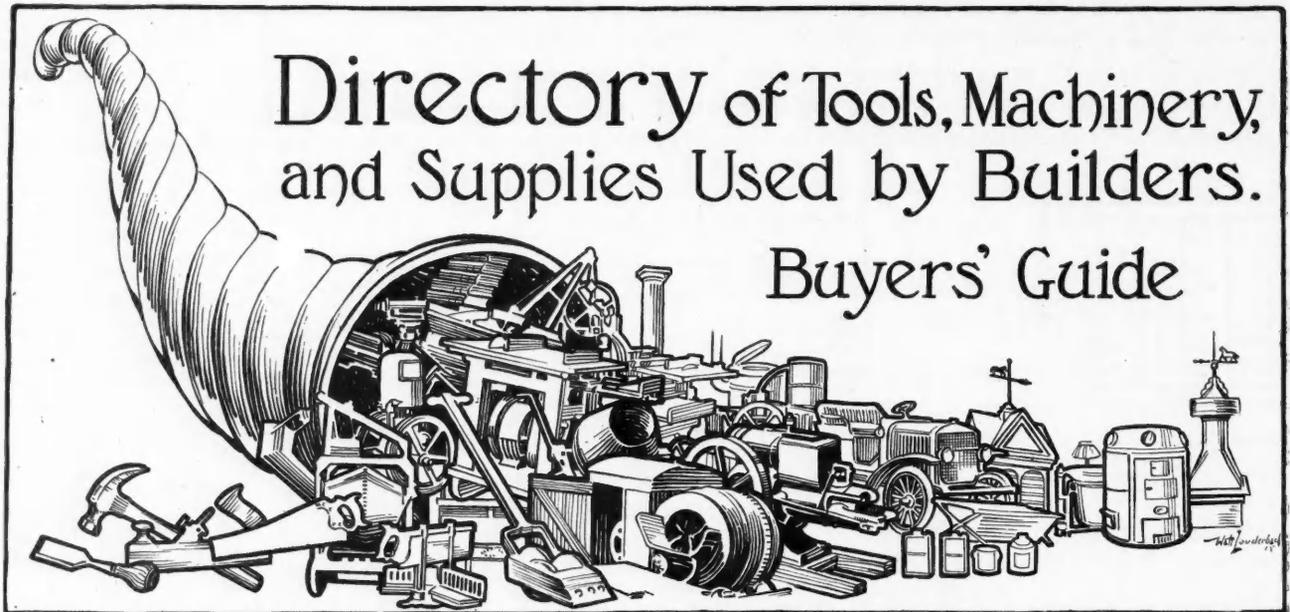
Portable Class Rooms of Bungalow Design for Los Angeles School.

stroyed by fire. With very brief interruption, the entire school has been accommodated in a group of small structures, which were used until the new building was completed; after which they were taken apart, as the sections are bolted together, loaded on wagons and removed for use elsewhere. One little building makes a truckload. They are not only light and inexpensive, but are quite pleasant quarters, as they can be opened to the sun and air, until they resemble outdoor classrooms.

CHARLTON LAWRENCE EDHOLM.



**A**PAT on the back won't take the place of push.



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**T**HE Publishers of the AMERICAN CARPENTER AND BUILDER present this Directory with the hope that it will prove really useful to builders. While it is as complete as our limited space has permitted, no doubt some first-rate concerns and some important products have been overlooked; nevertheless, it does cover the principal offerings of the most substantial and enterprising of the manufacturing concerns catering to the building field. We can vouch for the responsibility of every one of the concerns whose goods are listed in this Directory, and we recommend them to our readers. Carpenters, builders, architects and contractors in writing to any of these concerns can feel that they will receive most prompt and courteous attention, and that their business will be appreciated.

#### How to Use This Directory

As nearly as possible, all goods are listed in *alphabetical order* under each of the Main Divisions of the Directory. Also, all goods of the same general sort are grouped together as nearly as possible. For instance, the several makes of *hand saws* are listed together in the general group of CARPENTERS' TOOLS under the Main Division of CARPENTERS' AND BUILDERS' SUPPLIES. Notice, however, that in some instances this plan could not be followed, as where many individual items of some one manufacturer's line are listed all together in one place.

Study this Directory, and as you become familiar with it, it will grow more useful and easier to consult.

#### Valuable Information—Keep it Handy for Reference

This directory contains valuable information boiled down into a few words, and will save time and effort for busy builders. The leading features of each tool, machine, or building material are stated in a few

words; the trade name given, and the name and address of the manufacturer or general sales agent.

This Directory makes it easy to compare the range of offerings in any particular line you are interested in. Do not hesitate to write for catalogs and circular matter pertaining to any goods new to you, or in which you are especially interested.

#### Our Information Department at Your Service

If you fail to find in this Directory any item or line of goods in which you are interested as a builder, write the AMERICAN CARPENTER AND BUILDER, and we will immediately send you the information and put you in touch with the best concerns who are in a position to furnish what you need. Our files of up-to-date booklets, catalogs and other trade literature are second to none. They are at the disposal of our readers. We are glad to serve you in every way we can.

#### Editors and Publishers

American Carpenter and Builder

Radford Building, Chicago, Ill.

# DIRECTORY AND BUYERS' GUIDE

## Building Materials

Including Asbestos, Batten Strips, Cement, Fireplaces and Fireplace Furnishings, Flooring, Insulating Materials, Interior Trim, Lumber, Mantels, Metal Columns, Millwork, Paints, Varnishes, Stains and Coatings, Partitions, Plaster, Plaster Board, Putty, Roofings, Store Equipment, Store Fronts, Stucco, Structural Slate, Terra Cotta, Wall Board, Waterproofing, Weather Strips.

### ASBESTOS.

**Asbestos Building Material** (Shingles, Sheet Lumber, Corrugated), "Ambler," "Asbestos," "Century," **Keasbey & Mattison Co.**, Ambler, Pa.—Made of asbestos and cement; non-burning.

### BATTEN STRIPS.

**Batten Strips, Metallic Batten Co.**, Owensville, Ind.—Expand and contract with siding; make barns wind, rain and snowproof; lay flat and do not interfere with sliding doors.

### PORTLAND CEMENT.

**Portland Cement, "Alpha," Alpha Portland Cement Co.**, Easton, Pa.—Product tested hourly by chemists during manufacturing and every bag sent out under a guarantee that it will more than meet all standard requirements; shipped in cotton bags, paper sacks; exported in tongue-and-grooved barrels.

**Portland Cement, Atlas Portland Cement Co.**, 30 Broad St., New York.—Purity, uniformity and reliability; the brand used on the Panama Canal.

### CALKING COMPOUND.

**Calking Compound, Pecora Paint Co.**, 3d & Sedgley Ave., Philadelphia, Pa.—For calking openings between window frames and masonry, to prevent leakage of air, dirt, etc. For use in old or new buildings. Useful for making joints in terra cotta or stone cornices, under strong pieces of porches enclosed in glass, and for glazing train sheds, etc. See Sweet's catalog.

### FIREPLACES AND FIREPLACE FURNISHINGS.

**Dampers for Fireplaces, "Lorenzen Sure Draft Fireplace Control," Chas. F. Lorenzen & Co.**, 128 Reaper Block, Chicago, Ill.—In-sures perfect draft; made in all sizes.

**Dome Dampers for Fireplaces, Stover Mfg. Co.**, Freeport, Ill.—Made of iron. Easy installation, quick adjustment, strength and low price.

**Fireplaces in Tile, Wood, Marble and Brick, "Vogue in Fire Places," Chas. F. Lorenzen & Co.**, 128 Reaper Block, Chicago, Ill.—Made of wood, tile, marble and brick. Suitable for living rooms, library, and hall.

**Grates, Dampers, Ashtraps, Ash Pit Doors, Screens, Gas Logs, also Andirons, Dampers, etc., Chas. F. Lorenzen & Co.**, 128 Reaper Block, Chicago, Ill.—Lorenzen sure draft fire place control.

**Stove Pipe Registers, Stover Mfg. Co.**, Freeport, Ill.—Made of iron. Artistic design, perfect castings and fine finish.

### FLOORING.

**Composition Flooring, "Kellastone," National Kellastone Co.**, 19 So. LaSalle St., Chicago, Ill.—Fireproof, waterproof, durable and non-slippery. Installed with cove and base, without seams or joints, it is sanitary and easily kept clean. Free from gritty substances and dustless it makes a superior floor for power plants, machine shops, etc.

**Composition Flooring, "Sanilite," Sanitary Composition Floor Corp.**, 120 Plum St., Syracuse, N. Y.—Laid like plaster in one surface on any floor of wood or cement; absolutely sanitary; no cracks, fire and waterproof; never grows dusty.

**Fireproof Floors, Base and Wainscoting, "Asbestone," "San-A-Bestos," Franklyn R. Muller Co.**, Waukegan, Ill.—Fireproof and sanitary. Laid plastic in state either over wood or concrete underfloors. Application one-half inch thick, laid in colors. Asbestone is applied either to new or old wood, concrete or steel underfloors.

**North Carolina Pine, "The Wood Universal," North Carolina Pine Association, Norfolk, Va.**—Desirable for bare floors because of beautiful grain figures; free from resin; accepts stain readily and wears well; may be had in rift or flat grain.

### FLOOR HARDENER.

**Floor Hardener, "Ceresit," Ceresit Waterproofing Co.**, 910 Westminster Bldg., Chicago.—A ground mineral hardener to give concrete floors a permanent wearing surface and to prevent dusting. Made in two colors, bluish gray and tile red.

### INSULATING AND DEADENING MATERIALS.

**Cabot's Quilt, "Quilt," Samuel Cabot, Inc.**, Boston, Mass.—Cured eelgrass stitched between strong paper covering; 28 to 50 times warmer than common building paper; breaks up and absorbs sound waves. For houses, flats, cold storage, schools, hospitals, etc.

**Furring Metal, Berger Mfg. Co.**, Canton, Ohio.—U Furring and plain channels for suspended ceilings and general furring, purposes.

**Hair Insulator, "J-M Keystone," H. W. Johns-Manville Co.**, New York.—Made of chemically cleansed cattle hair loosely quilted between heavy paper; odorless and vermin-proof; efficient as a sheathing material and superior to building paper.

### INTERIOR TRIM.

**Building Columns, "Koll's Patent Lock Joint Column," Hartmann Sanders Co.**, Elston & Webster Ave., Chicago, Ill.—Manufacturers, also interior hardwood columns, interior openings, porch material and millwork.

**North Carolina Pine, "The Wood Universal," North Carolina Pine Association, Norfolk, Va.**—The artistic wood for interiors; its naturally beautiful and varied grain lends itself to the use of stains; its freedom from resin and its texture also make it a superb base for enamel paints.

### LUMBER.

**Birch, "Birch as Birch," Northern Hemlock and Hardwood Manufacturers' Association, Oshkosh, Wis.**—A dense, fine-grained, beautifully figured hardwood for all interior woodwork. Gives the very finest effects and combines beauty and economy. Suitable for the cottage or the palace.

**Finish and Common Lumber, "Arkansas Soft Pine," Arkansas Soft Pine Bureau, Little Rock, Ark.**—Satin-like interior trim, beautiful figure, soft, lustrous texture. Well adapted to stains and varnishes and unexcelled as a base for white enamel.

**Lumber, Hewitt-Lea-Funk Co.**, Sumner, Wash.—H-L-F stands for the largest Western organization selling fir and cedar products direct to user by mail. They figure any lumber bill or quote price of all materials from sketch.

**North Carolina Pine, "The Wood Universal," North Carolina Pine Association, Norfolk, Va.**—The wood of general utility for framing, siding, sheathing, etc., especially desirable for floors, interior trim, panelling and wainscoting; has a beautiful natural grain and responds readily to stains and varnish.

**Southern Yellow Pine, "Southern Yellow Pine," Southern Pine Association, New Orleans, La.**—Timbers, dimension lumber. Because of its remarkable adaptability Southern Yellow Pine is known as the "all-purpose wood." Because of its strength, durability, workability and availability more than 36 per cent of all the lumber consumed in the United States is Southern Yellow Pine.

**White Pine, White Pine Bureau, 2235 Merchants Bank Bldg., St. Paul, Minn.**—Gives long and satisfactory service; stands long and hard exposure to the weather.

### MANTELS AND TILE WORK.

**Mantels, Hornet Mantel Co.**, 1147 Market St., St. Louis, Mo.—Mantels of oak or birch, mahogany finished; including coal grate with best quality enamelled tile for facing hearth.

**Mantels and Tiles, Moormann & Otten, Cincinnati, Ohio.**—Mantels; also do special tile work for floors and wainscoting for bathrooms, stores, etc.

**Mantels of Tile, Brick and Wood, "Lorenzen Mantels," Chas. F. Lorenzen & Co.**, 128 Reaper Block, Chicago, Ill.—Lorenzen vogue in fireplaces.

### METAL COLUMNS.

**Metal Columns for Porches, Pergolas, Interiors, "Union Metal Columns," Union Metal Mfg. Co.**, Canton, Ohio.—Open-hearth steel plates pressed and fluted in correct proportion; will not check, split, rot, warp or open at joints; made in 10 designs according to classical orders of architecture; specially galvanized and protected by special paint.

### METAL LUMBER.

**Metal Lumber, Berger Mfg. Co.**, Canton, Ohio.—More rapidly erected than wood or reinforced concrete. Strong, safe, and fireproof. Can be erected regardless of weather conditions. Sound and damp proof, and impervious to rodents and vermin. Economical.

### MILLWORK.

**Book Case Colonnade, Chicago Grille Works, 828 Wells St., Chicago.**—Columns, grilles, and everything in interior woodwork.

**Inside Sliding Blinds, Phoenix Sliding Blind Co.**, Phoenix, N. Y.—With improved springs and corrugated steel rods.

**Lumber and Millwork, Chicago Millwork Supply Co.**, 1422 W. 37th St., Chicago—Everything in building material.

**Millwork, Curtis Companies, Clinton, Iowa.**—Everything in millwork.

**Millwork, Gordon-Van Tine Co.**, Davenport, Iowa.—A complete line of everything in millwork.

**Millwork, Hewitt-Lea-Funk Co.**, Sumner, Wash.—Everything in lumber and millwork.

**Millwork, Huber's Building Material Co.**, 45 Vine St., Cincinnati, Ohio.—Everything in millwork.

### PAINTS, VARNISHES, STAINS AND COATINGS.

**Fireproof Paint, "Edmanco Tightcoat," Edwards Mfg. Co.**, Cincinnati, Ohio.—For exterior or interior finish; dries hard and smooth, giving a beautifully finished surface; guaranteed to be fireproof.

**Fireproof Paint, Pyrolin Products Co.**, Fort Dodge, Iowa.—Absolutely fireproof wood.

**Protective Paint for Metals, etc., "Cabot's Protective Paint," Samuel Cabot, Inc.**, Boston, New York, Chicago.—A black bitumen paint for iron, steel and all other metal exposed to rust. Cheap, easy to apply and remarkably efficient.

**Silicate-Graphite Paint, "Dixon's," Joseph Dixon Crucible Co.**, Jersey City, N. J.—A mixture of silica and flake graphite and pure boiled linseed oil; one quality A1—four colors. Excellent for silos, barns and other exposed structures, with a lighter paint for trim. For smokestacks, roofs, fences and all other exposed metal work.

**Kalsomine, "Muralite," M. Ewing Fox Co.**, New York City & Chicago.—Powder form in barrels and packages. White, tints and colors to be simply mixed with hot water and applied by brush. Only one coat necessary. Adheres to almost any kind of a surface. Makes beautiful effects. Is clean, sanitary, durable and fireproof.

**Water Paint, "Permanite," M. Ewing Fox Co.**, New York City & Chicago.—Powder form in barrels and packages. White, tints and colors to be simply mixed with cold water and applied by brush or sprayer. Easy to use. Adheres to brick, concrete, hollow-tile, wood, wallboard, canvas and raw iron. Almost as cheap as whitewash and as durable as oil paint. Fireproof.

**Cold Water Paint, "J-M," H. W. Johns-Manville Co.**, New York.—Can be applied by brush or spray; resists fire; contains no oil; mixed with water; will not flake or rub off; does not discolor.

**Roof Coat, "Weather-Wear," Ceresit Waterproofing Co.**, 910 Westminster Bldg., Chicago.—For roofs, fences, store fronts, fire escapes and all outdoor work. A storm protective paint.

**Roofing Paint, "Eastlake," Montrose Metal Roofing Co.**, 107 Erie St., Camden, N. J.—Made from oxide of iron and pure linseed oil. Especially adapted for metal shingles and all metal roofs.

**Flat Varnish, "Johnson's Flat Varnish," S. C. Johnson & Son, Racine, Wis.**—Gives an artistic, hand-rubbed effect; free from dirt, grit, etc.; gives a perfectly smooth surface; dries quickly and evenly.

**Waterproof Brick Stains, "Cabot's," Samuel Cabot, Inc.**, Boston, New York, Chicago.—For restoring the natural tone of old faded or discolored bricks. Do not coat the surface over, but color it transparently, making bricks look like new. Cannot crack or peel.

**Waterproof Brick and Cement Stains, "Cabot's," Samuel Cabot, Inc.**, Boston, Mass.—Waterproof and color cement and brick walls; applied with a brush; does not coat over surface and spoil texture; easy to apply and economical; does not crack or peel.

**Waterproof Cement Stains, "Cabot's," Samuel Cabot, Inc.**, Boston, New York, Chicago.—A thin liquid material for cement surfaces, especially stucco. Applied with a brush, like shingle-stains. Give soft tints without spoiling the natural texture of the cement, and cannot crack or peel like paints.

**Mortar Stain, Pecora Paint Co.**, 3d & Sedgley Ave., Philadelphia, Pa.—Not merely a mineral coloring material, but a stain or dye, and therefore 75 to 100 per cent stronger in staining power. It takes less of Pecora to do the same work. See Sweet's catalog.

**Creosote Shingle Stains, Samuel Cabot, Inc.,** Boston, Mass.—Made of specially refined creosote, pure linseed oil and the strongest and finest pigments ground in oil. Artistic, lasting colors, thorough wood preservation and unflammable.

**Damp-proof Coating, Ceresit Waterproofing Co.,** 910 Westminster Bldg., Chicago.—An asphaltic composition to be used on foundation walls to safeguard against dampness.

**Stone Backing, Ceresit Waterproofing Co.,** 910 Westminster Bldg., Chicago.—To be applied to building stone for damp-proof protection and the prevention of efflorescence.

**Damp-proof Plaster Bond, Ceresit Waterproofing Co.,** 910 Westminster Bldg., Chicago.—A permanent, damp-proof protective and bonding material to be applied to interior or exterior walls before application of plaster. It eliminates furring and lathing.

**Linseed Oil, "Dutch Boy," National Lead Co.,** 111 Broadway, New York.—Pure, bright, thoroughly filtered, well-settled linseed oil that is free from an excess of heavy foots; raw, boiled, or refined; suitable for structures of all kinds.

**Red Lead in Oil, "Dutch Boy," National Lead Co.,** 111 Broadway, New York.—For metal construction; pure, finely ground red lead paste that does not harden in the keg; economical and efficient; as a protective paint for metal it forms a hard, dense, adherent film that is impervious to moisture and electrolytic currents.

**White Lead, Carter White Lead Co.,** West Pullman, Chicago, Ill.—Distinguishing characteristics are whiteness, fineness, opacity and covering power.

**White Lead, "Dutch Boy White Lead," National Lead Co.,** 111 Broadway, New York.—Pure, perfectly corroded, finely ground carbonate of lead in pure linseed oil; suitable for structures of all kinds.

**Polishing Wax, "Johnson's Prepared Wax," S. C. Johnson & Son, Racine, Wisc.**—A finish for floors of all kinds, wood, tile, cement, composition, etc.; also for finishing woodwork.

**Wood Dye, "Johnson's Wood Dye," S. C. Johnson & Son, Racine, Wisc.**—Made in seventeen standard shades for the artistic coloring of all woods; inexpensive soft woods may be finished so they are as beautiful as hard wood.

**Conservo Wood Preservative, "Conservo," Samuel Cabot, Inc.,** Boston, New York, Chicago.—Penetrates the wood and sterilizes it, preventing rot or injury by insects. Applied with a brush, or by soaking. Saves ten times its cost in lumber and labor for repairs.

#### PARTITIONS—ROLLING.

**Wood Rolling Partitions, Monroe Screen, Blind and Partition Co.,** Lima, Ohio.—Monroe's Wood Rolling Partitions are operated on ball bearings, and provided with adjustable spring cases, which affords easy manipulation. They have been in use for a quarter of a century. Have superseded the old-fashion folding or sliding doors in the subdivision of churches and schools. Have proven a boon to architects and builders.

#### PUTTY.

**Putty, The Dicks-Pontius Co.,** Dayton, Ohio.—Largest manufacturers in the middle west of all grades of Putty, both white and colored. Make a specialty of Litharge putty for use on metal sash.

#### PLASTER.

**Fire-proof Plaster, "Kellastone," National Kellastone Co.,** 19 So. LaSalle St., Chicago, Ill.—Fire-proof and will not disintegrate. Bonds by adhesion and not suction, therefore will stick to poured concrete ceilings. Non-conductor of heat and cold. Rat and vermin proof; will withstand steam and other moist conditions.

#### GLAZING COMPOSITION.

**Elastic Glazing Composition, H. B. Fred Kuhle,** 65th St. & 3rd Ave., Brooklyn, N. Y.—For all glazing, pointing up of stone work, wherever a tight joint is required.

#### ROOFING.

**Asphalt Shingles, "A. S. P. B.,"** the following manufacturers have organized a publicity bureau to promote the use of asphalt shingles. The names of the members of the **Asphalt Shingle Publicity Bureau** follow, with their main office addresses: Amalgamated Roofing Co., Chicago; Asphalt Products Co., Minneapolis, Minn.; Barrett Mfg. Co., New York; Beckman-Dawson Co., Chicago; Bird & Son, East Walpole, Mass.; Canadian Roofing Mfg. Co., Ltd., Windsor, Ont., Canada; The Philip Carey Co., Cincinnati; Flintkote Mfg. Co., Boston; Ford Mfg. Co., Chicago; Heppes Co., Chicago; Keystone Roofing Mfg. Co., York, Pa.; The Lehon Co., Chicago; McHenry-Millhouse Mfg. Co., South Bend, Ind.; The National Roofing Co., Tonawanda, N. Y.; Patent Vulcanite Roofing Co., Chicago; H. M. Reynolds Asphalt Shingle Co., Grand Rapids, Mich.; Sall Mountain Co., Chicago; H. F. Watson Co., Erie, Pa.

**Roofing, "Fulton," Asphalt Ready Roofing Co.,** 9 Church St., New York.—Thoroughly saturated with asphalt compound and finished with an asphalt coating on both sides, which makes it thoroughly waterproof. In rolls 32 inches wide, each containing 108 square feet.

**Roofing, "Rockland," Asphalt Ready Roofing Co.,** 9 Church St., New York.—Red, green and gray; 70 pounds per square; 32 inches wide; furnished with or without a 3-inch unsurfaced lap; for siding it should be without the 3-inch lap. Diameter of rolls, 9 1/2 inches.

**Asphalt Shingles, "Hudson," Asphalt Ready Roofing Co.,** 9 Church St., New York.—Size 8 x 12 1/2 inches. A square (sufficient to cover 100 square feet) consists of 424 shingles. Shipped in boxes containing 1/4 square. Weight approximately 220 pounds per square.

**Asphalt Shingles, "Neponset," Bird & Son, East Walpole, Mass.**—Made of asphalt, felt foundation; heavy butt (3-ply); fire-resisting; twin shape reduces cost of application.

**Asphalt Roofing, "Neponset Paroid Roofing," Bird & Son, East Walpole, Mass.**—Made of asphalt; special flexible large-headed nails in each roll.

**Asphalt Shingles, "Rex Strip Shingles," Flintkote Mfg. Co.,** 88 Pearl St., Boston, Mass.—Can be laid quickly. Five shingles handled at once. Color red and green.

**Prepared or Asphalt Shingles, "Rextile—The Modern Shingle," Flintkote Mfg. Co.,** 88 Pearl St., Boston, Mass.—Is nailed down at the butt end by blind and protected nailing. Two colors, red and slate. Three different styles. Just the thing for use over old wood shingles.

**Asphalt Shingles, "Flex-A-Tile," The Heppes Co.,** 1010 S. Kilbourne Ave., Chicago.—The new Diamond Slab Asphalt Shingle.

**Asphalt Shingles, "J. M. Transite Asbestos," H. W. Johns-Manville Co.,** New York.—Supplied in a variety of colors; can be stained any desired tint; come in all shapes and sizes, rough and smooth edges, and in two thicknesses; action of the elements toughens and improves them.

**Asphalt Shingles, "H. M. R.," H. M. Reynolds Asphalt Shingle Co.,** Grand Rapids, Mich.—Supplied in four durable mineral surfaced colors; garnet, red, gray and green.

**Asphalt Felts, "Hudson," Asphalt Ready Roofing Co.,** 9 Church St., New York.—10, 14, 17, 24, 30 and 40 pounds per square; furnished in 1, 2 and 3-square rolls.

**Gravel Surfaced Roofing, "Arrow Brand No. 2," Asphalt Ready Roofing Co.,** 9 Church St., New York.—135 pounds per square; 32 inches wide, 3-inch unsurfaced lap; diameter of rolls 11 inches.

**Gravel Surfaced Roofing, "Protection," Asphalt Ready Roofing Co.,** 9 Church St., New York.—140 pounds per square, 36 inches wide, 6-inch special lap; diameter of rolls 12 1/2 inches; laid with all nails covered.

**Sand Surfaced Roofing, "Arrow Brand No. 1," Asphalt Ready Roofing Co.,** 9 Church St., New York.—85 pounds per square, 32 inches wide, 3-inch unsurfaced lap; diameter of rolls, 9 1/2 inches.

**Sand Surfaced Roofing, "Protection Brand No. 5," Asphalt Ready Roofing Co.,** 9 Church St., New York.—36 inches wide, 6-inch special lap; laid with all nails covered; 90 pounds per square.

**Metal Shingles, Berger Mfg. Co.,** Canton, Ohio.—Fire retardant, weather and lightning proof. Cannot break, crack or become loose and blow off. Attractive and reasonable in price. Easily applied with a hammer, nails and pair of snips.

**Metal Shingles, "Cortright Reg. U. S. Pat. Off.," Cortright Metal Roofing Co.,** 50 North 23d St., Philadelphia, Pa., and 538 So. Clark St., Chicago, Ill.—Made of tin plate and painted either red or green, also of tight-coat galvanized sheets or hand-dipped galvanized tin. Give perfect protection against storms and are easily and rapidly laid. They are light in weight and inexpensive. Designed and patented in 1887.

**Interlocking Metal Shingles, The Edwards Mfg. Co.,** 401 Eggleston Ave., Cincinnati, Ohio.—Manufactured from best quality Terne plate, furnished painted, or "Tight-cote" galvanized, size 10 x 14 and 14 x 20 inches; patented side lock covers nail holes, prevents rust and provides scientifically for expansion and contraction.

**Metal Shingles, "Eastlake," "Octagon," "Victor" & "Acme" Shingles, Montrose Metal Roofing Co.,** 107 Erie St., Camden, N. J.—Made of sheets of tin painted, tin galvanizing, galvanizing iron and copper. Constructed with Montrose telescopic side-lock to allow for contraction and expansion. Nine different sizes and designs to meet the requirements of the finest residence or the plainest barn or shed roof.

**Metal Shingles and Tiles, "Walter's & Cooper's," National Sheet Metal Roofing Co.,** 339 Grand St., Jersey City, N. J.

**Stained Shingles, "Creo-Dipt," Standard Stained Shingle Co.,** North Tonawanda, N. Y.—Creosoted-stained-bundled in thirty shades and seventeen grades on British Columbia Coast Cedar.

**Galvanized Steel Tile Roofing, "Spanish," The W. H. Mullins Co.,** 214 Franklin St., Salem, Ohio.—Stamped in plates or clusters of 16 tile requiring 10 plates to 100 square feet; easily and quickly laid; wind, dirt and storm proof; durable and artistic.

**Interlocking Metal Spanish Tile, The Edwards Mfg. Co.,** 401 Eggleston Ave., Cincinnati, Ohio.—Made from best quality Terne plate, furnished painted or "Tight-cote" galvanized, size 10 x 14 inches. Can be applied without soldering and by an ordinary mechanic at a very moderate cost; no special tools are needed.

**Metal Spanish Tile, Berger Mfg. Co.,** Canton, Ohio.—Made of durable heavy gauge sheet metal. Fire retardant and not affected by the storm elements. Light in weight. As artistic as clay tile roofing but much more reasonable in cost. Easily applied and durable.

**Metal Spanish Tile, "Mecco," Moeschl-Edwards Corrugating Co.,** Covington, Ky.—Individual and cluster. Affords maximum amount of roof beauty at minimum expense. Fireproof, will not crack or warp.

**Tile, "Diamond" and "Gothic,"** plain or figured, **Montrose Metal Roofing Co.,** 107 Erie St., Camden, N. J.—Made of sheets of tin painted, tin galvanizing, galvanizing iron and copper. Constructed with Montrose telescopic side-lock to allow for contraction and expansion. Nine different sizes and designs.

**Steel Roofing, Black, Painted or Galvanized, "LaBelle," LaBelle Iron Works, Steubenville, Ohio.**—Made of finest quality "LaBelle" open hearth steel; rigid inspection; full weight and long wearing. 1 1/4-inch and 2 1/2-inch corrugated, 2 and 3 V crimp. Pressed standing seam, roll roofing, roll and cap roofing.

**Keystone Copper Steel Roofing Tin, "MF," "American Old Style," "US Eagle," etc. American Sheet & Tin Plate Co.,** Frick Bldg., Pittsburgh, Pa.—For residences and high grade buildings. Made with base plate of Copper-Steel alloy, giving greatest durability and service. Look for the stamp "Keystone Copper Steel" added below trademark and weight of coating. It insures highest quality plates.

**Corrugated Roofing and Siding, Berger Mfg. Co.,** Canton, Ohio.—Made of Non-Corrosive Toncan Metal or Open Hearth Steel, galvanized or painted.

**Ornamental Roofing and Shingles, "Vulcanite," Patent Vulcanite Roofing Co.,** Chicago.—Unfading weather-proof and fire-resisting material; comes in rolls and shingles in several patterns; a variety of effects in colors and designs.

**Unfading Roofing Slate, Slatington-Bangor Slate Syndicate, Inc.,** Slatington, Pa.—Unfading roofing slate and slate blackboards.

**Genuine Roofing Slate, "Franklin Big Ben," Fairview Slate Co.,** Slatington, Pa.—Unfading. Last a life time. Architectural effect unsurpassed.

**Roofing Slate, Genuine Bangor Slate Co.,** Easton, Pa.

**Slate Roofing, Slate Blackboards, Sanitary Plumbing Slate, J. K. Hower, Danielsville, Pa.**—Franklin and Howers special roofing slate. Hower's slate blackboards.

**Slate Roofing, E. J. Johnson,** 38 Park Row, New York.—Black, unfading green, clear purple, mottled purple and green, red and mottled red; also fading slates which weather to rustic tones of brown and yellow; old European slate roofs, graduated sizes; thicknesses and exposures; random widths; colors laid haphazard; roof layouts provided for each and every course.

**Roofing Slate, Rising & Nelson Slate Co.,** West Pawlett, Vt.—All colors and shades; all thicknesses from under 3/16 to 2 inches; never wears out; absolutely fireproof; gives good cistern water; reduces insurance.

**Slate Roofing, All Colors, "Sheldon's Slates," F. C. Sheldon Slate Co.,** Granville, N. Y.—Extra thick slate in all colors. Maintain Special Service Department for close co-operation with customers.

**Slate Roofing, "Genuine Franklin Tunnel," Slatington Slate Co.,** Slatington, Pa.—Manufactured out of imperishable slate. "G. F. T." Roofing Slate lasts a life time without any expense for maintenance and repairs. They are absolutely fire-proof. Their handsome architectural effect is unsurpassed.

**Cement Roofing, Pecora Paint Co.,** 3d & Sedgley Ave., Philadelphia, Pa.—"Weather-tite Elastic Rubbery" roofing cement spread 1/16-inch thick will give ten years more wear to an old roof that now leaks like a sieve. Can be applied on wet places.

**Roofing Canvas, "Con-Ser-Tex," Wm. L. Barrell Co.,** 3 Thomas St., New York.—A specially woven cotton canvas treated with a chemical preparation so applied as to impregnate each fibre with a mildew and water-resisting coating; especially adapted for porch floors and roofs, sleeping balconies and other surfaces requiring a durable waterproof covering; non-heat radiating; non-conducting.

**Roofing Canvas, "Bayonne Roof and Deck Cloth," John Boyle & Co., Inc.,** 70-72 Reade St., New York.—Canvas specially treated; absolutely waterproof; is not laid in wet paint; especially useful for places where constant walking and wear and tear are apt to occur.

## Building Materials (Continued)

**Waterproof Canvas Roofing and Decking.** "Paradox," Flintkote Mfg. Co., 38 Pearl St., Boston, Mass.—For use on all roof surfaces where walking is done. Especially adapted for sleeping porch floors, piazzas, dormers, boat-decks, etc. Laid directly over roof boards; no white lead or painting underneath necessary.

**Simplex Roofing Nail.** "Simplex," H. B. Sherman Mfg. Co., Battle Creek, Mich.—One piece nail with big domed head having four times the head area of others. Do not cut roofing. Perfectly efficient nail for prepared roofing.

### STORE EQUIPMENT.

**Show Cases.** "Silent Salesman," Detroit Show Case Co., Detroit, Mich.—Set-up solid as a stone wall. Cemented all-glass construction (patented process). Show cases built for every line of business and built to order for special requirements, also outside show cases.

### STORE FRONTS.

**Metal Store Fronts.** "Kawneer," Kawneer Mfg. Co., Niles, Mich.—Made of copper, bronze and brass. No putty, felt or cork; spring friction grip. Has drainage and ventilator features. No rotting or deterioration.

**Store Front Bars.** "Almetal," Detroit Show Case Co., Detroit, Mich.—Made of pure copper. Made in only two pieces. Carried in stock.

### STUCCO.

**Magnesite Stucco.** "Kellastone," National Kellastone Co., 19 So. LaSalle St., Chicago, Ill.—Contains no Portland cement, lime or gypsum and not mixed with water. Fire-proof, immune to expansion and contraction and a non-conductor of heat and cold. Mixed with a chemical oil and can be applied in zero weather. Will not freeze.

### STRUCTURAL SLATE.

**Structural Slate.** "Bangorvein," E. J. Johnson, 38 Park Row, New York.—Slate treads, urinals, waterclosets, etc.; hard, tough and nonabsorbent; does not discolor.

**TERRA COTTA—ARCHITECTURAL.** **Architectural Terra Cotta.** The Northwest-ern Terra Cotta Co., 2525 Clybourn Ave., Chicago, Ill.

**Stock Terra Cotta.** "Midland," Midland Terra Cotta Co., 1515 Lumber Exchange Bldg., Chicago, Ill.—White enamel finish. Ready for immediate delivery, consists of modern designs in copings, cornices, architraves, panels, sills, belt-courses, bands, pin-caps, base course, vases, etc., suitable for any medium size building such as stores, shops and apartments.

### TILES.

**Tile Floor.** Chas. F. Lorenzen & Co., 123 Reaper Block, Chicago, Ill.—Mosaics and Tiles for floors and wainscoting in bath rooms, kitchens, vestibules, etc. Tiles and mosaics for anywhere and everywhere.

**WALL BOARDS AND BUILDING BOARDS.** **Wall Board.** "Neponset," Bird & Son, East Walpole, Mass.—Made of fibre; surfaces waterproof and finished so that they require no further decoration.

**Wall Board.** "Carey Cell Board." The Philip Carey Co., Lockland, Cincinnati, Ohio.—Three layers of fibre bonded with a waterproof cement on sheets 32 x 48 inches wide and 5 to 12 feet long; internally and externally moisture-proof; can be wall-papered and also painted; also furnished in golden quartered oak, mission quartered oak and Circassian quartered oak.

**Wood Fibre Wall Board.** "Cornell Wood Board," Cornell Wood Products Co., 507 Insurance Exchange Bldg., Chicago, Ill.—Made of pure wood fibre. Will not warp, buckle, chip, crack or fall and is guaranteed.

**"Compo-Board."** The Compo-Board Co., Minneapolis, Minn.—Construction is of wood center with paper outside. Used for wall linings and various manufacturing purposes.

**Wall Board.** "Edmanco," The Edwards Mfg. Co., 401 Eggleston Ave., Cincinnati, Ohio.—A pure wood fibre wall board; has a mat surface that is painted after board is applied; supplied in panels 32 and 48 inches wide and in lengths of 7, 8, 9, 10 and 12 feet.

**Wall Board.** "Princess," The Edwards Mfg. Co., 401 Eggleston Ave., Cincinnati, Ohio.—A fibre board, used to finish inside of houses; very strong, elastic board, with a hard, even surface for painting or wall papering.

**Wall Board.** "Fiberlic," The Fiberlic Co., Camden, N. J.—Manufactured from tough root fibre by a chemical process, which preserves the fibre lengths of the root and renders the finished product odorless, sanitary and lasting.

**Wall Board.** "Fibreweb," The Fibreweb Co., Marion, Ind.—A closely woven and compactly formed wall board; treated in pulp form to withstand moisture.

**Wall Board.** "Utility," The Heppes Co., 4503 Fillmore St., Chicago.—Grained wood finishes in plain oak, quartered oak, Circassian walnut, and mahogany, as well as standard finish; for remodeling interiors, making new rooms of old attics, lining garages; for a hundred and one purposes.

**Wall Board.** "Bishopric Stucco or Plaster Board," Mastic Wall Board & Roofing Co., 706 Este Ave., Cincinnati, Ohio.—Dove-tailed lath, creosoted to preserve them, embedded in asphalt-mastic, a perfect protection against vermin and dampness; backed by heavy fibre board through which neither sound, heat nor cold can penetrate.

**Wall Board.** "Plastergon Waterproof," Plastergon Wall Board Co., Tonawanda, N. Y.—Chemically treated wood fibre of 3-ply. Hard and stiff enough to cross straight from stud to stud without wavering, waterproof enough to resist dampness and not shrink, and sized to eliminate this expense when decorating. Suitable for all building.

**Wall Board.** "Roberts' Ideal," The Roberts Mfg. Co., Marion, Ind.—A tough fibrous wall board, constructed of four layers of strong, special fiber stock and three layers of special asphalt compound, waterproofed and pressed into panels of uniform thickness.

**Wall Board.** "Rock Board," Rockford Paper Box Board Co., Rockford, Ill.—Made of 4-ply fibre board. Very heavy, hard and strong board. Economical Paint Surface, has splendid insulating and fire-resisting qualities. Durable.

**Wall or Building Board.** "Upson Processed Board," The Upson Co., Lockport, N. Y.—High-grade, specially selected wood fiber; woodlike; scientifically processed; kiln-cured; waterproofed; surface filled; the dependable board; looks, feels and works like lumber.

**Plaster Board.** The Edwards Mfg. Co., 401 Eggleston Ave., Cincinnati, Ohio.—Made with kiln-dried laths embedded in asphalt mastic; 4 x 4 feet square; requires no paint or other coating for protection; it stays flat as long as the wall stands.

### WATERPROOFING.

**Brick and Cement Coating.** "Bay State," Wadsworth, Howland & Co., Boston, Mass.—Permanent protection against rain, snow and all kinds of weather; waterproofs concrete, stucco and plain cement; Bay State coating for interior use.

**Brick Waterproofing.** "Cabot's," Samuel Cabot, Inc., Boston, New York, Chicago.—A colorless waterproofing for brickwork. Applied with a brush. Penetrates the pores of the brick and seals them. Permanently rainproof. Prevents the white efflorescence.

**Cement Waterproofing.** "Cabot's," Samuel Cabot, Inc., Boston, New York, Chicago.—A colorless waterproofing for concrete and stucco. Applied with a brush to the finished work. Penetrates the pores and seals them.

**"Ceresitol," Ceresit Waterproofing Co.,** 910 Westminster Bldg., Chicago.—A liquid. It waterproofs cement blocks, cement stucco, bricks, cement ware, earthenware and soft stone. It is applied with a brush and does not affect the color in any way. "Ceresitol" is a protective treatment for all outdoor work subjected to dampness.

**Damp-proofing.** "Cabot's," Samuel Cabot, Inc., Boston, New York, Chicago.—A binding damp-proofing, applied with a brush to brick and concrete surfaces and the plaster applied directly to the adhesive, damp-proof surface thus furnished. Saves space, expense and labor of studding and lathing.

**Damp-proofing.** Geo. Whigelt, 124 Malden Lane, New York, N. Y.—Lamp and salt-petre proofing specialties.

**Frostproofing.** "Lansing," Lansing Co., Lansing, Mich.—Absolutely prevents the freezing of concrete in weather as low as zero and makes concreting possible during the winter. Does not retard the setting of cement or weaken the concrete.

**Waterproofing Compound.** "Ceresit," Ceresit Waterproofing Co., 910 Westminster Bldg., Chicago.—A plastic paste to be mixed with the water used for tempering concrete, cement mortar and cement stucco, giving them protection against disintegration, increasing their life and rendering them absolutely and permanently waterproof. For use in basements, cisterns, pits, reservoirs, tunnels and above-ground concrete work.

### WEATHERSTRIPS.

**Zinc and Bronze Weatherstrips.** "All-metal," Allmetal Weatherstrip Co., 226 West Madison St., Chicago.—For windows and doors. Absolutely permanent, simple in operation, modern improvement. Saves fuel; keeps out dust; stops window rattling and sticking; makes home comfortable; prevents sickness; reduces load on heater.

**Axtell All Steel Weather Strips.** E. I. Church & Co., West Hanover, Mass.—Special tempered steel or brass; for bottom of outside doors and swinging windows; storm and windproof.

**Metal Weatherstrips.** "Diamond," Diamond Metal Stamping Co., Columbus, Ohio.—For doors and windows; keeps out dirt, wind and storm.

**Weatherstrips.** Henry Airtight Weather Strip Co., Crawfordsville, Ind.—Made of wood and rubber for bottom of doors and casement windows. A strip that is automatic, closes opening under door with or without the ordinary threshold. Excludes all rain, snow, cold air and dust from coming in under door or window.

**Metal Weather Strips.** Pullman Metal Weather Strip Co., York, Pa.

## Carpenters' and Builders' Supplies

Including Abrasives and Sharpeners, Bolts, Carpenters' Tools, Carvings, Cement Tools, Chimney Caps, Clamps and Vises, Corner Bead, Cutlery, Drawing Instruments, Foot Scrapers, Joist Hangers, Levels and Surveying Instruments, Measuring Tapes, Metal Corners, Pinch Bars, Rules, Sash Balances, Sash Cord, Sash Fasteners, Sash Pulleys, Scaffolds and Scaffold Brackets, Sidewalk Lights, Studding Sockets, Studs, Tool Cases, Wall Ties.

### ABRASIVES AND SHARPENERS.

**Carborundum and Aloxite Sharpening Stones.** "Carborundum," The Carborundum Co., Niagara Falls, N. Y.—Carborundum is a product of electric furnace, next to the diamond in hardness; unequalled for sharpening all edged tools.

**Sand Paper, Garnet, Flint, Emery.** "Manning Abrasive Paper and Cloth," Manning Sand Paper Co., Troy, N. Y.—Made from abrasive grains of high cutting and wearing qualities and strong manila rope.

### BOLTS.

**Anchor, Expansion and Toggle Bolts.** "Ankyra," Ankyra Mfg. Co., 149 W. Berkeley St., Wayne Junction, Philadelphia, Pa.—Integral Nut; used with ordinary wood screw; adapted to any wall; screw may be inserted or withdrawn at will, without dis-

arranging bolt. Used in hollow tile, plaster block, lath and plaster walls for attaching "Grounds" trim, and all kinds of fixtures. Also for attaching fixtures to hollow sheet metal.

### CARPENTERS' TOOLS.

**Adzes for House, Railroad, Mill and Ship Carpenters.** The L. & I. J. White Co., 10 Columbia St., Buffalo, N. Y.—Made of steel, tool steel edge, correct hang, special tool steel edge in the "White" temper. Built especially for fast cutting. Not to be used as a lever.

**Adzes, Hand, Broad, Dock and Ship.** L. & I. J. White Co., 10 Columbia St., Buffalo, N. Y.—Made of steel and steel laid. Correct balance, never breaks in weld and stays sharp.

**Bench Grinders.** Goodell-Pratt Co., Greenfield, Mass.—1,500 good tools for carpenters and builders, including drills, sawsets, screwdrivers, hacksaws, nail sets, levels, steel rules, bit braces, tool sets, bench lathes, vises, bench grinders, etc.

**Bevels, Brad Sets, Builders' Tools, Calipers and Dividers, Measuring Bar Clamps, Countersinks, Cut-Nippers, Dividers and Calipers, Stair Gages, Inclometers, Leveling Instruments, Nail Sets, Shrink Rules, Scrapers, Screw Drivers, Combination Sets, Squares, Carpenters' Squares, Combination Squares, Steel Tapes, Carpenters' Tools, Trammels and Transits, L. S. Starrett & Co., Athol, Mass.**

**Bits, Chisels, Augers, Draw Knives, Screw Drivers, "Swan," James Swan Co., Seymour, Conn.—Polished steel goods.**

**Bit Braces, "Millers Falls Tools," Millers Falls Co.,** Millers Falls, Mass.—Everything in carpenters' and woodworkers' tools.

**Bit Braces, "Stanley," "Victor," The Stanley Rule & Level Co.,** New Britain, Conn.—This line comprises both ratchet and plain types. Combinations of heads, ratchets and jaws with the various trims and finishes make up many different styles.

**Braces, "Atkins," E. C. Atkins & Co.,** Indianapolis, Ind.—Substantial, easily handled; finest materials; working parts of steel; cocobolo handles; ball-bearing head; jaws of hardened forged steel.

**Breast Drills, "Stanley," "Victor," The Stanley Rule & Level Co.,** New Britain, Conn.—These breast drills may be had with single or double speeds. Three styles of jaws are offered holding both round and tapered shank drills. All jaws are forgings, machined and hardened. These tools are strong, well made and finely finished.

**"Buckeye" Line, Buckeye Saw Vise Co.,** 2055 W. 55th St., Cleveland, Ohio.—Iron planes, jack and fore planes, No-Shift folding saw vise, square-beam bench vise, adjustable plane gauge, cabinet scraper.

**Butt Mortiser, A. W. Miller Mfg. Co.,** Riverside, Calif.—For making seats for butts.

**Cabinet Scraper, Weber Mfg. Co.,** 670 71st St., West Allis, Wis.—The Weber Cabinet Scraper is a two-in-one tool, being a sand paper block on upper side and scraper blade on the lower side.

**Carpenters' Tools, Orr & Lockett Co.,** Chicago.—All standard makes of carpenters' tools of every description carried in stock.

**Carpenters' Tools, Planes, Squares, Screw Drivers, Carpenters' Pincers, Saw Vises, Plumb-Bobs, Awns, Clamps and all kinds of carpenters' tools, "Sargent," Sargent & Co.,** New Haven, Conn.

**"Baby" Butt Socket Firmer Chisel, "Red Devil," Smith & Hemenway Co., Inc.,** 156 Chambers St., New York.—Extra large rock maple handle with leather tip. Blade 2½ inches long.

**Chisels, "D. R. Barton," Mack & Co.,** 20 Brown's Race, Rochester, N. Y.—Chisels of all kinds, planes and edge tools for carpenters and all other woodworkers.

**Chisels and Gouges, Firmer, Butt, Framing, etc., L. & I. J. White Co.,** 10 Columbia St., Buffalo, N. Y.—Made of steel laid and solid steel. Highly tempered steel for fast cutting and correct balance.

**Chisels and Gouges, Tang and Socket, Plane Irons, Machinists' Punches, Carving Tools, Plumbers' Tools, Buck Bros.,** Millbury, Mass.—Handsome in appearance, are light in make, but have the strength of heavy made tools; cutting edge holds a long time; handles of live applewood or second-growth hickory.

**Chisels, etc., in sets, L. & I. J. White Co.,** 10 Columbia St., Buffalo, N. Y.—Various sizes in rolls, boxes, etc. Handy for carrying and contains the sizes most often used.

**Draw Knives, Carpenters, Box Makers, Coach, Wagon, etc., L. & I. J. White Co.,** 10 Columbia St., Buffalo, N. Y.—Correct bevvels and sizes, hang correctly. Especially noted for wearing qualities.

**Files, "Disston," Henry Disston & Sons,** Philadelphia, Pa.

**Files, "Triple Diamond," The Whitaker Mfg. Co.,** Chicago, Ill.—High carbon steel. Fast cutting; durability.

**Gauges, "Stanley," The Stanley Rule & Level Co.,** New Britain, Conn.—Stanley wood marking and mortise gauges are made of selected well seasoned stock and can be had in a variety of styles. A line of metal marking and mortise gauges is also manufactured.

**Hammers and Hatchets, "Germantown," Germantown Master Builder, Germantown Tool Works, 520 Commerce St.,** Philadelphia, Pa.—Alloy steel; hand-forged; scientifically treated.

**Hammers, "Stanley," The Stanley Rule & Level Co.,** New Britain, Conn.—For carpenters, machinists, bricklayers, farriers, tinners, blacksmiths and engineers. The heads are made of special steel, carefully forged, hardened and tempered. The handles are of selected second growth white hickory. The improved method of fastening the heads to the handle makes it practically impossible for the heads to fly off.

**Handsaws, "Disston," Henry Disston & Sons,** Philadelphia, Pa.

**Hand Saws, "Greyhound," Geo. H. Bishop & Co.,** Lawrenceburg, Ind.

**Handsaws, "Silver Steel," E. C. Atkins & Co.,** Indianapolis, Ind.—Made of finest material; scientifically constructed; strictly mechanics' saws; cut fast and true to the line.

**Handsaws, "Si-monds," Simonds Mfg. Co.,** Fitchburg, Mass.—Everything in handsaws for carpenters and builders.

**Hollow Chisels and Wood Boring Tools, "Forest City," Forest City Bit & Tool Co.,** Rockford, Ill.—A complete line of high-grade hollow mortising and wood-boring tools.

**Lock Mortiser, "Miller," A. W. Miller Mfg. Co.,** Riverside, Calif.—Best steel and malleable cast iron; makes opening in door for locks; clean and true; time two minutes for mortise.

**Mitre Box, Automatic, "Kawalle Automatic," Kawalle Automatic Mitre Box Co.,** Manitowoc, Wis.—Made of cold rolled steel and high class malleable iron. The true center cuts of any corner or the true radius cut of any diameter circle is given automatically. Saves time and much trouble and produces work without any figuring of degrees or diameters.

**Mitre Box, "Goodell," Goodell Mfg. Co.,** Greenfield, Mass.—Made of steel and the parts cannot break. Special features include steel truss frame or bed, cold rolled steel corrugated back, wrought steel lever or saw support, automatic detents for holding up saw, steel bottom plates with angular serratures, long saw guides.

**Mitre Box, "Greenfield," Goodell Mfg. Co.,** Greenfield, Mass.—Made from cast iron. Strong, accurate and medium priced. Patented adjustable saw guides to take any thickness back or panel saw.

**Mitre Boxes, "Stanley," "Victor," The Stanley Rule & Level Co.,** New Britain, Conn.—Strong, durable and accurate. Construction thoroughly mechanical and all parts are interchangeable. Have many valuable features not found in any other Mitre Boxes. Quickly and easily put together or taken apart for carrying. A specially made Back Saw furnished with each box.

**Nail Sets, "Syracuse," Syracuse Twist Drill Co.,** Syracuse, N. Y.—Also a full line of carpenters' tools.

**Nailing Tools, Hand, "Pearson Nailers," Pearson Mfg. Co.,** Robbinsdale, Minn.—Made of malleable iron, steel and galvanized iron.

**Pincers, "Red Devil," Smith & Hemenway Co., Inc.,** 156 Chambers St., New York.—Forged steel, jaws polished, black handles; one handle screw driver, other tack claw; edge is a high-grade carpenters' pincer.

**Plane Irons, Shaves, etc., L. & I. J. White Co.,** 10 Columbia St., Buffalo, N. Y.

**Rule Gauge, A. W. Miller Mfg. Co.,** Riverside, Calif.—Made of brass; to slip over rule and use as a gauge; a most convenient little article.

**Self-setting Planes, "Gage," Gage Tool Co.,** Vineland, N. J.—Sets itself; dropping bit and cap into place sets it right; saves over 90 per cent of the time usually wasted in setting planes.

**Planes, "Stanley," "Bailey," "Bed Rock," The Stanley Rule & Level Co.,** New Britain, Conn.—A line of Stanley Planes comprises blocks, circular, rabbet, match, dadoes, plows, bearing, sash, slitting, routers, as well as special planes for many other kinds of work.

**Planes, Wood Bottom and Iron, "Sargent" and "Sargent V. B. M.," Sargent & Co.,** New Haven, Conn.—The cutters are made of the best tool steel. The line includes planes for all purposes, including three types of bench planes.

**Plumbs and Levels, "Disston," Henry Disston & Sons,** Philadelphia, Pa.

**Saw Sets, Bench Stops and Nail Pullers, "Morrill," "Apex," Chas. Morrill,** 10 LaFayette St., New York.—Made of semi and tool steel.

**Saw Sets, "Taintor Positive," Taintor Mfg. Co.,** 113 Chambers St., New York.—Made of steel; has clamping jaw which prevents saw set slipping on teeth; 20 anvil adjustments to produce any set desired; positive action; manufactured in three styles.

**Scrapers, "Stanley," The Stanley Rule & Level Co.,** New Britain, Conn.—The Stanley line comprises a sufficient variety to meet all requirements from removing the marks on the packing case to finishing a piano. The cutters in practically all numbers are adjustable and made of high grade specially tempered steel.

**Screw Drivers, Cold Chisels, Drills, for wood and metal, etc., "Hargrave," Cincinnati Tool Co.,** Norwood, Ohio.—The best materials are used throughout and all workmanship is properly done.

**Screw Drivers, Drills, Push Brace, Vises, "Yankee," North Bros. Mfg. Co.,** Philadelphia, Pa.—Screw Drivers—Plain, Ratchet, Ratchet Screw Eye, Ratchet Magazine, Ratchet Screw Holder, Pocket Magazine and Spiral Ratchet. Drills—Automatic or Push. Reciprocating, Bench, Breast, Chain and Hand. Braces—Push. Vises—Swivel Base. All "Yankee" Tools are made of very best materials and most careful workmanship. Designed to give the owner long service, to accomplish work quickly and easily, saving time and labor.

**Screw Drivers, "Stanley," "Hurwood," "Defiance," "Leader," The Stanley Rule & Level Co.,** New Britain, Conn.—The "Hurwood" line, the blade, shank and head are one piece of special steel. Their construction are such that it is impossible for the blade to turn in the handle. "Defiance" Screw Drivers have round steel blades with

the ends, which are engaged in the handle, squared and pinned. "Leader" Screw Drivers have blades of round steel and are strongly ferruled. Both Hurwood and Defiance Drivers are made in a number of different styles and lengths to suit all requirements.

**Shicks, L. & I. J. White Co.,** 10 Columbia St., Buffalo, N. Y.—Made of steel.

**Steel Squares, "Sargent" and "Sargent V. B. M.," Sargent & Co.,** New Haven, Conn.—Made of steel especially selected for the purpose. Furnished with different graduations and in different finishes, with tables for common and all other styles of rafters, board measure, brace measure, eight-square scale, and table to obtain angle cuts for polygons.

**Steel Squares, "Stanley," The Stanley Rule & Level Co.,** New Britain, Conn.—These Squares are made from one piece of steel and the four edges are machined. Particular attention is paid to the depth and accuracy of the graduations. Made in a number of different styles and variety of finishes—nickel, royal copper, blue, nickel plated, galvanized and polished.

**Tool Grinders, "Royal," S. Cheney & Son,** Manlius, N. Y.—Made of cast iron. Furnished in 3 sizes for grinding chisels and small tools with carborundum or carborundum wheels. Gears and pinions with cut teeth.

**Trowels, Brick, Plastering, Pointing, "Disston," Henry Disston & Sons,** Philadelphia, Pa.

**Trowels, Brick and Plastering, "Greyhound," Geo. H. Bishop & Co.,** Lawrenceburg, Ind.—Made from special alloy steel; flexible taper ground from centre to 23-gauge on edges; light mounting; fitted with evertight fastener.

**Trowels, "Silver Steel," E. C. Atkins & Co.,** Indianapolis, Ind.—Blades of finest saw steel; tempered stiff and hard; light, compact, well balanced; easy grip handles.

**Try Squares, "Stanley," The Stanley Rule & Level Co.,** New Britain, Conn.—Stanley Try Squares are made with either rosewood or metal handles. The blades in all styles are square inside and out, both edges and ends of which are machined. Made with a number of different graduations and in all standard lengths.

**Woodworking Bits, "Forstner," Progressive Mfg. Co.,** Torrington, Conn.—Made by hand; cuts from the outer rim and not from center; a hand-made tool for cabinetmakers and others who require smooth, clean work.

#### CARVINGS.

**Capitals, Scrolls, Rosettes, Shields, etc., "Lignine (Wood) Carvings," Ornamental Products Co.,** Detroit, Mich.—Practically unbreakable; will not warp, chip, check, shrink nor deteriorate with age.

#### CEMENT TOOLS.

**Cement Tools, "Mogul," S. Cheney & Son,** Manlius, N. Y.—Nickel cast iron wood handle. In all shapes and sizes; small hand tools for sidewalk work and all places where results are to be obtained.

#### CHIMNEY CAPS.

**Chimney Caps, Revolving and "Chimney Tops, Flue Thimbles, Cleanout (Ashpit) Doors, "Best," Sterling Foundry Co.,** Sterling, Ill.—Cast iron; chimney caps and tops have four cast legs with slotted holes and radial adjustment; fit any chimney; revolving top is ball bearing.

#### CLAMPS AND VISES.

**Bar Clamps, Steel, "Hargrave," Cincinnati Tool Co.,** Norwood, Ohio.—Manganese steel bars, steel screws with deep square threads, hardened, steel dogs and all parts of best malleable iron. Very strong and durable and all parts proof against breaking.

**Screw Clamps, "The Taylor," James L. Taylor Mfg. Co.,** Poughkeepsie, N. Y.—Quick-acting, self-locking, malleable castings, steel bar and tool steel blocks; gripping device provides instantaneous adjustment at any point on bar; high-grade steel bar gives double strength.

**Vises, "Stanley Jersey," "Victor," "Jersey," The Stanley Rule & Level Co.,** New Britain, Conn.—Made with either clamp or swivel bases. The screw in all styles is in one piece, turned from cold rolled steel and has a square lathe cut thread. The steel jaws are hardened and ground to insure that they meet squarely when tightened. They are also filed to a fit.

**Vises, Quick-acting, "Blake," Prentiss Vise Co.,** 106 LaFayette St., New York.—For cabinetmakers and woodworkers; simple, strong, cheap.

**Vises, Woodworkers' and Machinists', all styles and sizes, "Yost," The G. M. Yost Mfg. Co.,** Meadville, Pa.—Guaranteed, Universal and Quick-Acting Woodworkers' Vises, solid and adjustable-jaw machinists' vises. Specially equipped factory for manufacture of vises. A vise for every trade. Highest grade material and workmanship used in construction.

## Carpenters' and Builders' Supplies (Continued)

**Saw Vise, "Red Devil," Smith & Hemenway Co., Inc.,** 156 Chambers St., New York.—Has rubber jaws, adjustable eccentric clamp, made of steel and impossible to break; has adjusting screw to take any thickness of saw; has bench clamp for attaching to board or bench.

### CORNER BEAD.

**Corner Bead, Metal, "Bostwick," Bostwick Steel Lath Co.,** Niles, Ohio.—One bead for all purposes, long supporting clips allow its use on any depth of ground. Clips fit every angle of the bead reinforcing to double strength every 12 inches and slides inside bead to nailing point, facilitating erection.

**Corner Bead, Metal, Chicago Builders' Specialties Co.,** 11 S. La Salle St., Chicago.—Hot galvanized after cutting; made of best materials.

**Corner Bead, "Imperial and Economy Bead," Sykes Metal Lath & Roofing Co.,** Warren, Ohio.—All plastering work. Sykes corner beads are all made with long legs and do not require clips. Should be used on all exposed corners. Give a straight corner and insure against damage of plaster. Lengths 6, 7, 8, 9 and 10 ft.

### CUTLERY.

**Pocket Knives and Razors, "The Steel that Cuts Steel," Canton Cutlery Co.,** Canton, Ohio.—Transparent handles with owner's name and address; personal photo, lodge, trade or labor emblem.

**Pocket Knives, Razors, Shears, etc., The United Cutlery Co.,** 603 3d St., N. E., Canton, Ohio.—Made from best Wardlow razor steel with plain handles or with name and address, photos, lodge and trade emblems.

### DRAWING INSTRUMENTS.

**Mechanical Drawing Sets, Drawing Boards, T Squares, etc., "Dietzgen," Eugene Dietzgen Co.,** Chicago and New York.

### FOOT SCRAPERS.

**Foot Scrapers, "Grab's," Security Mfg. Co.,** Toledo, Ohio.—10 steel blades; 10 dirt outlets; twin adjustable and removable brushes; compound springs; rotates for sweeping; self-cleaning.

**Foot Scrapers, "Best," Sterling Foundry Co.,** Sterling, Ill.—Cast iron, with lugs for anchoring into concrete and with screw holes for fastening to wood, two styles, two sizes.

### JOIST HANGERS.

**Joist Hangers, Lane Brothers Co.,** Poughkeepsie, N. Y.—20,000 in stock for immediate shipment.

**Joist Hangers, Chas. Mulvey Mfg. Co.,** 1547 W. 35th St., Chicago.—Joist hangers, from 2 x 8 to 6 x 16; also standard building anchors.

### LEVELS AND SURVEYING INSTRUMENTS.

**Builders' Level, "White's Improved," David White Co., Inc.,** 419-421 E. Water St., Milwaukee, Wis.—Made of bronze and bell metal. High power telescope. Sturdy construction; ability to hold adjustments under most trying conditions. All parts heavily ribbed to decrease weight, yet retain strength and rigidity. Range of telescope 5 to 5,000 feet. Spirit levels ground to sensitiveness of 55 seconds of arc per 1/10 inch motion of bubble.

**Builders' Levels, Transits, etc., "Dietzgen," Eugene Dietzgen Co.,** Chicago and New York.—Scientific construction, materials being of highest grade. All parts are so standardized that any repairs or replacements can be quickly and reasonably obtained.

**Convertible Level, "Builders' Convertible Level," A. S. Aloe Co.,** 513 Olive St., St. Louis, Mo.—For taking vertical sights the instrument is provided with standards which are permanently attached to the cross-bar by a large screw; the telescope, which is fitted with a permanent axis, rests on the top of standards. The construction is such that sights above and below the horizontal can be taken.

**Indicating Level, Toledo Indicating Level Co.,** Toledo, Ohio.—From 24 to 42 inches long; special feature is the fiery red indicator; equipped with or without spirit bubbles.

**White's Improved Tilting Level, "White's Improved," David White Co.,** 419-421 E. Water St., Milwaukee, Wis.—Made of high grade bronze and bell metal. Most improved type. Cross-bar and tilting standard are cast in one piece, thus attachment is fixed and not movable. Center of bar is dropped, which permits the telescope to be placed in standard with level below and still permitting the same to be tilted up or down 45 degrees from horizontal.

**Levels and Transits, "G. & B.," Geier & Bluhm,** 5 and 7 Front St., Troy, N. Y.—G. & B. Patent combination transit level.

**Plumb Rules and Levels, "Sands," J. Sand & Sons,** 1023-29 Rivard St., Detroit, Mich.—Made of wood and aluminum; these levels are reversible all around; can be used in any position in which they are picked up.

**Plumbs and Levels, "Stanley," "Victor," "Eclipse," The Stanley Rule & Level Co.,** New Britain, Conn.—Made of thoroughly seasoned stock. A Stanley Plumb and Level can be readily identified by an ingenious device of blackening both plumb and level side views. This device concentrates the light directly on the bubble, which enables the user to very clearly and quickly locate same. Many styles and sizes from which to make a choice.

**Builders' Transit, "White's Improved," David White Co., Inc.,** 419-421 E. Water St., Milwaukee, Wis.—Made of bronze and bell metal. 9 1/2-inch telescope. Micrometer adjustment for focussing cross-hairs. 5 3/16-inch horizontal limb, with double vernier reading to single minutes, shifting center. Hollow needle for compass. Vertical circle 4 1/4-inch diameter with vernier to single minutes. High power lenses. Bell metal used for center construction has tensile strength of 30,000 lbs. to square inch, standards well ribbed, as well as plated to increase strength and decrease weight. Weight with tripod, 13 lbs.

**Portable Transit, Kolesch & Co.,** 138 Fulton St., New York.—Special light design; easily carried and handled; thoroughly accurate; a complete line of surveying instruments in various sizes.

**Transits and Levels, "Beckmann Instruments," The L. Beckmann Co.,** 1004 Jackson St., Toledo, Ohio.—Instruments for contractors and builders.

### MEASURING TAPES.

**Measuring Tapes, Lufkin "Reliable," "Challenge," "Rival," "Metallic" and "Universal," The Lufkin Rule Co.,** Saginaw, Mich.—Steel tapes, woven tapes of every description. All steel and metallic tapes have instantaneous readings, a system of numbers which saves time and eliminates errors in reading. "Challenge" and "Reliable" tape cases are metal lined; "Reliable" tape cases have double folding flush winding handle; "Challenge" and "Rival" tape cases have push button opening handles.

**Tapes, (Steel Simplified Reading), "Dietzgen," Eugene Dietzgen Co.,** Chicago and New York.—Accurate and durable. Simplified reading; black finish ribbons; top graduations, and metal lined cases.

### METAL CORNERS.

**Metal Building Corners, F. D. Kees Mfg. Co.,** Beatrice, Neb.—Corner finish for lap siding; present a perfectly smooth surface, without projections to catch dust and moisture; boards cannot warp apart; made in sizes for all widths of siding up to 12 inches; outside corners, inside angles, plain and fancy patterns.

**Corners, Metal, "NuWay Metal Corners," Beatrice Steel Tank Mfg. Co.,** 700-710 So. 7th St., Beatrice, Neb.—Metal corners for both in and out angles. Perforated for nailing and reinforced in the fold. The NuWay Metal Corner is made in two sizes, four and six inch both in and out angles. Stamped from the best quality of tight coated galvanized sheets.

### PINCH BARS.

**Pinch Bars, "Hargrave," Cincinnati Tool Co.,** Norwood, Ohio.—Goose Neck, 3/4 Bend and 1/2 Bend. High grade tool steel. They are made so that they are proof against breaking and will pull a nail easily when they are broken off or below the surface of the wood. Properly shaped and hardened at the wearing points.

### PORCH BASES.

**Porch Bases, "Zimmerman Base," S. Cheney & Son, Manlius, N. Y.**—All cast iron with priming coat. In rounds and squares these bases prevent the post or column from decaying at the base by supporting it. It has free circulation underneath bases and has suitable bearing to sustain any load on column.

### RULES.

**Boxwood Rules, "Stanley," The Stanley Rule & Level Co.,** New Britain, Conn.—Stanley Boxwood Rules have a superiority due to the quality and seasoning of the wood, the weight of the metal used in the joints and trimmings, the nicety of graduation and the care given to the finish. Made in a wide range of numbers, varying in length, width, forms of joints and plates, style of trim and graduation. The joints, plates, bindings, etc., are made of brass, which prevents rusting.

**Boxwood and Spring Joint Rules, "Lufkin," Lufkin Rule Co.,** Saginaw, Mich.—A complete line of boxwood rules, including all common rules, also blindman's rules, caliper rules, level and protector rules. Also all styles of spring joint wood rules, yellow and white concealed joint types.

**Master Slide Rule, "Interlox," Dahl Mfg. Co.,** 51 E. 42d St., New York.—Made of select boxwood and brass; a sliding extension rule made specifically for taking inside measurements of doors and windows, openings, etc.; gives instantaneous direct reading; is also exceptionally handy for all outside measurements.

### SASH BALANCES.

**Sash Balances, "Caldwell Uniform Mortise," Caldwell Mfg. Co.,** 8-10 Jones St., Rochester, N. Y.—Inexpensive, durable, exact, counterweight, unaffected by atmosphere conditions. Permit greater window space with use of plank frames. Minimize cost of repairing old windows, unnecessary to change frames or sashes.

### SASH CORD.

**Sash Cord, "Samson Spot," Samson Cordage Works,** Boston, Mass.—Made of extra quality fine cotton yarn, solid braided, free from all imperfections of braid and finish, hence more durable and economical than common rough cord. Can be distinguished at a glance by the trade mark, the colored spots.

### SASH FASTENERS.

**Sash Fasteners, "Champion," "Monitor," "Euclid," The Champion Hardware Co.,** Geneva, Ohio.—Made of steel, iron and bronze metal. Ventilating sash fasteners; side sash fasteners; extra heavy sash fasteners for public buildings, etc.

### SASH PULLEYS.

**Axle Pulleys, "Corbin," P. & F. Corbin,** New Britain, Conn.—Made with ball bearings; roller bearings; plain bearings; with cast cores; round and square end. Grooves for cord, rubber and chain. A full line of high grade pulleys for fine work.

**Sash Pulleys, Metal, Top Notch, Eagle, Hollow Axle, "American," American Pulley Co.,** 4200 Wissahocken Ave., Philadelphia, Pa.—Made from high-grade sheet steel, electrically welded and made to match any hardware. Plain bearing, ball bearing and roller bearing.

**Sash Pulleys, "Grand Rapids," Grand Rapids Hardware Co.,** Grand Rapids, Mich.—All steel; have lightness, strength and durability; fit an easily made mortise; no nails or screws required.

### SASH HOLDERS.

**Sash Holders, Automatic, Automatic Sash Holder Mfg. Co.,** 52 Church St., New York.—A device to take the place of sash weights; castiron frames, reinforced where strain is; springs made of piano-drawn wire; adapted for new houses with plank frames; for old houses that have no picket frames or balances; prevent rattling.

### SCAFFOLDS AND SCAFFOLD BRACKETS.

**Scaffolds, Adjustable, Neville Mfg. Co.,** Kewanee, Ill.—Adjustable scaffold for roofs; can be applied over the ridge or on the side; folds up compactly in little space.

**Scaffolds, Steel, "Trouble Saver," Steel Scaffolding Co.,** Evansville, Ind.

**Scaffold Brackets, Folding, "Reliable," Elite Mfg. Co.,** Ashland, O.—Made of steel, rigid, easily attached; time and money savers.

**Scaffold Brackets, "Double Folding," Weber Mfg. Co.,** 670 71st St., West Allis, Wis.—Has two supports, ideal for cornice work; folds to be stored in a small space, and castings made out of best kind of malleable iron.

**Scaffold Brackets, Steel, "The Taylor," James L. Taylor Mfg. Co.,** Poughkeepsie, N. Y.—Best quality angle steel; single pair carries a ton in weight; nuts fasten on outside, preventing possibility of accidents; one man can put them up and take them down.

### SHINGLING BRACKETS.

**Shingling Bracket, Weber Mfg. Co.,** 670 71st St., West Allis, Wis.—Can be arranged so that they can be used on asphalt and wood shingles. It does not mar the shingles and the grip of these jaws is absolutely firm and rigid.

### SIDEWALK LIGHTS.

**Sidewalk Lights, "Raydiant," Berger Mfg. Co.,** Canton, Ohio.—Simple in design, easily and quickly installed. Doubly reinforced by interlocking steel forms and reinforcing rods. Provide maximum amount of light.—Tanex Malleable Coated glass used. Waterproof. Expansion and contraction amply provided for.

### STATUARY, STAMPED METAL.

**Statuary, The W. H. Mullins Co.,** 214 Franklin St., Salem, Ohio.—Sheet copper and sheet bronze. All joints between stamped sections oxy-acetylene welded, making statue one piece of metal; a large number of stock designs or will model and produce portrait statues and emblematical figures.

## Carpenters' and Builders' Supplies (Continued)

### STUDDING SOCKETS.

**Stud Sockets, "Best," Sterling Foundry Co., Sterling, Ill.**—Castiron, with solid bottom; one side and one end with nail and bolt holes for securing foot of studding; one side and one end open, so any size studding can be used; two legs for anchoring into concrete; three styles, one size of each, standard, corner and partition.

### STUDS, METAL.

**Studs, Metal, Berger Mfg. Co., Canton, Ohio.**—Channel T. U. and angle shapes for non-supporting partitions.

### CARPENTERS' TOOL CASES.

**Tool Cases, "Indestructo," Wedell & Boers, 157 Jefferson St., Detroit, Mich.**—Three-ply veneer, light, strong and waterproof. Has a place for every tool and can be carried as easy as a suit case. Can be taken on trains or cars and is indestructible.

### WALL TIES.

**Wall Ties, "No Stretch Wall Ties," Beatrice Steel Tank Mfg. Co., 700-710 So. 7th St., Beatrice, Neb.**—Made from best quality open hearth, tight coated, galvanized steel.

Will not stretch when subject to strain. The No Stretch Wall Tie meets the requirements of a long-felt need for a wall tie for reinforcing brick and concrete work. It will not stretch when subject to strain, due to the peculiar manner in which they are constructed.

**Wall Ties, "Sykes Corrugated Wall Ties," Sykes Metal Lath & Roofing Co., Warren, Ohio.**—Brick work. Made from best grade of galvanized sheets, 25 and 24 gauge. Standard ties 7 inches long; Veneer ties 6 inches long. Made in all widths.

## Contractors' Machinery and Equipment

Including Cement Forms and Molds, Cement Machinery, Cement Mixers, Cement Spouting Systems, Concrete Block and Brick Machines, Engines, Floor Surfacing Machinery, Hoists and Derricks, Miscellaneous Equipment, Mortar and Plaster Mixers, Pumps and Woodworking Machinery.

### CEMENT FORMS AND MOLDS.

**Burial Vault Mold, "The Norwalk," The Norwalk Vault Co., Norwalk, Ohio.**—Made of 13-gauge steel; arched cover and flared top; a steel reinforced product; waterproof, vermin proof; last through the ages.

**Cement Ornamental Molds, W. E. Dunn Mfg. Co., Holland, Mich.**—All kinds of molds for making concrete porches, posts, piers, columns, chimneys, vases, flower boxes, railings.

**Sill, Step and Cap Mould, Adjustable, Helm Brick Machine Co., Cadillac, Mich.**—Made of wood and steel. Handled by one man. Easily removed from product. Is adjustable for any length between 12 and 72 inches, and any width from 1 inch to 14 inches, up to 7 3/4 inches high.

**Miracle Tile Forms for Concrete Pipe, Northwestern Steel & Iron Works, Eau Claire, Wis.**—Sizes 4 to 60 inches in diameter; built in any thickness of wall, any length, furnished in straight tile, tongue and groove or bell end; furnished for tamped or poured process.

**Concrete Walls, The Cheaper Than Frame Construction Co., 407 Century Bldg., Denver, Colo.**—A concrete wall 20 per cent cheaper than a frame wall.

### CEMENT BRICK AND BLOCK MACHINES.

**Brick and Block Press, "Helm," Helm Brick Machine Co., Cadillac, Mich.**—Built of iron and steel, all parts carefully machined. These presses turn out cement brick and blocks by the face-up principle under enormous pressure. The line consists of brick and block presses in various sizes. The machines are built for hand and power operation, capacity running a high as 15,000 brick daily or 1,500 blocks daily.

**Brick, Block and Tile Machines, "Lansing Miracle," "Lansing Northwestern," Lansing Co., Lansing, Mich.**—A complete assortment of block and brick machines, sewer pipe and drain tile mold machines, ornamental molds, long and short handled finishing tools. Wheelbarrows of every description and for every use connected with cement work.

### CEMENT DRAIN TILE MACHINES.

**Cement Drain Tile Machines, W. E. Dunn Mfg. Co., Holland, Mich.**—Capacity 2,000 concrete drain tile per day; can be operated by one, two or three men; makes all sizes from 3 to 12 inches in diameter, all 12 inches long; machine is automatic and requires a 5 H.P. engine for its operation.

### CONCRETE BLOCK MACHINES.

**Concrete Block Machines, W. E. Dunn Mfg. Co., Holland, Mich.**—Capacity 150 blocks a day; makes blocks in widths of 8, 10, 12 and 16 inches long, in different designs. Can be operated by one man.

**Concrete Block Machines, "Miles," Miles Mfg. Co., Jackson, Mich.**—Castings completely machined, adjustable to make any size and shape block, face down, coarse aggregate, wet mix, loose core vertically withdrawn.

**Concrete Block Machine, "Singer," Miles Mfg. Co., Jackson, Mich.**—Made of iron. Adjustable to make blocks up to 20 inches long, up to 8 inches high, up to 12 inches thick.

**Concrete Block Machines, Northwestern Steel & Iron Works, Eau Claire, Wis.**—A full line of concrete block machines in 16 and 24-inch sizes, 8, 9, 10 and 12-inch widths; complete attachments.

### CEMENT STUCCO MACHINES.

**Stucco Machine, Automatic, "Swenson," Automatic Stucco Machine Co., 51 East 42d St., New York.**—Galvanized iron, angle iron and springs; applies stucco by way of springs to wall surface very rapidly and produces uniform and artistic finish.

### CONCRETE TAMPERS.

**Simplex Power Tamper, "Simplex," The Miles Mfg. Co., Jackson, Mich.**—Made of steel, malleable iron and gray iron. Simplex tamper and Miles Concrete Block machine operated as one unit. Adjustable to fit any standard make of block machine.

### CONCRETE MIXERS, BATCH.

**Concrete and Mortar Mixers, "Boss," American Cement Machine Co., Keokuk, Ia.**—Built of steel. Built in 5, 7 1/2, 10, 15-foot sizes. Frost proof engines; Hyatt roller bearings; chain drive; no gears or small castings in mixer. High speed mixes 15 seconds and discharges 15 seconds. Mixes concrete, mortar and plaster.

**Concrete Mixers, "Packard," American Cement Machine Co., Keokuk, Ia.**—Built of steel. Inexpensive, light weight 5 ft. mixer and low charging. Built in hand or belt power.

**Concrete Mixers, "Archer," Archer Iron Works, Chicago, Ill.**—All steel of 6 and 10 cubic feet capacity of loose material per batch; end discharge; arranged to spout concrete direct into the forms.

**Concrete Mixers, "Little Devil," Chicago Builders' Specialties Co., 11 S. La Salle St., Chicago.**—Boiler plate drum, segmental gear drive, 3 1/2 cubic feet mixed concrete capacity; 3-horse power gas engine, gear drive; end discharge; four wheels; low charging; equipped with hoisting drum if desired.

**Concrete Mixers, "Winner," Cement Tile Machinery Co., 445 Rath St., Waterloo, Iowa.**—Built in 2, 3, 4, 6 and 8 cubic foot sizes.

**"Rex Low Charging Mixer," Chain Belt Co., Milwaukee, Wis.**—Built in two sizes, Rex 6 and Rex 10. All steel frame, cast semi-steel drum, riveted Chain Belt Drive, large diameter road wheels, Novo Gasoline engine, steel housing for engines.

**Standard Mixers, "Chain Belt Concrete Mixer," Chain Belt Co., Milwaukee, Wis.**—Made in 6 sizes ranging from 3 1/2 cu. ft. to 27 cu. ft. capacity, an all steel mixer, steel frame, cast semi-steel drum, steel Chain Belt Drive, surplus power equipped either with steam gasoline engines or electric motor.

**Concrete Batch Mixers, W. E. Dunn Mfg. Co., Holland, Mich.**—Made in different sizes and designs of the tilting type; furnished on skids or trucks complete with 2 1/2 H.P. engine.

**Concrete Mixers, "Eureka," Eureka Machine Co., 103 Handy St., Lansing, Mich.**—Holds 5 to 6 cubic feet of unmixed materials per batch; 3 1/2 horse-power gasoline engine; supplied with either batch hopper or side loader.

**Reliable Batch Mixer, Helm Brick Machine Co., Cadillac, Mich.**—Steel blades and mixing drum, iron and steel frame. Charged and discharged while running. Successfully mixes wet and dry mixture. Capacity 50 cu. yds. daily, operated by 4 H.P. engine.

**Concrete Batch Mixer, "Big-an-Little—A Mix a Minute," The Jaeger Machine Co., 318 W. Rich St., Columbus, Ohio.**—Made of iron and steel. Capacity per batch 6 cu. ft. Hourly capacity up to 7 1/2 cu. yds. Revolving tilting type of conical shaped drum. Power direct from 3 H.P. dependable engine. Furnished in 3 sizes and 14 styles. A size and style for every purpose.

**Concrete Mixer, "Knickerbocker," Knickerbocker Co., Jackson, Mich.**—Constructed with power loader; stationary batch hopper or wheelbarrow hopper and platform; built in 5, 7 and 10-foot sizes, side discharge and 10-foot end discharge, with or without traction.

**Concrete Batch Mixers, "Lansing," Lansing Co., Lansing, Mich.**—Built in 5 sizes, capacities from split bag to a two-sack machine. Equipped with all the up-to-date attachments, loaders, batch-hoppers, pumps, platforms and hoists. Extra power on every mixer.

**Simplex Batch Mixers, "Simplex," Miles Mfg. Co., Jackson, Mich.**—All steel except engine housing. Capacity 5 cu. ft. mixed concrete per batch. Chilled drum rolls and track.

**Slush Mixers and Dry-or-Wet Mixers, "Northfield," Northfield Iron Co., Northfield, Minn.**—Hand or power operated. Very light in weight. Two men can carry one. These little light portable mixers have an enormous capacity, the makers claiming that from 30 to 60 cubic yards of finished concrete per ten-hour day is easily done.

**Concrete Mixer, National Mixer Co., 200 6th St., Oshkosh, Wis.**—Capacity 5 cubic feet unmixed material; semi-cast steel heads; Steel blades raised off drum; special chain drive; batch and side loader; nothing but steel throughout; equipped with 4 horse-power National engine; standard equipment.

**Northwestern Cone Batch Mixers, Northwestern Steel & Iron Works, Eau Claire, Wis.**—Built in four sizes, 6, 8 1/2, 12 and 20 cubic feet; furnished with gasoline, electric or steam power; side loaders or batch hoppers.

**O'Klare Type Batch Mixer, Northwestern Steel & Iron Works, Eau Claire, Wis.**—Built in two sizes, 5 and 10 feet; furnished with gasoline, electric or steam power; side loaders or batch hoppers.

**Stationary Batch Mixer, Northwestern Steel & Iron Works, Eau Claire, Wis.**—Built in three sizes, three types; capacities, 3 and 4 cubic feet; furnished for hand or power drive.

**Concrete Mixers, "Oshkosh," Oshkosh Mfg. Co., Oshkosh, Wis.**—Steel construction with semi-steel castings. Chain Driver-Quadruple mixing motion Hoisting Engine, Clutches, etc. Oshkosh standard mixers are made in 5, 9, 16, 24, 30, 40 cu. ft. capacity sizes. Oshkosh Low Loading Mixers are made in two sizes, 7 and 11 cu. ft.

**Batch Type Concrete Mixer, non-tilting, "Ransome's Bantam," Ransome Concrete Machinery Co., Dunellen, N. J.**—Capacity per batch 1 bag up to 1-3-6, with low feeding feature; the feeding platform being only 27 inches from the ground, the mixer equipped with feeding platform and runways. Machine is run belt-drive from 3 H.P. gasoline engine, which is equipped with a belt tightener, permitting the starting of the engine light. By reason of the sealed discharge door the Ransomes in their Bantam machine have been able to put on the market a mixer having a batch capacity of 10 cu. ft. and at the same time a mixer which does not weigh appreciably more than the average 5-ft. and 6-ft. mixers; a machine that does away with the evil of bag splitting.

**Concrete Mixers, Rail Track, Marsh-Capron Mfg. Co., 11 S. La Salle St., Chicago.**—Semi-steel drum, rolled steel rail track, roller-bearing drum wheels; built in sizes for any job; equipped with pivoted side loader; batch hopper or wheelbarrow charging hopper; steam, gasoline or electric power.

**Concrete Mixer, Republic Iron Works, Tecumseh, Mich.**—High wheels for easy hauling; low-charging wheelbarrow hoppers or side loaders.

**Concrete Mixers, "Berlin," Schaefer Mfg. Co., Berlin, Wis.**—Steel and semi-steel castings. Special features of the Berlin Low-Charge Mixers are the capacities of 5, 8 and 12 cubic feet respectively; the low-charging, light weight, durability and portability. On the Berlin Six the reliability, simplicity, economy and low price.

**Builders' Hoist Mixer, "Smith Builders' Special," T. L. Smith Co., 1138 32nd St., Milwaukee, Wis.**—All steel mixer. No main rollers, shafts or boxes. Drum supported by large dust-proof casing inside of which it revolves. Light, portable well-built mixer. Capacity 3 cu. ft. mixed concrete per batch.

Contractors' Machinery and Equipment (Continued)

**Concrete Batch Mixers, "Smith-Chicago Mixers," T. L. Smith Co., 1138 32nd St., Milwaukee, Wis.—**Strong, substantial steel truck. Best grade red tank steel drum. Strong, efficient power plant. Non-tilting type mixer built in 10 sizes, ranging from 3 to 80 cu. ft. of mixed concrete per batch. Choice of standard feed chute, gated batch hopper, power charger or low-charging device. Choice of steam, gasoline, or motor drive. Drum is supported on and driven by the big centrally located, one-piece casting, combining main drive gear and main roller tracks. Design of machine permits very rapid discharge. Batch can be discharged in from 12 to 18 seconds.

**Concrete Batch Mixers, "Smith Hand Mixers," T. L. Smith Co., 1138 32nd St., Milwaukee, Wis.—**Small portable machine, easily operated, holding 2½ cu. ft. of mixed concrete per batch. Weighs 1,000 pounds. Will turn out 25 to 35 cu. yds. of mixed concrete per ten-hour day.

**Concrete Batch Mixers, "Smith Mascot Mixer," T. L. Smith Co., 1138 32nd St., Milwaukee, Wis.—**Strong, substantial, steel truck. Best grade red tank steel drum. High grade power plant. No main rollers, shafts or boxes. Drum revolves in large dust-proof casing. Provided with standard feed chute, gated batch hopper or special new model loader. This loader is gear driven and has no hoisting cables, sheaves or over-head frame. Lifts easily and without any jerking, twisting motion.

**Concrete Batch Mixers, "Smith Mixerette," T. L. Smith Co., 1138 32nd St., Milwaukee, Wis.—**All steel mixer. No main rollers, shafts or boxes. Drum supported by large dust-proof casing inside of which it revolves. Light, portable, well-built mixer. Capacity 3 cu. ft. mixed concrete per batch; on skids or on trucks with or without gasoline engine, with a choice of standard feed chute, gated batch hopper, gear driven power loader or low-charging platform. This platform is 18 inches high. Where desired machine can be equipped with extra H.P. engine and a friction hoist mounted on truck between power and drum.

**Concrete Batch Mixers, "Smith Mixers," T. L. Smith Co., 1138 32nd St., Milwaukee, Wis.—**Strong, substantial, steel truck. Best graded tank steel drum. High grade power plant. Tilting type, duo-drum. Built in nine sizes ranging from 4 to 62 cu. ft. of mixed concrete per batch. Choice of steam, gasoline or motor drive. Choice of standard feed chute, gated batch hopper or geared power loader for loading purposes. Choice of lever tilt hand wheel or power tilt for discharging batch.

**Low-charging Mixers, "Smith-Chicago Low-Charging and Mixerette Low-Charger," T. L. Smith Co., 1125 32nd St., Milwaukee, Wis.—**See description under Smith-Chicago mixers and Smith Mixerette.

**Silo Mixer, T. L. Smith Co., 1138 32nd St., Milwaukee, Wis.—**All steel mixer. No main rollers, shafts or boxes. Drum supported by large dust-proof casing inside of which it revolves. Light, portable, well-built mixer. Capacity 3 cu. ft. mixed concrete per batch.

**Concrete Mixer, "S. S. S." The Standard Scale & Supply Co., 1345-1347 Wabash Ave., Chicago.—**A low-charging, light-weight batch mixer; has the low-charging, high, quick-discharging and mixing principles of the "Standard" outfits; built in four sizes, 4, 6, 9 and 11 cubic feet per batch.

**Concrete Mixer, "The Standard," The Standard Scale & Supply Co., 1345-1347 Wabash Ave., Chicago.—**A low-charging batch mixer with charging platform only about 24 inches high and portable with outfit; large opening permits entire batch to be seen while mixing; discharge is semi-automatic; can be operated from either end of drum; built in 10 sizes; capacities from 3 to 40 cubic feet per batch; furnished with any kind of power or without power.

**Concrete Batch Mixers, "Wonder," Waterloo Cement Machinery Corp., 103 Vinton St., Waterloo, Iowa.—**"Wonder" "Five" and "Wonder" "Ten," capacities 5 and 10 cu. ft. per batch and 2½ and 4½ H.P. gas engine, respectively. Side loader with water-measuring tank increases capacity 50 to 75 per cent. Original of its type of tilting drum mixers. Excels in simplicity, strength, speed, economy, and earning capacity. Visible mix, easy cleaning drum, revolving on ball bearings. Mixes mortar as well as concrete. Frame heavy steel I-beams. Three standards with long bearings support driving gear. Trucks all steel, wide tired steel wheels, standard tread. Special model equipped with hoist for building contractors.

CONCRETE MIXERS—CONTINUOUS.

**Low-down Concrete Mixer, "Low-Down," Elite Mfg. Co., Ashland, Ohio.—**Made of malleable iron and steel. Accurate proportioning of material; large capacity; low hoppers; force feed. Driven by 4 horsepower "Novo" engine.

**Concrete Mixers, "Coltrin," Knickerbocker Co., Jackson, Mich.—**Built in seven sizes, up to 15 cubic yards per hour capacity.

**Simplex Continuous Mixers, "Simplex," Miles Mfg. Co., Jackson, Mich.—**All metal except engine housing; accurate measure; positive feed; rolling principle of mix. Chain drive. Capacity 10 cu. yds. per hour.

CONCRETE MIXERS—PAVING.

**"Chain Belt Paver," Chain Belt Co., Milwaukee, Wis.—**Made in two sizes, 12 and 20 feet, all levers operated by one man, reversible traction drive, practically all castings steel or semi-steel, including cast road wheels, Chabelco Steel Chain Belt drive throughout, cast semi-steel drum, surplus power.

**Concrete Mixers, Paving, "Marsh-Capron Rail Track," Marsh-Capron Mfg. Co., 11 S. La Salle St., Chicago.—**Semi-steel drum; rolled steel rail track; roller-bearing drum wheels; powerful two-speed traction; equipped with chute or boom and bucket distributor; made in four sizes; steam or gasoline power.

**Paving Mixers, "Smith-Chicago High-Drum Type Pavers," T. L. Smith Co., 1138 32nd St., Milwaukee, Wis.—**Strong, well-built, traction-driven pavers. Big, wide loading skip. As skip is raised it automatically throws discharge chute out of drum and operates tilting water tank, emptying exact amount of water into drum along with materials from skip. Big reserve water tank having capacity of 4 or 5 batches of water. Special automatic water weighing device which accurately weighs proper amount of water for each batch. Drum mounted high enough above truck, so as to allow for long, steeply pitched swivel chute. All parts of machine centrally located on truck. All hoisting and driving gears mounted on large one-piece steel casting supported on rear axle, providing absolute alignment of all running parts. Traction drive, forward and reverse. Built in 4 sizes, 4, 7, 10 and 16 cu. ft. of mixed concrete per batch.

CEMENT SPOUTING SYSTEMS.

**Spouting System, "Jaeger Spouting System," The Jaeger Machine Co., 318 W. Rich St., Columbus, Ohio.—**Made of iron and steel. A simple and complete spouting system for the pouring of concrete foundations for residences, churches, schoolhouses, etc. Consists of Big-an-Little mixer outfit and a special designed elevated track with spout for the purpose of filling the forms without any wheelbarrows. Best, quickest and most efficient way of pouring foundations.

**Hoist Tower Equipment, "Archer," Archer Iron Works, Chicago, Ill.—**Equipment for the hoisting and spouting of concrete in construction work, consisting of hoist buckets, tower hoppers and concrete spouting.

ENGINES—GAS, GASOLINE AND OIL.

**"Ellis Engines," Ellis Engine Co., 2843-51 East Grand Boulevard, Detroit, Mich.—**Kerosene fuel device; speed-changing governor; light weight; reversibility; sizes 1½ to 18 horse power.

**Gas Engines, "Meco," Manufacturers Engine Co., Kansas City, Mo.—**Stationary and portable; gasoline, kerosene and gas; center-firing, valve-in-head type, with automobile style ignition; safety spark shift for easy and safe starting; sizes, 2 to 12 horse power.

**Gas and Gasoline Engines, "New Way," The "New Way" Motor Co., Lansing, Mich.—**Stationary and portable gas and gasoline engines, 1 to 12 H.P. Highest grade construction throughout. High tension magnet; heavy adjustable babbit bearings; ground and polished cylinders; enclosed crank case; splash system of lubrication; direct cooled; guaranteed for life. Special binder engine with all of above specifications, automobile carburetor and adapted for general purpose work.

**Gas and Gasoline Engines, "Ideal," The Original Gas Engine Co., Lansing, Mich.**

**Gasoline Engines, "C. H. & E. Water Hopper Cooled Gasoline Engine," C. H. & E. Mfg. Co., Milwaukee, Wis.—**Hit and miss type of governor. High grade jump and spark ignition. Suction feed vaporizer. Made in five sizes, 2, 3, 4, 5 and 6 H.P.

**Gasoline Engines, Detroit Engine Works, 495 Bellevue Ave., Detroit, Mich.—**Four-cycle, suction feed, make and break ignition; every part interchangeable; fully tested; 1½ horse power up.

**Gasoline Engines, "Novo," Novo Engine Co., Lansing, Mich.—**Made in sizes from 1 to 15 H.P. Frost proof, simple, compact, reliable, entirely self-contained. Fuel is in cast iron base. Cooling water in frost proof jacket at top. The Novo is furnished to operate on gas, gasoline, kerosene, alcohol or distillate.

**Gasoline and Kerosene Engines, "Witte," Witte Engine Works, Kansas City, Mo.—**All sizes from 2 to 22 horse power; burn gasoline, kerosene, distillate and gas.

**Kerosene Engine, "Sandow," Detroit Motor Car Supply Co., 196 Canton Ave., Detroit, Mich.—**Runs on kerosene, gasoline, distillate and alcohol without change in equipment; starts without cranking; runs in either direction; sizes 1½ to 18 horse power.

**Heavy Oil Engine, W. E. Dunn Mfg. Co., Holland, Mich.—**Made in sizes of 2 horse power up; starts and operates on crude, fuel, distillate or kerosene oils without the use of electrical ignition, preheating and carburetor; saves 50 per cent on cost of fuel and 30 per cent in the amount of fuel.

FLOOR FINISHING MACHINERY.

**Electric Wood Floor Surfacing Machine, Automatic Ball-Bearing, Wayvell Chappell & Co., 4847 E. Ravenswood Ave., Chicago.—**Dresses new wood floor or refinishes old floors; self-propelling; has automatic control; surfaces to baseboard with edge roller adjusted to either side; automatic dust collector; made in 5 sizes.

**Electric Floor Surfacers, M. L. Schleuter, 225 W. Illinois St., Chicago.—**Rapid; flexible; old or new wood floors. Also electric floor surfacers for mosaic, marble or composition floors; made in several sizes.

**Floor Finisher, "Did's," H. P. Diddriksen, Columbus, Ohio.—**Iron and steel, with a wide range of adjustments. Weight, blade, blade-head and handle are all adjustable, so that every working condition found in wood floors is easily met. Very rapid and perfect results easily obtained by any one without special experience or training. Is easily adjusted and operated.

**Floor Scrapers, "Fox," Fox Supply Co., Brooklyn, Wis.—**The body of the scraper is solid casting perfectly balanced on rubber tired wheels. 95 per cent of weight is over knife when scraping. Rubber cushion over blade prevents chattering and waves. Adjustable handle to suit height of man operating; capacity 700 to 900 sq. ft. per day. Made in five sizes.

**Floor Scrapers, "Stern," Stern Mfg. Co., Lancaster, Pa.—**Made of selected metals, solid rubber tire and simple adjustments. Handle and blade holders adjusted to one-thousandth part of an inch. Simple, accurate and rapid.

**Floor Scraper and Sander, "Triple 'A' Spring Driven Floor-smoother," Triple 'A' Machine Co., 300 W. Grand Ave., Chicago.—**Equipped with a spring-motor drive, which triples the scraping capacity of the machine. Has 150 pounds of weight, which insures a perfect cut, free from waves and chatters. Every form of adjustment possible. Blades sharpened in machine without removal. Floor surfacing capacity of from 1,200 to 1,800 square feet a day.

**Floor Scrapers, "Double Acting," Weber Mfg. Co., 670 71st St., West Allis, Wis.—**Works either way; absolutely does not chatter as the blade holders are attached to a flexible frame by means of ½ ball and socket bearings which will work satisfactory on any hardwood flooring with or against the grain.

**Floor Surfacing Machines, "American Universal" and "Big American," American Floor Surfacing Machine Co., 515 South St. Clair St., Toledo, Ohio.—**For old and new wood floors; full ball-bearing; self propelling, electrically driven.

**Floor Surfacing Machines, "Ideal Floor Sander," Ideal Floor Sander Co., 105-109 No. Canal St., Chicago, Ill.—**Easily regulated to gauge depth of cut. Dustless. Will surface 3,000 to 6,000 sq. ft. per day on new or old floors of any grade of wood. Removes paint, varnish, dirt, etc. Built very substantial to give years of hard service. Can be carried by two men.

**Floor Surfacing Machines for Terrazzo, Marble, Mosaic, Cement, etc., "American Champion," American Floor Surfacing Machine Co., 515 So. St. Clair St., Toledo, Ohio.—**Ball-bearing; electrically driven. Also "American Cove Base Polisher," for finishing cove base, angles, etc., of terrazzo, cement and marble.

**Floor Surfacers, "C. B. S.," Chicago Builders' Specialties Co., 11 S. LaSalle St., Chicago.—**Carborundum disks, operated by cut-steel gears, driven by gasoline engine or electric motor; for surfacing concrete and terrazzo floors.

**Floor Surfacers, "E-Z," John Herr Mfg. Co., 44 N. 4th St., Philadelphia, Pa.—**New high-speed; portable, electric, ball-bearing; for sandpapering wood floors, grinding marble and mosaics; scrubbing and wax-polishing floors of every description.

**Hand Floor Scraper, "Sargent," Sargent & Co., New Haven, Conn.—**A light floor and veneer scraper; clamp binding screw is steel and will not strip; wood face lessens friction. Also a complete line of squares, planes and mechanics' tools of every description.

**Hand Floor Scraper, Weber Mfg. Co., 670 71st St., West Allis, Wis.—**Its features are its simplicity and good work.

**Burnishing Steels for Floor Scraper Blades.** "Fox," Fox Supply Co., Brooklyn, Wis.—High grade tempered carbon steel. Wood handle.

**Floor Scraper Blades.** "Fox," Fox Supply Co., Brooklyn, Wis.—Made of steel to our analysis, combining both hardness and toughness, the most essential points in floor scraper blades. Manufactured in 20 different sizes.

#### DERRICKS AND HOISTS.

**Builders' Derricks and Hoists.** Portable, Sagen Derrick Co., 2053-57 No. Racine Ave., Chicago.—Made of steel, malleable iron and wood. Light, strong and safe. Practical in construction and easy to put up. Shipped on trial to reliable contractors.

**Builders' Hoist, "Polygon," Waterloo Cement Machinery Corp.,** 103 Vinton St., Waterloo, Ia.—Extremely simple design. Base and standards cast in one piece give absolute rigidity and great durability. Operated by one clutch lever. Drum controlled by differential brake which holds any load. Furnished with or without reversing mechanism. All shafting cold rolled steel. Long bearings. All gears covered. Furnished with 4, 6 or 8 H.P. gasoline engine or electric motor, or with belt or gear drive.

**Builders' Hoist, "Jaeger Big-an-Little," The Jaeger Machine Co.,** 318 W. Rich St., Columbus, Ohio.—Made of iron and steel. A quick acting general purpose hoist for such work as the hoisting of all materials. Concrete, mortar, plaster, lumber, etc., on schoolhouses, residences, moving picture theaters, etc.

**Chain Hoists, "Simplex," J. G. Speidel,** Reading, Pa.—Are ready, are of a spur-gear type having the highest efficiency obtainable so that they require a minimum amount of power to hoist the load; have an automobile brake that is very powerful and reliable, and have two speeds.

**Derricks and Hoists, "C. H. & E. Double Acting Builders' Hoists,"** C. H. & E. Mfg. Co., Milwaukee, Wis.—Drum and sheave wheel are double acting in their action. Gears of heavy construction and exceptional strength. For use of contractors in elevating material, also for back filling ditches, mining operations, loading logs, pile driving. Made in two sizes, with 4 H.P. and 6 H.P. C. H. & E. water hopper cooled gasoline engine.

**Gasoline Driven Hoists, "The Standard" and "S. S. S.,"** The Standard Scale & Supply Co., 1345-1347 Wabash Ave., Chicago.—Single line, double line, reversing; capacities 400 pounds to 4,500 pounds.

**Gasoline Hoists, "Novo,"** Novo Engine Co., Lansing, Mich.—Made in sizes from 3 to 15 H.P. Single drum and double drum, reversible and non-reversible, single speed and double speed.

**Hoists, "Boss,"** American Cement Machine Co., Keokuk, Ia.—Steel and malleable. Popular priced; double drum and reversible; light weight and Hyatt roller bearings. Built in three types with or without engine; single and double drum and non-reversible.

**Hoists, "C. B. S.,"** Chicago Builders' Specialties Co., 11 S. LaSalle St., Chicago.—Contractors' hoists of all sizes; equipped with steam, gasoline or electric power.

**Hoists, "Ideal,"** The Original Gas Engine Co., Lansing, Mich.—Supplied with "Ideal" engines.

**Hoists, Reversible,** American No. 4, American Sawmill Machinery Co., Hackettstown, N. J.—Iron construction, drum, sheave and winch head reversible and may be used independently one of the other. Forward and reversible motion obtained by movement of single reverse. Furnished with powerful brake and safety ratchet and pawl. Capacity 1,000 pounds, 100 feet per minute.

**Concrete Elevators, "Smith Elevators,"** T. L. Smith Co., 1138 32nd St., Milwaukee, Wis.—Made in 4 types: Class A, all steel portable elevator to be supported against building; Class B, steel track elevator designed for erection in a timber tower; Class C, all steel self-supporting elevator; Class D, combination concrete and wheelbarrow elevator. All elevators built in 3 sizes, buckets holding 10, 17 and 31 cu. ft. of sloppy concrete.

**Material Elevators, "C. H. & E. Double Cage Material Elevator,"** C. H. & E. Mfg. Co., Milwaukee, Wis.—The 2 cages are large and well braced, with platforms made of well seasoned maple. For rapid handling of building material such as brick and mortar. Using this elevator in connection with a C. H. & E. Hoist the time occupied in putting up a building is decreased to about one-third.

**Cranes, Hand Traveling, "Simplex,"** J. G. Speidel, Reading, Pa.—Have large bearing surfaces, giving great strength and durability, and the wheels are turned in the grooves and run on anti-friction steel roller bearings, make them easy running.

#### AIR COMPRESSORS.

**Air Compressor Outfits, "Novo,"** Novo Engine Co., Lansing, Mich.—Complete units consisting of Novo Engines with air cooled

and water cooled compressors. Mounted on cast iron base or trucks. Sizes up to 15 H.P.

#### STEEL SCOOPS AND MORTAR BOXES.

**Adjustable Steel Cement Scoops and Mortar Boxes, "Northfield,"** Northfield Iron Co., Northfield, Minn.—Made of sheet metal. More economical and more convenient than wood. The adjustable measuring scoop holds just one-half cubic foot and the bottom in it is adjustable down to one-third foot.

#### CONVEYORS.

**Conveyors, "Dow,"** Dow Wire & Iron Works, Louisville, Ky.—Gravity roller ball bearing conveyors for lumber loading and unloading cars at big saving in cost. Also belt power conveyors for handling goods of all kinds.

#### CRUSHERS.

**Crushers, "Teismith,"** Smith Engineering Works, Locust St., Milwaukee, Wis.—Short, sturdy and strong. Apply direct crushing stroke. Furnished on trucks or skids in many sizes.

#### SAND AND GRAVEL WASHERS.

**Combination Screener and Washer, "Northfield,"** Northfield Iron Co., Northfield, Minn.—Power operated, light weight, cheap in price. These washers wash and screen the sand and gravel at the same operation. The same water is used over and over again and no flowing water is necessary. By a settling process the same water can be used continuously.

#### HOUSE MOVING TRUCKS.

**Steel Giant Trucks, "LaPlant Movingtrux,"** LaPlant-Chateau Mfg. Co., Cedar Rapids, Iowa.—Made of Bessemer steel. The truck is fitted with a patented oscillator which prevents rack to building in passing over uneven ground; an economical way to move buildings instead of wrecking them.

#### MORTAR AND PLASTER MIXER.

**Mortar Mixers, "Archer,"** Archer Iron Works, Chicago, Ill.—All-steel, driven by gasoline engine.

**Mortar Mixers, "C. H. & E.,"** C. H. & E. Mfg. Co., Milwaukee, Wis.—Outfit substantially built with channel iron frame mounted on steel wheels. Mixer supplies mortar for 30 to 40 bricklayers. Driven by 5 H.P. C. H. & E. water hopper cooled gasoline engine.

**Mortar Batch Mixer, "Big-an-Little—A Mix A Minute,"** The Jaeger Machine Co., 318 Rich St., Columbus, Ohio.—Made of iron and steel. 6 cu. ft. capacity per batch; operated by one man from one point. Can easily keep a dozen bricklayers going, in not only spreading mortar, but hoisting it into place as well.

**Plaster Batch Mixer, "Big-an-Little—A Mix A Minute,"** The Jaeger Machine Co., 318 Rich St., Columbus, Ohio.—Made of iron and steel. A satisfactory mixer for the purpose of mixing all kinds of patented plaster, quicker and better than can be done by hand. Saves time, labor and money and does better work.

#### PUMPS.

**Centrifugal Pumps, "Ideal,"** The Original Gas Engine Co., Lansing, Mich.—Supplied with "Ideal" engines.

**Centrifugal Pumps, Power Driven, "C. H. & E. Mfg. Co.,"** Milwaukee, Wis.—Engine and pump connected by chain, which is enclosed in a guard. Made in twelve sizes. Driven by C. H. & E. water hopper cooled gasoline engine. Mounted either on skid or steel truck.

**Diaphragm Pumps, "Ideal,"** The Original Gas Engine Co., Lansing, Mich.—Supplied with "Ideal" engines.

**Force Pumps, "Ideal,"** The Original Gas Engine Co., Lansing, Mich.—Supplied with "Ideal" engines.

**Gasoline Pumping Outfits, "Novo,"** Novo Engine Co., Lansing, Mich.—Made in every type and size from 1 to 15 H.P., centrifugal, diaphragm, rotary, plunger type, deep well, triplex, and duplex.

**House Pumps, Electric, "Myers,"** F. E. Myers & Bro., Ashland, Ohio.—Pump and Motor mounted, on one base. Automatic control; belt or gear drive; operated by small motor. A compact, complete, convenient pump for household water supply. Efficient, economical and satisfactory.

**Trench Pumps, "Power-Driven Diaphragm Bilge Trench Pump,"** C. H. & E. Mfg. Co., Milwaukee, Wis.—For use of builders in pumping water from footings, trenches, cellars, cofferdams or on public works. Driven by 2 H.P. C. H. & E. water hopper cooled gasoline engine. Made in two sizes, 3-inch and 4-inch suction. Mounted either on skid or truck.

**Trench Pumps, "Oshkosh,"** Oshkosh Mfg. Co., Oshkosh, Wis.—Steel and Rock Maple. Features strength and simplicity.

#### WOODWORKING MACHINERY.

**Band Saws, "American,"** American Sawmill Machinery Co., Hackettstown, N. J.—Iron construction; Table tilting and angle up to 45 degrees; furnished in sizes 36 in., 27 in., 20 in.

**Band Saws, Jointers, Saw Tables and Swing Saws, "Crescent,"** Crescent Machine Co., Leetonia, Ohio.—Rigid, strong and durable.

**Band Saws, "Silver's,"** The Silver Mfg. Co., Salem, O.—All iron and steel; very convenient to operate; all operating parts within easy reach of operator; iron table, planed perfectly smooth; can be tilted any angle; band saws made in four sizes, 20-inch, for foot, belt or combination; 26-inch, 32-inch and 36-inch for power only.

**Bandsaws, "Silver's,"** The Silver Mfg. Co., Salem, Ohio.—Four sizes, 20-inch with foot or belt power or combination; 26-inch, 32-inch, 36-inch, belt power only. All-iron table planed perfectly smooth; patented table-tilting device for angle sawing; new frame solid-base belt shifter used either above or below pulley. All operating parts within easy reach of operator.

**Heavy Rip and Cross-Cut Saws, "American Heavy New Model,"** American Sawmill Machinery Co., Hackettstown, N. J.—Wood frame construction; furnished with dead rolls on table to enable easily moving heavy stock. Furnished with 42-in. saws and suited for cutting off square timbers up to 15 x 15 in. Furnished also with removable ripping table for heavy work. Can be furnished either with or without power.

**Bench Planes, Portable, "Wallace Bench Planer,"** J. D. Wallace, 525 West Van Buren St., Chicago.—Motor or belt-driven; motor connected direct to cutter head and runs from electric light socket. Fitted with flap and shutter safety guard. Cutter knives 4 inches wide. Weight 50 pounds.

**Cutter Head, "Huther,"** Huther Bros. Saw Mfg. Co., 1101 University Ave., Rochester, N. Y.—Made of steel, dovetailed slides for knives. Made to run on ordinary saw table; special adjustment by headless set screw. Any shaped knives made to order.

**Dado Head or Patent Groover, "Huther,"** Huther Bros. Saw Mfg. Co., 1101 University Ave., Rochester, N. Y.—Two outside cutters and any number of inside cutters. Cuts perfect grooves any width, with or across grain; easily adjusted. Can be used on any circular saw mandrel or shaper spindle.

**Disc Grinders, Variety Woodworker, Universal Woodworkers, Hollow Chisel Mortisers, "Crescent,"** Crescent Machine Co., Leetonia, Ohio.—Rigid, strong and durable.

**Grooving Heads, Adjustable, "Fox Universal,"** Fox Machine Co., Grand Rapids and Jackson, Mich.

**Jointers or Buzz Planers, "Silver's,"** The Silver Mfg. Co., Salem, O.—Steel-pin inclines instead of slides and grooves for mounting table; movement and locking of table controlled by handwheels; safety guard with each machine; round safety cylinder jointers in five sizes, 8, 12, 16, 20 and 24 inches, all iron and steel.

**The "Lightning" Line, J. A. Fay & Egan Co.,** 545-565 West Front St., Cincinnati, Ohio.—Woodworking machinery of all kinds. Single machines and combination machines, with and without self-contained power. Highest grade iron and steel, built for service. Fay-Egan's "Lightning" machines are made by the world's oldest and largest manufacturers of woodworking machinery. They are the result of 85 years' world-wide experience and are practical time, labor and power savers.

**Machinery and Factory Supplies, "Famous,"** Sidney Tool Co., Sidney Ohio.—The "Famous" line of woodworking machinery. Band saw, 5 sizes; saw benches, 8 styles and sizes; hand jointers, 4 sizes; swing cut-off saws, 6 sizes and styles; pony planers, 4 sizes, 2 styles; single spindle shapers, 2 types; double spindle shapers, 2 types; hollow chisel mortisers, 3 styles; combination mortiser and tenoner; wood-turning lathes, 3 sizes; pattern-makers' lathes, 4 sizes; and post boring machines, 3 sizes. Also the "World-Famous" line of universal wood-workers which includes 54 distinct styles and types of combination machines; electric motors, gas, gasoline and oil engines, shafting, hangers, pulleys, belting, saws, circular and band, machine knives, dado heads, bits and chisels. Everything needed in the wood-working shop. 125 different styles and types of machines to choose from.

**Planer, Matcher and Moulder, "American Triumph,"** American Sawmill Machinery Co., Hackettstown, N. J.—Made of iron and steel. All class of surfacing up to 24 in. wide and 6 in. thick, and matching up to 14 in. wide; also adapted for running large variety of mouldings, sidings, etc. Machine furnished with matcher heads placed inside the feeding-out rolls to enable holding the stock being matched until the operation is completed and thus avoiding spoiling the last few inches of the board.

## Contractors' Machinery and Equipment (Continued)

**Single Surfaces Planer, "American Jewel," American Sawmill Machinery Co., Hackettstown, N. J.**—Made of iron and steel; surfacing lumber up to 20 in. in width and 6 in. thick; rear end of bed adjustable so as to enable surfacing short stock.

**Sash Trimmer, "American," Heald Machine Co., Worcester, Mass.**—Heavy base casting, face plate and swinging tables. Will cope Diamond light and fancy sash. Gives good, snug fit and all joints are alike. Cuts any angle. Mortising attachment can be furnished extra.

**Saw Fitting Machinery, Zeiller & Nagel, 232 Java St., Brooklyn, N. Y.**—The Bauer Band Saw filing and setting and circular saw setting machines. Produce perfect work, nothing complicated about them. Strongly built, easy to operate and thoroughly reliable. In general use throughout the world.

**Hollow Ground Saws, "Huther," Huther Bros. Saw Mfg. Co., 1101 University Ave., Rochester, N. Y.**—Hollow ground. Gives a smooth cut and runs without set. Fine quality crucible steel, special grinding.

**Portable Variety Wood-Worker, "American," American Sawmill Machinery Co., Hackettstown, N. J.**—Wood frame with iron top; special features: ripping, cross-cutting, dadoing, mortising, jointing, boring, jig sawing and a variety of other work which it is possible to do on the job. Furnished either without power or with 5 hp., 4 cycle gasoline engine or a suitable motor, built within the frame, from 3 h.p. upwards, to suit the local current.

**Saws and Planer Knives, "Simonds," Simonds Mfg. Co., Fitchburg, Mass., and Chicago, Ill.**—Circular and band saws, also planer matcher, or moulder knives, of every style or size; hand saws and files.

**Saw Rig, No. 1-A Portable, C. H. & E. Mfg. Co., Milwaukee, Wis.**—Saw table constructed of very best rock maple. Crosscuts, rips, and grinds. Ripping capacity 4-inch lumber. Driven by 5 H.P. C. H. & E. water hopper cooled gasoline engine. Mounted on wheels for easy moving.

**Saw Rig, No. 3 Portable, C. H. & E. Mfg. Co., Milwaukee, Wis.**—Frame constructed of angle iron, and table top of maple. Crosscuts, rips, sands, joints, jig saws, grooves, mitres and grinds. Ripping capacity 1-inch lumber. Driven by 3 H.P. C. H. & E. water hopper cooled gasoline engine. Mounted on wheels for easy moving.

**Saw Rig, No. 6 Portable, C. H. & E. Mfg. Co., Milwaukee, Wis.**—Frame and table construction of structural steel. Crosscuts, rips, sands, joints, grinds, bandsaws, does boring and mortising and grooves. Driven by 4 H.P. C. H. & E. water hopper cooled gasoline engine. Ripping capacity 3-inch lumber.

**Saw Rig, No. 8 Portable, C. H. & E. Mfg. Co., Milwaukee, Wis.**—Saw table constructed of very best rock maple. Crosscuts, rips, sands, joints, jig saws, grooves, mitres and grinds. Ripping capacity 3-inch lumber. Driven by 4 H.P. C. H. & E. water hopper cooled gasoline engine.

**Saw Rigs, "Contractors," Combination Saw Bench, "American," American Sawmill Machinery Co., Hackettstown, N. J.**—Wood frame with iron top; ripping and cutting-off machine; also dadoing and boring; can be furnished either without power or with 5 hp. gasoline engine or motor built within the frame.

**Saw Rigs, "Eveready," "Oshkosh," Oshkosh Mfg. Co., Oshkosh, Wis.**—Steel and rock maple, air and dry kiln seasoned. Extra large engine 4 3/4-inch bore, 6-inch stroke, and 9 distinct attachments.

**Saw Rigs and Saw Tables, "Novo," Novo Engine Co., Lansing, Mich.**—Crosscuts, rip-saws, sands, joints, jigs, saws, grooves, bores, mitres, grinds tools. Saw tables and guides made of solid metal and adjustable. Driven by 4 H.P. "Novo" gasoline engine. Placed on skids for easy moving.

**Saw Rigs and Saw Tables, "Silver's," The Silver Mfg. Co., Salem, Ohio.**—Made in two styles: Fig. 891, with stationary saw and adjustable table; Fig. 892, with pivoted auxiliary frame for vertical adjustments of saw, both styles all iron and steel; table in one piece, grooved and mitred, with removable throat piece; safety guard, non-creeping bit shifter; heavily babbed journals; boring bit or chuck.

**Shapers, Planers, Matchers and Borers, "Crescent," Crescent Machine Co., Leontonia, Ohio.**—Rigid, strong and durable.

**Combination Woodworker, "Elliot Woodworker," Elliot Woodworker Co., 2405 Woodward Ave., Detroit, Mich.**—Solid metal; light and strong; portable; makes every cut on the average building, including the housing out of stair strings; fitted with electric motor.

**Combination Woodworker, Portable, Atlantic Engine Co., Meadville, Pa.**—Nine machines in one; 6 horse power engine.

**Combination Woodworker, Portable, "The Hutchinson," Hutchinson Combination Woodworker Co., 99 Sherbourne St., Toronto, Canada, and Buffalo, N. Y.**—Strong and rigid; driven by electric motor; saw is pulled through the lumber; can be raised 8 inches and can be set and locked to cut at any angle; can be used for crosscut, rip and mitres, dadoing, routing, boring, sand papering, tool grinding, etc.

**Improved Single and Combination Woodworker, Parks Ball Bearing Machine Co., Fergus St. & C. H. & D. Ry., Cincinnati, Ohio.**—Large assortment of woodworking machines for small shop and portable use. Circular saws, band saws, jointers, upright and horizontal mortisers, and sanders. Can be had either as independent machines or in combinations. Can be furnished with engine or motor mounted on same bases with machine.

**Woodworking Machinery, "Triumph," American Saw Mill Machinery Co., Hackettstown, N. J.**—Woodworking machinery of every kind, from the lightest portable contractors' equipment to sash and door and planing mill machinery.

**Woodworking Machinery, W. F. & Jno. Barnes Co., Rockford, Ill.**—Hand and foot-power.

**Woodworking Machines, "Beach," Beach Mfg. Co., Montrose, Pa.**—A complete line of woodworking machinery for every purpose.

**Woodworking Machinery, Chicago Machinery Exchange, 1215 Washington Boul., Chicago.**—Full line of woodworking machinery for carpenters and builders; also bargains in second-hand machinery.

**Woodworking Mills, Portable, "Berlin," Schaefer Mfg. Co., Berlin, Wis.**—Substantially built of the best materials; bandsaw, hollow mortising chisel, wood lathe, moulding head, dado head, jointer, crosscut and rip saws, jig saw, boring attachment, disc sander, emery wheel; with gasoline engine or electric motor; a machine for accurate work; easily taken from place to place.

**Wood Trimmers, "Fox Universal," Fox Machine Co., Grand Rapids and Jackson, Mich.**

## Farm Building Materials

Including Barn Equipment and Stable Fixtures, Barn Cupolas and Ventilators, Door Hangers and Track, Grain Elevators, Silos and Tanks.

### BARN EQUIPMENT AND STABLE FIXTURES.

**Barn Equipment, Harris Mfg. Co., Salem, Ohio.**—Stanchions, stalls, feed and litter carriers, hay tools, ventilators and miscellaneous equipment.

**Barn Equipment, Hunt, Helm, Ferris & Co., Harvard, Ill.**—Stanchions, stalls, and everything in barn equipment and stable fixtures.

**Barn Equipment, James Mfg. Co.**—Fort Atkinson, Wisc.—Sanitary and labor-saving. The James line includes stalls, stanchions, pens, carriers, ventilators, watering buckets, trucks, etc.

**Barn Equipment, Louden Machinery Co.**—Fairfield, Iowa.—Tubular steel cow stalls, steel and wood-lined stanchions, feed and litter carriers, horse stalls, hay unloading tools, barn door hangers, barn specialties.

**Barn Equipment, "Ney," Ney Mfg. Co., Canton, Ohio.**—Manufacturers of hay carriers, hay slings, hay carrier fixtures, merchandise carriers, hay forks, steel hoists, barn door tracks, and steel hay carrier tracks.

**Sanitary Barn Equipment, Strickler Hay Tool Co., Janesville, Wis.**—Steel stalls, cow stanchions, feed and litter carriers, watering bowls.

**Hay Racks, Oak Mangers, Stall Guards, etc., Barbee Wire & Iron Works, 174 N. Dearborn St., Chicago, Ill.**—Plain and substantial but inexpensive. Cheaper than wood and now being used in all modern barns.

**Hay Carriers and Track, "Ney," The Whitaker Mfg. Co., Chicago, Ill.**

**Hay Unloading Tools, "O. K.," F. E. Myers & Bro., Ashland, Ohio.**—Made of malleable iron. Extra long trucks; double lock is swivel and reversible. Roller bearings. Unusual strength and capacity. Large sheaves reduce the draft to a minimum. Made for wood or steel track.

### BARN EQUIPMENT.

**Stanchions, Stalls, Pens, Litter, Feed and Milk Carriers, "Perfect," J. E. Porter Co., Ottawa, Ill.**—Steel and refined malleable iron; strictly sanitary and practical; improved conditions in barns made possible with minimum expense.

### CUPOLAS AND VENTILATORS.

**Aerators, King Ventilating Co., Owatonna, Minn.**—King Aerators and the King Ventilating Systems for every kind of barn and farm building, keeps buildings in sanitary condition, free from foul air, dry, and stock in better condition.

**Barn Cupolas (Steel), "Monitor," B. F. Lichty & Sons Co., Waterloo, Iowa.**—Any size from 12 to 48-inch flue; either steel, glass or ventilating base; equipped with galvanized iron hollow rod, with gold-leaf weather vane.

**Barn Cupola, "Aerdome," Northfield Iron Co., Northfield, Minn.**—Made of sheet metal; has double diaphragms, deflecting cone, fluted shield and riser; self-supporting corner base. Three grades of these are carried.

**Cupolas, "Nu Way Tip Top Cupola," Beatrice Steel Tank Mfg. Co., 700-710 South 7th St., Beatrice, Neb.**—Made in both round and square base. Our Tip Top Cupolas are provided with an adjustable end piece which takes care of the pitch of the roof from flat to half pitch. The Nu Way Tip Top Cupola is fully constructed at the factory and Top is nested in Base for shipment. Sparrow proof and adjustable to any pitch of roof.

**Cupolas, "O.-K.," The Philip Bernard Co., Slou City, Iowa.**—Built of best material. Carefully surfaced with aluminum and artistically trimmed with vermilion red paint. Every piece of material, including bolts, rivets, screen and fittings, are absolutely rustproof. Equipped with lightning rod attachment, for which no extra charge is made.

**Cupolas and Ventilators, "Buckeye," The Thomas & Armstrong Co., London, Ohio.**—Steel (galvanized). All metal; no wood enters into the construction. A ventilating unit and an ornament for buildings.

**Barn Ventilators, "Gale," Galesburg Sheet Metal Works, Galesburg, Ill.**—Heavy galvanized iron; strongly built; screened inside.

**Barn Ventilators, James Mfg. Co., Fort Atkinson, Wis.**—Create sanitary conditions in the barn; pull foul air out and force fresh air in.

**Roof Ventilators, "Royal Ventilator," Royal Ventilator Co., Philadelphia, Pa.**—Galvan-

ized iron, copper, etc. The double cone and tapered wind deflectors, which give increased suction, thus withdrawing all odors, foul air and substituting fresh air in abundance. These features also add to the durability of the ventilator.

**Roof Ventilators, "Willis Products," Willis Mfg. Co., Galesburg, Ill.**—In all styles.

**Ventilators, Edwards Mfg. Co., 401 Eggleston Ave., Cincinnati, Ohio.**—Made of best quality galvanized iron, sizes 8 to 72 inches; stationary, immovable, noiseless; prevents any back current of air and does not become clogged with snow, ice or dirt; furnished with or without base and equipped with "Eureka" damper.

**Ventilators, "Globe," Globe Ventilator Co., Troy, N. Y.**—Galvanized iron, copper and ingot iron. Furnish a continuous exhaust with no downward draft, removing all odors, moisture, impure and super-heated air that pure air may take its place; no power, no expense for maintenance. Strongly constructed, absolutely storm proof.

### DOOR HANGERS AND TRACK.

**Barn Door Hangers, Adjustable Hinge, "Ney," Ney Mfg. Co., Canton, Ohio.**—Best malleable iron; adjustable to and from building; wheels revolve on full-size hardened steel roller bearers.

**Barn Door Hangers, Door Hangers and Track for same, "Hummer," "Whirlwind" and "Can't-Get-Off," J. E. Porter Co., Ottawa, Ill.**—Steel and malleable iron; Hummer track made in one piece of 14-gauge steel; offers least resistance to hanger and is stormproof; hangers are roller bearing.

**Barn and Garage Door Track and Hangers, "Ney," The Whitaker Mfg. Co., Chicago, Ill.**

**Door Hangers, "Richards-Wilcox," Richards Wilcox Mfg. Co., Aurora, Ill.**—Made of steel. Ball and roller bearing trolley, round track and flat track types. A hanger for any door that slides, garages, barn, house, fire door and heavy warehouse door.

**Door Hangers, Tubular, "Giant," F. E. Myers & Bro., Ashland, Ohio.**—Rollers turned from hard steel. Adjustable up and down, in and out, roller bearings. Flexible truck; impervious to storms, sleet, snow and ice. Bird proof. Push and pull easily.

**Door Hangers and Rails, National Mfg. Co., Sterling, Ill.**—Door hangers for barns and houses; hinges, springs, etc., for every requirement of building.

**Door Hangers and Track, "Cannon Ball," Hunt, Helm, Ferris & Co., Harvard, Ill.**—Cannon Ball track is made with a sub-

stantial, weather-proof cover; made in long lengths, 4, 6 or 8-foot sections.

#### ELEVATORS—CHAIN.

**Inside Cup Elevators, "Meyer," A. F. Meyer Mfg. Co., Morton, Ill.**—Built for double cribs. Placed in dry ready for use; elevates 50 bu. in 5 minutes.

**SILOS.**  
**Stave and Glazed Tile Silos, "Kalamazoo," Kalamazoo Tank & Silo Co., 506 Harrison St., Kalamazoo, Mich.**

#### TANKS.

**Wood and Galvanized Iron Tanks, "Kalamazoo," Kalamazoo Tank & Silo Co., Kalamazoo, Mich.**

## Builders' Hardware

Including Base Knobs, Basement Window Hinges, Bolts, Butts, Casement Operators, Door Checks, Door Holders, Door Sets, Door Stays, Door Springs, Design Hardware, Hinges, Latches, Locks, Padlocks, Push and Kick Plates, Shelf Pins.

#### BASE KNOBS.

**Base Knobs, Metal, "Champion," The Champion Hardware Co., Geneva, Ohio.**—Made of steel, iron or bronze metal. The rubber is held securely. Finished to match other hardware in the room.

#### BASEMENT WINDOW HINGES.

**Basement Window Hinge and Catch, "New Way Hinge," Diehl Novelty Co., Glenbeulah, Wis.**—A two-piece, black-japanned steel hinge; supports itself in open position without ceiling hook; sash is removable from frame by upward movement, but cannot blow off.

#### BOLTS.

**Bolts, "Corbin," P. & F. Corbin, New Britain, Conn.**—Everything from a barrel bolt to the most ornate cremorne bolt for French windows.

**Door Bolts and Latches, Lavatory, "Bommer," Bommer Brothers, Classon and Willoughby Aves., Brooklyn, N. Y.**—Various types, throw, surface, mortise and indicator bolts.

**Bolts, Panic, "Corbin," P. & F. Corbin, New Britain, Conn.**—Doors can be locked against entrance as usual but are always unlocked from the inside.

**Fire Exit Door Bolts, known also as Panic Bolts, "Sargent," Sargent & Co., New Haven, Conn.**—These bolts are intended for use on exit doors of theaters, schools, factories; they securely fasten the door, but allow for their instant opening by pressure from the inside in case of fire or panic; many types are made to suit different conditions.

#### BUTTS.

**Butts, "Corbin," P. & F. Corbin, New Britain, Conn.**—High grade door butts; full line of wrought brass butts; butts with ball bearings, also with fibre washers. Noiseless and do not show effects of wear.

**Butts, Rehm Hardware Co., 1501 Blue Island Ave., Chicago.**—Complete line of builders' hardware.

**Butts, Stanley, Works, New Britain, Conn.** The "Hinge Headquarters," very complete line of wrought steel butts and other builders' hardware.

**Butts, Ornamental National Manufacturing Co., Sterling, Ill.** Extensive line of ornamental surface hinges of wrought steel in all finishes. Also steel butts of every sort.

#### CASEMENT OPERATORS.

**Casement Operator, Concealed, "Corbin," P. & F. Corbin, New Britain, Conn.**—Made of brass and bronze. Used in windows swinging out. Does not interfere with use of screens or curtains. Locks windows firmly at any point desired. Handle only part visible and this is fastened to the curtain below the stool.

#### DOOR CHECKS.

**Door Checks and Controllers, "Sargent" and "Eclipse," Sargent & Co., New Haven, Conn.**—Made in various sizes for different kinds of doors, including screen doors. They effectively close doors and prevent all slamming.

**Door Check and Spring, Liquid, "Corbin," P. & F. Corbin, New Britain, Conn.**—Both overhead and floor types. Cannot leak. Easy to adjust. Fit doors of either hand without change. Sizes to cover all requirements.

**Door Checks and Springs, "Larimer," The Larimer Co., Eola, Ill.**—Made in five sizes. Sent anywhere on approval.

#### DOOR HANGERS.

**Door Hangers, Lane Brothers Co., Poughkeepsie, N. Y.**—For inside and outside.

**Door Hangers, National Mfg. Co., Sterling, Ill.**—Hangers for parlor doors, barn doors, etc.

**Door Hangers, Richards-Wilcox Mfg. Co., Aurora, Ill.**—Hangers for every style door that slides.

#### DOOR HOLDERS.

**Door Holders, "Bommer," Bommer Brothers, Classon and Willoughby Aves., Brooklyn, N. Y.**—Plunger rod cannot turn in the case. Has rubber tip to prevent marring of floor.

**Door Holders, "Champion," The Champion Hardware Co., Geneva, Ohio.**—Made of high grade steel, well finished. Furnished in two sizes to meet the requirements of light and heavy doors. By simply stepping on the tread the rubber is brought in contact with the floor and securely holds the door.

#### DOOR KNOBS.

**Door Knobs, Escutcheons, Etc., "Sargent," Sargent & Co., New Haven, Conn.**—Made of cast and wrought bronze and wrought steel in both plain and ornamental patterns.

#### DOOR SETS.

**Door Sets, "Sargent," Sargent & Co., New Haven, Conn.**—Locks, escutcheons, handles and everything in builders' hardware.

#### DOOR STAYS.

**Garage Door Stay, "Stanley," The Stanley Works, New Britain, Conn.**—Made of 1-inch angle iron. Permits closing the door with one hand inside the garage. Throwing the door open sets the stay and without going out of doors to grasp handles a slight pull on the attached chain releases the lock and draws the door shut.

#### DOOR SPRINGS.

**Door Springs, "Bommer," Bommer Brothers, Classon and Willoughby Aves., Brooklyn, N. Y.**—The springheads are made of wrought metal and cannot break.

#### DOOR AND WINDOW TRIMMINGS.

**Door and Window Trimmings, "Sargent," Sargent & Co., New Haven, Conn.**—All kinds; butts, bolts, catches, sash lifts, and locks, casement fasteners and adjusters, transom openers and pulleys.

#### DESIGN HARDWARE.

**Design Hardware, "Corbin Art Hardware," P. & F. Corbin, New Britain, Conn.**—Cut bronze and brass. Wrought steel bronze and iron. Designs in all schools of art in our fifty finishes.

#### HINGES.

**Butt Hinge, Double-action Spring, "Bommer," Bommer Brothers, Classon and Willoughby Aves., Brooklyn, N. Y.**—A faultless, technically correctly constructed hinge, having weight-supporting bearings properly located. Have an exclusive lubricating system.

**Butt Hinge, Single-action Spring, "Bommer," Bommer Brothers, Classon and Willoughby Aves., Brooklyn, N. Y.**—Have flanges flush-faced, giving a neater appearance to the mortise. Have an exclusive lubricating system.

**Butt Hinges, National Manufacturing Co., Sterling, Ill.**, complete line of wrought steel hinges.

**Butt Hinges, Stanley Works, New Britain, Conn.**, complete line of wrought steel hinges.

**Floor Hinges, "Champion," Champion Hardware Co., Geneva, Ohio.**—Double-acting hinge. Has steel ball bearing support for the door. Holds back at an exact right angle. Is easily applied to the door, neat in appearance.

**Floor Mortise Spring Hinges, "Bommer," Bommer Brothers, Classon and Willoughby Aves., Brooklyn, N. Y.**—Efficient and durable.

**Floor Surface Spring Hinges, "Bommer," Bommer Brothers, Classon and Willoughby Aves., Brooklyn, N. Y.**—Vertical type, double-release feature, allowing door to be held open at any desired angle; also vertical type, non-release, no holes to cut in floor; is screwed to surface of floor and bottom of door. Also horizontal type, has efficient alignment device; release and holdback features; all bearings lubricated. Also horizontal type, holdback feature, ball bearing; lubricating all bearings from one oil-hole.

**Lavatory Spring Hinges, "Bommer," Bommer Brothers, Classon and Willoughby Aves., Brooklyn, N. Y.**—For lavatory stall doors. Have adjustable box flanges to allow for variations in thickness of marble. Also made for pipe standards. Also lavatory strikes and keepers for lavatory stall doors. Have adjustable box clamps to allow for variations in thickness of marble. Have rubber bumpers and keepers for bolts.

**Ball-bearing Pivot Hinges, "Bommer," Bommer Brothers, Classon and Willoughby Aves., Brooklyn, N. Y.**—For secret doors. Are durable and noiseless, easily lubricated, and do not permit door to sag.

**Screen Door Hinges, "Bommer," Bommer Brothers, Classon and Willoughby Aves., Brooklyn, N. Y.**—Adjustable tension, half surface, detachable type, double bearings, holdback; all made of wrought metal.

**Screen Door Hinges, "The Champion 7-11 Loose Pin Hinge," The Champion Hardware Co., Geneva, Ohio.**—Made of steel with oil tempered spring. Loose pin permits of door being taken down without the use of tools. Also furnished in sets complete. Sets include all the hardware necessary for hanging a screen door.

**Screen Door Hinges, "Ideal," Stover Mfg. Co., Freeport, Ill.**—Detachable; when mounted on these hinges doors can be put up without tools.

**Spring Hinges, "Chicago," "Triplex," "Relax," "Premier," "Ajax," Chicago Spring Butt Co., Chicago, New York.**—Highest quality steel and brass and bronze.

**Spring Hinges, for garage, factory and fire-engine house doors, "Bommer," Bommer Brothers, Classon and Willoughby Aves., Brooklyn, N. Y.**

#### LATCHES.

**Night Latches, "Corbin," P. & F. Corbin, New Britain, Conn.**—Reversible and adjustable for thickness of door. Easy to apply. Made in a large variety of styles and finished with both bitted key and cylinder locking mechanism.

#### LOCKS.

**Locks, "Corbin," P. & F. Corbin, New Britain, Conn.**—A complete line of door locks of all kinds for residences, business buildings and public buildings.

**Locks, Door Sets, Orr & Lockett Co., Chicago.**—Everything in builders' hardware.

**Locks, Door Sets, "Sargent," Sargent & Co., New Haven, Conn.**—Made in great variety for front doors, inside doors, sliding doors, etc.; Sargent cylinder locks and catches afford full security.

**Sash Lifts and Locks, "Sargent," Sargent & Co., New Haven, Conn.**—Bronze and steel; sash lifts are made in three styles—hook, flush and bar fasten sash effectively and secure the window and draw the two sashes together.

**Unit Lock Sets, "Corbin," P. & F. Corbin, New Britain, Conn.**—Brass and bronze cast. Sent out with knobs and escutcheons attached to lock and attached to door without being taken apart. Can be put up quickly. Never bind or fail to work properly.

**Window Ventilating Lock, "Ives," The H. B. Ives Co., New Haven, Conn.**—A safeguard for ventilating rooms, allowing windows to be left open with entire security against intrusion.

#### NAILS.

**Cut Nails, Iron and Steel, Williamsport Iron & Nail Co., Williamsport, Pa.**

**Steel Cut Nails, Black or Galvanized, "La Belle," LaBelle Iron Works, Steubenville, Ohio.**—Made of finest quality "LaBelle" open hearth steel. Great holding power; long life.

#### PADLOCKS.

**Padlocks, "Sargent," Sargent & Co., New Haven, Conn.**—Made in great variety from the solid bronze invulnerable cylinder padlock to the low-cost, wrought-steel patterns. The line includes a padlock for every purpose.

**"No Key Padlock," The Edwards Mfg. Co., 401 Eggleston Ave., Cincinnati, Ohio.**—Made entirely of brass and bronze; nothing to get out of order; can be used for a variety of purposes; in fact, for any purpose for which a lock is intended; simply press the right buttons and the lock flies open.

#### KICK AND PUSH PLATES.

**Kick and Push Plates, "Bommer," Bommer Brothers, Classon and Willoughby Aves., Brooklyn, N. Y.**—Made of sheet bronze in all sizes and in any finish.

#### SHELF PINS.

**Shelf Pins, "Johnston's," J. D. Johnston, Newport, R. I.**—For supporting movable shelves in bookcases; cannot fall or sag down; easily put in place.

# Home Comforts and Conveniences

Including Bath and Medicine Cabinets, Clocks, Electrical House Goods, Elevators and Dumbwaiters, Garbage Receivers, Heating Systems, Lighting Systems, Lockers, Movable Stairways, Plumbing Goods and Supplies, Refrigerators, Sanitary Closets, Vacuum Cleaners, Water Supply Systems, Window Ventilators.

## CABINETS—BATH.

Turkish and Vapor Bath Cabinets, "Robinson," Robinson Cabinet Mfg. Co., Toledo, Ohio.—Made of wood and steel.

## CABINETS—MEDICINE.

White Enamelled Steel Cabinets, "Hess Steel Medicine Cabinets," Hess Warming & Ventilating Co., 1220 Tacoma Bldg., Chicago, Ill.

## CLOCKS.

Clocks, American Alarm Clock Co., 1659-1669 Ruffner St., Philadelphia, Pa.—Clocks and directions how to build them; grandfather's clocks, tower clocks, bar-room clocks; also furnish blueprints from which carpenters and cabinet makers can build their own clock cases.

## ELECTRICAL HOUSE GOODS.

Annunciators and Alarms, Patrick & Wilkins Co., 51 N. 7th St., Philadelphia, Pa.—Complete systems for hotels, schools and residences.

## ELEVATORS AND DUMBWAITERS.

Dumbwaiters, "Excelsior," R. M. Rodgers & Co., 74 Emerson Place, Brooklyn, N. Y.—Knockdown dumbwaiter, ready to erect; will fit any ordinary opening up to 24x30 inches.

Dumb Waiters, "Sedgwick," Sedgwick Machine Works, 132 Liberty St., New York, N. Y.—The Sedgwick Machine Works specialize in the manufacture of high grade dumb waiters and hand power elevators for all purposes.

Dumbwaiters, "Jumper," "Columbia," J. G. Speidel, Reading, Pa.—The "Jumper" dumbwaiter is of the floor or disappearing type, for use between cellar and kitchen of residences. The "Columbia" dumbwaiters are suitable for use in residences, hotels, clubs, apartment houses, hospitals, etc., and to serve any number of stories. Capacities ranging from 50 to 500 pounds. Have self-contained machines and an automatic brake that is very powerful and reliable.

Hand-power Dumbwaiters, "Highwood," Highwood Dumbwaiter Co., Leonia, N. J.—Machine, car, counterweight, guideruns, rope, hardware, guides, nails, rope connector, etc., all complete for total height of 20 feet.

Sanitary Automatic Dumb Waiters, York Automatic Dumb Waiter Works, 639-645 W. Market St., York, Pa.—Specializing in one flight runs. Shipped completely assembled at factory. High polish finish, both interior and exterior.

Dumbwaiters and Hand Elevators, "Storm," Storm Mfg. Co., Herman and Vesey Sts., Newark, N. J.—No stock sizes; built to fit the place.

Elevators, Altizer Elevator Co., 609 N. La Salle St., Chicago.—Hand or power for any service.

Hand Power Elevators, "Sedgwick," Sedgwick Machine Works, 132 Liberty St., New York, N. Y.—Covers every requirement where a hand power elevator can be used.

Freight Elevators (Hand and Power), "Sidney," Sidney Elevator Mfg. Co., Sidney, Ohio.—Made of iron and steel for the utmost practical service. An up-to-date equipment at reasonable cost.

Freight and Passenger Elevators, J. G. Speidel, Reading, Pa.—For Hand, Belt Power or Electric Service. Furnished in any size or capacity desired. Machines are equipped with ball and roller bearings; making them easy running; made of hardwood; well braced with iron; equipped with automatic safety catch.

Passenger and Freight Elevators, Kimball Bros. Co., Council Bluffs, Iowa.—Electric, hand or belt power elevators, dumbwaiters, hatch gates, etc.

Sidewalk Lifts, J. G. Speidel, Reading, Pa.—Machines are built in a strong and compact manner and have an automatic brake that is very powerful and reliable, and hold the load at any point of the lift as soon as the operator discontinues turning the crank.

## GARBAGE RECEIVERS.

Underground and Built-in Garbage Receivers, "Majestic," The Majestic Co., Huntington, Ind.—Cast semi-steel and American ingot iron. Keeps can underground in fly tight receptacle, sanitary and convenient. Made in five sizes.

## HEATING SYSTEMS.

Hot Air Furnaces, American Bell & Foundry Co., Northville, Mich.—No pipes; no lost heat.

Warm Air Furnaces, Bovee Furnace Works, Waterloo, Iowa.—Central heating pipeless system; heats as much as three large stoves; either upright furnace for burning hard coal, soft coal or wood; or horizontal furnace with doors 16 x 16 inches for burning four-foot wood or soft coal.

Warm Air Furnaces, Hardin-Lavin Co., 4532 Cottage Grove Ave., Chicago.—Also heating plants of every description.

Warm Air and Combination Furnace, "Floral City," Monroe Foundry & Furnace Co., Monroe, Mich.—Cast-iron and cast-iron and steel.

Warm Air Furnaces, "Williamson New-Feed Underfeed Furnace," The Williamson Heater Co., Cincinnati, Ohio.—Made from heaviest grade cast-iron throughout and of heaviest and most durable construction. "New Feed Underfeed" insures perfect combustion of fuel, eliminates smoke, soot and gases, which are consumed by being compelled to pass up through the fire and live coals and insuring a guaranteed saving of from one-half to two-thirds of coal bills.

Pipeless Furnace, "Hess Welded Steel Cottage Furnace," Hess Warming & Ventilating Co., 1220 Tacoma Bldg., Chicago, Ill.

Standard and Pipeless Warm Air Furnaces, "Majestic," The Majestic Co., Huntington, Ind.—Made of all cast iron. Gas and dust proof covered joints, slotted 2-piece fire bowl and drop grates. Made in 21, 24, 28-inch size fire bowl. Round or down draft radiator.

Welded Steel Furnaces, "Hess Welded Steel Furnaces," Hess Warming & Ventilating Co., 1220 Tacoma Bldg., Chicago, Ill.

Hot Water Heating, Andrews Heating Co., 1470 Heating Bldg., Minneapolis, Minn.—The steel boilers and piping systems "cut to fit" each job enable contractors to install with extra profits.

Hot Water Boilers, "Floral City," Monroe Foundry & Furnace Co., Monroe, Mich.—Cast-iron; round; sectional.

Steam Boilers, "Floral City," Monroe Foundry & Furnace Co., Monroe, Mich.—Cast-iron; round; sectional.

Steam and Hot Water Boilers, "New-Feed Underfeed Boilers," The Williamson Foundry Co., Cincinnati, Ohio.—Made from highest grade cast-iron. "New Feed Underfeed" insures perfect combustion; eliminates smoke, soot and gases by the method of feeding coal; enables the successful use of the cheap grades of fuel and saves from half to two-thirds the ordinary cost of heating.

## WATER HEATERS.

Gas and Gasoline Water Heaters, "Sands," The Augmore Mfg. Co., Cleveland, Ohio.—Copper coil; efficient burner and double jacket. Hot water service for the suburban home.

## ICE MAKING MACHINES.

Ice Making and Refrigerating Machinery, Baker Ice Machine Co., 20th & Nicholas Sts., Omaha, Neb.—One to fifty tons daily capacity. New and patented features. Exclusive builders of Ice and Refrigerating Machinery, ammonia fittings, pipe work, etc.

## LIGHTING SYSTEMS.

A Complete 12-Light Plant, piping, fixtures, generator, all in one box. "The Van Gieckland System," Van Gieckland Co., 121 Lafayette St., Newark, N. J.—Standard and permitted by Board of Fire Underwriters. Use mantle burners with acetylene, increasing candle power three-fold, does away with gas storage, automatic, controlled by use of gas at burner. Designed for six and eight-room country homes and bungalows. Cost of installation and operation low.

Acetylene Lighting Apparatus, "Davis," Davis Acetylene Co., Elkhart, Ind.—Steel and galvanized pipe and fittings, using carbide larger than the quarter-inch, saving 25 per cent in cost of service. Fifteenth year; highest awards received at St. Louis World's Fair and Panama Exposition.

Acetylene Gas Generators, "Sunlight Omega," Sunlight Gas Machine Co., 52 Vanderbilt Ave., New York.—Made of galvanized steel; all joints riveted or double seamed; double safety indirect carbide to water feed; reserve supply hopper; no weights, floats, motors or clockwork.

Acetylene Lighting and Cooking Plants, "Illinois" and "Monmouth" Pit Generators, Monmouth Acetylene Electric Mfg. Co., 621 South First St., Monmouth, Ill.—Made of high grade galvanized sheet steel. Compact form, automatic, durable, safe, economical, protected by patents. Permitted by National Board of Underwriters, tested before leaving factory. Proven practical. Guaranteed.

Automatic Electric Light Plant, Bruston Automatic Electric Lighting & Power Co., Inc., 126 Liberty St., New York.—For country homes, churches, hotels, small towns, etc.; is absolutely automatic.

Fairbanks-Morse Electric Light Plants, Fairbanks, Morse & Co., 900 So. Wabash Ave., Chicago, Ill.—Complete independent Electric Light Plants for lighting suburban or farm houses. Engine runs on kerosene or gasoline. Ball bearing dynamo. Furnished with storage battery. Give 24-hour service. For 30-volt or 110-volt lamps, in sizes to supply circuits of from 25 sixteen candle-power lamps up.

Hollow-Wire Vapor Gas Lighting System, "Akron," Akron Gas Lamp Co., Akron, Ohio.—Makes and consumes own gas; use common gasoline; produces brilliant white light.

Kerosene and Gasoline, Stand and Gravity Lamps, "Brilliant," "Triumph" and "Climax," Brilliant Gas Lamp Co., 1009 S. Wabash Ave., Chicago, Ill.—Brass and copper; make their own gas from kerosene or gasoline; will burn kerosene or gasoline, separately or mixed.

Portable Lamps, "Akron," Akron Gas Lamp Co., Akron, Ohio.—Makes and consumes own gas; uses common gasoline; produces brilliant white light.

Portable Lamps, "Wallace Portable Collapsible Lamp," Wallace Novelty Co., 22 E. 41st St., New York.—Made in brass, bronze or nickel; stands, hangs, clamps or sticks any place; when not in use folds into a compact ball.

High Candle-Power Gas Lanterns, "Akron," Akron Gas Lamp Co., Akron, Ohio.—Makes and consumes own gas; uses common gasoline.

## LOCKERS—STEEL.

Steel Lockers, "H & H," Hart & Hutchinson Co., New Britain, Conn.—Immediate delivery on stock sizes.

Steel Lockers, Berger Mfg. Co., Canton, Ohio.—Fire retardant, and proof against dust, rodents and petty theft. Strongly but simply constructed on the unit principle. Require small floor space. Neat in appearance.

Steel Lockers, Portable, The Edwards Mfg. Co., 401 Eggleston Ave., Cincinnati, Ohio.—Portable, sanitary, fireproof; made of best quality non-rusting steel; built in section and can be added to at any time; all parts interchangeable; made in all sizes.

## LOCKERS—WIRE.

Wire Lockers, Barbee Wire & Iron Works, 174 N. Dearborn St., Chicago, Ill.—Heavy wire mesh with angle steel frame. A substantial and durable article well adapted to general use.

## MOVABLE STAIRWAYS.

Movable Stairways, "Beasler," Beasler Movable Stairway Co., Akron, Ohio.—Made of pine, with pine or oak panel; cast-iron fittings; folds up into ceiling when not in use; operated with spring barrels and counterbalance; can be made for any size ceiling; used in homes or public buildings.

## PLUMBING GOODS AND SUPPLIES.

Enamelled Plumbing Ware, Bathtubs, Lavatories, One-piece Sinks, etc., Kohler Co., Kohler, Wis.—Porcelain enamel on cast-iron one-piece construction. Hygienic designs; easily installed; one quality—the highest; permanent trade mark incorporated in the enamel.

Folding Bath Tubs, "Robinson," Robinson Cabinet Mfg. Co., Toledo, O.—Made of wood and rubber; takes place of regular bath; used in any room; no plumbing necessary.

Plumbing Supplies, B. B. Karol, 800 S. Kedzie Ave., Chicago.—Everything in plumbing, heating and pneumatic waterworks supplies.

Plumbing Supplies, Hardin-Lavin Co., 4532 Cottage Grove Ave., Chicago.—Bathroom outfits, sinks, pipes, fittings, valves, etc.

Washstand, "Ro-San," Rowe Sanitary Mfg. Co., 210 6th St., Detroit, Mich.—The only washstand that gives hot and cold running water without any plumbing.

## REFRIGERATORS.

Sanitary Refrigerators, Herrick Refrigerator Co., Waterloo, Iowa.—Eliminates ice man from entering house; requires ice only during warm period; refrigerators for stores, hotels, florists, etc.

## SANITARY CLOSETS.

Chemical Closets, "Wolverine Chemical Closet," Dall Steel Products Co., Lansing, Mich.—Commode style, pail inside. Can be installed in any room, especially adapted to contractors. Use before plumbing has been put in building, also adaptable to summer cottages, sick rooms, etc.

Chemical Closets, "Wolverine Chemical closet," Dall Steel Products Co., Lansing, Mich.—Steel vault; vitreous china bowl. Sewage disposal plant for rural or village homes, schools and factories. Requires no water or sewer, chemical liquifies and sterilizes sewage. Special agitator assists greatly in liquifying process. Made in two sizes and styles.

**Chemical Closets, "Ro-San," Rowe Sanitary Mfg. Co.,** 210 6th St., Detroit, Mich.—All-metal construction.

**Indoor Sanitary Chemical Closet, "Comfort," Robinson Cabinet Mfg. Co.,** Toledo, Ohio.—Made of metal and steel; odorless and absolutely sanitary.

**Sanitary Closets, "Bowser Sanitary Closet," Bowser Sanitary Mfg. Co.,** 96 Trust Bldg., LaFayette, Ind.—White china bowl and 130 gallon iron tank. Twin ventilators, automatic agitator-submerger. Attractive oval-base bowl.

**Waterless Closet, "Kaustine Sewage Dis-**

**posal System," Kaustine Co., Inc.,** Buffalo, N. Y.; **Factory, Perry, N. Y.**—Bowl, highest grade vitreous earthenware or porcelain enamel iron. Cover, mahogany or golden oak. 14-gauge solid welded Amco Iron. Completely sterilizes and liquefies sewage; destroys odors. May be built within any dwelling; factory, or other building. Applies all territory where sewers are absent.

#### VACUUM CLEANERS.

**Portable and Stationary Vacuum Cleaners, "Thurman," Thurman Vacuum Cleaner Co.,** St. Louis, Mo.—Systems from 1/6 to 30 horse power, for residences, buildings, schools, etc.

#### WATER SUPPLY SYSTEMS.

**Fairbanks-Morse Water System, Fairbanks, Morse & Co.,** 900 So. Wabash Ave., Chicago, Ill.—Give water supply under even pressure equal to city service, for farm homes, clubs or suburban houses. Pumps are driven by electric motor or engines as desired. Complete plant is made up of standard parts combined to completely meet the requirements of the house it is to supply.

#### WINDOW VENTILATORS.

**Sash Rail and Window Ventilators, Pullman Auto. Ventilator Mfg. Co.,** York, Pa.—Regular and special types.

## Sheet Metal Goods

Including Coal Chutes, Eaves Troughs and Conductors, Skylights, Metal Ceilings, Metal Mouldings, Metal Doors, Sash and Windows.

#### ARCHITECTURAL SHEET METAL.

**Architectural Sheet Metal Work, The W. H. Mullins Co.,** 214 Franklin St., Salem, Ohio.—Special designs from architects' drawings; will submit photographs of models for approval and will reproduce every line and detail of models in finished work in sheet zinc and sheet copper.

#### COAL CHUTES.

**Coal Chutes, "Canton," Canton Foundry & Machine Co.,** Canton, O.—Semi-steel; no glass to break; burglar-proof; solid panel, strong, neat.

**Coal Chutes, "Kewanee All-Steel," Kewanee Mfg. Co.,** Kewanee, Ill.—Made of steel throughout. Automatic in action, guaranteed against breakage.

**Foundation Coal Chutes, Residence and Store, "Majestic," The Majestic Co.,** Huntington, Ind.—Made of cast semi-steel and steel. Door protects building, locks automatically and serves as window. Made in seven styles; two sizes each style, covering all requirement of building.

**Fuel Chute, "Best," Sterling Foundry Co.,** Sterling, Ill.—Cast-iron frames and doors, steel tubes, doors with or without glass; heavy screen; two styles, three sizes; hooks automatically in two positions—open and closed.

#### CONDUCTOR PIPE.

**Conductor Connectors and Boots, "Universal," Canton Foundry & Machine Co.,** Canton, O.—Cast-iron. Neat, easily applied; will outlast any number of tin connections; an ornament that is both practical and economical.

#### CORNICES.

**Cornices, "Willis Products," Willis Mfg. Co.,** Galesburg, Ill.

#### GALVANIZED SHEETS.

**Galvanized Sheets, Apollo-Keystone Copper Steel, "Apollo-Keystone," American Sheet & Tin Plate Co.,** Frick Bldg., Pittsburgh, Pa.—For all forms of sheet metal work. Made with base of copper steel alloy, giving greatest durability and resistance to rust. This material also supplied in corrugated and formed sheets, black sheets, roofing tin plates and special sheets for special purposes.

#### BENCH LEGS.

**Bench Legs, "Garwood," Garwood Bronze & Iron Works, Garwood, N. J.**—Legs for shop and garage work benches; made of cast iron; makes up strong and rigid bench, not requiring bracing to wall or posts.

#### COPPER.

**Copper in Sheets, Plates and Rolls, C. G. Hussey & Co.,** Pittsburgh, Pa.—Copper nails, rivets, conductor pipe, eaves trough, elbows, sheets, mitres, soldering coppers, gaskets, etc.

#### METAL LATH.

**Metal Lath, "Bostwick Truss-Loop,"** a distinctive type, **Bostwick Steel Lath Co.,** Niles, Mich.—"Truss" for greater weight carrying capacity, extreme weight 5 and 3 lbs. per square yard, consequent increased strength, allowing studding and joists to be spaced from 16 to 24 inches on centers instead of 12 inches.

**Metal Lath, "Keyridge," Edwards Mfg. Co.,** Cincinnati, Ohio.—"Keyridge" is not expanded in any manner, but is made from a solid sheet containing dovetail grooves, between which are perforations so constructed as to give rigidity to the sheet and perfect bond to plaster, cement or stucco. Made from best quality open hearth metal, 24, 26, and 28-gauge in sheets 24 inches wide and any length up to 12 feet.

#### MARQUISES.

**Marquises, "Willis Products," Willis Mfg. Co.,** Galesburg, Ill.—Sheet metal and steel construction.

#### SKYLIGHTS.

**Skylights, Galvanized Iron, The Edwards Mfg. Co.,** 401 Eggleston Ave., Cincinnati, Ohio.—Frames of galvanized iron or copper; all condensation of moisture from glass carried by gutters in sash bars direct into curb and then discharged through "weep holes" upon the roof; give ventilation without obstructing light by chain or cord operated from below.

**Skylights, "Willis Products," Willis Mfg. Co.,** Galesburg, Ill.—In all types. A man, a hammer and screw driver to erect.

#### METAL CEILINGS.

**Metal Ceilings, Berger Mfg. Co.,** Canton, Ohio.—Give same artistic effect as moulded plaster, but cost much less and are more durable. Cannot crack, chip or fall. Fire retardant. Improved bead and button construction makes a perfectly tight joint without tamping or caulking. Perfectly constructed, easily and quickly erected. Many beautiful designs.

**Metal Ceilings, Canton Metal Ceiling Co.,** 1947 Harrison Ave., Canton, Ohio.—Manufacturers of metal ceilings, shingles, roofing, siding, building corners, wall ties, etc.

**Metal Ceilings and Walls, The Edwards Mfg. Co.,** 401 Eggleston Ave., Cincinnati, Ohio.—Embossed. Made from sheets of mild steel, usually of 28 or 29 gauge, and will weigh about 70 pounds to the 100 square feet. They are given a priming coat of paint both sides before shipping.

**Metal Ceilings, "Meeco," Moeschl-Edwards Corrugating Co.,** Covington, Ky.—Stock designs of special construction to meet all architectural requirements.

**Metal Ceilings, "Willis Products," Willis Mfg. Co.,** Galesburg, Ill.—Standard or special.

**Steel Ceilings, "Canton," Canton Art Metal Co.,** E. Lincoln Highway, Canton, Ohio.—The original ceilings with the famous Die Cut nailholes clear through; and repressed Bead Joints, fire retarding, will not crack, peel or fall off. Economical and sanitary.

**Steel Ceiling, "Moore's Lock Joint," S. Keighley Metal Ceiling & Mfg. Co.,** Pittsburgh, Pa.—Seams or joints are locked on all four sides after plates are in position.

**Steel Ceilings and Sidewalls, "Kanneberg," The Kanneberg Roofing & Ceiling Co.,** Canton, Ohio.—Heavily embossed designs resquared after stamping, perfect fit. A special service in the preparation of suitable designs, blue prints, etc.

#### METAL MOULDINGS.

**Metal Mouldings, "Kawneer," Kawneer Mfg. Co.,** Niles, Mich.—All metal. All forms and designs of metal mouldings made to order and stock designs.

**METAL DOORS, SASH AND WINDOWS. Solid Steel Casements, "Fenestra," Detroit Steel Products Co.,** Detroit, Mich.—Designed for high-class office buildings and factories. Underwriter's sash, approved by the Board of Underwriters; excessive heat closes them automatically.

**Hinged Doors, "Fenestra," Detroit Steel Products Co.,** Detroit, Mich.—Also rolling doors, single and double.

**Sidewalk Doors, "Canton," Canton Foundry & Machine Co.,** Canton, O.—Semi-steel. Solid doors have heavily reinforced diamond steel tops. Both solid and illuminated types; one-piece semi-steel frames. Doors are flush and well drained. Comply with all city regulations.

**Steel Sash, "United Steel Sash," Trussed Concrete Steel Co.,** Youngstown, Ohio.—Made of steel. Permanent; fireproof; spring clip glazing; includes special casement sash and doors.

**Metal Windows, "Kawneer," Kawneer Mfg. Co.,** Niles, Mich.—Made of all metal. Industrial sash casement pivoted and revolving of steel, copper or bronze.

**Fireproof Windows and Doors, "Willis Products," Willis Mfg. Co.,** Galesburg, Ill.—Made in all types with "Underwriters' Label" attached.

**Solid Steel Windows, "Fenestra," Detroit Steel Products Co.,** Detroit, Mich.—Including side-wall sash, "Wall of Daylight," for modern factories; Monitor sash, for saw-tooth and other roof construction; fire-escape sash, designed especially to open on fire escape in office building and factories; horizontally sliding sash, for all types of factory construction; institutional sash, for asylums, jails, penitentiaries, etc.

**Sunshine Windows, Shrauger & Johnson,** Atlantic, Iowa.—Metal cellar windows, hog house roof windows, sidewall windows, sidewall windows for cement block construction. All made of metal.

## Wire, Copper, Iron and Steel Specialties

Including Bench Legs, Copper, Expanded Lath, Fences and Gates, Fire Escapes, Gutter Boxes, Lighting Rods, Metal Lath, Railings, Reinforcing, Safety Guards, Screen and Wire Cloth, Screens, Snow Guards, Wheel Guards, Window Guards.

**Metal Lath, "Sykes Expanded Cup Lath, Self-Furring," Sykes Metal Lath & Roofing Co.,** Warren, Ohio.—Made from the best quality open-hearth sheets. Stucco work and all kinds of plaster work. For outside stucco work it can be used without furring strips. This construction saves money, but you can secure a better wall.

**Metal Lath, "Hy-Rib," "A" Lath, "B" Lath, "Standard Rib" Lath, Trussed Concrete Steel Co.,** Youngstown, Ohio.—Made of concrete, stucco and plaster. Studs dispensed with; no centering; no shrinking or swelling; fireproof.

**Expanded Metal Lath, Berger Mfg. Co.,** Canton, Ohio.—Fire-resistant and non-combustible. Adds strength and stability to the walls and prevents the plaster from cracking. Sound, vermin and rodent proof. Easily and quickly applied.

**Expanded Metal Lath, "C. B. S.," Chicago Builders' Specialties Co.,** 11 S. LaSalle St., Chicago.—Made from high-class open-hearth steel; provides a smooth and even surface for plastering; excellent for stucco work; self-furring, non-rusting, stiff and rigid.

**Expanded Metal Lath, "Eureka," North Western Expanded Metal Co.,** 903 Old Colony Bldg., Chicago.—A fabric of approx-

imately diamond-shaped meshes. A strong lath with a slightly larger mesh than "Kno-Burn" lath. Particularly adapted for use in the construction of solid plaster partitions.

**Expanded Metal Lath, "Kno-Burn," North Western Expanded Metal Co.,** 903 Old Colony Bldg., Chicago.—A fabric of small diamond-shaped meshes. Provides a smooth and rigid surface for plastering on walls, ceilings and partitions. Requires a minimum of plaster and provides a perfect "key." Can be easily cut or shaped.

**Expanded Metal Lath, "Kno-Fur," North Western Expanded Metal Co.,** 903 Old Colony Bldg., Chicago.—A fabric of small meshes in which have been formed ribs one-half inch high. "Kno-Fur Regular" has the same mesh as "XX Century" and is manufactured from the same acid-resisting sheet. "Kno-Fur Special" has the same mesh as "Eureka" and is manufactured from the same metal. This lath can be used without furring strips.

**Expanded Metal Lath, "XX Century," North Western Expanded Metal Co.,** 903 Old Colony Bldg., Chicago.—A fabric of small diamond-shaped meshes. Manufactured from a special alloy sheet and guaranteed to resist the action of acids. Intended for walls, ceilings, partitions.

## Wire, Copper, Iron and Steel Specialties (Continued)

**Integral Metal Lath, "Chanelath," North Western Expanded Metal Co.,** 903 Old Colony Bldg., Chicago.—T-ribs spaced 4 inches on centers and joined by an expanded metal fabric. This material combines a metal lath with the necessary furring or metal studding and is also intended for use as a combined reinforcing and form for concrete construction.

**Wire Lath, Clinton Wire Cloth Co.,** Clinton, Mass.—Makers of "Pompeian Bronze," "Golden Bronze," Clinton Painted and "Silver Finish" Screen Cloths, Clinton "Silver Finish" Brand poultry netting, hardware cloth, Clinton electrically-welded fabric for reinforcing concrete and Clinton perforated metal products.

**Wire Lathing, Buffalo Wire Works Co., Inc.,** 11 So. 7th St., Buffalo, N. Y.—Grimm's galvanized corrugated wire lathing; Greening's patent trussed steel wire lathing; plain steel wire lathing; bank and office railings; wire cloth of steel, brass, copper, bronze, phosphor bronze, aluminum, tinned, monel metal; also wickets, panels, door grilles, elevator enclosures, elevator cabs, wire signs, wire lockers, window guards, skylight guards, folding gates, vine trainers, coal screens, sand screens, wire fencing, machinery guards.

**Wire Lathing, Wright Wire Co.,** Worcester, Mass.—Three Finishes, plain, japanned and galvanized.

### FENCES AND GATES.

**Wire and Iron Fences, Barbee Wire & Iron Works,** 174 No. Dearborn St., Chicago, Ill.—Made of wire or wrought steel. A complete line.

**Ornamental, Factory or Cemetery Fencing, "Complete," Globe Fence Co.,** North Chicago, Ill.—Premier, Pioneer, Paragon and non-climbable constructions. Fence fabric with steel posts, rail fittings. Fabric is heavy, strong and closely spaced; frame work is rigid and durable. Can be erected on ground. Does not obscure the view. Promote sanitary conditions.

**Fabrics for Erection on Wood Posts, Globe Fence Co.,** North Chicago, Ill.—Style No. 1 Fabric: Pickets are of No. 9 heavily galvanized wire spaced 2 1/2 inches apart at the top, with an additional No. 9 galvanized picket interwoven in the lower half so as to give an extra spacing of 1 1/2 inches at the bottom. Cables are of heavily galvanized wire spaced about 6 inches apart, except the two top cables, which are spaced 2 1/2 inches apart. Top finished smooth by turning back the pickets and weaving them into the two upper cables. Makes a strong as well as ornamental top. Style No. 2 Fabric: Same as No. 1 except lower picket is not interwoven. Pickets are spaced 2 1/2 inches throughout. Style No. 3 Fabric: Same as No. 1 except the lower picket extends the entire height of fabric, giving a spacing between pickets of 1 1/2 inches throughout. An unusually strong fabric with very close mesh.

**Ornamental and Farm Gates, Globe Fence Co.,** North Chicago, Ill.—We make gates of all kinds.

### FIRE ESCAPES.

**Fire Escapes, Barbee Wire & Iron Works,** 174 No. Dearborn St., Chicago, Ill.—Made of wrought steel. No public building or

school should be without a fire escape. Efficient protection against loss of life by fire is a necessity.

**Fire Escapes, "Kirker-Bender Spiral Slide," Dow Wire & Iron Works,** Louisville, Ky.—Sheet steel six feet in diameter. Enclosed and protected from flames, smoke and the weather, snow and ice.

### GUTTER BOXES.

**Sidewalk Gutter Boxes, "Canton," Canton Foundry & Machine Co.,** Canton, Ohio.—Made of cast iron. Five sizes, made in sections of 5 inches or less to suit distance from property to curb line.

### LIGHTNING RODS.

**Lightning Rods, "Barnett System," Jos. Barnett & Co., Inc.,** Riverside, Iowa.—Pure copper cable lightning rods; made of Lake Superior copper; wire woven so as to expose largest conducting surface for electricity; eight different cables; three distinct weaves.

**Lightning Rods, Reyburn, Hunter & Co.,** 412 N. Sangamon St., Chicago.—Copper cables and other styles of conductors and equipment.

**Lightning Rods, Pure Copper Cable, Fixtures and Ornaments, Martin's "Old Reliable," The Martin Co.,** 41 State St., Sac City, Ia.—Guaranteed to protect against lightning.

**Lightning Rods, Shinn Bonded Copper Cable, W. C. Shinn Co.,** Lincoln, Neb.—The only bonded rod manufactured. Sold only by reputable dealers, who understand proper installation. The Shinn four-legged patented self-locking brace locks the top upright, absolutely preventing sagging or rattling.

### RAILINGS.

**Desk Rails, Floor Rails, etc., Barbee Wire & Iron Works,** 174 No. Dearborn St., Chicago, Ill.—Made of wire and wrought steel.

**Stair Railings, Barbee Wire & Iron Works,** 174 No. Dearborn St., Chicago, Ill.—Made of wrought steel. Manufacture a general line of plain and ornamental stair and balcony railings.

### REINFORCING MATERIALS.

**Expanded Metal, Berger Mfg. Co.,** Canton, Ohio.—A standard reinforcement for concrete floors, roofs, bridges, culverts, sewers, conduits, water mains, reservoirs, dams, retaining walls, sidewalks, and, in fact, any work where uniform distribution of steel is desired.

**"Ferro-Lithic," Berger Mfg. Co.,** Canton, Ohio.—For reinforcing and centering concrete slabs for flat or arched roofs and floors, sidings of buildings, sidewalks, etc. Require no supports for short spans. Light in weight and minimize dead load.

**Ribbed Metal Lath, "Bostwick Truss-V-Rib," Bostwick Steel Lath Co.,** Niles, Mich.—Truss construction for weight and carrying capacity. An ideal material for light concrete work without forms or stiffening channels.

**"Rib-Trus," Berger Mfg. Co.,** Canton, Ohio.—For roofs, floors, walls, etc. Have great tensile strength and serve both as a reinforcement and centering. Ribs stiffen the plate while concrete is being applied. Save time, labor and material.

**Steel Concrete Reinforcing, "Econo" Expanded Metal, North Western Expanded Metal Co.,** 903 Old Colony Bldg., Chicago.—A steel fabric of diamond-shaped meshes varying in size from 3/4 x 1 1/2 inches to 5 1/4 x 12 inches. The diamond-shaped mesh provides a perfect bond between the steel and the concrete. Concentrated loads are distributed over a large section of the reinforcing.

**Steel Rods, Metal Lath, "Kahn Bars," "Rib Metal," "Hy-Rib," Trussed Concrete Steel Co.,** Youngstown, Ohio.—Rigidly attached diagonals, deformed bars, centering dispensed with.

### SAFETY GUARDS.

**Wire Hood Circular Saw and Simplex Shaper Guards, Zeller & Nagel,** 232 Java St., Brooklyn, N. Y.—Give maximum protection. Minimum interference with work. Efficient, practical, reliable and fully approved. 3,500 installed.

### WIRE CLOTH.

**Wire Cloth, "Pearl," Gilbert & Bennett Mfg. Co.,** Georgetown, Conn.—"As near rust proof as metal can be made"; look for the two copper wires in the selvage.

**Wire Screen Cloth, Rust-Proof Alumina Oxide Bronze, "Sun-Red Selvage," Reynolds Wire Co.,** Dixon, Ill.—Made of Alumina, 10-coat electro-galvanized after weaving. Sun-red selvage—the exclusive quality identification and guarantee on black painted cloth.

### SCREENS.

**Fly Screens, "Cinmanco," The Cincinnati Fly Screen Co.,** Gest & Evans St., Cincinnati, Ohio.—Rewireable.

**Shades and Screens, Standard Screen Co.,** 1858 Hastings St., Chicago.—Window shades and screens and screen doors made to measure; corners of screens mortised and frames grooved to secure the strands of wire firmly.

### SNOW GUARDS.

**Snow Guards, Clason Metal Works,** Providence, R. I.—Prevent snow sliding off roof, tearing away and damaging gutters and injuring passers-by; easily and quickly applied.

### WHEEL GUARDS.

**Wheel Guards, Corner and Jack, "Canton," Canton Foundry & Machine Co.,** Canton, Ohio.—Made of cast iron. Strong and well made to protect all corners. Jamb guards made in rights and lefts for entrance ways.

### WINDOW GUARDS.

**Window Guards, The Barbee Wire & Iron Works,** 174 No. Dearborn St., Chicago, Ill.—Made of wire or wrought steel. Can be made plain or ornamental as desired. The line is a complete one suitable for any building.

**Wire Window Guards, Cincinnati Mfg. Co.,** Cincinnati, Ohio.—Counter railings, elevator enclosures, tubular handrails, brass and bronze work.

**Builders' Iron Work, Dow Wire & Iron Works,** Louisville, Ky.—Window guards, balcony railing, columns, lintels, sills, treads, risers, newels, brackets, struts, hangers, fencing and everything in the ornamental line.

## Miscellaneous Equipment and Supplies

Including Assembly Seatings, Books, Crayons and Pencils, Instruction, Motor Trucks, Portable Buildings, Typewriters, Vulcanizing.

### ASSEMBLY SEATINGS.

**Assembly Seatings, Moore Mfg. Co.,** Springfield, Mo.—Made of wood and metal. For railroad stations, public halls, theatres, churches, schools, court houses, parks, lawns, porches with accessories.

### BOOKS.

**Building and Plan Books, Radford Architectural Co.,** 1827 Prairie Ave., Chicago.—Books on estimating, steel square, cement, carpentry; plan books for bungalows, cottages, stores and flats, and everything in modern construction.

**"The Lightning Estimator," Bradt Publishing Co.,** Jackson, Mich.—Simple, rapid, systematic, practical treatise on estimating; based on actual experience.

### CRAYONS AND PENCILS.

**Carpenter Pencils, "Dixon's," Joseph Dixon Crucible Co.,** Jersey City, N. J.—Seven, 9 and 12-inch lengths; flat, oval and hexagon shapes; beveled edges; satin, maroon, mottled, polished cedar, tortoise, red and black, yellow and natural finishes.

**Lumber Crayons, "Dixon's," Joseph Dixon Crucible Co.,** Jersey City, N. J.—Hexagon shape, hard; vivid and durable marks; eleven colors: black (medium and soft grades, japanned and paper covered), white, violet, pink, orange, brown, yellow, terra cotta, red, blue and green; uniformly 4 1/2 inches in length and 1/2 inch diameter.

### INSTRUCTION.

**Instruction by Mail, Engineers' Equipment Co., Inc.,** Chicago.—Instruction in draftsmanship and engineering.

**Instruction by Mail, Chicago Technical College,** 1020 Lake View Bldg., Chicago.—A practical course for builders and carpenters.

**Instruction, International Correspondence Schools,** Scranton, Pa.—Instruction by mail in all building, architectural and engineering courses.

### MOTOR TRUCKS.

**Delivery Cars, "Overland," Willys-Overland Co.,** Toledo, Ohio.—35 horse power; electrically lighted and started; high-tension magneto ignition; revolving oil indicator; large tires and other advantages.

**Motor Trucks, "KisselKar," Kissel Motor Car Co.,** Hartford, Wis.—Made in seven sizes, from 1,000 pound delivery to six tons capacity.

**Auto Trailers for Contractors, "Jackson," Miles Mfg. Co.,** Jackson, Mich.—Made of special steel and wood. Adjustable drawbar for any height auto frame. "All-Way" coupling. Special model for contractors.

**Automobile Trailers, "Lion Auto Trailer," The Lion Buggy Co.,** Cincinnati, Ohio.—Made in two-wheel and four-wheel models,

with Timken Roller Bearing Axles; capacity 1,000 pounds. Converts pleasure car into a truck in a moment's notice. Time and money saver.

### PORTABLE BUILDINGS.

**Metal Fireproof Garages, Edwards Mfg. Co.,** Cincinnati, Ohio.—Make three types and a wide variety of different styles and sizes of each type. Edwards "Steelcote" Garages have frame of wood, covered by non-rusting "Tightcote" metal. Edwards "Stucco Steel" Garage has framework of 2 x 4 dressed lumber; on wood framing are nailed horizontal sheets of Edwards "Keyridge" metal, which grip the plaster and is fireproof; two coats of hard cement plaster are applied to keyridge metal. Edwards "All-Steel" Garages are of steel in both frame and covering.

**Metal Shelter Structures, Metal Shelter Co.,** Whitehall Bldg., New York.—Garages, cottages, bungalows, stores, etc.

### TYPEWRITERS.

**Typewriters, H. A. Smith,** 721 N. 5th Ave., Chicago.—Every modern style of typewriter.

### VULCANIZING.

**Vulcanizing, Haywood Tire & Equipment Co.,** 695 Capitol Ave., Indianapolis, Ind.—Outfits for vulcanizing auto tires.

# 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

### Which is the Correct Way?

To the Editor: Clearmont, N. H.  
I wish to ask a little question in regard to putting on clapboard siding. Which is the proper way to lay the same, whether as shown in Fig. 1 with even breaks, or as shown in Fig. 2 with uneven breaks? Please decide, as the other

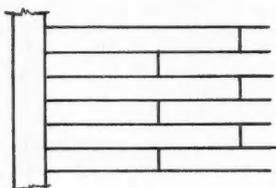


FIG. 1.

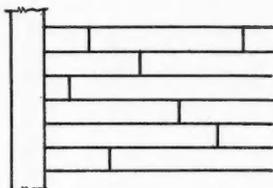


FIG. 2.

Broken and Even Joints on Clapboard Siding. Which is Correct?

fellow and I will go by your answer to settle the question.  
HARRY F. HOWARD.

Answer—While Fig. 2 is exaggerated, in that too many joints come too near the end to make it look well, we believe broken joints to be the proper or most mechanical way of putting on the siding.  
EDITOR.

### A Missouri Barn

To the Editor: Bertrand, Mo.  
I am a charter member to the AMERICAN CARPENTER AND BUILDER and think it the best paper out; have every copy but one.  
I see some of my brother carpenters have been sending in some of their work, and so I am sending you herewith photograph of one of two barns I built last fall, which may



Barn Built for Mr. E. E. Lett at Bertrand, Mo., by M. Lепley.

prove of interest to you. One is a barn 40 by 50 feet with No. 30 "Monitor" cupolas on it, which I am agent for. They give perfect satisfaction. The other barn is 42 by 72 feet, with full gambrel roof, with small cupola of my own make.  
M. LEPLLEY.

### Handrailing Scroll with Face Mould

To the Editor: Sedalia, Mo.  
I wish you would, through the columns of the "A. C. & B." give some information in regard to a stairway. Suppose we have a stairway with circle end tread and want a rail and cap to form the newel top, with balusters for newel. Rail to be on the spiral order. I want to know the best way to lay off the rail to suit the size of step.

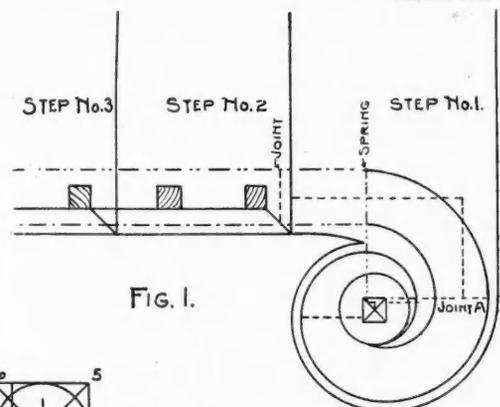
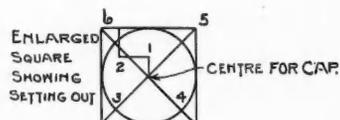
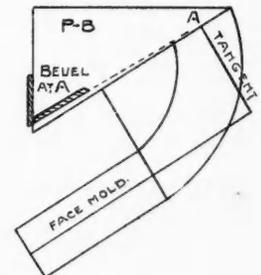


FIG. 1.



HANDRAIL SCROLL WITH FACE MOLD.

Detail of Spiral Rail Fitted to Size of the Step.



Answer—Fig. 1 shows Plan of Scroll and steps.

In setting out scroll, draw cap first; if rail is to be 3 inches wide make cap one-third larger, then form a square one-third the diameter of the cap, then draw the lines from each corner of square, cutting the center of the cap. Then draw the circle inside the square, raise the line from the center to 1, then vary the line 2, cutting where the cross line and inner circle meet, then draw the line 2-1, which gives all the points. First set your compass at 1 and to the under-

(Continued to page 94)



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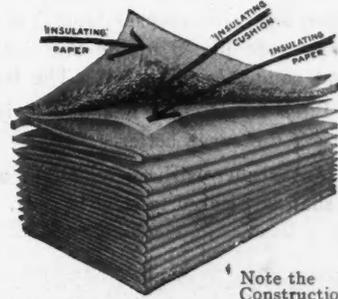
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Note the Construction

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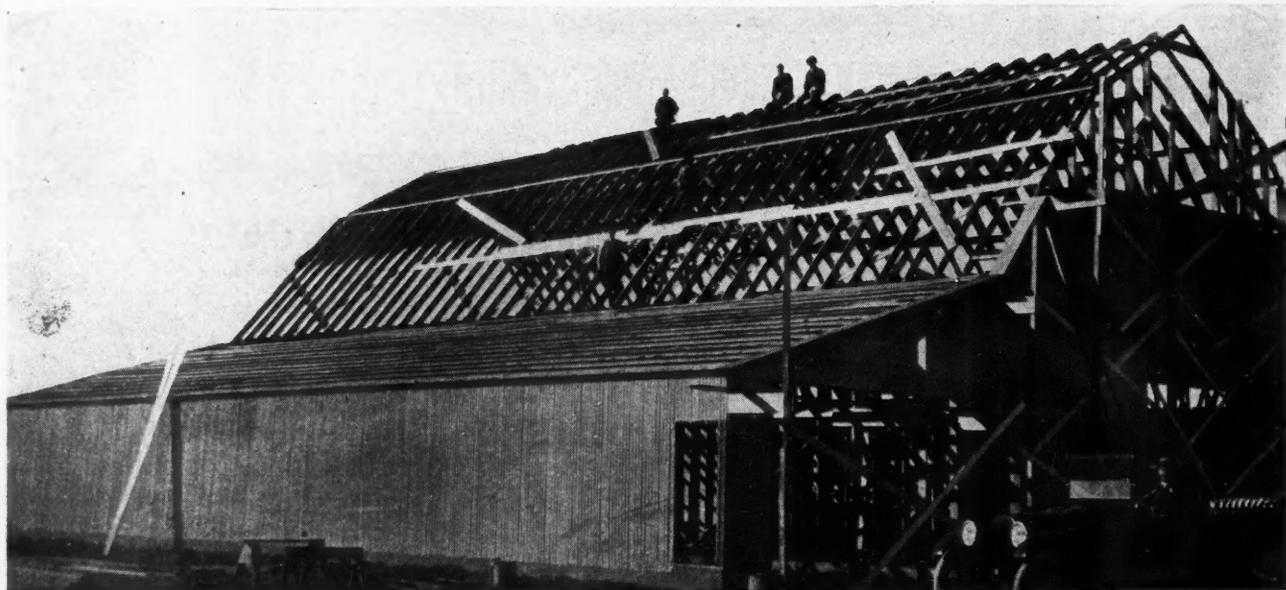
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360



Combined Barn and Machine Shed, Built by Louis DeBrunner, Lodge Pole, Nebr.

side of the cap, draw your first quarter (as shown by dotted lines), then at 2, 3, 4, 5, and 6, which completes the outside. Then set your compass from 5 to the under side of the cap, draw your line 5 to the line 5, 6, extend then from 6 and that completes the scroll. The line 5, 6 gives joint.

Pitch board. Set it about  $\frac{3}{4}$  inch below the proper pitch to get the curve better.

Any reader wishing templates and paper details for same, I shall be pleased to send by post. JOHN MACLACHLAN.

### Combined Barn and Machine Shed

To the Editor:

Lodge Pole, Neb.

I am sending you a photo of a combined barn and machine shed, 60 by 80 feet, 14-foot posts, erected in Western Nebraska.

The barn is to be used this season to store baled hay, and when completed will hold 350 tons.

This photo shows the job just at the time we were commencing to sheath the main roof.

LOUIS DEBRUNNER,  
Contractor and Builder.

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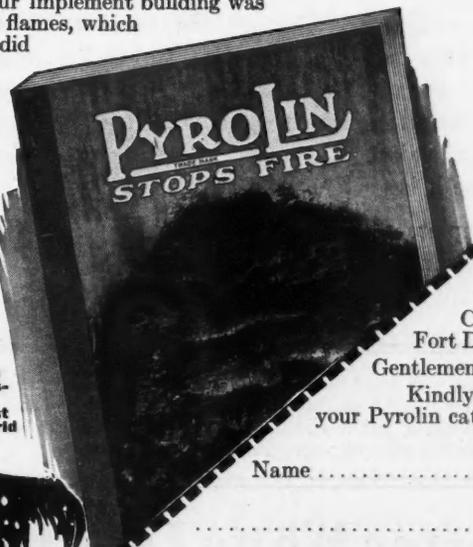
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### Square Questions

To the Editor:

Kankakee, Ill.

I have one of your books on the square and have tried to apply it in reading square. On one side of the square is a rafter table and for some reason or other my mathematical interpretation of the length of a common rafter does not work out with the rafter table. Am appealing to you for light on the subject.

My understanding is that the inch marks on the blade are for the rise, regardless of the run, altho the pitches  $\frac{1}{2}$ ,  $\frac{1}{3}$ , and  $\frac{1}{4}$  are generally recognized.

Take for instance a small model building, 18 in. rise and 36 in. width of building, or one-half pitch. According to the square 21.63" per foot run or  $21.63" \times 1\frac{1}{2} = 32.44"$ , length of common rafter on this building.

Now suppose we take 18" on the tongue for rise and 18" on blade for run, and then measure diagonally across, and we find the hypotenuse of length of common rafter is about 25 $\frac{1}{2}$ ". Then again, if we use our mathematics, we have  $(18)^2 + (18)^2 = 648$ .  $\sqrt{648} = 25.45"$ .

The diagonal and mathematical methods are the same, but do not conform to the square. I take it that I do not know how to read the square. Will you kindly straighten out this tangle?

You mention using 17 on the hip and valley rafters; is this always true, regardless of the pitch or how it is determined?

Will certainly appreciate an early reply, and thank you.

KANKAKEE.

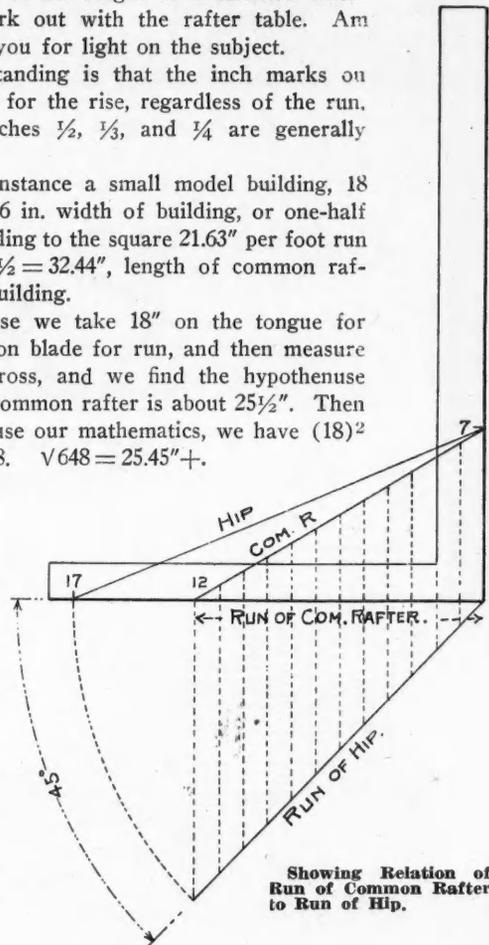
*Answer*—Your mathematics are right and so is your square, as far as it goes, but evidently you are reading it wrong. What you have, is one of the patented square that claim everything and does not enlighten very much.

Now, every inch on the blade stands for so many inches rise to the foot run. So the illustration you are giving is really  $\frac{3}{4}$  instead of  $\frac{1}{2}$  pitch. If you will look for the length at the 12-inch rise, you will find 16.97 which represents the length of the common rafter for a one foot run. Therefore, for an 18-inch run, it would be  $1\frac{1}{2} \times 16.97 = 25.45$  inches, or practically 2 ft. 1 $\frac{1}{2}$  inches.—Answer.

Just remember in reckoning pitches on the square (to the foot run) what the figures on the blade are to its own length. Thus 6, is  $\frac{1}{4}$ ; 12 is  $\frac{1}{2}$ ; 18 is  $\frac{3}{4}$ ; 24 is a whole pitch and 30 is  $1\frac{1}{4}$  pitch, and so on doubling up as we reach far up into the dizzy height, and still some more, yet it (the pitch), would always be off one foot from the perpendicular.

In reality pitches are reckoned in fractions (twenty-fourths) up to one and from that on up indefinitely, it is whole numbers and fractions.

Now, mind you, we have only considered whole inches to the foot run. Just think what a mixture of complex fractions



Showing Relation of Run of Common Rafter to Run of Hip.

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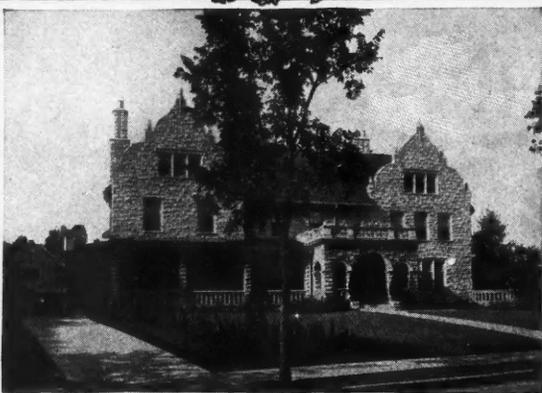
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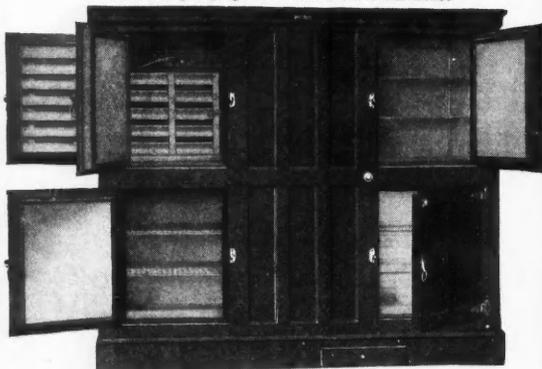
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we would get into, if we considered the fractional parts of an inch. Why a 1/2 inch would be a 1/48 pitch and 1/4 inch would be 1/96 pitch and an 1/8 would be 1/192 pitch and a 1/16 would be 1/384 pitch. This is getting the reckoning down to a pretty small point, but that is what it would be according to the ratio of pitches.

As to the last question, why 17 is used in connection with finding the cuts of the hip and valley rafters, just remember that the hip reaches the same distance across the building as the corresponding common rafter, but as its run rests at an angle of 45 degrees from that of the common rafter, it must necessarily have a gain which is 5/12 more than that for the common rafter; and since 12 is used for the common rafter, plus 5/12 for the hip is 17 and remains so for any even pitched roof having a square corner.

The accompanying illustration shows the relative proportions in connection with the square.

A. W. WOODS.



### Why We Don't Publish Estimates

To the Editor:

Richmond, Va.

I am not in the building business, but subscribed for your magazine for special reasons. My hope was that in publishing sketches, plans, etc., you would show the *estimated cost of construction*. You have rarely done this. Why not show the proper cost or actual cost where the building was erected, or the estimated cost in Chicago?

J. T. LAWRENCE.

*Answer*—There was a time when we made quite a feature of estimates of cost in connection with building designs illustrated in our pages, but we found so many differences of opinion regarding the value of such estimates, that we finally concluded that it was a waste of effort and apt to be misleading. Therefore, have in recent years limited statements of cost to actual known facts.

*The only estimate of cost that amounts to anything is the estimate or preliminary bid of the man who will furnish the material or do the work in each specific instance.*

EDITOR.

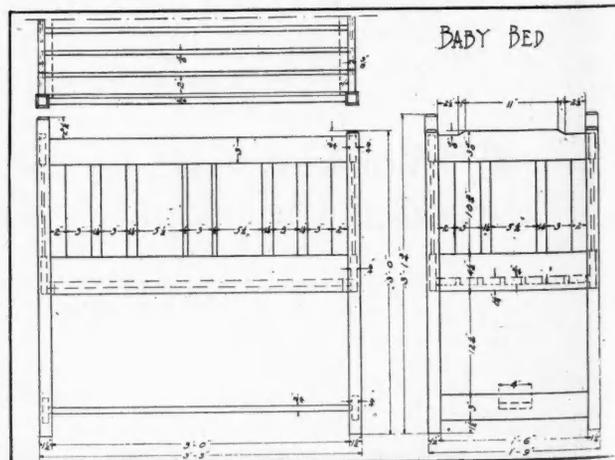


### How to Make A Baby's Bed

To the Editor:

East San Diego, Cal.

For sanitary reasons, babies should sleep by themselves. The bed should not be too low, because it is hard on one's back to bend over when baby needs attention. The bed should also be deep enough so that when the baby begins to walk it cannot climb over the sides of the bed.



Detail Showing Plan and Elevation of Baby's Bed.

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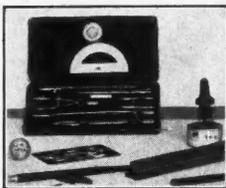
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WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

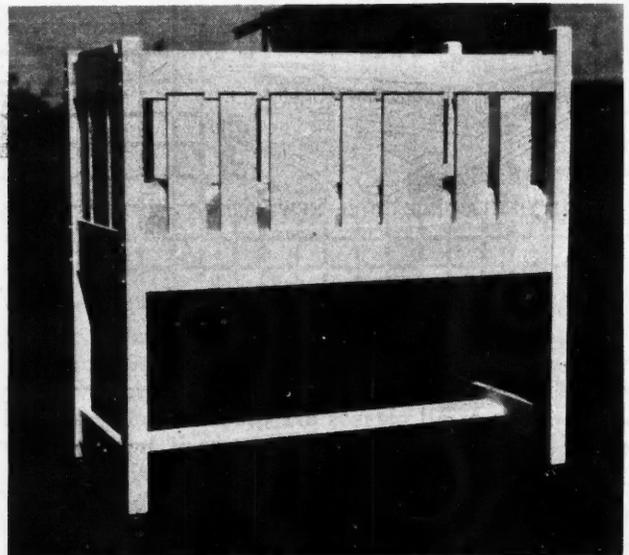
This design is simple and may be easily handled in the home workshop. white pine is perhaps the material best suited for the bed, altho any wood that will cover easily with paint might be used.

The following pieces will be needed:

- STOCK BILL GIVING FINISHED SIZES.
- Head posts—2 pieces, 1½ by 1½ by 37¼ inches.
  - Foot posts—2 pieces, 1½ by 1½ by 36 inches.
  - Rails—2 pieces ¾ by 3 by 19½ inches.
  - 2 pieces, ¾ by 4½ by 19½ inches.
  - 2 pieces ¾ by 3½ by 19½ inches.
  - 2 pieces, ¾ by 3 by 37½ inches.
  - 2 pieces, ¾ by 4½ by 37½ inches.
  - 1 piece, ¾ by 4 by 38 inches.
  - Vertical slats—14 pieces, ¾ by 3 by 11¾ inches.
  - 6 pieces, ¾ by 5½ by 11¾ inches.
  - Slats—7 pieces, ¾ by 2 by 37 inches.
  - Cleats—2 pieces, 1 by 1½ by 18¾ inches.

In making out the stock bill, all tenons have been allowed ¾ of an inch long. The mortises for the vertical slats have been made ½ inch deep.

The bed shown in the illustration was held together by round-headed screws, screwed thru the posts into the side rails. This was done so as to take apart like an ordinary bed.



Bed as It Appears When Completed and Finished in White.

Twenty number 12 by 2 inches round-headed screws were used for this purpose.

Bore holes in each post for casters.

When white pine is used, two coats of interior white paint with a final coat of enamel will give a most satisfactory finish.

P. H. HERON.



### Pretty Good for an Amateur

To the Editor:

Owosso, Mich.

As I am neither a carpenter nor a builder by profession, I thought perhaps I might stir up something by enclosing a picture and floor plans of my residence which I completed about a year ago. I take the honor of drafting, planning and doing most of this work myself. Accordingly it might be of interest to some to know how I manage to do it.

My occupation is Auditor for the Union Telephone Company which occupies eight hours per day of my time. Well, it would make too long an article should I go into detail and tell how two weeks after having purchased my lot I had my plans ready (working nights), and had broken



Ask Your Dealer Why He Recommends

G. & B. PEARL for Screening —

**YOU'LL** find genuine G. & B. PEARL Wire Cloth handled by the best hardware dealer in your vicinity. Ask him why he sells and recommends it for *permanently* screening doors, porches and windows. He will tell you that —

—genuine G. & B. PEARL Wire Cloth ends painting and repairing and replacing screens — once up it is there to stay. Rust, not wear, ruins screens — and PEARL is rust-proof. The metallic coating which gives PEARL its wonderful durability is a secret process of this Company which is one reason why imitations don't wear anywhere near as well as the genuine article. The meshes are smooth and clean—offer least resistance to the vision and become less visible the longer used. Cost of G. & B. PEARL is far below the value it offers in wear and appearance. The one choice of the householder who wants 100% service from his screens is this wire cloth.

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*Made in Two Weights—  
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No sag, sag or bulge to a G. & B. PEARL Screen. The cloth holds up, looks as well and protects as efficiently after years of wear as it does the first day. There are PEARL Screens in your town. Talk to the owners. You don't have to take our word or that of our dealer. Users gladly tell of their experience. The time you spend investigating will pay big dividends in money and trouble saved.

Every roll of G. & B. PEARL has two copper wires in the selva and a Round Tag bearing our name. Insist on the genuine. Call on the hardware dealer in your vicinity who sells PEARL or write us for his name, samples and particulars.

*Conscientious Carpenters, Contractors and Architects  
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Dept. A, (Established 1818) Dept. A,  
277 Broadway, New York 38 S. Dearborn St., Chicago  
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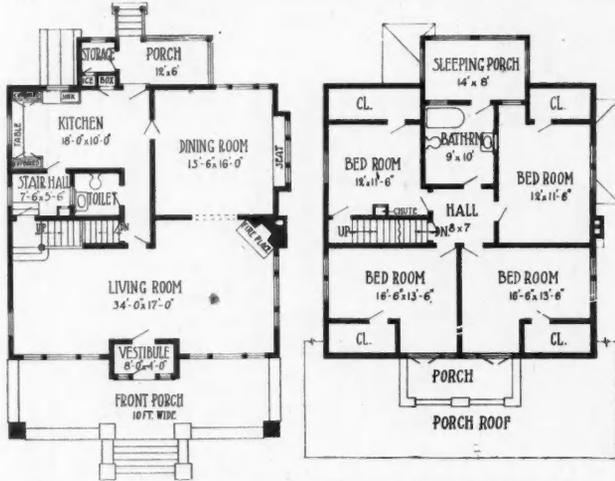


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ground for the full basement, 8 feet in the clear. Then by getting out of bed at 4:00 A. M., built my forms for concrete foundations up to grade line, and then started day laborers to work filling the forms; then with masons and three carpenters until house was inclosed. I spent my two weeks' vacation bossing the job, and for diversion I put in all my heating and plumbing while I was waiting. Then for a little exercise did lathing; laid all my floors solid,

will notice I say "we," because it would not be hardly fair to take all the credit myself, as my wife figured very conspicuously, she having done nearly all the staining and varnishing which is hand rubbed, five coat work. I did the decorating, using water colors. Did we go some! I guess we did, but enjoyed every bit of it. How could I do it? Why I have been a subscriber for the AMERICAN CARPENTER AND BUILDER for years, and if one takes this journal and studies it carefully with other books treating on the different



Floor Plan of House Designed and Built by W. M. Vreeland.



Mr. Vreeland's First Attempt at House Building Shows Here as a Fine Piece of Work.

The first floor was laid with oak, with diagonal border, two quarter sawed pieces and then two plain sawed, alternately,—which by the way makes a very pretty effect. The floor upstairs was laid with maple flooring, and this floor laying also included tile in vestibule, bathroom and fireplace hearth.

branches of the building game, you can do anything with a little preliminary workout.

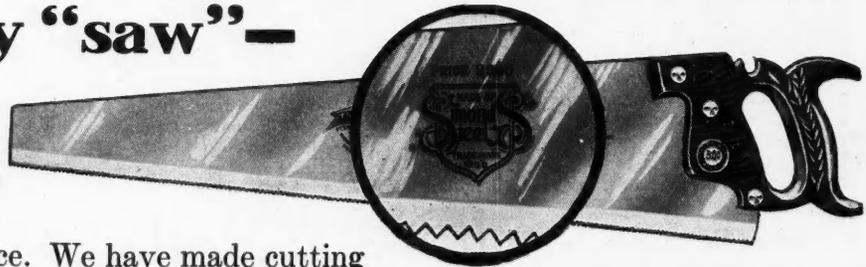
I think this will do for a starter and should anyone desire any further information relative to this building business, let me know and I will consult my library.

We also did all interior finishing and decorating. You

W. M. VREELAND.

(Correspondence Dept. continued to page 106)

**-don't say "saw"-**  
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There's a difference. We have made cutting edge tools for eighty-four years; have put brains, brawn and the best of material into our saws. And the result is a tool of top-notch quality. Our trade-mark is a guarantee of Quality, Temper and Workmanship.

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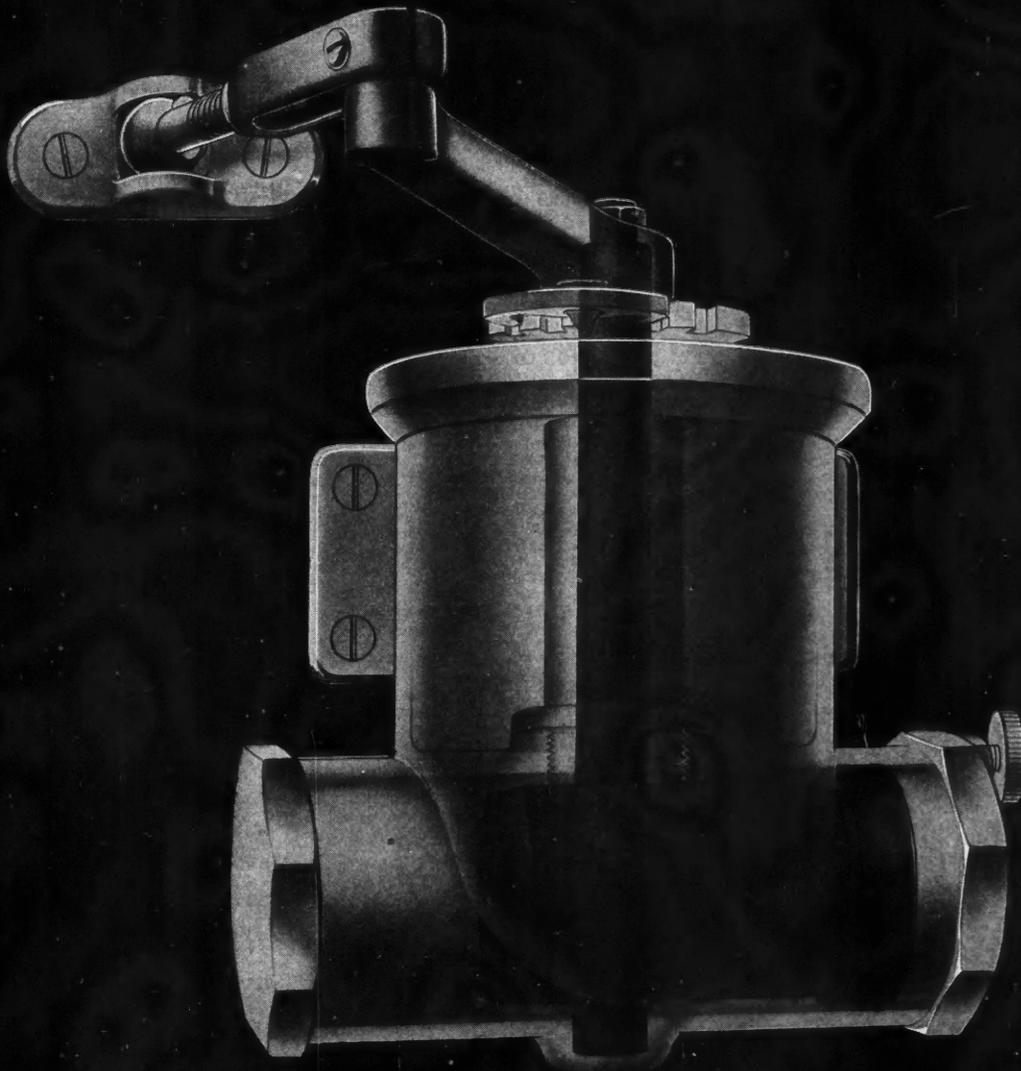


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 Fitchburg, Massachusetts

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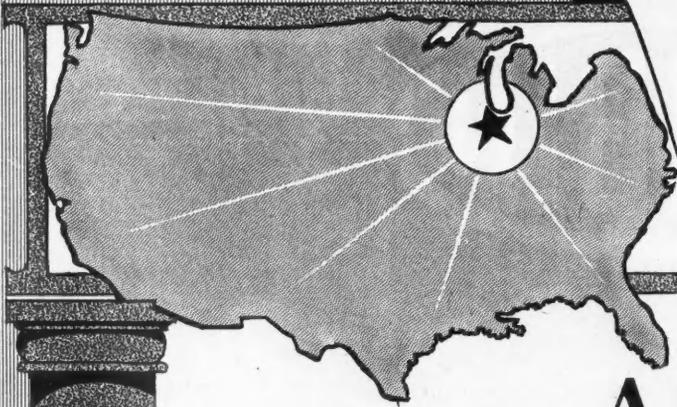
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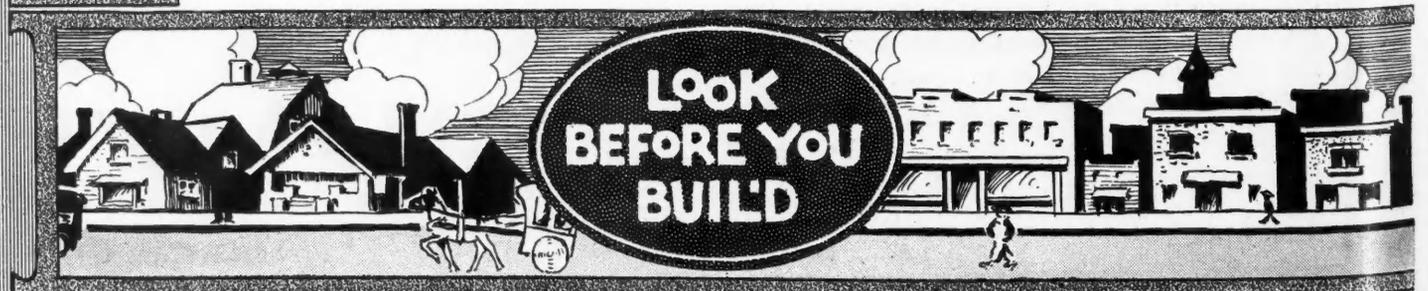
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### SEWAGE EJECTORS.

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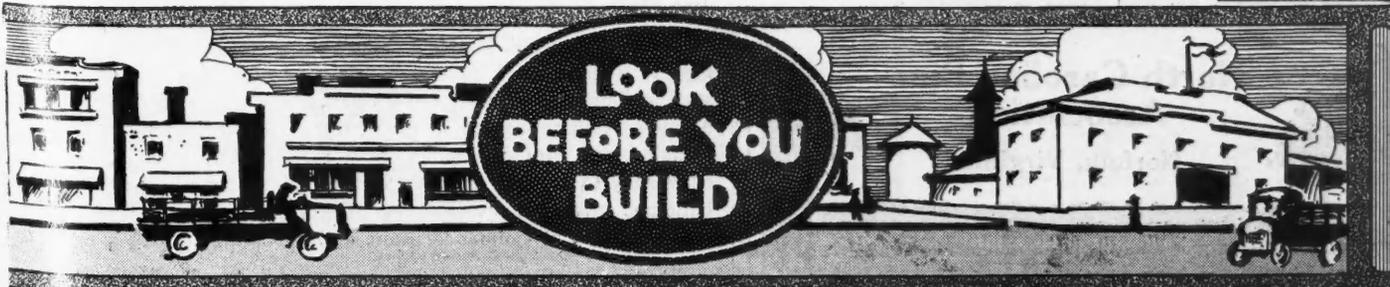
### WIRE GLASS.

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But we do want you to know that it is a most valuable floor material. Especially in cases where your client desires to keep down the investment without sacrificing appearance.

And since flooring is a large item of expense in building, nothing will so thoroughly serve the purpose of an inexpensive, yet beautiful floor, as North Carolina Pine.

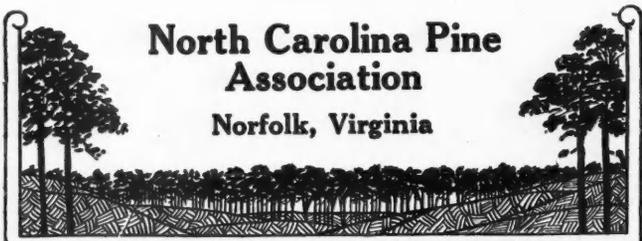
Costing less than hardwoods, it is equally as serviceable, especially when the Rift grain is used. And with its natural, varied grain, which is susceptible to the most charming hardwood effects, North Carolina Pine will give a distinctive and artistic appearance to any room.

The floors in the North Carolina Pine bungalow at the Country Life Permanent Exposition, Grand Central Terminal, New York (which you are invited to inspect), are constructed exclusively of North Carolina Pine, and have elicited favorable comment from the thousands of visitors who have seen this exhibit.

### Architects' and Builders' Reference Book FREE

Write for Architects' and Builders' reference Book, which we have prepared in convenient form for filing. It describes the many uses of North Carolina Pine and the beautiful effects obtainable.

Specimen panels on request.



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Norfolk, Virginia

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### Keeping Tools in Condition

To the Editor:

Napa, Cal.

I have intended for some time to send you my appreciation of the AMERICAN CARPENTER AND BUILDER, and tell the craft thru your columns of a method for trueing up the face of worn oil-stones.

Rub the stone with a circular motion on a flat piece of marble, using water as a lubricant. If the stone is badly worn, sprinkle a little fine sand on the marble to start with. A piece of an old marble table top, or a piece torn from an old marble mantle on some repair or remodeling job is fine for the purpose.

For keeping hatchets, chisels, planers, etc., sharp without becoming blunt by the bevels getting too obtuse there is nothing like a grinder run with pedals like the one made by the Luther Grinder people. This is, of course, for the man who has not access to a power grinder.

And speaking of keeping tools sharp and up to date, the Man from the Lumber Yard hits the nail squarely in his December article.

Yours for continued success,

C. S. EDDY.



### New Use for the 4d

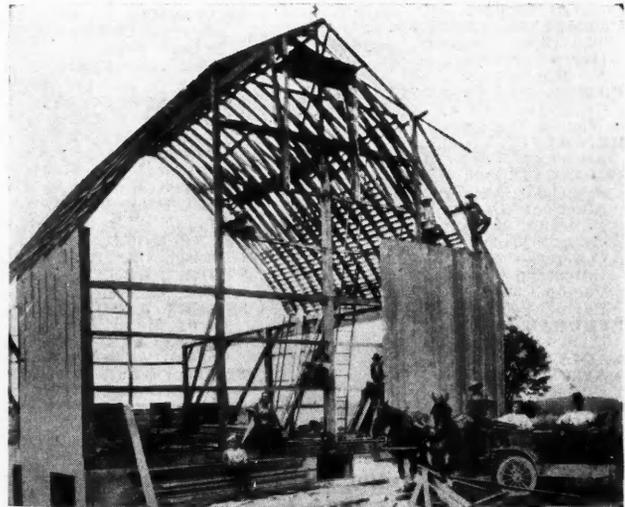
To the Editor:

Larwill, Ind.

This barn is 40 by 70 feet with basement same size, and 9 feet high; has 114 stanchions and six stalls for horses. The upper part is 16-foot siding and is 36 feet to upper point of rafters. The barn has self-supporting roof.

I have a combination saw rig that is equal to four men, run by a 4-h. p., gas engine. We have nine men in the crew, and this photograph shows them raising the rafters with my Ford machine.

I see by the last issue of the paper that they are having



C. M. Noble, of Larwill, Ind., and Nine Men Building a 40 by 70-Foot Barn. Note How Ford Car is Used for Hoisting Rafters Into Place.

some western wind blowing shingles. Well, I can explain how it is done, as I have seen some of the country. Will start at Toronto, Canada, and go across the United States to Mexico. I have worked in nine States, and have seen three shingles laid with one nail. As a rule, in California it is customary to lay two shingles to one nail. I can show some buildings covered this way at San Diego, Los Angeles, Alhambra, Cal., also at Columbus, Kan., and at Chicago, Ill.

C. M. NOBLE.



# Service That Spells Security!

**S**ERVICE is the basic working principle of the Southern Pine Association, an organization of the leading manufacturers of Southern Yellow Pine.

That **SERVICE** embraces practically every interest related to the Southern Yellow Pine industry and practically every person having to do with Southern Yellow Pine. For those who take advantage of it, it is a guarantee of faithful performance from the saw-mill to the consumer. For the Architect and Engineer, it is a safeguard against substitution—the insurance on “getting what you specify.”

That you may be **certain** of this, the Southern Pine Association stands ready to provide, on request and for a nominal charge, competent inspectors to pass upon every stick of timber, from whatever source, that goes into the structure you are erecting, thereby eliminating the possibility of faulty material finding its way into your building or other structure.

You know that honest Southern Yellow Pine, better than any other material, meets exacting demands in heavy construction. The inspection of the Southern Pine Association will make certain the honesty of the material. That **Service** is for **YOU**.

If you care for details of this service, and desire to have your name listed for the Southern Pine Association's new manual of stress tables and grading rules, fill out and mail the attached coupon.

## SOUTHERN PINE ASSOCIATION

676 Interstate Bank Bldg.  
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Southern Pine Association  
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New Orleans, La.

Please send me details of your Service for builders and list my name for the new Manual of Southern Yellow Pine working tables, etc.

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### How to Obtain the Cuts

To the Editor:

Quincy, Mass.

Will you please explain how to get the cuts for the hip rafters on a bay window such as is shown by the enclosed sketch? The cuts I would like to know how to get are where the rafters meet at the ridge and at the plate marked X.

C. B. THOMPSON.

*Answer*—We reproduce on page 110 the bay roof drawing as shown, with the substitution of the parts (shown by the dotted lines) to take on the square to obtain the cuts in

question. There is nothing hard to master about cuts of this kind, if one just stops to give the matter a little thought.

The principle involved is just the same as that used for the side cut of the jack or hip for the ordinary square cornered building and therefore applies to any angle or pitch the roof may have, and that is by the tangent system.

Now, to find the side cut of hip No. 1, take the tangent (A-C) and the length of the hip (whatever it may be) and the side on which the latter is taken will give the angle to fit against the ridge piece at B.

Proceed the same for hip No. 2, but note in this case, the tangent is only equal to D-E; but as a matter of fact, is of the same ratio on the square and consequently either will give both cuts. That is, in the case of No. 1, while the arm of the square on which the length of the hip is taken gives the side cut the other arm will give the side cut for No. 2, while in the second operation, will give the same result, but the cuts are reversed on the square. However, it will be noted that there is another side cut required at the top of No. 2 to fit against hip No. 1. This is obtained by taking the tangent (D-F) and the length of the hip; and the side of the square on which the latter is taken will give the cut.

There remains one more cut and that is the side cut of hip No. 1 to fit against the valley, Marked X in question, and



## Easy to own this good engine

Send for my new money-saving offer, before you arrange to try any engine for any price. Compare my engine with any other; consider my low prices—(easy terms if you wish), and you will see your advantage in having one of my

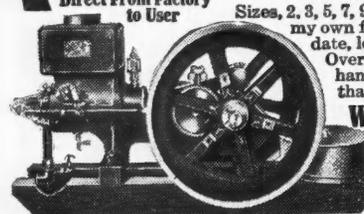
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Your own requirements will be adequately filled in every detail and your judgment permanently endorsed in the mind of the owner by the beauty, variety and durability of the material itself.

Merely because Arkansas Soft Pine Trim is abundant, it does not follow that it is in any sense a "cheap" wood. On the contrary it compares favorably with the rarest of tropical hardwoods and may be obtained at all times, without delay.

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

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

**C**ARPENTERS, lumber men and architects have for generations agreed that no other wood gives such long and satisfactory service, when exposed to the weather, as

## WHITE PINE

Despite an impression that it is scarce there is still plenty of "Good Old White Pine," in all grades, and it can be purchased in all markets at reasonable prices, when considering its value as a structural wood.

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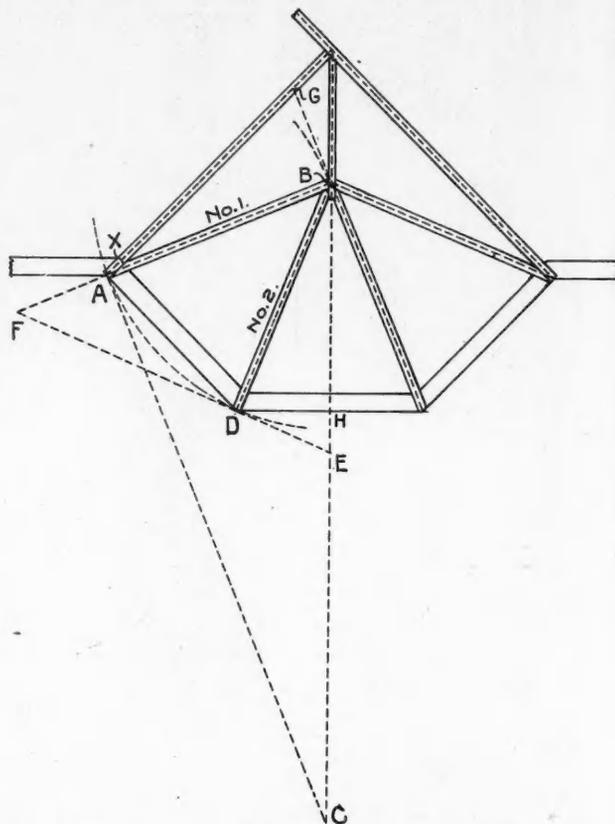
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that is obtained by taking the tangent B-G and the length of the hip; and the side of the square on which the latter is taken will give the required angle.

To find the side cut of the jack, take the tangent H-D and



Plan of Bay Window, Showing Cuts to be Made on Hip Rafters.

the length of the common rafter and the side of the square on which the latter is taken will give the required angle.

The reader will notice that we have worked from center lines, as that is where the lengths are reckoned. This requires a reduction in the actual length of the hip on account of the ridge piece taking up a part of the length; and right here the inexperienced will have a problem on hand that will tax his ingenuity to the fullest extent because of the different angles that enter into the problem. But, as a matter of fact, in general practice problems of this kind are passed over, either unconsciously or as being a trivial matter; and if the joints do not fit up close enough for looks, the cut and try method is resorted to and the whole thing is forgotten about as soon as the job is done. But after all, this, like all other intricate problems, has an easier way than appears to have on its face; and so we will look to the easy way for the solution.

Say the ridge piece is 1 inch thick, one-half of which must be taken from the rafters. But instead of trying to make the required reduction at the top, notice the length of the center lines that are covered by the ridge piece. These respective lines represent the length of the run for the required reduction. This being the case, go to the seat cut and set off a like amount, thence square up to the work line and the point of intersection of which will give the point for the proper seat cut and the reduction in the length of the rafter will be solved without further calculation. This, of course, requires the rafter to first be laid off the full length just as though there was no ridge piece.

A. W. Woods.

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Doors made of rotary cut Birch veneers, in a proper setting of Birch trim, increase the value of a structure without proportionately increasing the price. Many beautiful effects are within reach of the builder who uses Birch for trim, stairway and all interior woodwork.

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Oshkosh, : : : Wisconsin

### How We Cured the Leaking of the Water Tower

To the Editor:

Boston, Mass.

When we turned the water into the new water tower, it leaked like a riddle. The water seeped thru the wall at the rate of a hundred gallons a day. We brushed the inside over with clear cement and still the water seeped thru.

The tower is a home-made job, by amateurs. We got our instructions for building it from booklets published by manufacturers of Portland cement, and bulletins issued by the Department of Agriculture. None of them said anything about making cement construction waterproof.

My boy takes the AMERICAN CARPENTER AND BUILDER, and I read it with as deep an interest as I do any of the new things that concern my profession, but I have seen nothing in it about the new thing I am going to speak about. My profession is that of a clergyman, with a human interest in everything that men live by. I find in the "A. C. & B." some good material for sermons; but I did not find any remedies suggested for my leaky water tower. I found it elsewhere, and, being a preacher, it comes natural for me to wish to tell about it for the benefit of other suffering mortals who may be in the same predicament.

One day I saw in the *Boston Evening Transcript*, that Mr. Page, Director of Public Roads, had been making extensive experiments in waterproofing concrete with oils, and straightway I wrote to that Government official. By return mail I received from him a two-page letter containing full instructions and specifications for the oil.

With that in hand I called at the office of the Standard Oil Company, in Boston, and left an order for a small quantity of residuum oil.

And this is what we did with it:

We followed instructions given by Director Page. The

tower is circular, 4 feet in diameter inside, and 12 feet deep, with the wall 6 inches thick, reinforced with wire mesh of No. 4 wire, made for that purpose.

First, we washed the inside surface with dilute hydrochloric acid, and then washed off the acid with clear water. One pint of acid diluted with one pint of water and applied with a scrubbing brush did the business. This process dissolves the lime and leaves the grains of sand bare for new concrete to stick to.

Secondly, we mixed a mortar of one part Portland cement and two of clean, sharp sand, as ready for use. Then we thoroly mixed in two and a half quarts of oil to a bag of cement, mixing until no bubbles of oil appeared on the surface. The mortar readily absorbed the oil.

Finally, we plastered it on, half an inch thick, troweling thoroly to make a dense mortar surface, and kept it moist until it was thoroly hardened. We let it stand about two weeks, as I had to be away from home. Time was of no consequence, because the service pipe to the house taps the supply pipe from the well before it enters the tower, with proper shut-off valves, so that our supply system is independent of the tower. We had already set a barrel on top of the barn, connected with the barn pipe, to serve as a reservoir and give pressure, while the tower was out of commission.

When I got home I set the electric pump going and filled the tower to the brim, covered it up, shut the valve, and let it stand eight days for a test. From that time to this I have not discovered the leaking of a single drop.

My wife and some of the neighbors had a fear that the oil would taint the water, but, when we drew out the first tumbler full it tasted as sweet as the fresh water from the well.

That was some time ago. Now, you can learn all about

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A sheet that has a proper amalgamation between the coating and base of high grade KEYSTONE Copper Steel.

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

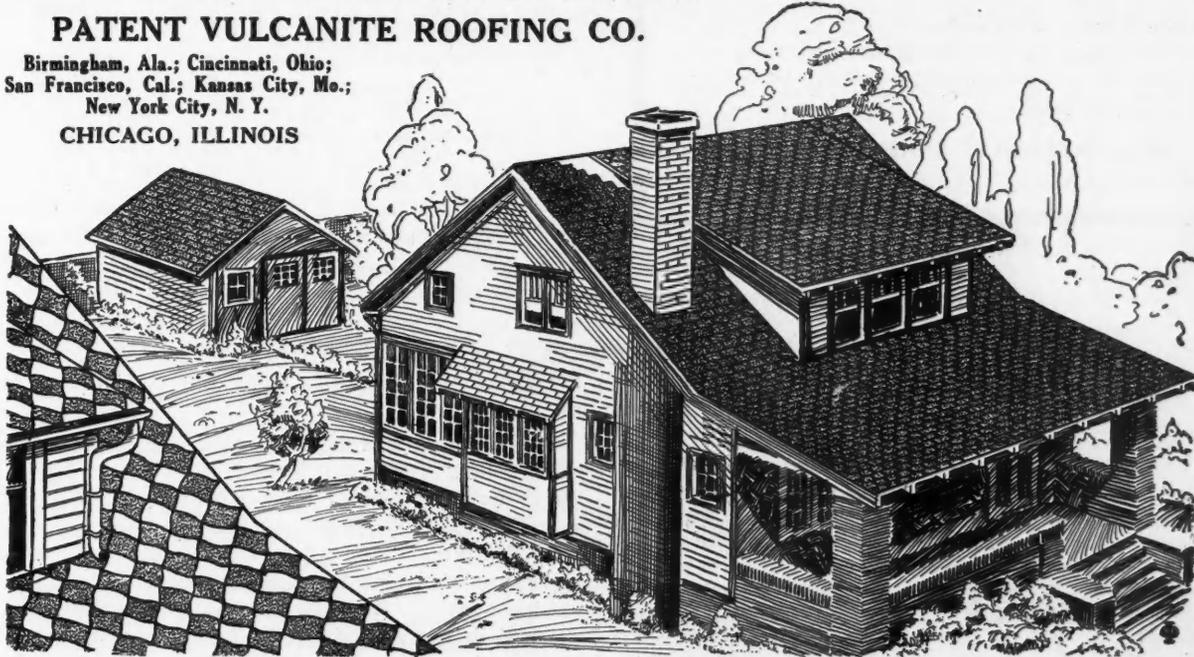
Vulcanite Roofings are an unfailing weather-proof and fire-resisting material. Twenty years' service is a reasonable expectancy. Vulcanite comes in rolls and shingles in several patterns that can be worked into a large variety of truly artistic effects.

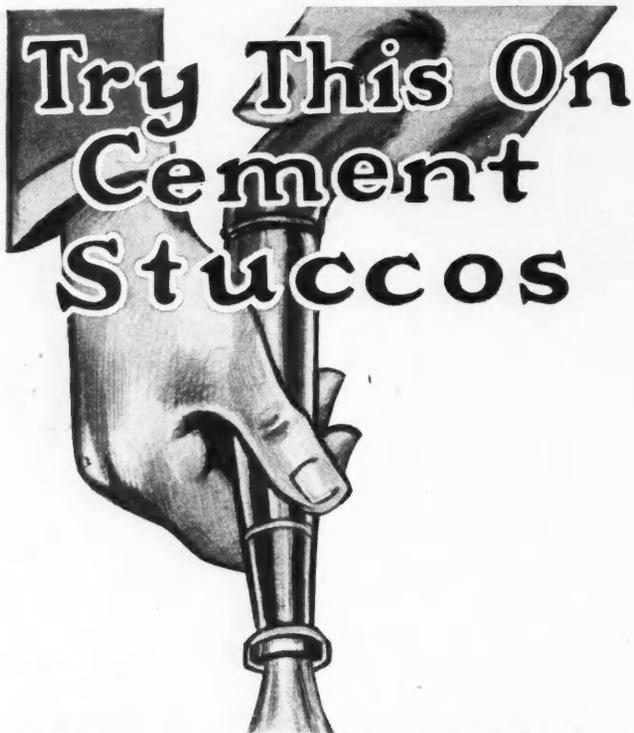
We shall be very glad to send you our large illustrated catalogue which will show you some of our popular roofings and how they add to the appearance of a building. We'll also tell you just what we do for Builders to help them lay more "Vulcanite." Sit down and write us now. Address main office, Chicago.

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IMPERISHABLE STUCCO  
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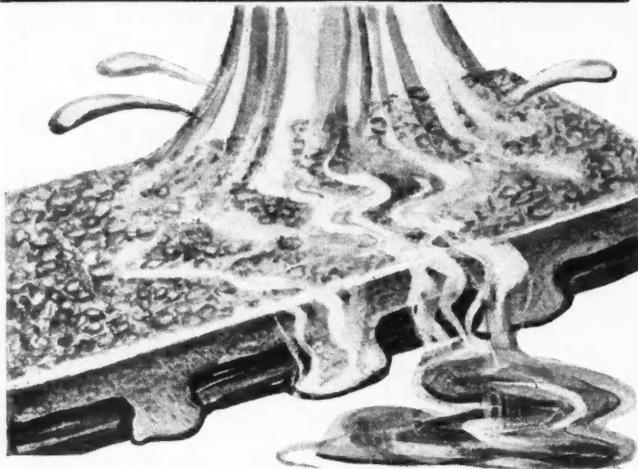
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Director Page's experiments, and the various tests and uses to which "Oil Mixed Portland Cement" has been put, by sending ten cents to the Superintendent of Documents, Washington, D. C. for "U. S. Dept. of Agriculture Bulletin No. 230."

The oil cost me 15 cents a gallon. It could then be bought by the barrel for nine cents, f.o.b. New York. We used about one and a half bags of cement and three and a half quarts of oil on the job.

JOSEPH A. PARDEE,  
Pastor Emeritus.



**Mending A Kitchen Door**

To the Editor:

Indianapolis, Ind.

During certain months of the year, Indiana, like many of her sister States, suffers from an invasion directed by "General Humidity" and, to use the expression given by one old carpenter, wooden articles swell, curl and warp so badly that



FIG. 1.

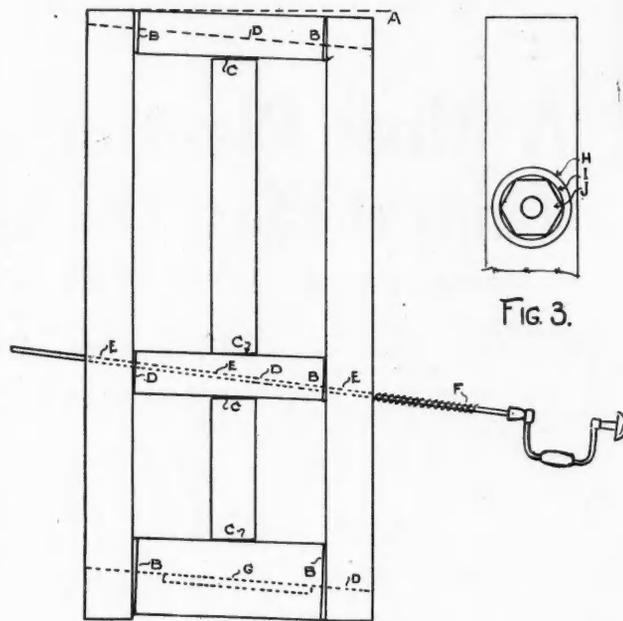


FIG. 2.

Plan Adapted for Mending a Warped Kitchen Door.

"floor boards turn over and cradles spill out the kids." Perhaps that expression needs a bit of salt, but wood down here *does* swell and twist mightily when dog days come; and there will be hardly a door in the house which will swing and close properly.

The kitchen door of my house suffered very badly, being exposed on the inside to heat and steam from the cooking range and on the outside, every rain beat directly against the door with full force of a southwest wind.

The Suffragettes of the household having expressed decided convictions regarding the condition of said door and the matter of its being mended forthwith, an examination revealed that when made, the panels had evidently filled tightly in their respective grooves, and when swelled by moisture, the panels had expanded, forcing the rails outward away from the stiles, as shown by Fig. 1. The widening of the panels, A A, and the mid-piece, D, could not be followed by the stile, B, as that member was end wood and did not swell much when affected by moisture.

CONCERNING

# Winter Profits

*This A. C. & B. prize-winning letter has money-making ideas in it for you*



Planning up-to-date houses during winter evenings

Reprinted from November 1915 issue of American Carpenter & Builder,

from first prize letter of William H. Humphreys:

"Winter Work Editor, A. C. & B.—

"It certainly is a good thing 'to keep the dollars coming in during the winter months.'

"However, the next best thing is to plan so that during the summer months dollars will roll in fast enough to make up for the winter. Then you can spend your winter, or part of it at least, figuring the best development of plans, the exact amount of lumber, trim and hardware, and all the requisites for home building. Your houses will fairly spring up before your eyes if you do not have all this detail work to do when you could be doing the actual building.

"How could you spend a more interesting evening than deciding the best arrangement of this kitchen, or how that space can be used to the best advantage? It is the houses that have been carefully planned that rent and sell the quickest. I always try to have at least one new device that I have not used before in each house. I always have a dozen or more plans on hand, made ready in winter months, so that when a prospective customer comes to me I can show plans and figures of any kind that may be desired.

"Home building is my real work, and when I have any time in the winter months, why the home building goes on just the same—only it is on paper.

"W. H. HUMPHREYS, Contractor and Builder."

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houses  
now**

**—and let H-L-F help you**

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As the strain of expanding panels pulled the stile mortises from their glue-hold in the rails, daylight appeared between rails and stiles, as shown by Fig. 1, and the outer edge of the door sagged, pulling apart the mid-piece joints also, until the door presented the appearance of extreme dilapidation, shown by Fig. 2. The outer edge of the door had sagged as shown by dotted line A, and openings were visible in all the joints, B, C, etc.

I did not wish to take this door to pieces and joint the panels narrower, so it was decided to dry the doors as well as possible and to try drawing the rails into place by three  $\frac{3}{8}$ -inch bolts. One morning the door was removed from its hinges, placed in a small clothes closet which was emptied of its regular contents for that purpose and a coal-oil heating stove started up and placed in the closet. As soon as the kitchen door had become well warmed thru, a small disc electric fan was placed in the closet and started up, stirring the air thoroly and bringing it in contact with each and every portion of the kitchen door.

The closet door was left open a fraction of an inch after the oil stove was set to work, and after a little experimenting it was found that with the closet door open about 1 inch, there would be sufficient changing of air to carry off the moisture drawn from the kitchen door, without infusing so much cold air that the heating stove would not be able to keep the temperature of the closet up to 100 deg. F.

After two days and one night in the extemporized dry-house, the door was removed, and by striking on the edge with a hammer against a protecting block, the rails were driven in within about  $\frac{1}{8}$  inch of being home. But drive as we might, not a bit more could be gained.

The door was placed on the bench and three lines, D, D, D, drawn across, as shown by Fig. 2. These marks were made a bit diagonal, as shown, but before making these marks, the door was squared by being driven up to the dotted line, A.

The door was  $1\frac{3}{8}$  inches thick and an expansion bit was set for  $1\frac{3}{16}$  inches and holes bored in the edge of the door, fair with the lines, D, and in the middle of the door edge. Figure 3 shows the manner in which one of these holes was located in the edge of the door; H indicating the hole, L a cut washer, and J representing the nut of a  $\frac{3}{8}$ -inch rod, threaded and fitted with nut and washer at either end.

The nut-holes—six of them—having been made and accurately located, a guide strip was tacked across the door, fair with one of the lines, D, and held as shown, by three shingle nails, E E E. A  $\frac{7}{16}$ -inch long bit was then set to work in line with the guide strip, as shown by F, and a hole bored thru the rail and well into the mid-piece, after which the boring was repeated at the other end of the guide stick, and again at the top and the bottom of the door upon the other lines, D D.

It was not considered practically possible to bore these holes from opposite edges of the door and have them meet fair with each other, therefore no time was lost in trying to do so. As soon as the bit had worked its way a few inches into end-wood, past the edges of the rail, boring was stopped, the guide stick moved back  $\frac{1}{4}$  inch and with a  $\frac{1}{2}$ -inch bit in a small plow, a groove was worked down into each stile, as shown at G. Plowing was continued until level with the lower side of each hole bored thru from the rails, then the ends of the grooves were squared down a bit with a chisel, until the two bored holes were connected fair enough to permit the rods to be put in place.

Screwing down the nuts upon these rods quickly drew the rails nearly into place, and a little judicious hammering upon the edge of the door made the openings between rails and stiles vanish entirely. Evidently the panels were compressed slightly. Perhaps they buckled a trifle, but be that as it may, the door was drawn together fair and square, both at B and C joints.

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caused a loss of over \$107,000 to un-rodded buildings in only two states for one year. The loss on rodded buildings was \$142.

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Other Guaranteed Heppes Products

The three grooves, one of which is shown at G, were then filled with wooden pieces, fitted carefully, and glued and bradded in place, after which some plugs of side-wood were turned to size, glued and driven into the H openings in the edges of the door, and then bradded for further security.

The openings, G, were made on the side of the door which came into the kitchen. This was done to prevent weathering the pieces driven into the G holes, it being decided that the inside of the door had less exposure to steam and moisture than the outside of the door.

Several months have passed since the door was mended, and thus far I have still to see the slightest signs of the joints opening or the door sagging again.

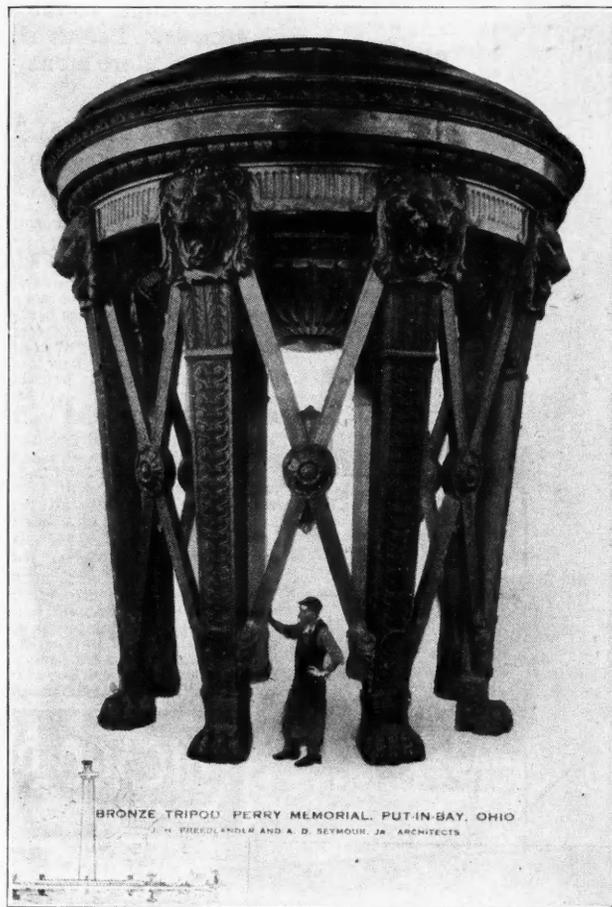
JAMES F. HOBART.



**Unique Piece of Bronze Work**

To the Editor: New York, N. Y.

In response to your letter requesting data in regard to the huge bronze tripod erected and erected by us atop the "Perry Memorial" at Put-in-Bay, Ohio, would say that the tripod is 22 feet 10 inches in height, 17 feet 4 inches in diameter and weighs about twelve tons complete. Its material is of statuary bronze, in part cast and part wrought sec-



BRONZE TRIPOD, PERRY MEMORIAL, PUT-IN-BAY, OHIO  
J. H. FREEDLANDER AND A. D. SEYMOUR, JR. ARCHITECTS

**Massive Piece of Bronze Works Erected on Perry Memorial at Put-in-Bay, Ohio.**

tions, modeled from the designs of Mr. J. H. Freedlander, architect.

The glass dome consists of twenty-four pieces, constructed in an unbroken surface, closed joints, etc., a form of construction never before attempted in glass.

THE GORHAM CO. ARCHITECTURAL BRONZE,  
FRED JANTZEN.

NOTE: If one is a stickler for terms, he may properly call this an "octapod" rather than a tripod, as it has eight sides.—Editor.

# Don't Lose Money Through Misunderstanding

*Don't judge wall board until you get the facts on*

## UPSON-BOARD

PROCESSED

Hundreds of carpenters are materially increasing their incomes,—not a dull month in the year. THEY have found there is a **DEPENDABLE** wall board.

**Y**OU wouldn't deliberately pass up money. You wouldn't worry through a dull season if you knew a way to bring in steady cash from one January to the next.

This is to let you **KNOW**. We'd have got in touch with you before, only we've had our hands full in the past trying to keep up with orders. But now, with the most completely equipped wall board plant in the country, and with the largest capacity for making *high-grade* board, we can do our duty by every carpenter in "putting him wise."

You know there are many wall boards on the market.

But you may **NOT** know that there is a bigger difference between these wall boards than there is between the different kinds of wood—as, for example, hemlock and oak; or even between the different gradings of the same wood. The difference between **DEPENDABLE** Upson Board and others, is the difference between wall board satisfaction and possible dissatisfaction.

Upson Processed Board stands in a class by itself. We challenge any manufacturer in the country to show his actual stock board to be as good or as durable or as satisfactory as Upson Board. Upson Board looks, feels and works like lumber. It is the highest grade fibre board, and is well called the standardized board.

If you are prejudiced against the use of all wall board, you are doing yourself and your customers an injustice. Good wall board is the *nearest perfect* lining for walls and ceilings.

And if you, yourself, have put on unsatisfactory wall board or have heard of other installations going wrong, you have no more cause to condemn Upson Processed Board than you have to condemn all lumber because one particular job was not right.

What you've complained about probably was a board made of punky "jack pine," tamarack, or old junk such as "chip" fibres. "Jack pine" boards are soft and dozy like rotted wood and will crumble and break when you try to cut or saw them—you can't handle or fit them worth a cent. "Chip" boards, made of inferior fibres, are very apt to warp and twist; while some are put together with tar or sticky materials which gum your saw and make you cuss every time you try to cut them.

When you got these irresponsible boards on the wall and did your best to make a good job, perhaps they curled and buckled. And likely your customer kicked because they soaked up gallons of paint like a sponge, and even then streaked and blistered and spotted. No wonder, then, perhaps you're down on wall board!



*A Beautiful, Upsonized Interior, the Pride of Your Customers.*



*Upson Board cuts with as clean an edge as does pine lumber. Makes quick work. No ragged edges; no pitch or tar to gum the saw—as in other wall boards.*

But it is different with Upson Processed Board. It is "made good to make good." There isn't one complaint to the million feet—a record we believe unequalled by plaster, steel or any other of the ordinary building materials.

And keep this in mind! There isn't a dollar's difference in the cost of the cheapest board on the market and **DEPENDABLE** Upson Board, for the average room. While you, as a carpenter, aren't so much interested in the cost of finishing, yet from the standpoint of your customer you ought to know that in addition to giving a better and more permanent job, Upson Processed Board saves this slight difference in initial cost many times over in the lower cost of painting.

Now then, Upson Processed Board gives you the nearest perfect lining for walls and ceilings—gives you the work which plasterers now get—gives you a chance for all-the-year-round work. And there is money in it, too, for a shop making cabinets, screens, household articles, window trims and other products or articles where thin lumber or steel is now used.

You can tell more about Upson Processed Board in a minute, simply by examining a sample, than we could tell you in an hour. But while you look it over and test it out, we want you to check up on such big points as these:

**WORKS LIKE LUMBER:** You can apply 25% more of Upson Board than of any other wall board in the same time. Handles, saws, cuts, planes and moulds much like lumber. It really is artificial lumber—made of long, tough, wiry, **PURE WOOD FIBRES**, pressed into hard, stiff, woodlike panels. Stands a pressure of more than 400 pounds to the square inch!

**GIVES YOU FINEST JOB AND REPUTATION:** **UPSON PROCESSED BOARD** is **SCIENTIFICALLY PROCESSED**. Kiln cured, like interior trim. Waterproofed so that ordinary leaks will not hurt it. Surface filled to give the most perfect painting surface of any board, usually saving \$5 to \$15 per thousand square feet in the painting cost.



*The Most Completely Equipped Wall Board Plant in America.*

Do not let dealers or manufacturers of wall board impose upon your knowledge.

Do not let them foist inferior board upon you, by saying it is "like" Upson Processed Board. There is no board like Upson Processed Board on the market.

You'll discover a hundred and one advantages and many money-making jobs, when you write for your sample of Upson Processed Board and for our plan of working with you to build up your trade.

Don't wait. Start today. Send NOW for information.

**THE UPSON COMPANY**  
26 Upson Point  
Lockport, N. Y.

Send me large sample of Upson Board, descriptive literature and full particulars of your carpenter proposition.

Name.....

Address.....



**THE UPSON COMPANY** Fibre Board Authorities  
Lockport, New York

LOOK FOR THE BLUE CENTER—TRADE-MARKED



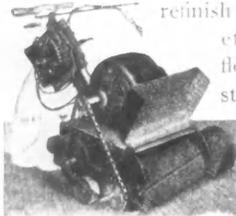
## New Models and Improvements for Builders

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

### Improved Model Floor Surfer

The Automatic Ballbearing Electric Floor Surfacing Machine, manufactured by Wayvell Chappell & Co., 4847 E.

Ravenswood Ave., Chicago, Ill., will rapidly refinish old floors, removing varnish, paint, etc., take off the wood quickly of new floors, and sandpaper a finish that will stand inspection against a sunlight reflection after varnishing. Each machine is put to this test on maple flooring before shipping.



The Automatic Ballbearing Electric Floor Surfacing Machine.

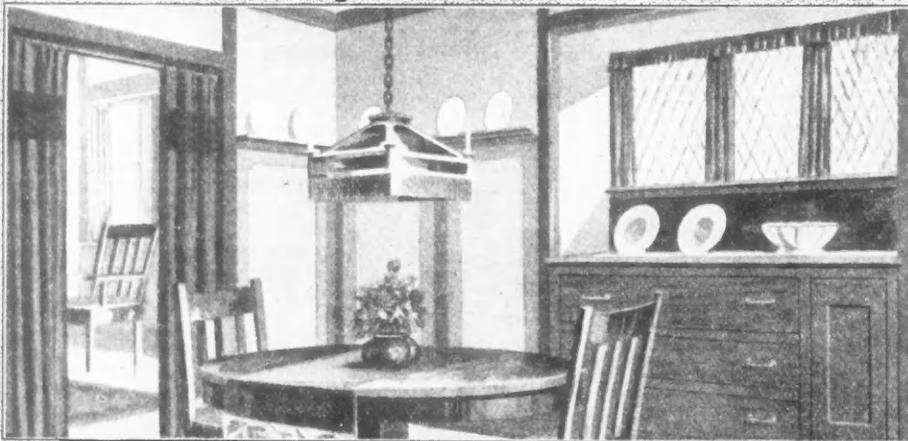
The machine is solidly constructed and of ample weight for both rapid and high grade work. Is provided

with a readily exchangeable motor mounted above the roller and with a large and powerful dust collector fan mounted close behind the roller, making a very compact, strong and wieldable machine.

A most valuable feature are the heavy steel ballbearings on both the roller and the shaft on which is mounted the dust collector fan.

To secure a smooth-running, tho flexible roller, free from vibration and chain jumping, an exclusive feature of the latest improved models is provided in the countershaft chain drive. As will be seen from the illustration the roller is supported on arms which are pivotally mounted to move about this shaft as a center, and in this way is allowed a yielding movement, the chain pull smooth and at an even tension.

## Get acquainted with - Rock Board



### The Wall Board from Rockford

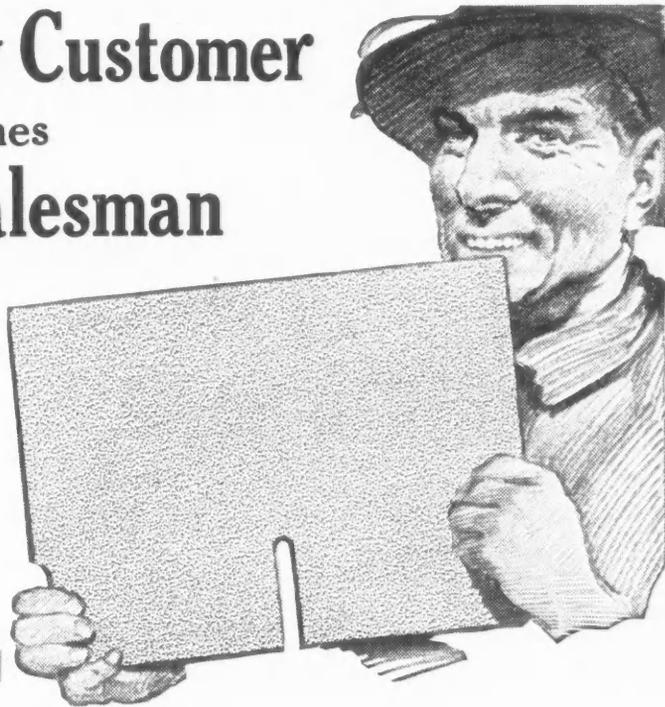
It will help you get more work and give better service

Suggest it to builders of bungalows, garages, club rooms, etc.—to men who want

partitions put up in quick time, and with little cost—to housekeepers for utilizing attic and cellar space. A score of opportunities to use this board are open to the alert contractor. Put up in a moment, it will last as long as the house itself. Can be painted the same as wood, or artistically stencilled. **Rock Board** is heavier, harder and stronger than any other Wall Boards, giving it better insulating and fire retarding properties, and in the cost **Rock Board** shows a decided advantage over other boards. Write for our Catalogs and Prices today.

**ROCKFORD PAPER BOX BOARD COMPANY, Rockford, Illinois**

# Every Customer Becomes My Salesman



I am the Neponset man in my town. Twenty-seven salesmen are working for me and more are coming. These are my customers whose residences I have covered with Neponset Shingles. They're turning business my way all the time.

Neponset put me on the map—I am making good money. The very first job gave me the best advertising a man could get—other jobs keep coming right along.

Big Architects specify Neponset Shingles and property owners are highly pleased with them.

If a fire comes along, leaping from roof to roof, it will skip my roofs—blazing sparks and embers die harmless on Neponset.

It does everything a wood shingle will do, and can be laid twice as fast, because every Neponset shingle is not only double-width, but uniform; no trimming.

I advise you to be the Neponset man in your town. Send the Coupon Today.

## NEPONSET SHINGLES

PATENTED

**BIRD & SON** Dept. C East Walpole, Mass.  
ESTABLISHED 1795

## New Winter Work

By using Neponset Wall Board you can get winter work that heretofore has not been open to carpenters.

Neponset Wall Board in many cases can be used satisfactorily instead of plaster and lath and can be applied in winter just as well as in summer.

## NEPONSET WALL BOARD

FOR

- Walls and
- Ceilings
- Wainscoting
- Partitions
- Closets
- Booths
- Window Displays
- and a  
thousand  
other uses



BIRD & SON (Established 1795).  
Dept. C, East Walpole, Mass.

Please send me your booklets about Neponset Shingles and Neponset Building Products. This does not obligate me in any way.

SEND THIS  
COUPON  
TODAY

Name .....

Address .....

The machine surfaces to within about three inches of the wall without the edge roller and with it right up to the baseboard. Current is carried to the motor thro flexible trailing wire.

Machines are made in five sizes, suitable for any requirements—small rooms in residences to the largest of areas.

As machine is ready for work when uncrated, any operator, by following the instructions provided, can become familiar with it in an hour or so and get looked-for results.



**Twelve Business Maxims**

1. Have a definite aim.
2. Go straight for it.
3. Master all details.
4. Always know more than you are expected to know.
5. Remember that difficulties are only to overcome.
6. Treat failures as stepping-stones to further effort.
7. Never put your hand out further than you can draw it back.
8. At times be bold; always prudent.
9. The minority often beats the majority in the end.
10. Make good use of other men's brains.
11. Listen well. Answer cautiously. Decide promptly.
12. Preserve "A sound mind in a sound body."

—DooR-Ways.



**New President and General Manager of the Association of American Portland Cement Manufacturers**

Mr. B. F. Affleck, president of the Universal Portland Cement Company, was elected president of the Association of American Portland Cement Manufacturers on Dec. 17. Mr.

J. P. Beck of Chicago was elected to the position of general manager.



**E. W. Edwards President of Rapid Transit Commission**

Mr. E. W. Edwards, President of the Edwards Mfg. Co., Cincinnati, Ohio, has recently been chosen as president of the Rapid Transit Commission of that city.



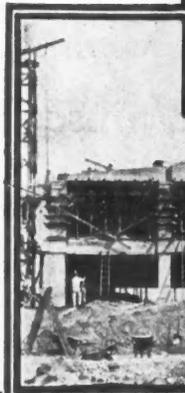
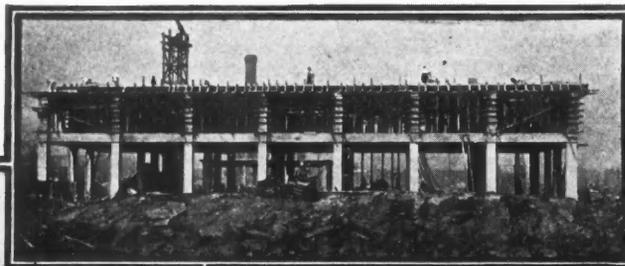
Mr. W. E. Edwards, President of Edwards Mfg. Co., Who Has Been Elected President of Cincinnati Rapid Transit Commission.

This commission has been organized with the idea of developing plans for rapid transit and inter-urban routes in and around the city.

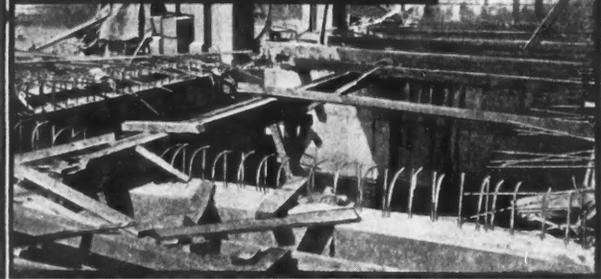
It is expected that the board will direct the expenditure of from eight to ten million dollars in the next two years. The fact that Mr. Edwards has been chosen to head the commission shows the high regard in which he is held by the other members.

Mr. Edwards was one of the original members of the commission, was re-appointed and then later elected president.

**Another Government Job**



Mill Rock Storage Warehouse, East River, New York.



**Waterproofed with CERESIT**

Visit our Booth at the Cement Show

Once again Uncle Sam has set the seal of Government approval on CERESIT as a dependable waterproofing. Each time it has been chosen for a difficult proposition—down on the Panama Canal, out in Long Island Sound for a lighthouse, and now for the Storage Warehouse shown above for waterproofing the cistern and boiler room against a seven-foot head of tidewater.



The contractor is at present using the boiler room and the cistern as storage reservoirs for his fresh water supply used in tempering the concrete for the super-structure, so that CERESIT is serving the double purpose of keeping the tidewater out and keeping the fresh water in.

Ceresit Waterproofing Compound is just as successful on the small jobs—for waterproofing basements, silos, cisterns, stucco walls, or anything in concrete and cement. Our engineers offer their services to you free of charge; they will gladly answer any question you ask them. Write for interesting information.

**Ceresit Waterproofing Co., 910 Westminster Bldg., Chicago**



Garage at  
Newport, R. I.

## *Ten Years' Service Without Ten Cents Expense*

In the ten years which have passed since the Ambler Asbestos "Century" Shingles were applied on this garage not a cent has been expended for roof repair. Not a shingle has cracked, twisted, curled or otherwise failed to give permanent service. No painting, no repairing, no replacing, no worry. This service was given in the teeth of destructive winter storms such as are witnessed on the New England Coast. Ambler Asbestos "Century" Shingles withstand the stress as no other roofs will do.

# Ambler Asbestos "Century" Shingles

What a fine feather this is for the cap of the contractor who applied the roof. It hasn't shown even a suggestion of its ten years' exposure to the rugged storms of the New England Coast. It is just as tight—just as firm—as fireproof—as storm proof and as good looking as it was ten years ago.

Reputations are made quickly with Ambler Asbestos "Century" Shingle roofs.

You'll have no stronger recommendation in your town—and you'll need none.

Whether you are specifying for or laying roofs on garages, houses, hospitals, schools, churches, or in fact on any building where permanent service is your aim, you will best serve the owners by using Ambler Asbestos "Century" Shingles. **Write us at once for terms and trade prices.** *Samples furnished.*

**KEASBEY & MATTISON CO., Factors**

Dept. A1, Ambler, Pa.

*Branch Offices in Principal Cities of the United States*

**Porter Barn Equipment in England**

The accompanying photograph is interesting as showing how American building ideas, or rather barn equipment ideas, are gaining ground in England. At the 1914 "Smithfield Show," held in London, England, a prominent feature of the Geo. W. King, Ltd., Exhibit was the J. E. Porter Company's improved litter and feed carriers. This concern acts as the European agents for the Porter Barn Equipment. The old country has long been famous for its dairy and beef cattle, and evidently they are getting around now to the idea of building their barns and doing their stable work in the modern efficient way.

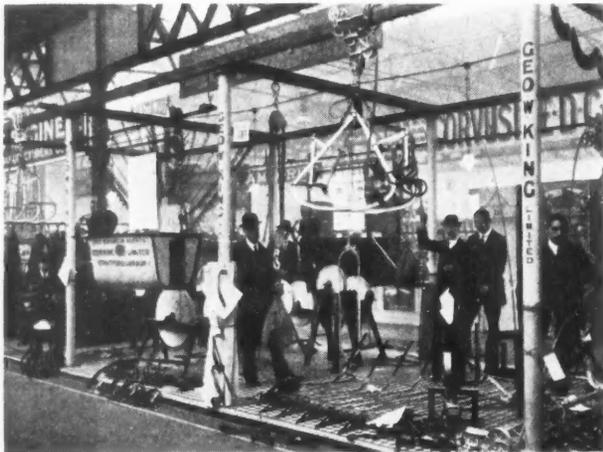
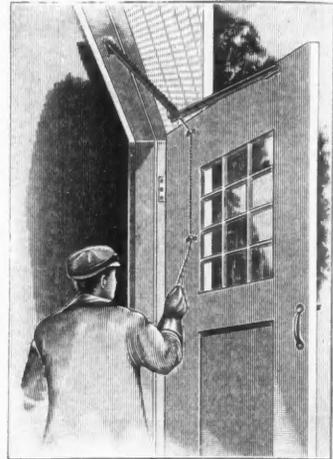


Exhibit of J. E. Porter Co. Improved Litter and Feed Carriers at the 1914 "Smithfield Show," London, England; Geo. W. King, Ltd., European Agents.

**The Door Stays Open with This Garage Door Stay**

It isn't very hard to fasten a door open, but stays that will do this and be convenient at the same time are rather hard to find. You can push the door open and put a rock against it if you want to, and if the rock is heavy enough, the door will stay open, but it is an inconvenient system when you want to shut the door.



Stanley Garage Door Stay a Convenience.

The accompanying illustration shows a dependable and convenient stay that will hold the garage door open under any conditions until you want to shut it. In the illustration the door is being closed from the inside with one hand.

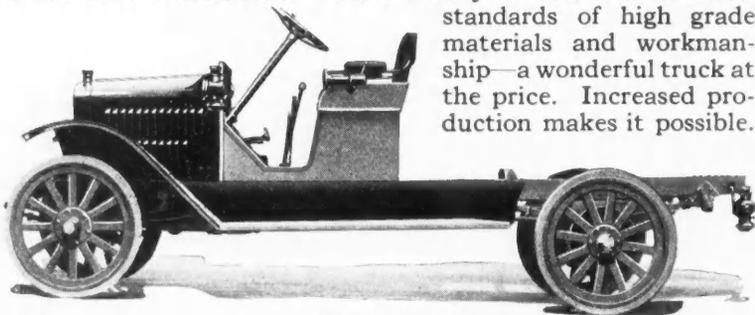
Throwing the door open operates the stay automatically and the door is held rigidly in position until a slight pull on the chain releases it. No mortising is necessary and the device can be very easily applied to any swinging door. It is made of one-inch angle iron and has plenty of leverage on the door when it is in position.

The name of this device is the Stanley No. 1775 Garage Door Stay, and it is made by the Stanley Works, New Britain, Conn. Further information can be secured from this concern.

**\$1250 Now Buys This Worm-Drive Kissel —The Truck Sensation of the Year**

**3/4 to 1-Ton Capacity**

Up to one-ton capacity, with the most approved type Worm-Drive Axle construction—built strictly in accord with Kissel standards of high grade materials and workmanship—a wonderful truck at the price. Increased production makes it possible.



A STUDY of the specifications tells the story—get the details of this startling value.

We make six other sizes. You may, therefore, be sure of unprejudiced advice in consulting Kissel regarding your haulage needs.

**KISSELKAR TRUCKS**

Capacities from 1000 to 12000 lbs. Chassis Prices—\$950 to \$4350. Bodies to suit.

Send for big portfolio with five hundred fine illustrations of KisselKar Trucks in service—then ask us to figure on your haulage problem. You incur no obligation. Write today.

**KISSEL MOTOR CAR COMPANY, 546 Kissel Avenue, HARTFORD, WIS.**

New York, Boston, Philadelphia, Chicago, St. Louis, Milwaukee, Washington, Kansas City, St. Paul, Minneapolis, San Francisco, Los Angeles, Oakland, Rochester, Buffalo, Denver, Omaha, Cleveland, Detroit, Toledo, Columbus, Baltimore, Pittsburgh, Duluth, Salt Lake City, Dallas, Hartford, Conn., New Haven, Troy, Providence, Marshalltown, Ia., Madison, Montreal, Toronto, Calgary, Victoria, and 300 other principal points in the United States and Canada.

# Shingles Flew —

and  
flew by  
the thousands  
during the recent  
hurricane in New Orleans.  
But not those held with

## Cut Nails

No better test could have been devised to prove the holding power of CUT NAILS. And now the New Orleans authorities are figuring on a new building law that will demand CUT NAILS only to be used for shingle roofs.

This is only one of the many cases where CUT NAILS have proven their worth in time of need. We have examples that have been in service over 200 years.

They will cost you less than other nails, both now and in the future. Your reputation depends on the life of your buildings. Prepare them for all emergencies.

Write to nearest manufacturer listed below for free samples, and name of nearest local dealer.

### **CUT NAIL MANUFACTURERS**

GEO. B. LESSIG CO. . . . . Pottstown, Pa.	VAN ALLEN & CO., E. G. Van Allen . . . . . Northumberland, Pa.
WILLIAMSPORT IRON & NAIL CO. . . . . Williamsport, Pa.	E. & G. BROOKE IRON CO., Birdsboro, Pa.
LA BELLE IRON WORKS . . . . . Steubenville, O.	TREMONT NAIL COMPANY . . . . . West Wareham, Mass.

**Asphalt Shingles Are Reputation Builders**  
**PROGRESSIVE CONTRACTORS HELP THEMSELVES BY USING**  
**THIS MORE PLEASING ROOFING MATERIAL**

The home builder who is really interested in having an attractive home is usually a good buyer for an asphalt shingle roof. Asphalt shingles are so distinctive in coloring, and so moderate in price that the owner quickly sees the advantage of using them without adding to the cost of the home he is building.



Asphalt Shingles Are Preferred for Artistic Bungalow Type Homes Like This.

As time goes on and the roofing gives perfect service without the frequent repairs that are necessary on many roofs, the owner becomes still more grateful for the contractor's advice about using them. The beauty of the coloring of the

roof, and its general trimness, aid in making the house one that the contractor is proud to show. Asphalt shingles become a decided factor in adding to the reputation of the contractor who uses them.

This is a double satisfaction to the builder, because they actually show a larger profit than the common roofing. Asphalt shingles are larger in size than the usual types of roofing, and are all cut to a uniform measure. The workmen can lay them much faster and no matching is necessary. There are fewer of them needed to cover a given space of roof, which means fewer motions and much time saved. The net result of these savings is an added profit for the builder that certainly counts on a closely figured job.

A great deal of valuable information on this money saving roof is being given by the Asphalt Shingle Publicity Bureau, 843 Marquette Bldg., Chicago. Their well illustrated booklet, "The Roof Distinctive" tells about the added profits in using them and will be sent free on request.



**W. H. Kestin Now Sales Manager**

Mr. Walter H. Kestin has been appointed sales manager for the concrete machinery department of the Northwestern Steel & Iron Works, Eau Claire, Wisconsin.

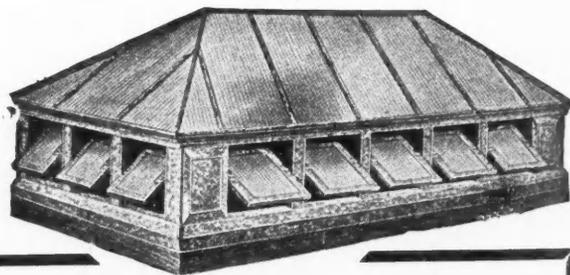
This addition has been made necessary by the marked increase in the demand for Northwestern mixers and the return of activity in the building lines.

Mr. Thorman W. Rosholt, vice-president of the company, who has heretofore devoted a portion of his time to this work, will in the future devote more of his time to work among the trade.

Mr. E. R. Hamilton, secretary and general manager, states that they have had a substantial increase in the business during the past twelve months and that present indications seem to insure still greater gains for the coming year.



**Proud  
of  
His Job--**



and so is every builder who puts up

**Willis Skylights**

They look well, last well and satisfy the customer. He wants the best for his money, and so do you. You both get it in the Willis.

Made of the highest grade materials by the best workmen—at the lowest cost. Guaranteed not to sag or buckle. Requires no solder or putty. Perfectly watertight, and gives the most light for the size.

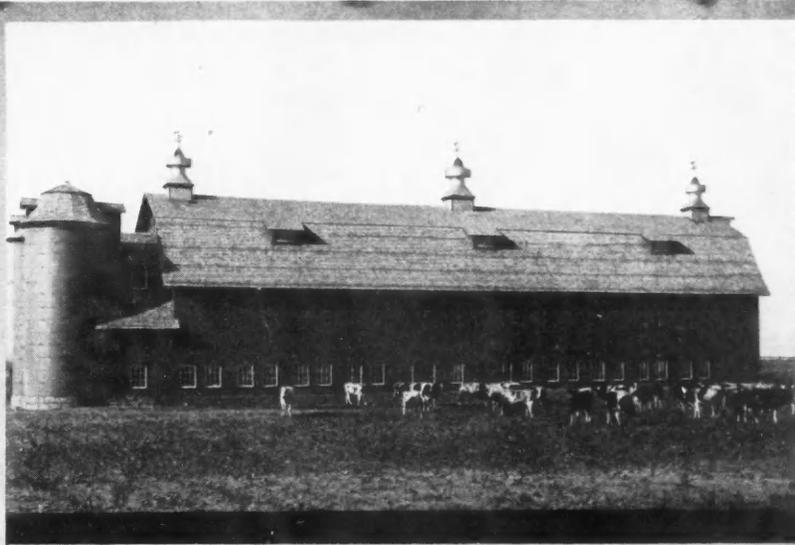
Easy to put up, and put up to stay. If you haven't our catalog, get it today.

**Willis Manufacturing Company**

GALESBURG, ILL.

# KING AERATORS

A Credit to You—  
A Pride  
to the Owner



**KING AERATOR**  
The First Part of the King System  
of Ventilation

## A Contractor's Answer

“YES, that is a fine barn, and I can tell you why you like it so well.

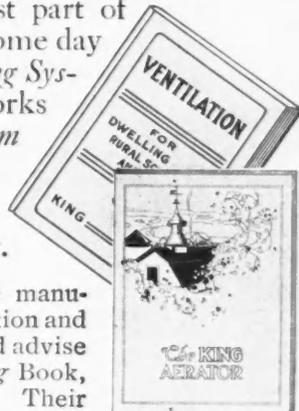
“Do you realize that I have built several barns just like this one except the *King Aerators* on the roof? The *King Aerators* give this barn a finish that has attracted your attention.

“I find that *King Aerators* give all buildings that fine appearance and I will recommend their use on all farm buildings in the future. They are rain, snow and bird proof; are much lighter on the roof, easily put on and the strongest winds do not blow them off.

“You have heard of the *King Ventilating System*. The *King Aerator* is the first part of the complete *King System*. Some day you will want a complete *King System*. No other ventilator works as well with the *King System* as the *King Aerator*.

“Therefore, buy the *King Aerator* and get started right.

“I have just received from the manufacturers *King's Book on Ventilation* and the illustrated catalog, and I would advise you to send ten cents for the *King Book*, and they send the catalog free. Their address is



**King Ventilating Company**  
1120 Cedar Street Owatonna, Minn.

### New Nest of Saws

E. C. Atkins & Co., The Silver Steel Saw People, have just placed on the market a new combination nest of saws, which will be highly appreciated.

The nest is designed so that the carpenter may carry in practically the same space and weight as an ordinary compass saw, a 16-inch compass saw, a 10-inch keyhole and 14-inch nail or metal cutting blade.

All these blades fit into a handle, making them interchangeable by merely turning a thumb lever.

Every carpenter carries both a compass and keyhole blade and the addition of a blade which will cut a kerf sufficiently wide to permit regular hand saw to follow it, will be highly appreciated.

This set is known as Atkins No. 4 and can be secured thru any first-class hardware dealer who will get them for you if he does not as yet carry them in stock.

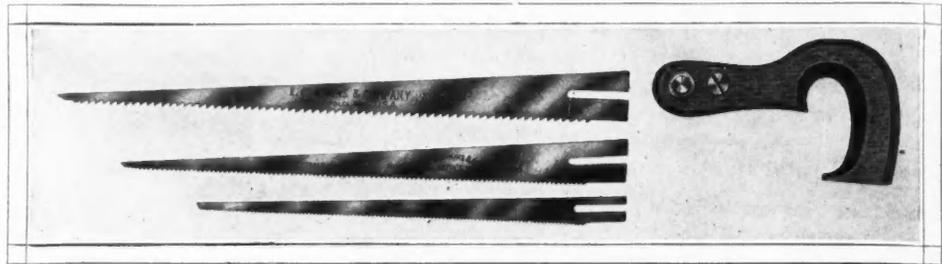


### New Specialties' Plant Incorporated by Edwards Interests

The Cincinnati Can Company, incorporated at Columbus, Nov. 23, by interests identified with the Edwards Manufacturing Company, will add another new, large and active industry to Cincinnati. The new concern is a consolidation of several small companies whose plants were in other cities. The principal company taken over was the Eureka Specialty Company, which has a plant at Ludlow, Ky., and another

plant at Greenfield, Ohio.

The company will manufacture a line of sheet metal specialties, including oil cans, ice cream freezers and other miscellaneous specialties. It is capitalized at \$100,000 and the plans of the company contemplate enlarging and extending the business to a considerable extent.



New Nest of Saws Being Offered by E. C. Atkins & Co.

The company will occupy the factory buildings at Carthage pike and the Big Four Railroad, formerly used by the Cellular Metal Company. The property belongs to the Edwards interests. New additions will be made to the plant. A force of 200 men will soon be employed.

The incorporators of the industry are E. W. Edwards, president of the Edwards Manufacturing Company, president of the new concern; H. W. Edwards, vice-president; O. S. Larkby, secretary; G. D. Myers, treasurer; J. C. Miller, superintendent of the plant; H. A. Greening, salesmanager; G. R. Edwards, Morgan Wamsley and Daniel McLaren.

The new company advises us that they have a first class proposition for good live specialty salesmen on a commission basis, and will be pleased to furnish particulars on request. Address The Cincinnati Can Co., Cincinnati, Ohio.

## Here is the Weatherproof Cannon Ball Barn Door Hanger—

Here's the hanger that will coin money for live dealers and help them corral the Barn Door Hanger business of their community.

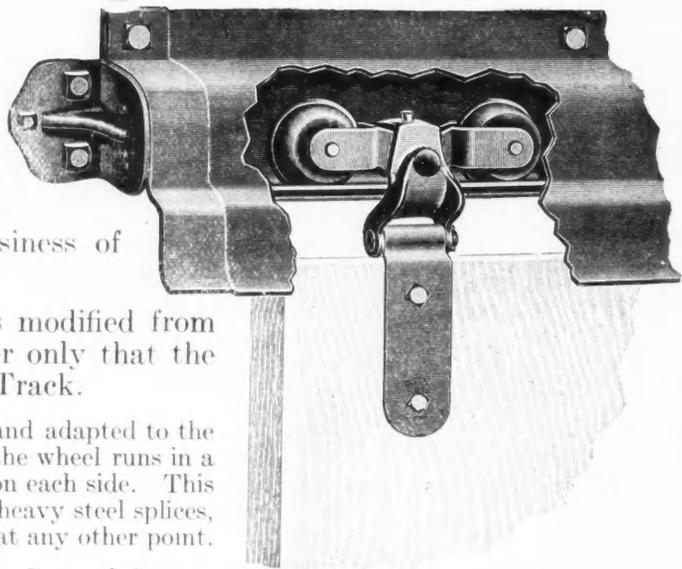
The tandem and flexible hanger is modified from the old reliable Cannon Ball Hanger only that the stirrup is shaped to conform to the Track.

The track is our latest design, is V-shaped and adapted to the Cannon Ball Hanger wheel. The bead of the wheel runs in a groove and the wheel has an even bearing on each side. This track is made of heavy steel provided with heavy steel splices, making it just as strong at the splices as at any other point.

The cover is the same identical cover used on Covered Cannon Ball Track construction and is the only perfect track cover obtainable, since it not only completely encloses the Hanger and Track but also extends down below the top of the door and makes a tight closure.

We also call attention to the fact that Weatherproof Cannon Ball Hangers are equipped with a Track Cleaning device which automatically removes obstructions of any kind from the groove of the Track, making it self-cleaning.

**HUNT, HELM, FERRIS & CO., 304 Hunt St., Harvard, Ill.**





## Suppose you made \$10

—every time a person died in your county!

**W**OULDNT worry much about your income, would you? European wars, bad crops, hard times never affect the death rate. People stop building, they may stop buying, but they never stop dying.

**N**ow suppose you could go into partnership, with all your local undertakers—they to sell, you to manufacture—an airtight, waterproof, steel reinforced cement vault that does away absolutely with the present barbarous and unsanitary method of burial.

**W**OULD you, for example, allow anyone that belongs to you moulder unprotected in the muddy bottom of a six-foot cistern? Neither will anybody else—the moment they learn about the Norwalk Vault!

**F**or eight years the Norwalk Vault Company has been in business. Very slowly at first, but more and more rapidly every month now the cement vault idea is growing. Undertakers everywhere are waking up to it. In the last six months we have helped establish factories in New York, Boston, Bridgeport, Providence, Albany, Syracuse, Trenton, Nashville, New Orleans, and a dozen other smaller cities in the East. Now we are moving westward again.

**O**UR experience has led us to be willing to make this proposition to any man in or about the cement trade:

**No matter what net profit you are earning now, we believe we can show you how to add 18% a year—1½% more profit a month.**

**T**HAT is to say, a man struggling along now with only 6% on his capital should clear 24% with this new proposition, while a firm with energy and ability enough to clear 20% in any ordinary business should make 38% with ease.

**H**ow conservative are these figures you may see for yourself when you realize that after paying all manufacturing and overhead expenses, you can clear at least 100% on every vault delivered, and even then leave the undertaker an equally generous margin of profit for doing the selling for you.

**O**n the other hand, this is no get-rich-quick game. To go into it, a man must have a little capital and be willing to work hard to build up the business. For the right kind of a man there is a real opportunity; no technical experience is necessary; no expensive factory; no big payroll; no fancy running expenses of any kind.

**A**BOUT one-third the territory in the United States is now taken, the rest we expect to assign during the coming year. Even as it is, letters come in every day asking for territory already filled. Moreover, prices are going up again January 1st, 1916.

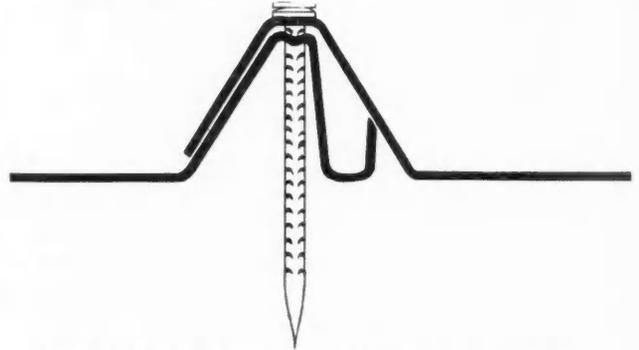
**S**o, if the proposition looks good to you on the surface, don't lose any time before making us prove it out for you. We'll be glad to show you figures, lists, maps, original letters, or to take you to the nearest factory and let you see the vaults themselves. Ask anything you want to know—our office and sales force are at your service—no obligations whatever.

**The Norwalk Vault Company**  
40 Seminary Avenue Norwalk, Ohio

## Making Corrugated Roofing Waterproof

With the advent of galvanized roofing as one of the most serviceable roofings at moderate cost, the problem arose of making it watertight without sacrificing simplicity of construction, the feature of the original painted steel roofing that had brought about its popularity and general use.

In galvanized corrugated roofing security against leakage was obtained in lapping two or more corrugations on the side. This was expensive, as the metal involved in the lap gave no covering surface. No such security was obtainable in 2 and 3 V. crimp roofing and pressed standing steam roofing, until the Moeschl-Edwards Corrugating Co., of Covington, Ky., placed on the market roofings with a novel side-lap that has been covered by patent, and which they are marketing under the name of "Patent Corrugated Roofing," "Patent V Crimp" and "Patent 3 V Crimp Roofing." The illustration



The Patented No-Leak Joint of Moeschl-Edwards Roofing.

is an exact reproduction of the size and construction of this patent lap, or crimp. It is used in connection with the three different styles enumerated above, and has proven watertight under the most severe storm conditions. Water that may be blown by the high winds, or may be drawn by capillary attraction over the under crimp, cannot fall within the building, as it is carried down to the eaves in the small gutter formed on the outside of the under crimp. The vertical rib in the under crimp supports the outside crimp while the nail is being driven thro into the sheathing boards in 2 and 3 V Crimp roofing. This vertical rib takes the place of the old style V stick. This is economy, as that expense is avoided. In corrugated sheets this patent lap is more effective than two ordinary corrugations between which water will lie if it is driven over the outside corrugation. In Patent Corrugated this water would drain down to the eaves.

The Moeschl-Edwards Corrugating Co., Covington, Ky., will be pleased to furnish all inquirers with prices and samples, gratis.

## Carpenters Wanted

Make money all winter—get the exclusive agency for Akron Lighting Systems, portable and street lamps and lanterns.

Write Today

**AKRON Independent Lighting Systems**  
Supply gasoline under pressure through hollow wire to lamps all over the house, and to gasoline stove. Our system is absolutely safe.  
Sheds a soft, steady, brilliant, white light of high candle power. Makes the home attractive and reading a greater pleasure. Better and cheaper than any other illumination.  
Complete line of "Akron" portable and street lamps and lanterns. Latest types; latest improvements; safe and simple construction; 18 years of success.  
**Agents Wanted**  
In unoccupied territory. Handy demonstration outfit. Our proposition to live hustlers cannot be beat. Write for catalog and terms. Akron Gas Lamp Co., 633 So. Main St., Akron, O.

# \$1000<sup>00</sup> COLD CASH FOR YOU

## Make A Clean Fortune From Unclean Millions Sensational New Invention! Fill Your Pockets with Gold this Winter

Carpenters, your time has come! Your opportunity is here — today! We can and positively will connect you with prosperity — an absolutely sure — an absolutely easy way to make money — more money than you are making now — more money than you ever dreamed of making without capital — without special preparation — **absolutely without experience.** This wonderful opportunity is open to you now. You are fit and ready today. All barriers removed — success immediate and generous will be yours. We want you now. You want us — you want the opportunity we offer to get the money you need. Our extremity is your one big chance to make big money.

### A SCIENTIFIC AND MECHANICAL WONDER

Grab's Scientific Shoe Scraper is positively the most popular household article on the market today. Really and truly the best thing that ever happened. Solves mighty home problem. People everywhere are waiting for it — eager to buy — wonder why it was never invented before — wonder how they ever got along without it. Touches new, rich, unworked field. Just out — just introduced — going like wildfire. Tremendous rapid sale staggers country. Remarkable demonstrations going on everywhere. Agents happy, enthusiastic, rejoicing — banking enormous profits daily. **\$80.00 clear in two days — one carpenter's record.**

Every home in the land needs and wants Grab's Automatic Shoe Scraper on their doorstep. Millions are waiting to buy. The half million already sold have only created a demand for many millions. Business is booming — orders rolling in — everybody buying — the great harvest is on — get your share of this easy money.

Territory free but going fast — worth fortune — get yours today. Start now. Don't lose by waiting. Win by immediate action — without risk, obligation or cost — the very chance you have been looking for. Never such an opportunity for carpenters to make money fast.

**HAILED AS A GREAT BLESSING TO HUMANITY** Clean homes demand clean shoes. Dirty shoes with their load of dirt, mud or snow have been the bane of every woman's life. Women for ages have been slaving to keep the house clean, but it is no longer necessary to endure the hardship imposed by dirty shoes. The time has come when people can and will "wipe their feet before entering." This problem is solved — this longed for and enjoyable condition is now a happy reality for all. Once again man's inventive genius has conquered, and lifted a great burden from women's shoulders.

Think what this invention does. Replaces unsightly, unsanitary, crude door mat. **Mud, dirt, dust, snow, dirt of all kinds removed in a jiffy.** Works like magic — sells like "sixty." Ramsey, of Montana, writes: "Only forty-five families in town — have sold all."

A positive pleasure for any one to use — a source of never ending comfort to the housewife, to all who value cleanliness. Means less dirt — less work — less drudgery — less shoes to buy — longer life to rugs, carpets, floors — better health. It appeals to everybody. A winner from the very start. High grade, unquestionable merit, something with class, practical and durable value, unique, odd, and pleasing to the eye.

### AT SIGHT PEOPLE EXCLAIM "JUST WHAT I'VE WANTED FOR YEARS"

Sells on sight. No forcing, no smooth talk, no salesman's tricks or deception necessary. **Simply tell the truth — that's all.**

You have nothing to learn — nothing to set up — no dirty work to do — seeing dispels all doubts — settles all questions — a sale results. So easy because it solves such a mighty problem, costs so little, does so much, is not a luxury, but an actual necessity. Every person who sees it wants one immediately. (J. Rowan writes: Six dozen received. All sold and more. Find them easy sellers as they fill a long felt want.) This invention is right for the public, right for you. The price of \$1.00 retail is insignificant, everybody can afford it, everybody recognizes immediately its great practical value, can see at a glance that it saves labor, drudgery, health, worry, time, carpets, floors. You have no competition. There is nothing else like it.

### ACTUAL RECORDS LOADED WITH STARTLING MONEY-MAKING FACTS

Walters, carpenter of Texas, never sold goods before but writes: "Started at 10 today and sold 51 scrapers before evening, all to prominent people." Arnold, of N. Dak., (orders 1, then 2 gross): "I have taken 160 orders in two days." Hagen, of Texas, sold 100 in two days. Webb, of Pa., "I average 10 sales per hour." O'Connell, of Mont., sold 25 first day. Mike Bock, carpenter of Minn., 30 first day. C. Froom, Iowa, "30 first hour." Mrs. Windsor, Mo., writes: "Ship 6 doz. more. First 4 doz all gone. Have orders for 75 more." G. Rauscher, of Minn.: "Ship 5 dozen. Sold 36 this morning." Henthorne, of W. Va.: "35 orders today." Ream, of Wash.: "Finest article I ever handled." I. Thompson, carpenter of Texas: "Ship 6 dozen more. 8 orders first 2 hours — 20 next half day. No trouble to sell. Sell 8 out of 10 solicited." C. Averill, Nebr.: "Have taken 40 orders in two days. Scraper a dandy seller." J. Roberts, Colo.: "Ship 6 dozen. Have over 200 sold. Good sellers. Have sold 41 in 5 hours." S. Lindsay, Ind.: "The scraper is the seller. Best proposition I ever found. Like getting money from home." Woodward, of Ga.: "I sold 4 dozen the first day and have never sold goods before."

### CARPENTERS! HERE'S OPPORTUNITY AT YOUR DOOR. OPEN! LISTEN!

Hundreds like these — many doing better. You are face to face with the same opportunity. Don't watch others making money which you can make. Be up and doing now. Some other time may be too late. **Just get started.** Stop worrying with goods that everybody has or nobody wants. Get Grab's. It's new, wonderful, irresistible. A change for the better justifies no delay. Come with us — enjoy the thrill, the pleasure, the enthusiasm of making big money fast — join the immense organization of master money-makers. Fill out the coupon now — before you do another thing. Get our free catalog. Get the exclusive agency. Get overwhelming proof. It costs nothing to investigate. Meet us that far anyhow. Take the action now that leads to more money for you next week — \$1000.00 cold cash in three months. Send the coupon today.



Selling Price **\$1.00**  
That's All!

## GRAB'S SCIENTIFIC SHOE SCRAPER

Truly a mechanical and scientific wonder. Automatically removes mud, dirt, dust, snow, from shoe in one operation. Cleans sides, sole, heel. For men, women, children. Automatically adjusts itself to any size shoe — any shape. Attaches quickly to any doorstep or other handy place without screws, nuts, bolts. Neat, attractive, always ready to use. Rotates for sweeping. Handsomely enamelled. Saves drudgery, time, money, shoes — saves carpets, floors. Mechanical wonder. Weighs less than three pounds. Very compact, strong, easy to carry. Has 7 new patented features not found in any other scraper — 10 steel blades — 10 dirt outlets — twin adjustable and removable brushes — compound springs. Can't clog — practically self-cleaning.

### SATISFACTION GUARANTEED OR MONEY CHEERFULLY REFUNDED

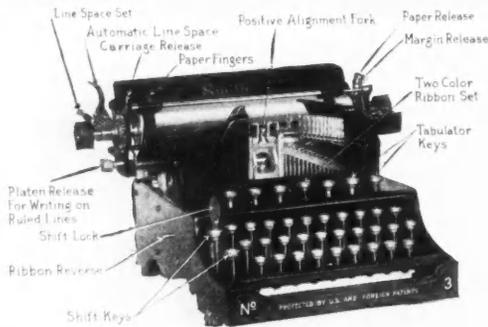
-----MAIL THIS COUPON TODAY-----

SECURITY MFG. CO.,  
Dept. 227, Toledo, Ohio.  
Gentlemen:  
Please send me, without expense or obligation on my part, full particulars of your Big Money Making Offer.

Name.....  
Street No.....  
Town.....  
State.....

**SECURITY MFG. COMPANY**  
Dept. 227 TOLEDO, OHIO

# Typewriter Sensation!



## Greatest Typewriter Bargain → EVER OFFERED ←

Only \$2.00 a month until the bargain price of \$29.60 is paid and the machine is yours. **This startling offer has astounded the typewriter world.** Absolutely the greatest typewriter bargain ever offered. For a short time only I offer a limited number of these standard

### Visible Writing MODEL No. 3

typewriters at this exceptional price. **Perfect machines, not damaged or shop worn.** Complete outfit, cover, tools, instructions, etc. Machine of standard size, but light weight and portable, keyboard of standard arrangement, writing the full 84 characters, two color ribbon, tabulator, back spacer, writes on ruled lines; **in fact, every late style feature and modern operating convenience,** at less than a third of the regular price, and each letter visible as printed and all previous writing completely visible at all times.

## FREE Trial! You Take NO RISK

My brand new Model, No. 3 offer for but \$29.60—and only \$2.00 per month.

I won't let you buy this typewriter before you see it. I want you to be absolutely convinced that this is the greatest typewriter bargain ever offered. If you have the slightest use for a typewriter you should accept this amazing offer. **You cannot equal this wonderful value anywhere.** When the typewriter arrives deposit with the express agent \$5.60 and take the machine for a five days' trial. If you are convinced that it is the best typewriter you ever saw, keep it and send me \$2.00 a month until my bargain price is paid. If you don't want it, return to the express agent, receive your \$5.60 and he returns the machine to me. I will pay the return express charges. **This machine is guaranteed just as if you paid \$100.00 for it.**

### Only 100 Typewriters at This Price

**There is no time to lose.** Fill in the coupon and mail it today—sure. The typewriter will be shipped promptly. There is no red tape—no solicitors—no collectors—no chattel mortgage. It is simply understood that I retain title to the machine until the full \$29.60 is paid. You cannot lose. **It is the greatest typewriter opportunity you will ever have.**

TEAR OUT—MAIL TODAY

H. A. SMITH, 721-231 N. Fifth Ave., Chicago, Ill.

Ship me your Model No 3, F. O. B. Chicago, as described in this advertisement. I will pay you the \$24.00 balance of the SPECIAL \$29.60 purchase price at the rate of \$2.00 a month. The title to remain in you until fully paid for. It is understood that I have five days in which to examine and try the typewriter. If I choose not to keep it I will carefully repack it and return it to the express agent. It is understood that you give the standard guarantee for one year.

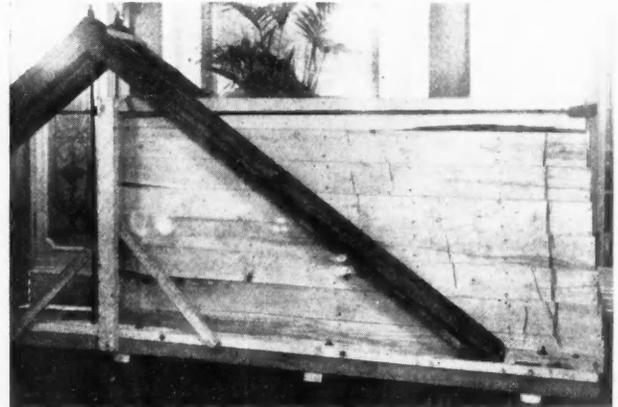
Name.....

Address.....

## Bishopric Stucco Board Tests Convince Chicago Architects

On November 23rd a representative group of Chicago architects and builders assembled in the East Room of the La Salle Hotel to witness strength tests conducted by Robert W. Hunt & Company, engineers, showing the comparative strength of Bishopric Stucco Board when used as sheathing and lathing, as compared with ordinary 7/8-inch sheathing boards and wood lath construction.

Chas. Bostrom, Commissioner of Buildings of Chicago, was present to witness these tests. The engineers connected with Robert W. Hunt & Company, who had the tests in charge,

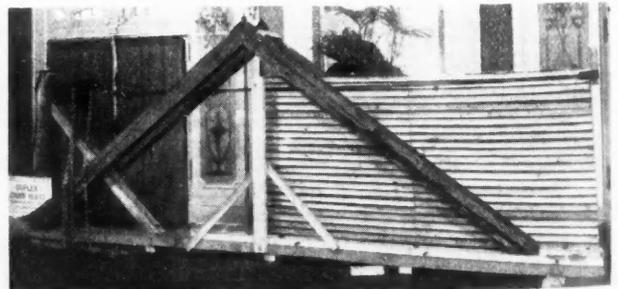


Test Panel of Standard Sheathing and Lath Construction. Pencil Marks Near End of Frame Indicate Amount of Distortion.

had prepared panels that duplicated as nearly as possible actual construction as it would be in the ordinary stud frame building under regular working conditions. The stresses applied were equivalent to those set up by wind pressure on a building; so the test was really one of comparative stiffness of the Stucco Board construction as compared with ordinary sheathing boards and wood lath.

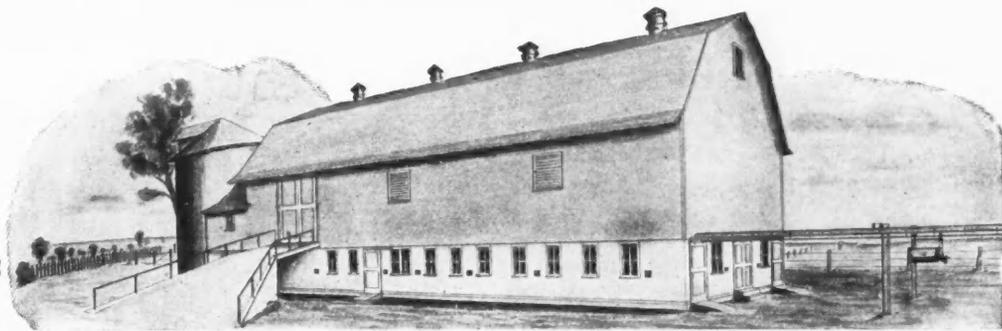
The results were too conclusive to leave any doubt in the mind of any one present as to the superior strength and stiffness of the Bishopric Stucco Board construction. Where the sheathing and lath panels failed at loads of from 800 to 1400 pounds, the Bishopric Stucco Board panel successfully withstood a load of 400 pounds and failed at 4400.

The editor of the AMERICAN CARPENTER AND BUILDER was present with a staff photographer and took the two photos



Panel of Stucco Board Construction in Test Frame. This Panel Failed at 4,400 Pounds, as Against 800 to 1,400 Pounds for Lath and Sheathing Panel.

reproduced herewith. One of them clearly shows the testing frame with dynamometer and hoisting tackle for applying loads. The load was applied in increments of 200 pounds. The movement of the upper sill of the panel was measured after each increment of load; the lower sill of the panel being held rigidly in place on the testing frame, and the pull being exerted against the upper sill to force it out of place and distort the panel as in wind pressure on a building.



## CONTRACTORS—

Are you going to secure your share of the barn contracts to be awarded in the near future? You will agree with us that this work is of a profitable nature, and especially so in view of the assistance we offer. Our Free Service Bureau is maintained for the benefit of all those interested in better barn construction and equipment. Floor Plans are submitted without expense or obligation, and any additional information is promptly furnished upon application.

Porter Steel Stalls, Cow Stanchions, Litter Carriers, Barn Door Hangers, Hay Carriers, Forks, Hay Slings and other tools are a acknowledged leaders everywhere.

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

New Barn Plan Booklet and complete catalog furnished upon receipt of your letter containing the names of parties who expect to build or remodel barns. Write today and learn more about modern barns and equipment.

J. E. PORTER COMPANY, 620 FREMONT ST., OTTAWA, ILLINOIS

# CARPENTERS AND SHOP MEN—

### RETAIL PRICES

#### Stationary Engines

2 H-P.	\$ 35.10
3 H-P.	52.65
4 H-P.	70.20
6 H-P.	100.00
8 H-P.	140.40
12 H-P.	210.90

#### Portable Engines

2 H-P.	\$ 40.15
3 H-P.	60.75
4 H-P.	83.35
6 H-P.	130.00
8 H-P.	176.80
12 H-P.	248.00

#### Engine Saw-Rigs

4 H-P.	\$128.25
6 H-P.	155.90
8 H-P.	205.60
12 H-P.	272.50

(F. O. B. Factory)

5 YEAR

GUARANTY

Here is a fast seller at the retail prices shown at the left. Our liberal dealer's discounts from these prices make you a good profit. Complete line of sizes and styles as here listed. With this agency, you can do the engine business of your trade territory. Write us now while your territory may still be open.

## Meco ENGINES

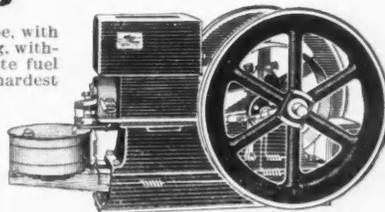
Gasoline, Kerosene & Gas

Through and through high quality. Center-firing, valve-in-head type, with automobile style ignition. Safety spark-shift for easy and safe starting, without cranking. Best of materials and workmanship, with up-to-date fuel saving design of engine. Simple to operate, and durable under the hardest wear, giving even speed and continuous power.

**Sold on Trial** Every engine fully guaranteed for durability, capacity and all around efficiency. Write for our dealer's proposition under which you can handle this line without risk under our buy-back-in-90-days' selling plan. Let us show you the profit in this agency.

Manufacturers Engine Co. 1628 Crystal Avenue  
Kansas City, Mo.

Sell  
This  
Engine!



## Don't do without an engine Now!

It is cheaper now to have a WITTE engine than to do without. Easy to start, without cranking; easy to manage; and easy to own on any suitable, reasonable terms of payment during a year.

## Fuel Saving WITTE ENGINES

Gasoline, Kerosene, Distillate and Gas

Stationary engines for prices averaging less than \$17.50 per horse-power. Eight sizes, stationary and portables, four sizes saw-rig outfits. Guaranteed high quality—through and through—as durable as superior design, the best of materials and workmanship can make. Get my engine facts before decide to get any engine.

**Book Free:** My book, "How to Judge Engines," will show you how to save and make money in getting and using an engine. Write for it today, addressing nearest office.

ED. H. WITTE, Witte Engine Works,  
1770 Oakland Ave., Kansas City, Missouri.  
1770 Empire Bldg., - Pittsburgh, Penna.

### Look at These New Prices!

(F. O. B. Factory)

SIZE H-P	STATIONARY ENGINES	PORTABLE ENGINES
2	\$ 34.95	\$ 39.95
3	52.45	60.50
4	69.75	82.75
6	97.75	127.75
8	139.65	174.65
12	197.00	237.00
16	279.70	329.70
22	359.80	412.30

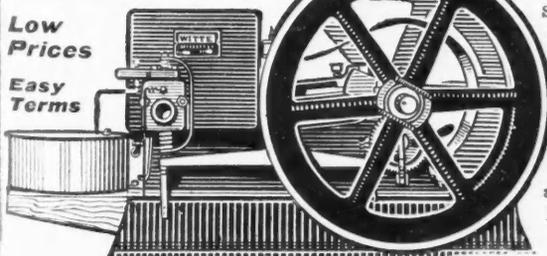
Engine Saw-rigs Complete.

4 H-P.	\$124.25;	6 H-P.	\$152.25
8 H-P.	202.15;	12 H-P.	267.00

Let me send you an engine to earn its own cost, while you pay for it.  
Ed. H. Witte.

Low Prices

Easy Terms



5-Year Guarantee  
Cash or Easy Terms



will note that this photograph was taken immediately after the failure of the Bishopric Stucco Board panel; over 4000 pounds having been withstood. Evidently the secret of strength is that the Stucco Board acts as a unit to withstand the pull, and does not allow slippage of one part over another, as is the case with the ordinary 6-inch sheathing boards. You will see that the laths are pulled apart and the composition backing warped and rippled over its entire surface.

Compare this with the other photograph, taken immediately after the failure of the sheathing and lath panel which represents ordinary construction. Before this test was started, several chalk lines were drawn across the several boards so that the amount of slippage could be easily seen as the loads were applied. This panel failed at a little short of 1000 pounds.

This test at the Hotel La Salle was one of a series that the Mastic Wall Board and Roofing Company are conducting in the various cities to acquaint the local architects and builders with the remarkable strength of Bishopric Stucco Board. Mr. Allison Bishopric, President of the company, acted as host on this occasion and served luncheon to the assembled company.

Any one of our readers interested in securing a detailed report of this test should address the Mastic Wall Board & Roofing Company, 706 Este Ave., Cincinnati, Ohio.

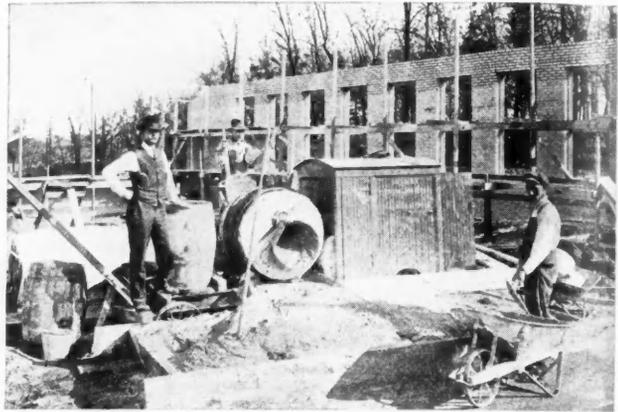
**“The Standard” Mixes Mortar and Plaster, Too**

It has long been thought necessary when a contractor desired to mix mortar to purchase a special mortar mixer usually of the trough type with revolving blades.

Many contractors using “The Standard” low-charging mixer on their concrete work have found that they could use the same machine for mixing mortars and plasters and they

claim better results can be obtained than with the special mortar mixers.

On account of “The Standard” design and the discharge



Discharge Side of “The Standard Mixer” Which is Handling Mortar Without Clogging.

arrangement, its use for mortars and plasters is made possible, the discharge not clogging or preventing the free mixing of the materials. One of the first large jobs on which it was used was the Woolworth Building in New York City, all the plaster for this 50-story building having been mixed in “The Standard” machine.

The illustrations herewith show “The Standard” machine in use for mixing mortar for J. C. Nelson & Son, contractors, Minneapolis, Minn., on building 75 by 100, the same mixer was used for the concrete foundation and also for lime and cement, this being done by one man, who mixed all the mortar.

Mr. Nelson states that in the future he will use the mixer

**ASK THE MAN WHO KNOWS ROOFING**

“Well Sir, my advice as to the best kind of covering is **CON-SER-TEX**”

Investigate the merits of this roofing material. Its claims for your consideration are based on the following facts:

**Costs very little.**  
Is easy and inexpensive to lay.  
Makes a neat, smooth, durable surface.  
Will not leak, rot, stretch or shrink.

Con-ser-tex is a specially woven canvas roofing which is chemically treated to preserve the fibre from mildew and the detrimental action of the oil in paint. It is water-proof, weather-proof, rot-proof and wear-proof. When properly laid, it will last as long as the house itself.

Contractors, builders and carpenters in all parts of the United States continually express their satisfaction with this material when used for roofings, porch-decks, sleeping verandas and bungalow construction. It is furnished in such widths and weights as are best suited for various classes of work, thus practically all waste is eliminated.

**CON-SER-TEX**  
Economical, Serviceable, Attractive, Profitable

Certainly the above facts are of sufficient interest to justify your immediate request for samples, prices and complete information.

*Better write today before you forget it.*

**William L. Barrell Company, 8 Thomas St., New York**

Chicago Distributor: Geo. B. Carpenter & Co. Wells and Michigan Sts.  
California Distributor: Waterhouse & Price Co. San Francisco, Los Angeles

**The ALPHA Dealer Has a Book for You**

In the eighty pages of this well illustrated book, you will find just the information you often need—directions about concrete proportions, mixing, foundation work, stucco, reinforcing, waterproofing, fireproofing, etc. You will find detailed instructions for making both large and small concrete improvements that will last for generations.

**ALPHA THE GUARANTEED PORTLAND CEMENT**

costs no more than any other good cement. It is specified by architects and engineers for important work where the builders must be **sure** of the materials they use.

The high quality of ALPHA Cement never varies. It is proportioned accurately, burned thoroughly, ground finer than required by standard specifications, and tested every hour day and night by chemists. ALPHA is guaranteed to **more than** meet the U. S. Government Standard for strength and all other recognized tests.

If you don't know the ALPHA dealer, write us for his name and ask us for Book No. 10.

**ALPHA PORTLAND CEMENT CO., Easton, Pa.**  
Sales Offices: New York, Chicago, Philadelphia, Boston, Pittsburgh, Buffalo, Baltimore, Savannah



**When the Architect Specifies BAYONNE**

He is giving his client positively the very best material for Porch Roofs and Decks, Sleeping Porches, Conservatories, etc.

**BAYONNE**

is standard for quality because it has for years met all the requirements in a superior way.

Does not leak, buckle or contract. Weather exposure does not affect its appearance or wearing qualities — and it is both noiseless and unaffected by tread of feet and drip of rain.

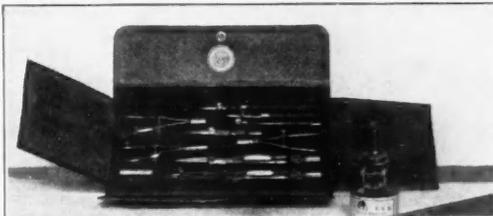
Very simple and easy to lay, making a clean job. No "setting" in wet paint and only one coat of paint is necessary for ordinary purposes after laying.

WRITE FOR SAMPLE BOOK "N" giving prices and laying instructions

**John Boyle & Company, Inc.**  
112-114 Duane St. 70-72 Reade St. NEW YORK CITY  
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**Here's YOUR Chance to Learn DRAFTING**

This Complete \$15 Drawing Outfit and Full Instructions in Mechanical Drawing **FREE**



There's a good job waiting for you. The country is facing greater prosperity than it has ever before experienced. Far-seeing men are getting ready for boom times. Get this training now and share in the coming prosperity.



**CHARLES W. MOREY**  
President of the College and Head of a Large Chicago Firm of Engineers and Contractors.

**MEN WANTED FOR BIG JOBS AT BIG PAY**

This is a rare chance for a few wide-awake young men

On account of the rapidly increasing demand for trained draftsmen Pres. Morey has issued orders that instruction be furnished to a limited

number of young men who are inclined along architectural and building lines. Read about this great offer below—then mark and mail the coupon.

**STUDY AT HOME** Devote your spare hours for a short time only and get in the class drawing the big pay envelope. Hundreds of men are in daily attendance at this old established college. In your own home you can do the same work these men are doing, and the same experts that teach them will guide you toward the big job. They will prepare your instruction matter. Your work is examined and approved by them. No books to sell. Live, up-to-date blue prints of work in actual construction. These men know exactly the practical training you need because they are in constant charge of big work.

**A WONDERFUL CHANCE**

for Carpenters, Bricklayers, Plasterers, Foremen, Superintendents, Contractors and all other men in Building Lines.

**\$45 COURSE FREE**

This college has set aside a limited number of Free Scholarships and will give the regular \$45 Course in Mechanical Drawing Free with any one of the Home-Study Courses named in the coupon below—this is in addition to the complete \$15 Drawing Outfit which is also furnished to students free. Take advantage of this unusually liberal offer today, as it will be withdrawn when the allotted number of Free Scholarships has been awarded. It costs you nothing to get full information. No obligation on you.

**ACT NOW—FILL OUT COUPON TODAY**

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

College or Home-Study Course .....

**CHICAGO TECHNICAL COLLEGE**  
1017 Lake View Building, Chicago, Illinois

**You Build Reputation With Asphalt Shingle Roofs**



EVERY Asphalt Shingle roof you lay adds to your reputation in the minds of your customers. And it makes you more profit. This roofing looks better, lasts longer, needs fewer repairs and pleases the owner in a way that makes him thank you for suggesting their use.

**Asphalt Shingles**

"Destined to Roof the Nation's Homes"

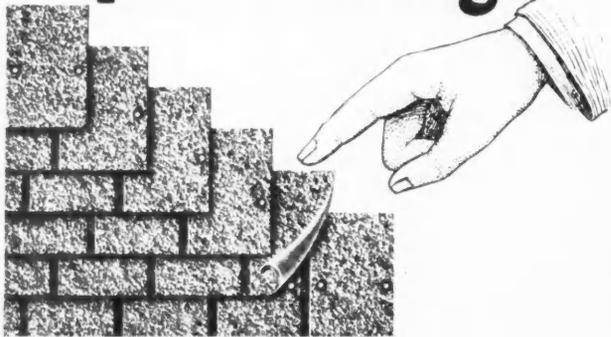
Do not forget that they save labor—fewer to lay, large and uniform size—which means a larger profit per job. Yet with all this they cost the house owner about the same as a commonplace roof.

**This Free Book Will Help You**

Send for booklet "The Roof Distinctive." Tells about them and suggests beautiful roofing effects.

**Asphalt Shingle Publicity Bureau**  
855 Marquette Bldg., Chicago

# Flex-a-tile Asphalt Shingles



## These Shingles Are Scientifically Perfect

**H**UMAN MINDS and perfected machinery could not make more perfect shingles than Flex-A-Tile Asphalt Shingles. There is no guesswork in their manufacture. Pure wool felt is saturated with twice its weight of high-melt, oil-free asphalt; over this we lay a coating of tough, rubber-like gilsonite; and into this is compressed under tons of pressure the beautiful crushed slate or granite surfacing.

That's why Flex-A-Tiles hold up under all conditions of weather and give such lasting service. That's why you can depend on Flex-A-Tile roofs to be a credit to the owner and a credit to the builder alike. Flex-A-Tile Asphalt Shingles save building cost because they require no painting or no repairing. Build your roofs of Flex-A-Tiles and you will build an enviable reputation and handsome profits for yourself.

Look out for imitations. Be sure you get genuine Flex-A-Tiles, made only by the Heppes Company.

Send Now for Sample  
Flex-A-Tile Asphalt Shingles

Write today for free samples of Flex-A-Tile "Giant" and standard Flex-A-Tile Asphalt Shingles and our free book, "Flex-A-Tiled Homes."

## THE HEPPES COMPANY

1010 S. Kilbourne Ave. Chicago

Utility Wall Board No-Tar Asphalt Paint  
Flex-A-Tile "Giant" Shingles Rubbertex Roll Roofing  
Other Guaranteed Heppes Products

for mixing brick mortar at all times as it is the cheapest and best method he has ever used.

The mortar boxes are shown in front of the machine where the lime is slacked and preliminary mix with the cement is given. At the discharge side of the machine can be seen the mixed mortar which has been discharged.



Charging Side of Mixer Used in Handling Mortar for Brick Work.

The contractors will appreciate the advantage of this machine mixed mortar which is free from "butterflies" and better tempered and blended than hand-mixed.

The advantage of having a machine that can be used not only for concrete and cement mortar but for lime mortars and plasters is especially important to the building contractor, as he is enabled to keep the machine in use nearly all of the time during building operations.

It will also be appreciated that a machine which will mix mortars and plasters will always give a thoro mix on concrete which is much easier handled than the other materials.

"The Standard" Low-Charging Concrete Mixer is manufactured by The Standard Scale & Supply Co., having houses in Pittsburgh, Chicago, Philadelphia, New York, Cleveland, and agencies in all sections of the country. Catalog 44-1 will give complete details of their machines.

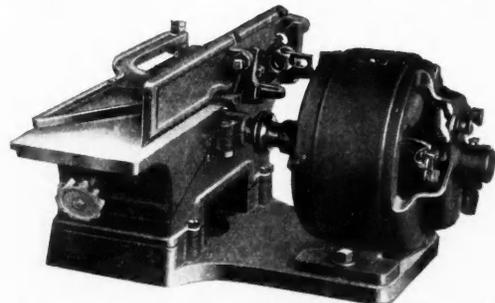
### The Crescent Bench Jointer

A new tool, which has just been placed on the market, is the 4-inch bench jointer illustrated here.

The view shows the machine motor driven; machine is furnished complete with cord and attachment plug.

While small, this machine has a wide range of work and will, in most cases, do from 40 to 50 per cent of the work usually done on the large size jointers in many shops.

It is furnished with round safety head, tilting fence for



New Crescent 4-Inch Bench Jointer, Motor-Driven.

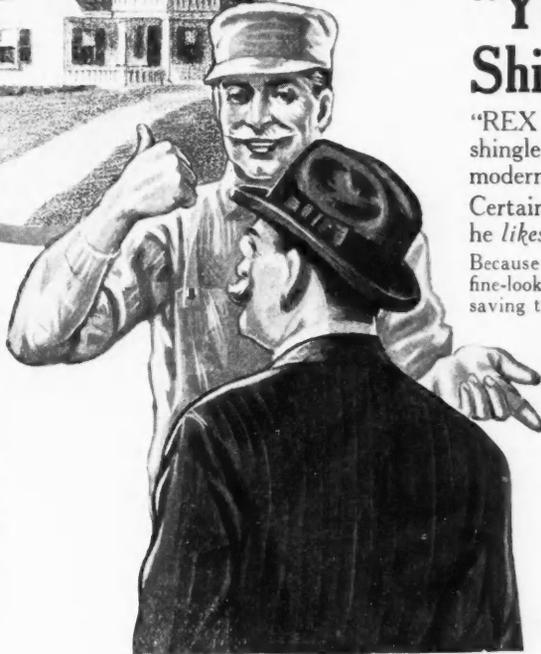
bevel work, automatic guard, and has rear table arranged for rabbetting.

For straightening and squaring up the edges of boards, plank or studding, this machine will do in one operation the same work that requires a number of operations with jack-plane, fore-plane and square, and will do it much faster and better.



# Rex Strip Shingles

SLATE SURFACED



## “Yes, Sir, You Are Now Shingling For All Time!”

“REX STRIP Shingles not only look better than wood shingles—they possess the life-time durability of the modern asphalt shingle.”

Certainly this Builder knows whereof he speaks—and he likes to speak of the Rex Strip Shingles.

Because in every job they figure he can give the House Owner a fine-looking, weather-protecting, fire-resisting roof covering with a saving to himself of 50% in laying cost.

The patented strip arrangement of Rex Strip Shingles is the reason. One man now lays five shingles in the time he ordinarily would lay one. He drives six nails instead of ten—a 40% saving in time and nails. No chalking—no spacing required. Obtainable in a grayish green or dark red.

We will gladly explain the economical efficiency of Rex Strip Shingles—on request. We suggest you write for samples and full particulars today.

### Flintkote Mfg. Co., Inc.

Boston . . . . . 90 Pearl Street  
 New York . . . . . 67 Beaver Street  
 Chicago . . . . . 659 Peoples Gas Bldg.

#### Important

Rex Strip Shingles are 40 inches long and 10 inches wide. The “slots” or “cut-outs” are 1/2 inch wide and 3/4 inches deep. There are five shingles to a strip. The exposed portion of each shingle is 7 1/2 inches wide. Only 90 strips of 5 shingles each are required to cover 100 square feet of surface.

### The Walter's and Cooper's Zinc Coated Metal Shingle

is coated or plated after stamping, so that every last possible spot where deterioration could start has a rich, heavy, zinc coating. The result is: Walter's and Cooper's Interlocking Metal Shingles are practically indestructible under all climatic and weather conditions. Roofs covered thirty years ago are as good now as when first put on and have never caused a cent's worth of expense in renewals or repairs in all that time. Roofing contractors make a very handsome profit handling these shingles. Ask for particulars.



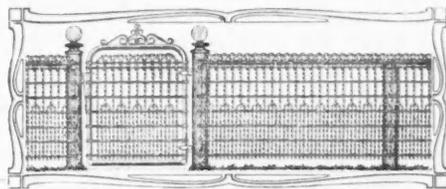
National Sheet Metal Roofing Co.  
 339-345 Grand St., Jersey City, N. J.

### Globe Fencing

Easy to erect, and easy to sell. Makes attractive appearing yards, and offers attractive profits to the builder who recommends it.

Write for our catalog, and discounts to builders.

GLOBE FENCE COMPANY, Un-Inc.  
 20 22nd St. NORTH CHICAGO, ILL.



## “most artistic . . . . . yet inexpensive”

If you would make your “dream-home” come true, study the unique artistic effects you can secure by using

### “CREO-DIPT” STAINED SHINGLES

17 Grades                      16, 18, 24-inch                      30 Colors

The best cedar shingles stained by special preservative process giving 30 different, soft-toned colors.

They are rot-, decay-, worm- and weather-proof. Cheaper than brush-coated or shingles stained on the job, and they last twice as long as natural wood. All perfect shingles, ready to lay with absolutely no waste.

Send for sample of colors on wood and book picturing 89 beautiful homes all over the U. S.

STANDARD STAINED SHINGLE CO., 1028 Oliver St., No. Tonawanda, N. Y.

(Factory in Chicago for Western Trade)

Be sure you are able to explain to your clients the advantages of and the delightful combinations possible with “CREO-DIPT” Stained Shingles.

in South Bend, Ind.                      Architect, W. W. Schneider, South Bend  
 effect obtained by using “CREO-DIPT” Stained Shingles on both roof lines.

The motor furnished is ¼ horsepower, and requires very little current to operate, but is quite sufficient to do all the work the machine is intended for.

The machine will be furnished either motor driven or for belt drive, with or without countershaft as required, and the manufacturers, the Crescent Machine Company, 224 Main Street, Leetonia, Ohio, will be glad to quote prices and full particulars.



**A Chemically Treated Wall Board that Does Not Shrink**

A wall board in order to be successful now must be proof against dampness because if it can take up water the continuous shrinking and swelling will spoil the looks of the wall that is made of this material. Wall board that is sized before it reaches the consumer has also become very popular because of the time that is saved in the decorating.

Plastergon wall board is chemically treated so that it is sized and waterproofed at the same time. This treatment makes the board very stiff and hard and gives an unusually good surface for painting, which is not waxy or spongy.

A sample of Plastergon board can be obtained from the makers, the Plastergon Wall Board Co., 101 Fillmore Ave., Tonawanda, N. Y., which will show the construction of this board. A coating of paint is applied at one end and shows the ideal surface of the board for painting. If the surface of the board was spongy and soft the paint would sink in so that two or more coats would be needed to obtain a uniform color, or if the surface was waxy the paint would not adhere. The single coat as applied to this wall board presents a remarkably uniform and flat surface.

Details of prices and the free sample can be obtained from the above mentioned company.

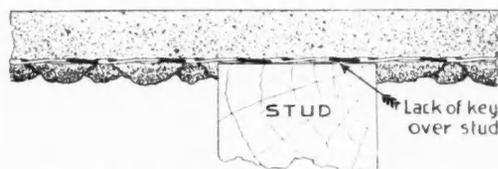
**The Key of the Mortar is in Front of the Stud**

The Sykes Metal Lath & Roofing Company, 504 River Road, Warren, Ohio, are sending out literature explaining the saving



Sykes Metal Lath Over Stud, Showing Perfect Key That is Obtained.

effected in mortar by the use of their Sykes expanded cup lath. They claim that with their cup lath a large part of the key or clinch of the mortar is in front of the stud, therefore goes to form a part of the ground. They say that in ordinary lath the entire key is back of the stud and does not figure in



Ordinary Lath with Key Back of Stud but with No Key Over Studs.

the ground. The lath is thus imbedded in the wall in the best possible way and thus provides very good reinforcement. Because of this, the lath has been christened the "backbone of the wall."

Copies of their booklet can be obtained by writing them at the above address.

**MYERS**  
**HYDRO-PNEUMATIC PUMPS**  
FOR THE HOME WATER SUPPLY

The country folks have long been envious of the water convenience of their city neighbors. And now Myers Hydro-Pneumatic Pumps, have made possible for them the water facilities they have so long coveted.

**Myers Hydro-Pneumatic Pumps**

made in many styles and sizes, for operation by gasoline engine motor or other power, have extended the city water mains to every threshold. These are the pumps that pump air and water at the same time through a single discharge pipe into the pressure tank. The air, becoming compressed, forces the water to any point desired. The equipment can be placed in the basement or any convenient point out of the frost zone. It is easy to install, with a nominal upkeep afterwards and the water service is excellent. Considering the satisfaction of having a handy water supply and the ease and low cost with which it can be obtained, no one can afford to carry water by the bucket-full from some outside source.



Write for a copy of our new Hydro-Pneumatic Pump Catalog illustrated in this advertisement. It will give you complete information about Myers Home Water Supply Systems.

Address Dept. C

**F. E. MYERS & BRO., Ashland, Ohio**  
ASHLAND PUMP and HAY TOOL WORKS

**Plenty of Work This Winter— If You Own a**



**Portable Woodworking Mill**

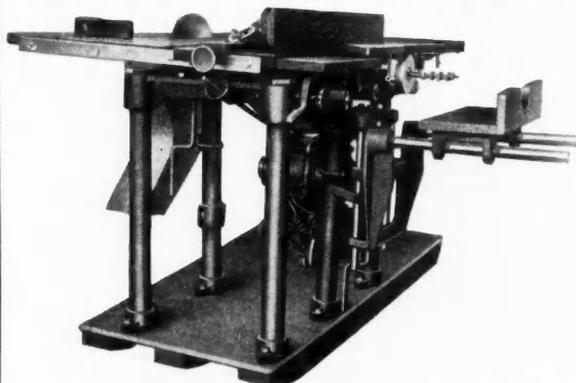
A man with this valuable piece of equipment can do any number of things during the slack season. He can make all sorts of interior improvements—such as built-in side-boards, medicine cabinets, stair work and cabinet work. He can also be getting ready for next year—making sash and doors, exterior and interior trim, etc. Many Builders have paid for this machine and made a handsome profit, too, during the winter season.

**A Machine for all Purposes**

The BERLIN heavy duty Portable Saw Rig consists of a Rip Saw, Cross Cut Saw, Dado Saw, Grooving Maching, Jointer, Jig Saw, Boring Machine, Sauder and Emery Wheel. It comes equipped with either a gasoline engine or electric motor mounted on its own base. It is easily moved from job to job and is strong and rigid. Guaranteed for two years.

Write for Details and Full Information Today

**SCHAEFER MFG. CO., Berlin, Wis.**



## Novo Wins Gold Medal at Panama-Pacific Exposition

Novo wins highest honors in the hoisting and pumping field every day. Novo has a habit of winning. More gratifying than winning the Gold Medal is the assurance we receive every day from contractors and manufacturers that Novo is their best aid in beating a low bid—in equipping their concrete mixers, pumps and air compressors with the steadiest kind of power.

The reason for the wonderful success of Novo power is that Novo Engine is so simple, self contained, automatic and uniformly dependable under roughest conditions of work and weather that it delivers a steady flow of power without expert handling. A Guarantee Bond against freezing damage is furnished with each engine.

**NOVO ENGINE CO., 444 Willow Street, Lansing, Michigan**  
 CLARENCE E. BEMENT, Secretary and Manager

*Remember there is a Novo Hoist  
 and Novo Pump for every kind  
 of job up to 15 H. P.*

*Write us on your letter-  
 head for free book—  
 "Reliable Power"*



## \$2,430 Clear Profit in 90 Days

—that's what one man made in a town of 375 inhabitants with

**THE HELM PRESS**

**What Other Manufacturers Report:**  
 "Landed a \$90,000 Government contract with HELM Cement Brick."  
 "Just landed a contract for 400,000 Helm Pressed Cement Brick."  
 "Made a million brick this season on a HELM Press."  
 "Working on a contract for half a million pressed cement brick."  
 "My daily profits on blocks average \$25.00."  
 "Turned out 17,000 pressed cement blocks for one contract in less than a month."  
 "Six weeks behind on HELM pressed cement and block orders."

**Be a Manufacturer of Pressed Cement and Brick Blocks**

The greatest opportunity in America today and open to you right in your community. Pressed bricks and blocks are **staple**; a billion bricks used annually in the U. S.—and blocks are just as necessary. Millions in actual profit are made annually out of these products. Builders in small towns and big cities use them in place of wood, stone and clay because it reduces building costs. How much of this big profit do you pocket?

**It Will Earn You \$20 to \$50 Daily**

With a HELM Press you can start a big money making business with small capital and even without experience. **The HELM PRESS makes pressed cement bricks and blocks under 80,000 pounds pressure—1,000 blocks or 10,000 bricks daily—without tamping, burning or hard work, ready for the market in a few days.** There's a big demand right in your own community for brick and blocks made by pressure; equip yourself to supply it.

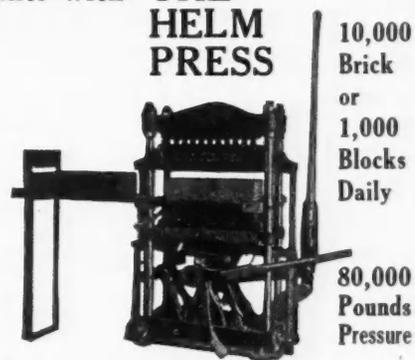
Send for this **FREE Concrete Book**. Fill out and mail the coupon before you turn the page. It brings a free book telling all about the HELM PRESS, the HELM Brick and Block system and the DRY WALL System. It tells how each product is made and sold and outlines the method by which you can begin a profitable business. Write today—and don't forget the coupon.



**The Helm Brick Machine Co.**

271 Mitchell Street

Cadillac, Mich.



10,000  
Brick  
or  
1,000  
Blocks  
Daily

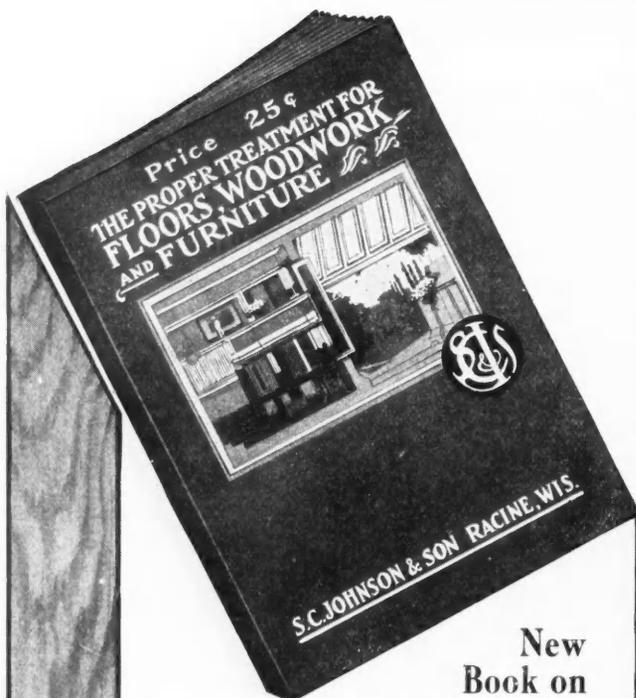
80,000  
Pounds  
Pressure

**The Helm Dry Wall Building System**

Appeals to architects, builders and contractors. Overcomes any objection to concrete because it insures absolutely **DRY WALL** construction. Makes rigid and fireproof walls, and is economical for the building contractor because it requires no furring or lathing. It is **bound** to get you business because it's so good.

The Helm Brick Machine Co.  
 271 Mitchell St., Cadillac Mich.  
 Please send **FREE** the book on concrete and HELM Presses, to

Name.....  
 Address.....



### New Book on Wood Finishing

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

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

### Johnson's Wood Dye

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

### Johnson's Prepared Wax

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

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

A.C.B.-1

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

Name \_\_\_\_\_

Address \_\_\_\_\_

City and State \_\_\_\_\_

Fill out this coupon and mail to

**S. C. JOHNSON & SON**

"The Wood Finishing Authorities"

RACINE

WISCONSIN

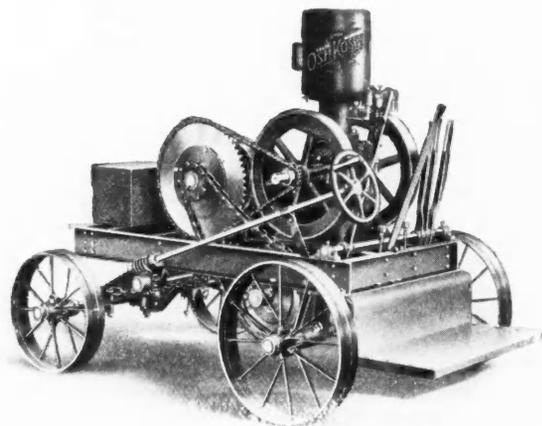
### The Oshkosh "Handy Man"

The real name for this general utility machine is the Oshkosh Back Filler, but every contractor that has installed one or more of these little hustlers has named them "The Handy Man." For there's hardly a job of any kind, in any sort of construction work, from pipe laying and conduit work to chimney building, that does not need a "Handy Man" on the work.

On a frame of 6-inch by 8-inch channel steel is mounted a 6 H. P. Novo gas engine. This is chain and sprocket connected to the clutch of the winding drum. Connection between this and the drum is by wood friction. The speed of the cable on the drum is 125 feet a minute. The cable runs directly down from the drum and then through a swinging sheave to the scoop or scraper. This insures the cable winding smoothly and evenly on the drum, no matter from what direction the pull comes. This is an important feature.

The operator stands on the platform at the back of the machine. He drives the "Grader" alongside the work—for it is a self-tractor and needs no horses to handle it—releases the cable, and has the laborer pull back the scraper across the pile of dirt to be moved. If the earth is heavy and sticky, it is sometimes necessary to have two men handle the scraper; but in most cases one can do it. When the scraper is set in the dirt the operator pulls in the clutch and the engine pulls the loaded scraper to the point wanted, where it is stopped, instantly, and the operation repeated.

By the swinging sheave construction the load can be worked from almost any angle, and there is no need to



The Oshkosh "Handy Man" for General Construction Work.

watch the cable on the drum to see that it is winding smoothly. In direct winding drums this is a serious fault, for the cable is apt to pile and unwind unevenly and hard.

But even if you are not entirely, or at all, in the dirt moving business, you will find dozens of uses for the "Handy Man." Water and gas pipes or sewer tile can be lowered into the trench and the trench filled as the work progresses.

Public utilities and contractors for them find a myriad uses for this outfit. It will pull cables thro conduits. By means of the pawl and brake the stretching of line and trolley wires can be rapidly and easily handled. The drum draws up the cable to the proper tension and the brake holds it immovable at that point. By throwing a pulley in a sling at the top of a pole, a whole bundle of cross arms can be raised and held for bolting in place. The "Handy Man" will pull two steel rails into place while six (6) or eight (8) men are getting ready to move one.

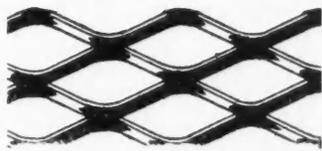
In erecting jobs the "Handy Man" is always in demand. He lifts material to the workmen. He runs pumps. He can, in emergency, run the concrete mixer. With a small

# Contractors Using Berger Materials are "Making Good" and Making Money



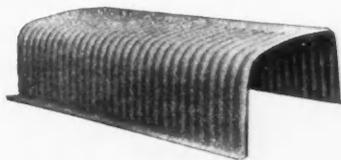
### No Supports for Short Spans

Berger's Ferro-Lithic Reinforcing Plates are used extensively for reinforcing and centering concrete slabs for flat or arched roofs and floors, sidings of buildings, sidewalks, etc. Made of a series of dove-tailed members running full length of the sheet, which stiffen the plate and furnish a key for bonding the concrete and plaster.



### Makes Plaster Go Farthest

Berger's Expanded Metal Lath. A minimum quantity of plaster will go farthest and make a practical job on stucco walls, partitions, ceilings, and every other kind of work requiring plaster. The diamond shaped openings are small and expanded so that the plaster clinches perfectly. Standard sheets are 18" wide by 96" long.



### Reduce Cost and Dead Load

Berger's Pressed Steel Cores will enable you to do this in both light and heavy long-span construction. Our standard size has a 20-inch base with flanges adapted for making concrete joists 24" on centers. Ceilings can be erected after all wires and pipes are placed. We make both Permanent and Removable Cores.



### Save Money and Material

Berger's Rib-Truss Reinforcing and Furring Plates, being expanded vertically (not laterally) are especially serviceable for reinforcing thin concrete slabs for roofs, floors, sidewalls and partitions. Ribs running throughout each sheet on 6-inch centers stiffen the plate and support it while the soft concrete is being poured.



### Save Concrete

Berger's Multiplex Steel Plates save concrete and minimize dead load in heavy service floor, roof, bridge and sidewalk construction. Easily installed with unskilled labor. Particularly desirable where no plaster ceilings are wanted or required, or where the underside cannot be readily plastered. Sixteen to 24 gauge sheet metal; lengths up to 10 feet.

See Sweet's, pages 210 and 220-224.

Write for Hand Book F. A, covering Metal Building Materials.

## Use Berger's Metal Lumber Instead of Wood



Patented

The reasons are obvious. It is stronger and more durable, and officially proven to be fireproof and indestructible. It is also sound-proof, damp-proof and vermin-proof. Not affected by climatic changes and can be installed in winter just as well as in summer.

We cut and number each unit to fit your plans—you put them together on the job, thus making erection easy and saving considerable money in time and labor. Use Berger's Metal Lumber for safety, economy, permanence and satisfaction. See Sweet's, pages 278-285, also write for Catalog L. A. B.



Residence of Mrs. Morris Belknap, Louisville, Ky. Architects: J. B. Hutchings & Son. Berger's Metal Lumber Used Throughout.

## The Berger Mfg. Co., Canton, Ohio

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

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

## More Money in 1916

### For BETTER BUILDING

There is less wood lath and of inferior quality — Don't neglect the opportunity. **Metal Lath**, for both **Exterior** and **Interior** construction, is a good thing — push it along!

## "Bostwick Truss Loop"

Reduces the Cost — Write Us, HOW?



The BOSTWICK STEEL LATH CO., Niles, O.

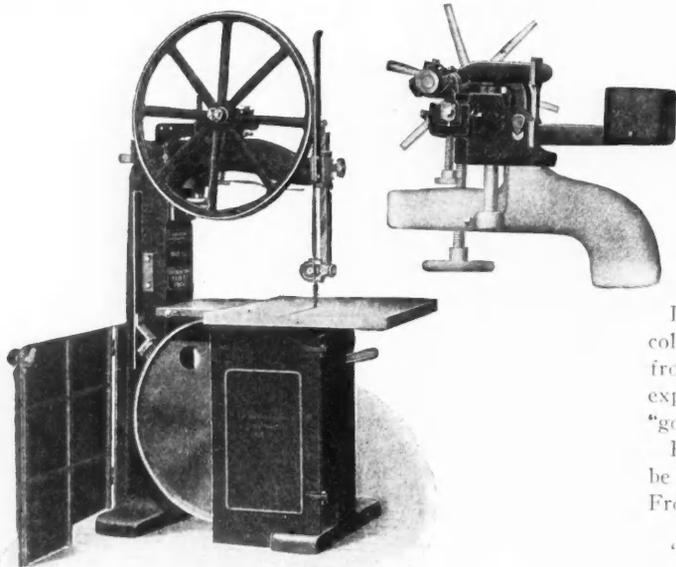
derrick to assist the machine, it will pull out shoring planks and concrete forms. And for unloading material wagons, there is a saving over the hand method of 75 per cent.

If you want to hire this "Handy Man," write to the Oshkosh Manufacturing Company, Oshkosh, Wisconsin, and they will tell you the terms. And they are mighty attractive.



### Square Column Band Saws and Knife Edge Strains

Square column band saws, of which J. A. Fay & Egan Co. are the exclusive manufacturers, have established a world-



The Square Column Saw with Knife Edge Balance Tension Device.

wide reputation for reliability and economy.

This company states that these square column saws, which are made in 30, 33, 36 and 42-inch wheel sizes, permit the operation of the wheels at a much higher speed than other types, greatly increasing the cutting capacity of these machines. The wheels are made of iron and steel thruout, no wood being used in their construction. The lower wheel is solid, operating like the fly-wheel of an engine, to give great momentum to the light spoked upper one, preventing overloading or choking down in a heavy cut.

The upper wheel is carried in the famous Fay-Egan patented knife edge balance tension device, which is made on the same principle as a fine laboratory scale. This tensioning device is absolutely positive in action and sensitive to the slightest degree, compensating even for the contraction and expansion in the blade caused by temperature changes. Even while sensitive to so slight a degree, it is flexible enough to pass a large block of wood between the blade and wheels, while the machine is in operation, without causing any damage.

The combination of the square column, the solid lower wheel and the knife edge straining device is what has made Fay-Egan band saws so successful. In actual operating tests, the makers say these square column band saws have demonstrated their ability to do from two to three times as much work at a blade upkeep expense of one-half the cost, as compared to the old style "gooseneck" machines.

Further information covering this line of band saws can be had on application to their main works, 545-565 W. Front Street, Cincinnati, Ohio.



"Heavens!" shrieked the heroine, "I am undone."  
"Let's go at once, James," whispered the lady from Manayunk, "I ain't goin' to watch no disrobin' act."

## LORENZEN— Tiles and Mosaics

*Write*

For Bathrooms, Kitchens, Hall-rooms, etc.

We carry a most complete line of Ceramic Mosaic Floor Tile and Sanitary Glazed Wall Tile for every purpose. Our designs are unusually artistic and correctly executed. The quality is *Lorenzen*—the best guarantee a builder can get. You can depend upon our prices being *right*.

Let us estimate on your next job or furnish you with an original design. At any rate, write for our Catalog No. 51 on Tiles and Mosaics. A postal will bring it and it is invaluable for your files.

Our large Catalog, "Vogue in Fire Places," the most comprehensive and complete catalog ever issued on fireplaces, should also be in your files. Write for it when building.

**Costs but a few cents a foot**

**Chas. F. Lorenzen & Co.**  
103 N. Clark St. CHICAGO

## KEEP YOUR MEN BUSY THIS WINTER AT A BIG PROFIT TO YOU



THERE IS A BIG PROFIT TO YOU in SELLING AND LAYING "SANTILITE COMPOSITION FLOORING" IN THE DULL WINTER MONTHS

As you know, "SANTILITE COMPOSITION FLOORING" is laid just like plaster  $\frac{1}{2}$  of an inch thick on any sub-floor of wood or cement—sets in 6 to 8 hours into a smooth, jointless, absolutely sanitary surface, without cracks to collect dirt, germs and filth—absolutely no trouble to keep clean—never grows dusty regardless of wear—extremely easy to stand and walk upon—fire will not burn it—water will not soak it—of permanent, pleasing appearance—never requires painting and will last the life of the building.

"SANTILITE" is the ideal floor in the home for the kitchen, pantry, bath or any room where a sanitary, dustless floor is wanted. It is extensively used in the factory for offices, halls, lockers, toilets; and the store, restaurant, cafe, public, semi-public buildings, in areas subjected to heavy wear, where a pleasing appearance, durability and absolute sanitation are required.

There are many masons, building and cement contractors who are making big profits in selling and laying "SANTILITE." It enlarges that branch of your business where there is an ever increasing demand—every home with a wooden bath room or kitchen floor needs it—every public place that has lots of wear must have it. You will find that there is little competition in your own locality, and it is especially attractive for it keeps your men profitably busy during the closed or Winter Season.

Write for samples, illustrated instructions for laying "SANTILITE" and our proposition to make your winter's work profitable.

**SANITARY COMPOSITION FLOOR CO.**  
131 Plum St. SYRACUSE, N. Y.

**We Pay Freight**



## Don't Pay For Your "Ellis" without getting it

Every carpenter or contractor who does not use a reliable engine is paying for the engine without getting it. He pays for it in lost time, and in labor costs. You can buy an Ellis Engine out of two weeks' wages to one workman; and your Ellis will give you reliable service for many years.

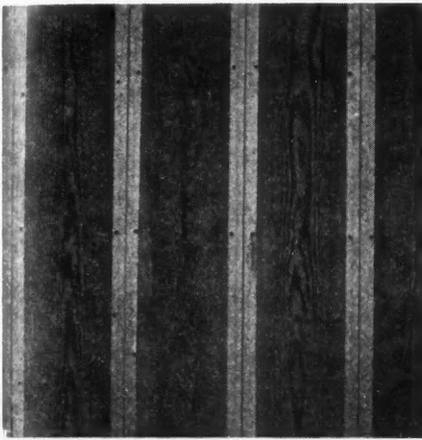
Ellis Engines are America's favorite with carpenters, contractors and builders. Very compact in design; light in weight in proportion to power. Easy to operate; no cranking. Run either way; reversible while running. They work successfully on common cheap lamp oil at a fuel cost of

**6 cts. for 10 hours**

for each horsepower developed. Just the thing for woodworkers, rip-saws, planers, cement mixers, hoists; in fact, for every job where power can be used. Write for free book, "Engine Facts," giving valuable information and full details of our 30 Days' Free Trial Offer, with opinions of users from all parts of the world.

All sizes for all purposes. 1½ to 18 H. P. Vertical and horizontal. Guaranteed 10 Years.

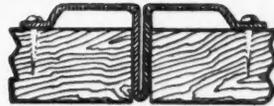
**Ellis Engine Co., 2863E. Gd. Boulevard, Detroit, Mich.**



## METALLIC BATTEN STRIPS

PRACTICAL—EVERLASTING—ECONOMICAL

These Batten Strips of Galvanized Metal will never warp, split, or draw away from the boards. Offer no obstruction to sliding doors. Allow for expansion and contraction of the siding. Made in 8-foot and 10-foot length with interlocking joint. Easily cut; no waste. Nailed directly to siding with small nails.



End view showing joint closed. A perfect fitting Batten at all times, in all weathers. Beautifies any building.



End view showing joint open. Provides for expansion or contraction of the siding so nails will not work loose.

Metallic Batten Strips make strong, neat joints. They make the building wind-proof, weather-proof and rat-proof. Also valuable for lining grain bins or wagon boxes.

Write for Free Sample and see for Yourself

**METALLIC BATTEN COMPANY . Owensville, Indiana**



**Just a Word to Your Customers—**

and the Wallace Portable Collapsible Lamp is practically sold—with a nice profit for you.

All you have to do is demonstrate the lamp, and nine out of ten among your

customers will buy it. It's so handy—

Stands, hangs, clamps or sticks any place—at any angle and when not in use folds up into a compact ball. Made in Brass, Bronze or Nickel, and reasonable in price.

You can appreciate its advantages, and so will your builders.

Drop us a postal today for our liberal proposition.

**WALLACE NOVELTY CO.**

22 E. 41st Street  
NEW YORK



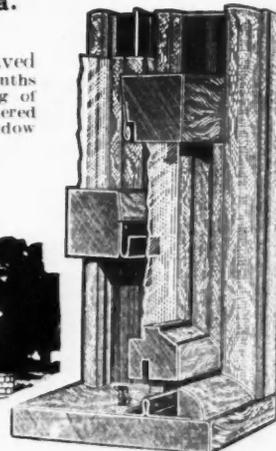
## Lots of Money and Plenty of Work

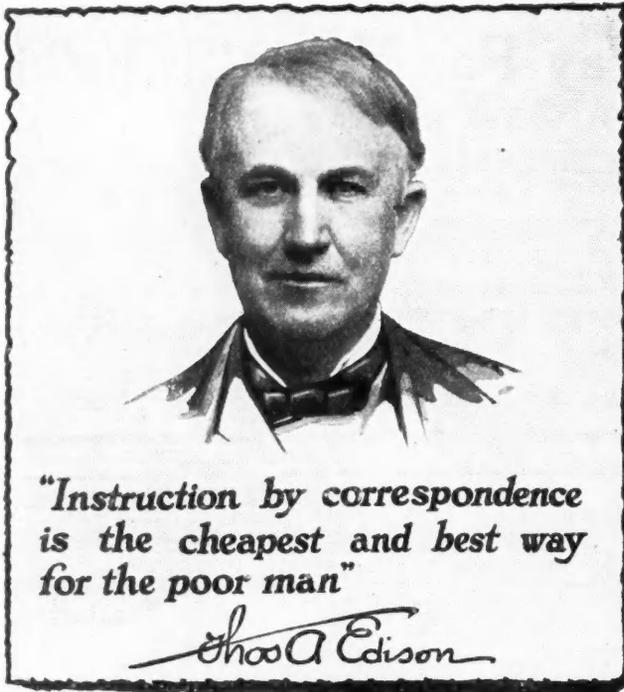
for the man who installs Pullman All-Metal Weather Strips. The easiest and most profitable side line ever offered to a contractor.

Get the agency for your town now, before someone beats you to it, because we offer exclusive territory to only one man. Write immediately for sample and terms of our agency offer.

**Pullman Metal Weather Strip Co.**  
York, Pa.

The owner of this house saved \$21.15 on his fuel bill during five months of severe winter weather, a saving of over 20%. His wife wasn't bothered with dust, dirt or drafts. Every window was equipped with Pullman Strips.





### Edison is Right!!!

You admit the International Correspondence Schools are a good thing. You'd take a course right now "if"—"except"—

"If" what? If you weren't so "overworked," with such "long hours," or had more strength and energy?

Wasn't it Edison who stayed up half the night to educate himself in spite of every handicap you could ever have?

All big men who have made their mark in the world had the *ambition*—the *determination*—to improve their spare time, to train themselves for big work. You, too, can possess power, money and happiness if you'll only make the effort. The reward is great—it's worth it.

Here's all we ask: Merely mail this coupon. Put it up to us without paying or promising. Let us send you the details of others' success through the I. C. S., and then decide. Mark and mail this coupon now.

**INTERNATIONAL CORRESPONDENCE SCHOOLS**  
Box E-8126 Scranton, Pa.

**INTERNATIONAL CORRESPONDENCE SCHOOLS**  
Box E 8126 SCRANTON, PA.

Explain, without further obligation on my part, how I can qualify for the position before which I mark X

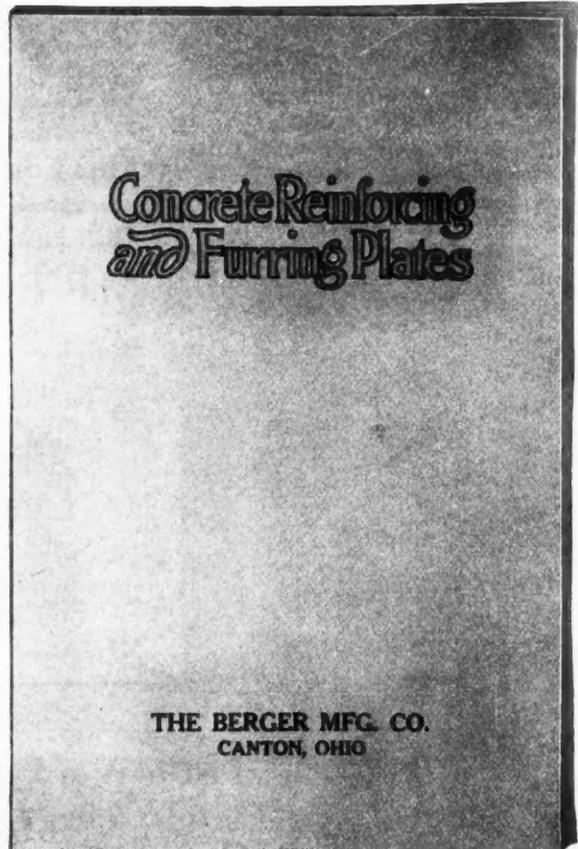
<input type="checkbox"/> ELECTRICAL ENGINEERING	<input type="checkbox"/> ADVERTISING
<input type="checkbox"/> Electric Lighting	<input type="checkbox"/> Window Trimming
<input type="checkbox"/> Electric Railways	<input type="checkbox"/> Show Card Writing
<input type="checkbox"/> Electric Wiring	<input type="checkbox"/> Lettering and Sign Painting
<input type="checkbox"/> Telephone Expert	<input type="checkbox"/> ILLUSTRATING
<input type="checkbox"/> MECHANICAL ENGINEERING	<input type="checkbox"/> DESIGNING
<input type="checkbox"/> Mechanical Drafting	<input type="checkbox"/> BOOKKEEPING
<input type="checkbox"/> Shop Practice	<input type="checkbox"/> Stenography and Typewriting
<input type="checkbox"/> Gas Engines	<input type="checkbox"/> Higher Accounting
<input type="checkbox"/> CIVIL ENGINEERING	<input type="checkbox"/> Railway Accounting
<input type="checkbox"/> Surveying and Mapping	<input type="checkbox"/> Commercial Law
<input type="checkbox"/> MINE FOREMAN AND SUPT.	<input type="checkbox"/> GOOD ENGLISH
<input type="checkbox"/> Metal Mining	<input type="checkbox"/> Teachers Course
<input type="checkbox"/> STATIONARY ENGINEERING	<input type="checkbox"/> English Branches
<input type="checkbox"/> Marine Engineering	<input type="checkbox"/> CIVIL SERVICE
<input type="checkbox"/> ARCHITECTURE	<input type="checkbox"/> Railway Mail Clerk
<input type="checkbox"/> Building Contractor	<input type="checkbox"/> AGRICULTURE
<input type="checkbox"/> Architectural Drafting	<input type="checkbox"/> POULTRY
<input type="checkbox"/> Concrete Engineering	<input type="checkbox"/> Textile Manufacturing
<input type="checkbox"/> Structural Engineering	<input type="checkbox"/> Navigation <input type="checkbox"/> Spanish
<input type="checkbox"/> PLUMBING AND HEATING	<input type="checkbox"/> Chemistry <input type="checkbox"/> German
<input type="checkbox"/> Sheet Metal Worker	<input type="checkbox"/> AUTO RUNNING <input type="checkbox"/> French
<input type="checkbox"/> SALESMANSHIP	<input type="checkbox"/> Motor Boat Running <input type="checkbox"/> Italian

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 Present \_\_\_\_\_  
 Occupation \_\_\_\_\_  
 Street \_\_\_\_\_  
 and No. \_\_\_\_\_  
 City \_\_\_\_\_ State \_\_\_\_\_

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

### New Hand Book for Builders

Engineers and contractors concerned with the building of reinforced concrete construction are as a rule interested in obtaining all of the latest information and data on this subject. We show herewith a picture of the new hand book just issued by The Berger Manufacturing Company, of Canton, Ohio. This book is well illustrated and contains such data as tables of safe loads, specifications for installing



Write for Copy of This Hand Book.

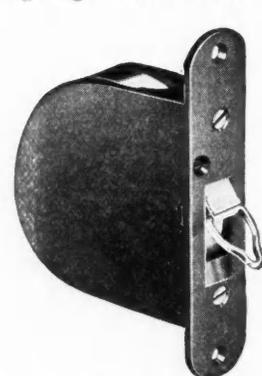
and descriptions of proper materials to use for various kinds of construction.

Any architect, engineer or contractor may secure a copy of the book by writing to the above named company.



### The Uniform Mortise Sash Balance

In many buildings there is a certain width of space available for windows; and the difference of a few inches in the width of the glass attained in the several methods of window construction makes a surprising difference in the lighting. Various methods of construction have been employed to accomplish this result and one of the best ways is by the use of sash balances.



The Caldwell Uniform Mortise Sash Balance.

With the sash balance the greatest possible space can be utilized for glass because the box frames for the sash weights, cords, and pulleys are eliminated. An absolutely uniform tension is maintained by the spring so that the sash will be perfectly counter-balanced at all positions.

The type of balance shown here is made in three classes. These classes contain types of low

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Use Stanley's  
No. 1775  
Wrought Steel  
Garage Door  
Stay and Close  
the Doors with  
One Hand from  
Inside the  
Garage



**M**ADE of 1-inch angle iron it has great strength and leverage. Throwing the door open, sets the stay and a slight pull on attached chain releases the lock and draws door shut. Weight 8½ pounds per pr. Write for descriptive circular "A."



## You Can Build in the Winter

Cold weather and flying snow need not be effectual barriers to winter building. You can quickly enclose your building, as many others have done, by using

# Fenestra

SOLID STEEL WINDOWS

"REG. U.S. PAT. OFF."

### Standard Units

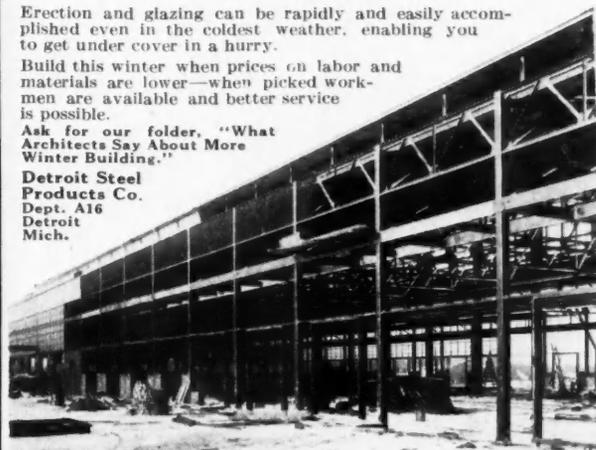
Shipped on 10 Days' Notice

Erection and glazing can be rapidly and easily accomplished even in the coldest weather, enabling you to get under cover in a hurry.

Build this winter when prices on labor and materials are lower—when picked workmen are available and better service is possible.

Ask for our folder, "What Architects Say About More Winter Building."

**Detroit Steel Products Co.**  
Dept. A16  
Detroit  
Mich.



# Mr. Builder, here's a chance to make good money all this winter

We offer to every carpenter who is a good business man, an opportunity to turn the dull season into a prosperous, money-making time—a chance to do a little work at odd times in any month in the year and make a handsome profit. Thousands of builders are working with us—thousands are turning their business ability to their own advantage. Read what some of them say in the next column.

## Ro-San Indoor Closet

This is a modern, healthful, comfortable, sanitary fixture that you can introduce to your customers, at a profit. It eliminates the vile, germ-breeding outdoor privy. This is a chemical closet—efficient and odorless—that may be installed right in the house. The old privy breeds disease in summer and is cold and unhealthful in winter. The Ro-San Indoor Closet brings health, comfort and convenience to the home, the office, school, factory. Endorsed by health boards. Recommended by physicians.

### Easy to Install

Set it up in hall, spare room, clothes closets—anywhere. Comes complete, ready for business. Easy to set up as a heating stove.

### Our Guarantee

We back this closet with our guarantee—if it doesn't satisfy your customer, we'll buy it back. It has to make good. The buyer is the judge.

### Our Proposition to You

We distribute these closets through local builders. We don't expect our agents to peddle them. We establish you in a dignified paying business. We assist you in building up that business. Write today for catalog and our agent's proposition—write before some other fellow gets the exclusive agency in your town.

**ROWE SANITARY MFG. CO., 180-C Sixth St., DETROIT, MICH.**

### Read What These Carpenters say:—

I haven't been able to put in much time on your proposition, but I enclose seven orders. These will help sell others who are waiting to see how the closets work.

ED. LAMEN,  
Flora, N. D.

I set my closet up in my office and sold it the next day. Enclosed find six more orders.

S. W. CASSIDY,  
Herkimer, N. Y.

Enclosed find five orders. One is for a sample for myself. The other four I sold right from your catalog.

C. F. BERTHELSEN,  
Clear Lake, Iowa

Please hurry shipment of closets. I sold two today without doing any taking at all. They sell themselves.

C. B. LA HUIS,  
Grand Rapids, Mich.



### Absolutely Odorless

In use, the closet is absolutely odorless. A vent pipe provides air circulation. Ro-San Chemical destroys life matter and renders contents harmless.

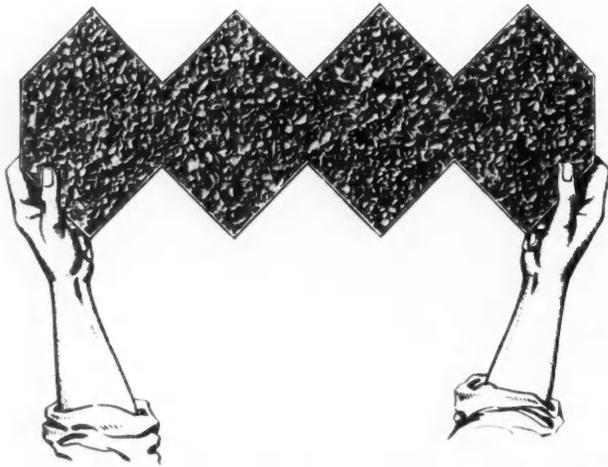
ances to carry sash weighing from 6 to 100 pounds. This Caldwell Sash Balance also has another advantage in that the form has been changed so that a uniform mortise can be used. These mortises can thus be cut at the mill, which simplifies the installation to a large degree.

A copy of their catalog describing the Uniform Mortise Sash Balance can be secured by writing to the Caldwell Mfg. Co., 15 Jones St., Rochester, N. Y. This catalog will give full particulars of their product.



**Diamond Slab Asphalt Shingle**

The Heppes Company are introducing a new shingle, the Diamond Slab "Flex-A-Tile" asphalt shingle. As the name indicates, this new shingle is built in the form of a diamond; and there's sound reason for this idea, for the diamond shape



Four Shingles at One Time in New Diamond Slab "Flex-A-Tile."

permits of a more economical arrangement of the shingles on the roof; in fact, the economy in this respect is so great that the makers say there is an actual saving of 33 per cent in material without changing the protection qualities of the shingle. This diamond shape is the patented feature which differentiates the diamond slab shingle from any other asphalt shingle and which guarantees the dealers who sell it that there can be no infringement by imitators.

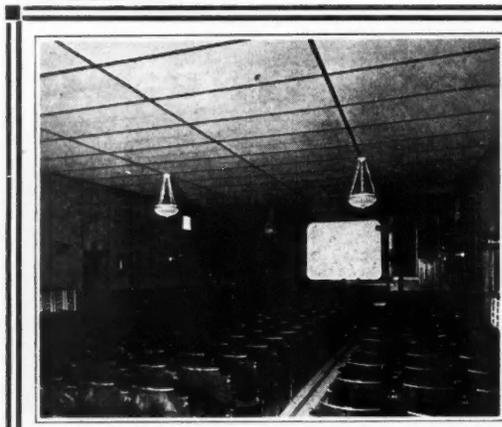
Next to the saving in material comes the big saving in labor—an economy that amounts to 75 per cent. Instead of laying the shingles one at a time, the diamond slab "Flex-A-Tiles" are self-spacing and are laid four at a time. In this connection should also be noted the 35 per cent saving in nails, for when laying fewer shingles consequently fewer nails are required.

The Heppes Company, who are located at Fillmore Street and Kilbourne Avenue, Chicago, will gladly send liberal samples together with interesting descriptive literature, price quotations, etc., on their new Diamond Slab "Flex-A-Tile" to any dealer, contractor, builder or architect. We advise every reader of this issue to write the Heppes Company at once and secure all the facts about this remarkable new asphalt shingle.



**Merchant & Evans Company Move to New Offices**

The principal offices, warehouses and factory of the Merchant & Evans Company, are being moved from their old address, 517 Arch St., Philadelphia, Pa., to 2019-2035 Washington Ave., Philadelphia. This change is announced to take effect Jan. 1, 1916. The Merchant & Evans Company will celebrate their 50th anniversary this year. They have been engaged in making metal specialties and metal building materials for the past fifty years. They have plants in Philadelphia, Wheeling and Chicago.



**Hard, Stiff, Waterproof and Sized**

Try to bend a piece of it. Whittle it. Drop water or ink on it. Rap it on your knuckle.

Then you'll understand how PLASTERGON WALL BOARD differs from all other boards.

**PLASTERGON WALL BOARD**

*The chemically treated wall board that does not shrink*

For every kind of building, PLASTERGON WALL BOARD is best because it is absolutely dependable. It is hard and stiff enough to lay smooth over studs and joists WITHOUT WAVING.

Dampness has NO EFFECT on it and the waterproofing not only lumberizes the board but also sizes it, saving you from \$4.00 to \$6.00 per thousand. BUT DON'T TAKE OUR WORD FOR THIS. Get samples of WATERPROOF Plastergon, test them and then order some of the board. The price will surprise you. Send today.

PLASTERGON WALL BOARD COMPANY, 101 Fillmore Ave., TONAWANDA, N.Y.

**Spanish Tile**



Catalogue "S" showing a complete line of Ornamental Roofings mailed free to Architects, Contractors and Carpenters.

Write for Prices on Ceiling Marquise Columns Roofing Cornice Shingles Cresting Siding Culverts Skylights Finials Spouting Garages Tanks Gutter Ventilators

Address The Moeschl-Edwards Corrugating Co. . . . Covington, Kentucky

# Fiberlic

*For Walls and Ceilings*

Your clients look to you for the new, the serviceable and the beautiful. On this basis alone FIBERLIC merits your serious consideration. Numberless effects can be inexpensively secured by the use of FIBERLIC.

FIBERLIC is made from long, tough, imported root fibre. It is chemically treated to insure strength, durability and rigidity, odorless, sanitary and fire resisting.

FIBERLIC is nailed right to the studding, and is far cheaper than lath or plaster. It can be used for any surfacing, and offers an endless variety of effects.



Send for a sample of FIBERLIC, and give it a thorough test, also ask about the special FIBERLIC paints and stains.

**THE FIBERLIC COMPANY, Camden, N. J.**

New England Branch:  
140 Washington Street,  
BOSTON, MASS.

New York Branch:  
FULLER BROS. & CO.,  
139 Greenwich Street.

London (England) Branch: McANDREWS & FORBES, Ltd.,  
Finsbury Court, E. C.



1866  
**CURTIS**  
WOODWORK

**WRITE** for convincing reasons why you can save labor, time and needless expense by using Curtis 1866 Woodwork and Built-in Permanent Furniture.

Any reputable lumber dealer can supply Curtis products. Go with the owner and look over Curtis designs. Both of you will be better satisfied. Let us prove it. Write today to Service Bureau.

THE CURTIS COMPANIES  
Clinton, Iowa



*For Durable Painting*  
of all kinds, specify

**Dutch Boy  
White Lead**

Anchors into wood pores. Stretches and shrinks without cracking. Wears well. Looks well.

Write for general painting specifications and chart of 39 color treatments. Ask for Folders A.



**NATIONAL LEAD COMPANY**

New York, Boston, Buffalo, Chicago, Cincinnati, Cleveland, St. Louis, San Francisco, Philadelphia (JOHN T. LEWIS & BROS. CO.) Pittsburgh (NATIONAL LEAD & OIL CO.)



Let Us Put **THIS BOOK** In Your Hand!

IT IS brimfull of suggestions that will actually help you make good money during the lean months when outdoors work is impossible. There is winter work for the contractor who uses

CAREY  
**Ceil-Board**  
SUPERSEDES PLASTER FOR WALLS AND CEILINGS

This book tells just where hundreds of other carpenters have found this work, and how they have turned it to profit. Shows how **you** can do the same. There are scores of jobs right in your locality just ripe for the Ceil-Board man. Attics and cellars to finish, summer kitchens, garages, churches and stores to improve.

Write today for your **FREE** copy

**THE PHILIP CAREY COMPANY**

General Offices

1021 Wayne Ave., Lockland, Cin., Ohio

Offices and Warehouses in Principal Cities



You'll never find another building material or wall lining like this—none so flat and strong, with so slight a tendency to warp or shrink; none so easily handled, sawing so clean and smooth; none so durable; none with such a stubborn resistance to air, cold, heat, moisture and fire; none so adaptable to so wide a range of uses.

Compo-Board has all these features as a result of its patented wood core construction.

How important it is then that you get **Compo-Board** when you ask for it. You can't be fooled if you look for the wood core, for it is easily and quickly identified.

You can get just the amount you need for any job in strips four feet wide and in even lengths up to 18 feet long.

Sold by dealers everywhere. Write for interesting book and free sample piece.

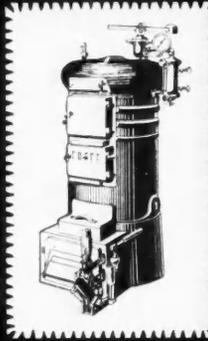
**The Compo-Board Company**

5777 Lyndale Ave. No., Minneapolis, Minn.

# They Save



$\frac{1}{2}$   
to  
 $\frac{2}{3}$



# Coal Cost -GUARANTEED

If you are a builder, or are having a house built for you, it will pay you to investigate the wonderful money-saving advantages of the Williamson New-Feed UNDERFEED Furnace or Boiler.

As an example of UNDERFEED efficiency and economy, just read this letter—one of thousands like it telling of more and better heat for less money the UNDERFEED way:

"Upon your request as to how I liked the UNDERFEED that was installed in my house about two years ago, will say that I am perfectly satisfied, as I have eight rooms and bath in my house—and not small rooms at that. The house is 30 feet by 34 feet first story, 9 feet 4 inches; second story 8 feet 6 inches high.

"The first year I used about \$37 worth of coal and this last year \$35 worth. The entire house was kept warm and no other stove in the house except a gas stove for cooking.

"In the last two years I saved not less than 45 per cent on my fuel bill with every room warm."

(Signed) SAMUEL ISELY, Monroe, Wis.

**WILLIAMSON** CUT  
NEW-FEED COAL  
**UNDERFEED** BILLS  
Furnaces and Boilers  $\frac{1}{2}$  to  $\frac{2}{3}$

### The "Candle" Principle

The New-Feed UNDERFEED effects this great economy and comfort because it burns coal on the "candle" principle. All fuel is fed from below. Thus the fire is always on top—it doesn't have to fight its way against new coal—fire is never chilled because there are no top feed doors to open. And, what is very important, all smoke, dirt and gas are burned and transformed into valuable heat because they must pass up, through the fire.

### Burns Cheaper Coal

And the New-Feed UNDERFEED burns the cheaper grades of coal as effectively as other heaters burn the more expensive grades. That's a first great saving that the owner can be absolutely sure of. Operation is simplicity itself—a boy of 12 can do it all with "expert" results.

### One-half to Two-Thirds Saving GUARANTEED

Yes, this saving is actually guaranteed where the New-Feed UNDERFEED is properly installed and operated. A Million Dollar concern stands back of that guarantee. Thirty-five thousand UNDERFEEDS are in use. Adapted for use with warm air, steam, hot water, vapor, vacuum and combination systems.

### Ask for Free Book

Send the attached coupon today for interesting book, "From Overfed to UNDERFEED." It solves many a heating problem for you. Send it NOW.

### The Williamson Heater Co.

(Formerly the Peck-Williamson Co.)

47 West Fifth Ave. Cincinnati, Ohio

THE WILLIAMSON HEATER CO.  
47 West Fifth Ave. Cincinnati, O.  
Tell me how to cut coal bills from  $\frac{1}{2}$  to  $\frac{2}{3}$  with a Williamson New-Feed.  
Warm Air \_\_\_\_\_ Steam or Hot Water \_\_\_\_\_  
(Mark X after System interested in.)

Name \_\_\_\_\_  
Address \_\_\_\_\_  
My Dealer's Name is \_\_\_\_\_  
DEALERS: Let us tell you about the New-Feed UNDERFEED  
and our new proposition. Both are winners.

## A Transit or a Level in Twenty Seconds with One Instrument

In normal position this instrument is a high grade architects' level; but only 20 seconds are needed to convert it into a builders' transit that can be used for all parts of the construction work for which the transit is fitted.



The Geier & Bluhm Transit-Level.

This is accomplished by the use of a special attachment, consisting of a pair of standards, which is attached to the frame of the level. This attachment can be fitted to all makes of levels beside their own. In order to make it fit, the level must be shipped to them and they say that it generally can be returned in two days, as they have a stock of attachments on hand.

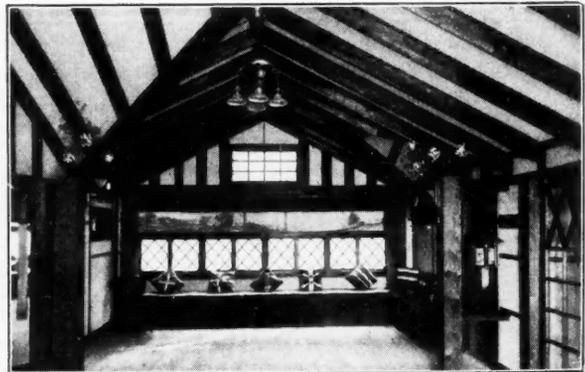
The attachment makes the level into a most complete transit as it has a vertical circle, two levels, two clamps and the necessary tangent screws for close adjustment.

This Transit-Level is made by Geier & Bluhm, 5 Front St., Troy, N. Y. They will be glad to send prices and details on request to any of our readers that are interested.



## Inside the Fiberlic "White House"

In our December issue we illustrated the exterior of the Fiberlic "White House," built by A. N. Hanson, Atlantic Highland, N. J. This is one of the most attractive and modernly constructed bungalows along the Atlantic Coast.



An Interior View of Fiberlic "White House" Built at Atlantic Highland, N. J., by A. N. Hanson.

The interior is just as interesting. On entering the aristocratic appearance of the walls and ceilings immediately attracts one's attention. Every bit of surfacing for walls and ceilings is Fiberlic.

The illustrations shown here of three of the rooms offer valuable suggestions. For instance, the walls and ceilings of the bath room are white enameled Fiberlic. This is a departure from the tile surfacings and in many ways is more practical. The builders can and do give plausible reasons for surfacing every room in the house with Fiberlic.

The manufacturers of this wall board, the Fiberlic Company, Camden, N. J., have some noteworthy claims that are worthy of consideration.

Fiberlic is manufactured under a chemical treatment, not a mechanical treatment, which insures strength and durability by preserving the fibre length in the raw material. It also makes the board absolutely odorless, sanitary, sound deadening

# -about the Coal-Chute



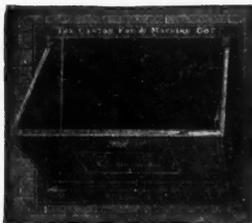
It is small, but important. And it grows in importance when your customer sees the broken windows, battered foundations, dirtied walls and lawns, and possibly a burglar or two, due to the inefficiency of weak, clumsy chutes. But if you suggest—

## Canton Coal Chutes

Your customer is assured of protection against all such annoyances, and you profit in his satisfaction, and more materially in bigger profits. Because there are big profits in handling the Canton.

Let us send you our catalog of Builders' Iron Work. Just say, "Send me your Booklet 'B-4' with discounts."

**Canton Foundry and Machine Co.**  
Canton, Ohio



OPEN



CLOSED



## MAJESTIC Coal Chute

When planning a new home arrange for this modern building necessity in the foundation plans. It keeps the careless coal man from marring and scarring the sides of the house every time he delivers coal. Saves the lawn, walk, flowers and shrubs from being ruined by coal dust and stray lumps.

The Majestic when closed sets flush with the foundation. It has a glass door which serves as a window when chute is not in use for receiving coal and gives splendid light to the basement. The glass is protected when chute is in use by special iron plate. The Majestic is a cellar window as well as a coal chute.

### Burglar Proof—Strong—Durable

The Majestic locks from the inside securely and is absolutely burglar proof. It is extra durable, and will outlast the building. It has a heavy steel body, semi-steel door and boiler plate hopper. When open the hopper comes out automatically, catching all the coal, without waste or dirt.

Thousands of owners use them. Contractors endorse them and specify their use in all the new modern structures.

**FREE BOOK** gives full information regarding Majestic Coal Chutes, Underground and Kitchen Garbage Receivers, Majestic Milk Bottle and Package Receiver, Burglar Proof Basement Windows, Store Chutes and other Majestic Specialties.

**THE MAJESTIC CO., 505 Erie St., Huntington, Ind**

## Put Chief Everlasting Windows In That Cellar



They will please the man you're building for better than any other type of window you could install. They're the modern cellar window—the solution of the window problem for the man who wants window satisfaction in service.

Built of steel and in complete units—casing and hinged window—Chief Cellar Windows leave no chance open for window troubles. They always open and close easily, leave no open

cracks and are absolutely unaffected by the weather.

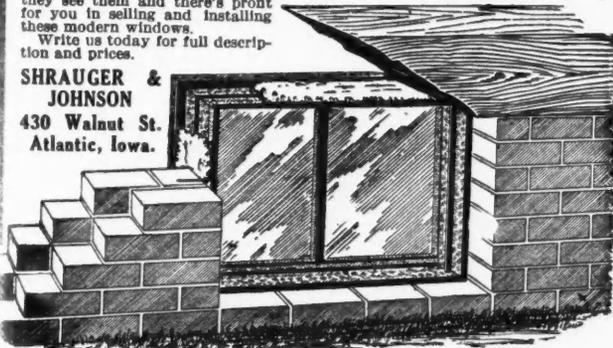
### Leak Proof—Rot Proof—Rust Proof

Chief Cellar Windows can't leak, rot or rust. They are enduring—good for a lifetime of service. They have every good quality of the old-fashioned, wooden window with the added advantage of steel construction.

These windows are easy to install, cost no more than wooden windows and are worth three times as much. They give real service—permanent, satisfaction-giving service. There's nothing to wear out about them and they can't shrink or swell and stick in the casing.

Satisfy your customers with Chief Windows. They'll all want them when they see them and there's profit for you in selling and installing these modern windows. Write us today for full description and prices.

**SHRAUGER & JOHNSON**  
430 Walnut St.  
Atlantic, Iowa.



# \$1200 IN CASH

Made, Paid, Banked in 30 days, by **STONEMAN**—\$1500.00 To Date

This offer is open to you—this money—the cold cash—can be yours. You need you alone by waiting too long can lose it. Investigate today—get the proof, send your name and address—but **NO MONEY**—this very minute.

## \$1000.00 PER MAN PER COUNTY

Experience unnecessary—business supplies the capital. Payments start the first day—and continue daily up to \$1000.00 per month, per county. For years we have been quietly picking men from all walks of life, carpenters, ministers, clerks, farmers, doctors, lawyers, teachers and so on—enabling them with our help and \$50,000.00 appropriation to get what we here offer for you—\$1000.00 per man, per county. Some of these men you may have envied without knowing the reason of their prosperity.

### INVESTIGATE AND BE AMAZED

Demand absolute proof—accept no other kind. Either we have the best thing that ever happened or we're colossal liars. Ask Schielcher, minister, whether it's true that he received

### \$195.00 TWELVE HOURS AFTER APPOINTMENT:

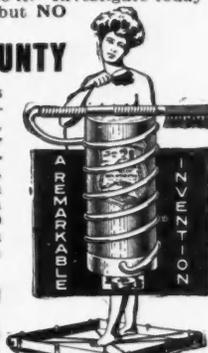
Langley, hiveryman, \$115 first day; Rasp, agent, \$1685 in 73 days; Beem, solicitor, \$164.25 weekly for 12 weeks; Korstad, farmer, \$2212 in a few weeks; Zimmerman, farmer, \$3856 in 30 days; Juell, clerk, \$6800; Hart, farmer, \$5000; Wilson, cashier, \$3000 in 30 days. Let us refer you to those men, to the U. S. government, to banks, business houses, noted people. Heed this caution from Chas. Starr, of Mich. "Sorry this field is closed. Should have acted sooner but was skeptical. Your local man's great success has set everybody talking and proves I was a chump. Wonderful what a man can do with a real opportunity." Then read this from Lodewick who acted quickly: "Lucky I answered ad. It's great. Money coming fast." Which will you be, Starr, a victim of "neglected opportunities" or Lodewick, the early bird?" Avoid regret, send a postal this very minute.

### SPEND 1 CENT TO MAKE THOUSANDS

Strange invention startles world. Gives every home that long-desired blessing, a modern bathroom with hot and cold running water facilities for only \$6.50. No plumbing—no water works—self-heating. Only ten minutes to install. Gives cleansing plus friction, massage and shower baths in every room. Equivalent to any \$200 bathroom. Over 200,000 delighted users. Used by U. S. government.

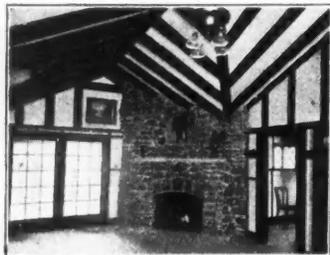
More remarkable than this invention is our startling plan of universal distribution through special representatives who virtually become profit sharing partners in a business that's immense—exciting—fascinating—dignified—and above all, has enabled them, will enable you, to get \$1000.00 per month, per county. Asking to be shown doesn't obligate you one bit. Investigate today by all means.

**ALLEN MANUFACTURING CO., 110 ALLEN BLDG., TOLEDO, O.**



ing and fire retarding. This combination makes Fiberlic especially attractive to the home-builder. It is especially significant when used in quantities for living rooms and sleeping apartments.

The Fiberlic Company endeavors to co-operate with build-



This is the Largest Peanut Stone Fireplace in New Jersey. The Use of Fiberlic Here Surely Denotes the Builders' Knowledge of Its Fire-Resisting Qualities.



This Bathroom is Surfaced with White Enamelled Fiberlic. Splashing Cannot Mar the Walls.

ers and contractors and for this purpose, maintains an Architectural Department, which is always at their disposal in the matter of furnishing specifications and designs for wall board construction. They will be pleased to send, post-paid, sample of their product on request.



**The Building of Artistic Clocks**

It has been reported to us that our readers have shown unusual interest in the winter work suggestion of the Clock Company, 1655 Ruffner St., Philadelphia, Pa. The proposition they have is different from most of those offered. They furnish plans and blueprints of clock cases of various kinds. They also furnish the works—chime clock works, cuckoo clock works, simple clock works, any kind and size you want to go inside your clock.

They handle their proposition in several different ways, so that it is applicable to everyone, whether skilled or not. They will furnish the more complicated parts of the case when the workman does not have the necessary tools for this type of work. They will also furnish the complete case in knock-down form so that the amateur can readily do the work. For the skilled workman, they furnish only the plans and the works and he can use his own ingenuity in making the case and putting it together.

Complete details of the plans they are offering and the types of works that they can furnish can be secured from the company. Many of our readers would, no doubt, find this a profitable way to spend their time during the dull seasons.

It's lot of fun, too! Write today for catalog.



**Typewriter Bargain**

In making your estimates for spring business you will find that by having them typewritten they will be in much neater and cleaner shape and will improve your chances a great deal of getting the business.

You, of course, cannot afford to pay \$100 for a typewriter for the limited use which you would have for it, and Mr. Harry A. Smith, 231 N. 5th Ave., Chicago, has realized this and is advertising in this issue a standard visible writing typewriter for less than one-third that amount, and on small monthly payments. This machine is standard in every way with all the latest operating conveniences. It is guaranteed.

Mr. Smith has unlimited confidence in the ability of his typewriters and sends them out on free trial so that you may see for yourself that you are getting a bargain. At the low price for a standard visible writing machine a carpenter and builder cannot afford to be without a typewriter.

We urge that you read carefully his ad in this issue.



The ventilator that stands out above all others in Service, Durability and Economy is the "GLOBE" VENTILATOR

GLOBE Ventilators are built up to a Standard, not down to a Price—the same standard for 35 years. That is but one reason why they are less expensive in the end than ventilators which sell for a few dollars less.

In sending for catalogue address Dept. F.

GLOBE VENTILATOR CO., Troy, N. Y.

**Building Books Absolutely Free**

Postage Prepaid

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

**Good Money for Builders in JAMES Ventilators**

The better looking your barn jobs are, the better advertisements they are for you in the localities where you build them, and the more money you make.

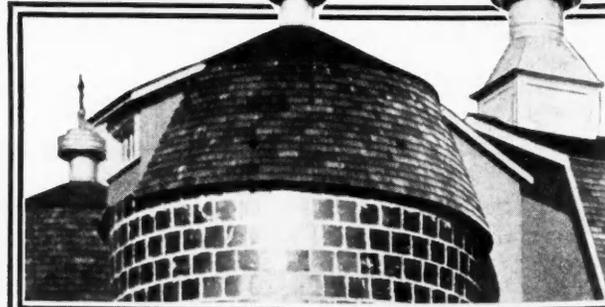
JAMES Ventilators mean better looking barns, pleased owners. They give you a strong selling point in favor of your service. The JAMES system of barn ventilation is vitally important. It creates sanitary conditions in the barn—healthy cows, increased milk yield, bigger profits.

JAMES Ventilators have the right principle; they pull foul air out of the barn and force fresh air in. They are handsome and add much to the attractive appearance of the building.

Learn about JAMES Ventilators—also about JAMES Blue-Print and Barn Building Service—and be sure to write for the free book, "Building the Dairy Barn." Give names and addresses of people in your vicinity who expect to build or remodel barns, when, and for how many cows, and book will be sent at once.

JAMES MFG. CO.  
D. M. 75 Cane St.  
Fort Atkinson, Wis.

Write for Free Copy  
"Building the Dairy Barn"



## They Ventilate From the Ground Up



Foul air must be drawn from the building and fresh air substituted. Cupolas do not ventilate. The cross currents drive the foul air back and the wind entering creates draughts. Besides dampness, snow and rain can get into the building through a cupola.

### ROYAL VENTILATORS

draw the impure air upward and outward from all parts of the building because they are purposely made to do this. The process of exhausting foul air and substituting pure air goes on without interruption of any kind. No wind, rain, sleet or snow can enter the building through the Royal. It keeps up a constant circulation.

You can rely on Royal Ventilators. Made from heavy gauge galvanized iron or copper as desired and thoroughly guaranteed. They are rust-proof. Service and efficiency have placed the Royal far ahead of all other ventilators.

WRITE FOR CATALOG

**ROYAL VENTILATOR CO.**  
417 Locust Street PHILADELPHIA, PA.



## Making Concrete Attractive

**I**NSTEAD of the dull blue-gray cast or blotchy effect common to cement, a concrete or stucco house will take on all the rare beauty of Grecian architecture with one or two coats of

## Bay State <sup>Brick and</sup> <sup>Cement</sup> Coating

This is a lasting, waterproof coating in white or color. When applied it becomes part of the construction—fills the pores of the cement and makes a water-tight surface. Preserves the distinctive texture of concrete or stucco.

### Sample Can Free

Just write for it, specifying color you prefer. Try it out. Also ask for color card and booklet 30.

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



## Monitor Cupolas

Should be on every barn you build. They come all put together. No frame to build under roof. Can be erected in five minutes. Absolutely Bird and Storm proof. We sell direct to contractors where we are not represented by dealers. Write for our special proposition to contractors and our complete catalog of Ventilators, Cupolas, Skylights and Sheet metal Specialties.

**B. F. Lichty & Sons Co.**  
Sta. A, WATERLOO, IOWA

## Northfield Aerdomes Make Builder's Profits

Satisfy your customers and make a profit with the best ventilating cupola made. Insures pure air in any building. Neat in appearance, strong and substantial. Made of heavy galvanized steel throughout. Rust-proof. Rot-proof. Rain, snow and wind-proof.

Shipped ready to bolt to the roof. Easily and quickly erected—no supporting frame needed.

Buy this Cupola direct from us and pocket dealer's profits. Catalog and full information free.

Write today  
**Northfield Iron Co.**  
402 Water St.,  
Northfield : Minn.

**Special Offer To You**



## Increase Your Profits

You can easily make more profit on every barn you build by seeing that it is equipped with

### O. K. CUPOLAS

They are the easiest to erect—are shipped ready to install. Absolutely Bird, Storm and Rust proof. O. K. Cupolas sell themselves.

Special prices to Contractors and Builders where we are not represented.

Get these additional profits. Let us show you the way. Full information sent FREE. Write today.

**Phillip Bernard Co.**  
2400 Floyd Avenue  
Sioux City, Iowa

## CARPENTER AGENTS WANTED

(All or Spare Time)  
To take orders for our Knives and Razors with "Car-Van" Steel Blades.

"The Steel that Cuts Steel"—The "Lost Art of the Old Damascus Sword Blade" Re-discovered. We own and control the secret formula. **A Written Guarantee. Photo Handles**, clear as glass and tough as horn, with owner's name, address, personal photos, lodge or labor emblems. Goods "made to order"—cannot be bought in stores. Razor Strops, Hones, Hair Clippers, Shears, Scissors, Kitchen Sets, Manicure Sets, Photo Handle Fountain Pens, etc. Big Profits—Easy Selling Plan—We teach you how. Get Busy—Order. Profits await you. Write today.

### THE CANTON CUTLERY CO.

Send \$1.00 for Sample Knife. Your name and address in handle. Blades of CAR-VAN STEEL



Dept. 108  
Canton, O.

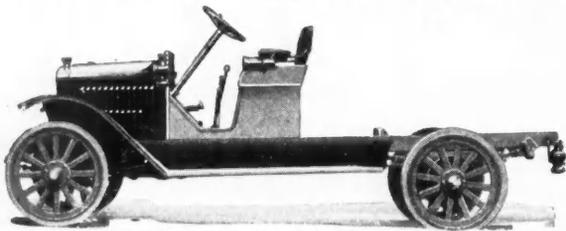
**New KisselKar Truck**

In its new line of seven chassis sizes of commercial vehicles for 1916, the Kissel Motor Car Company of Hartford, Wis., springs a surprise in the announcement of a new  $\frac{3}{4}$  to 1-ton worm-drive truck at moderate price.

The details of this new truck are given out for the first time and a careful examination of the specifications indicates an unusual value that is declared to have been more than realized in the exhaustive and varied road tests that have taken place. It is further stated that this model is being produced in quantity and is ready for immediate delivery at several of the company's leading agencies.

The worm-driven rear axle is of David Brown construction, with 56-inch track and 39-inch spring centers. The worm wheel and differential are mounted as a single unit in a cast steel carrier placed in the center housing of the axle.

The engine is a powerful Kissel-built, 32-horse-power, four-cylinder motor with bore of  $3\frac{7}{8}$  and stroke of  $5\frac{1}{2}$ . It is cast en bloc. The motor bearings are of the highest quality of white bearing metal, steel-backed and babbitt lined. The



New  $\frac{3}{4}$  to 1-Ton Worm-Drive KisselKar Truck.

valves are of special gauge steel, tightly enclosed in compartments that are proof against oil and dust. The valve covers are quickly removed.

Carburetion is by a highly efficient special carburetor of Kissel design and Stromberg manufacture, mounted high to promote accessibility. The carburetor is fed by the Stewart-Warner vacuum system, which guarantees a uniform and

always dependable flow of fuel, does away with all the well-known deficiencies of pressure and gravity feeds and promotes gasoline economy.

The clutch is a cone type, leather faced and with adjustable spring inserts that allow unusually easy and gradual engagement. It is readily reached for adjustment thru the floor of the truck, without disturbing any other unit. Drop-forged and heat-treated I-beam section connecting rods; split nut and worm type steering gear; Mayor or Fedders radiator; center control levers and hand throttle; foot accelerator; high tension magneto ignition—these are notable points. The entire power plant is independently suspended at three points and is easily removed.

A standard express body is furnished for \$150 additional or special bodies are built, as desired. If the buyer prefers to have the body built by a local body builder, blueprints are furnished by the factory on request.

The material used and the mechanical details of the other six models of KisselKar trucks are similar to the  $\frac{3}{4}$  to 1-ton truck, except that the 1,000-pound delivery is shaft driven and the  $2\frac{1}{2}$  to 3,  $3\frac{1}{2}$  to 4 and 6-ton sizes are chain driven, that construction being considered best for heavy duty. The 1 to  $1\frac{1}{2}$  and  $1\frac{1}{2}$  to 2-ton trucks have the David Brown worm-drive construction, the same as the  $\frac{3}{4}$  to 1-ton.

**A Fuel Chute Protects the Building**

In building new homes or remodeling old ones any building specialties that will assist in keeping the house in good condition should receive careful attention. One of these specialties that has a marked effect on keeping up the appearance of a building is a fuel chute. An ordinary window is rapidly broken up by the coal striking the frame and the panes.

The chute shown here will protect the building and will retain its substantial and pleasing appearance under the

If you Build or Renew your Roof  
Use  
**HUDSON ASPHALT SHINGLES**  
Fire-Resisting and Leak Proof.  
Samples Free. Ask for Shingling Aids No. 53  
Asphalt Ready Roofing Co.  
Room 453, 9 Church St. - New York

**An Ounce of Prevention  
SNOW GUARDS**  
prevent snow sliding off the roof,  
tearing away and damaging gutters  
and injuring passers-by.  
They are easily and quickly applied — low in cost  
They are damage-suit  
Insurance. For old or new roofs. FREE SAMPLES  
together with various styles and prices on request.  
**CLASON METAL WORKS** :: ::  
"Clason" Guard  
for New Roofs  
Providence, R. I.

**SLATE WE HAVE WHAT  
YOU WANT**  
*In Roofing Slate. Slate Blackboards  
Structural and Plumbers' Slate*  
SATISFACTION GUARANTEED IN QUALITY AND PRICE  
ASK FOR DELIVERED PRICES  
**J. K. HOWER, Station, C., Danielsville, Pa.**  
R. J. KICHLINE, Sales Agent

**Indestructible Roofing**  
Cover your buildings with Montross Metal Shingles and save yourself time, money, worry. Economical in price and easily laid. Our booklet, "The Best Roof Under The Sun" will make you a roofing expert. Free on Request.  
**AGENTS—MAKE MONEY**  
On our profit sharing inducement to all reliable live wire dealers. Write for information, how our agents are growing rich handling Montross Metal Shingles. Big demand. This is your chance. Don't overlook it. Testimonial letters and affidavits cheerfully given.  
**MONTROSS METAL ROOFING CO., 102 Erie St., CAMDEN, N. J.**

**ROOFING SLATE SINCE 1869**  
Miners, Makers and Shippers of all Styles and Colors of Roofing Slate. Write for Prices.  
**RISING & NELSON SLATE CO.**  
Main Office: West Pawlet, Vt.  
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1058 Marbridge Bldg., New York City. 4 Post Office Sq., Boston, Mass.  
Office and Yard, 2554 W. Harrison St., Chicago, Ill.

**ROOF SLATES**  
**STRUCTURAL SLATE BLACKBOARDS**

**E. J. JOHNSON**  
38 Park Row New York  
**Quarry Operator**  
BLACK, GREEN, PURPLE, RED

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

Booklet, Samples and Prices on Application

**UNFADING  
ROOFING SLATE**  
and Slate Blackboards

*Best to be had and made in  
Slatington — Buy from us*

**Slatington-Bangor Slate Syndicate, Inc.**  
Slatington, Penna.



**ROOFING SLATE**

**Free Samples**

of the famous G F T Slate-Roofing will be sent on request to all Carpenters and Builders for comparison on Quality, Appearance and Prices.

G F T Roofing-Slate stands alone in a combination of Durability and Beauty at a most reasonable cost. Write for Free Samples today.

**Slatington Slate Co.**<sup>INC</sup>  
Slatington, Pa.



THE ROCK OF AGES CLEFT FOR YOU

**SHELDON'S**  
RED GREEN  
PURPLE BLACK  
**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.**

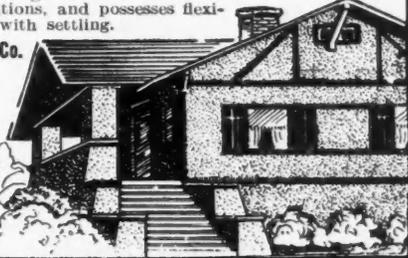
**San-a-Bestos Stucco--**  
FIRE-PROOF : DAMP-PROOF : CRACK-PROOF

San-a-Bestos Stucco lends itself to the most artistic and pleasing finishes—finishes that are permanent and require no painting. It is not affected by climatic conditions, and possesses flexibility that gives with settling.

**Franklyn R. Muller Co.**  
Waukegan, Ill.

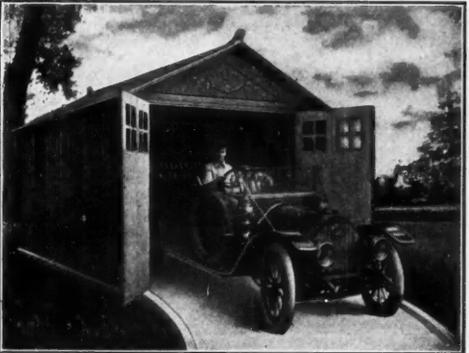
We manufacture  
San-a-Bestos  
composition  
flooring.

Write  
for  
information.



**YOU'RE MISSING A BET**

**MR. CARPENTER**  
IF YOU ARE PASSING UP THE  
**METAL SHELTER GAME**



**IT'S THE BEST BET YET**

The METAL SHELTER Agency gets you more business, more customers, more work for your men, more money for you, better and quicker results, and—get this—

**A REAL BUSINESS OF YOUR OWN**

Don't wait. Get the agency for Metal Shelter Garages, Cottages, Bungalows, Stores, etc., before the other fellow beats you to it. You can sell 'em, and it's a cinch to set 'em up—a building a day. THINK! Investigation costs you nothing. Write right now.

**Metal Shelter Co., Inc.**  
Whitehall Bldg. -:- New York City



**The House with a SYKES Metal Lath Backbone**

Metal Lath—surely! That's the true backbone of strength. But what kind of metal lath? It is well to remember that weight adds rigidity and durability; and that Sykes Expanded Cup Metal Lath, having wider strands, is much heavier than others cut from the same gauge. Judge the metal lath by weight and gauge—not by gauge alone. Also remember that

**SYKES Expanded Cup Lath**  
*Self Furring*

being fastened direct to sheathing boards or studding, requires no furring strips, and so save you 5 to 10 cents a square yard.

**Best for Interior Work as well as for Stucco Work.**

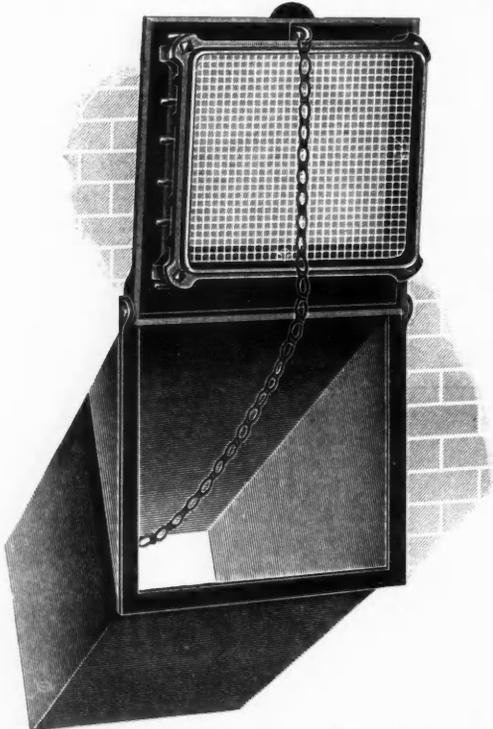
A perfect key is assured by the expanded cup style. Sykes Metal Lath can't be applied wrong. Approved by U. S. Government for Post Office work; indorsed by architects.

**The Sykes Booklet—Complete Specifications for Stucco on Metal Lath**—sent free on request—will show you how to save money. Let us send you this booklet and a Free Sample of Sykes Expanded Cup Metal Lath. Write us today.

**Sykes Metal Lath & Roofing Company**  
504 Walnut Street, Warren, Ohio

severe treatment that coal chutes receive.

The chute is made with a cast iron frame and door with a glass front. Extending into the basement is a steel tube.



The "Best" Coal Chute with Cast Iron Frame—Steel Tube—Cast Door.

Light is admitted to the basement thru the wire glass front, which is held in position by a collar on the back of the door. A heavy screen and a light cast iron frame protect

the glass from the falling coal.

The door opens vertically against the side of the house and is held in position by a hook in the frame engaging with a hook in the door frame. The door is automatically locked shut when closed by a gravity catch. This catch can be released by a chain in the basement.

The makers of this fuel chute, the Sterling Foundry Co., 8 Ave. A, Sterling, Ill., will be pleased to send our readers descriptive circulars giving prices and descriptions of the building specialties they make, including the fuel chute.



**Adjustable Electric Lamp Offer**

The Wallace Novelty Company are the manufacturers of the Wallace Adjustable Electric Lamp—the first lamp of this character on the market, and the most widely sold.

They have made the adjustable electric lamp tremendously popular—every magazine reader has seen the slogan "Save Your Eyes!"—and naturally this popularity has resulted in imitations, but they all lack some quality of the Wallace, and it continues to be the biggest seller in the field.

The Wallace is the lamp that hangs, stands, clamps or sticks any place, at any angle. The comfort-loving individual needs only to see a demonstration of this lamp to become a constant user of it, and the company is wise enough to bid for the co-operation of the dealer by not only giving him an unusually wide margin of profit, but also by supplying him liberally with advertising matter of every character and placing its advertising sales organizations at his disposal.

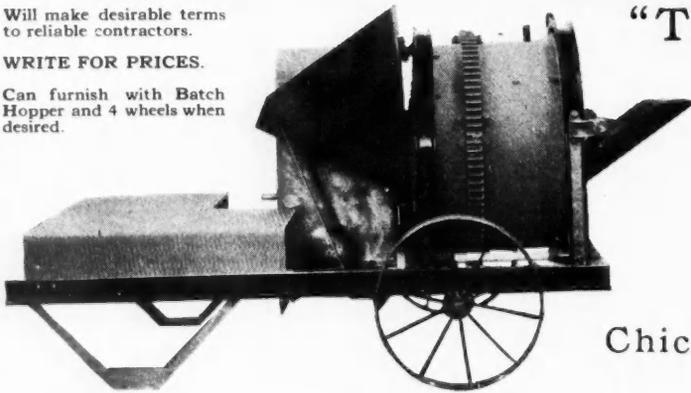
It is not to be wondered at, therefore, that the trade generally features the Wallace lamp.

If you have not seen this lamp it will be worth your while to get in immediate communication with the Wallace Novelty Company, 22 E. 24th St., New York City. They have a special agency proposition for carpenters and builders.

Will make desirable terms to reliable contractors.

WRITE FOR PRICES.

Can furnish with Batch Hopper and 4 wheels when desired.



**"THE LITTLE DEVIL"**

*ALWAYS ON THE JOB*

This mixer is so well constructed that any contractor can easily turn out 50 cubic yards of well mixed concrete every day.

Every Mixer is sold with a Guarantee.

See the *Hoist* which is operated by an independent Clutch. The Hoist Drum will carry 150 ft. wire cable.

**Chicago Builders Specialties Co.**

11 South La Salle St., Chicago

After testing them all  
**IMPERVITE** Received the Highest Award (Gold Medal) at San Francisco, 1915, Exposition  
*The only waterproofing compound so honored*

**IMPERVITE** is Guaranteed to Waterproof Walls, Cellars & Pits.

A facing of IMPERVITE MORTAR on the inside will resist water on the outside.

ASK FOR BOOK NO. 62 **The Standard Paint Co.** NEW YORK BOSTON CHICAGO