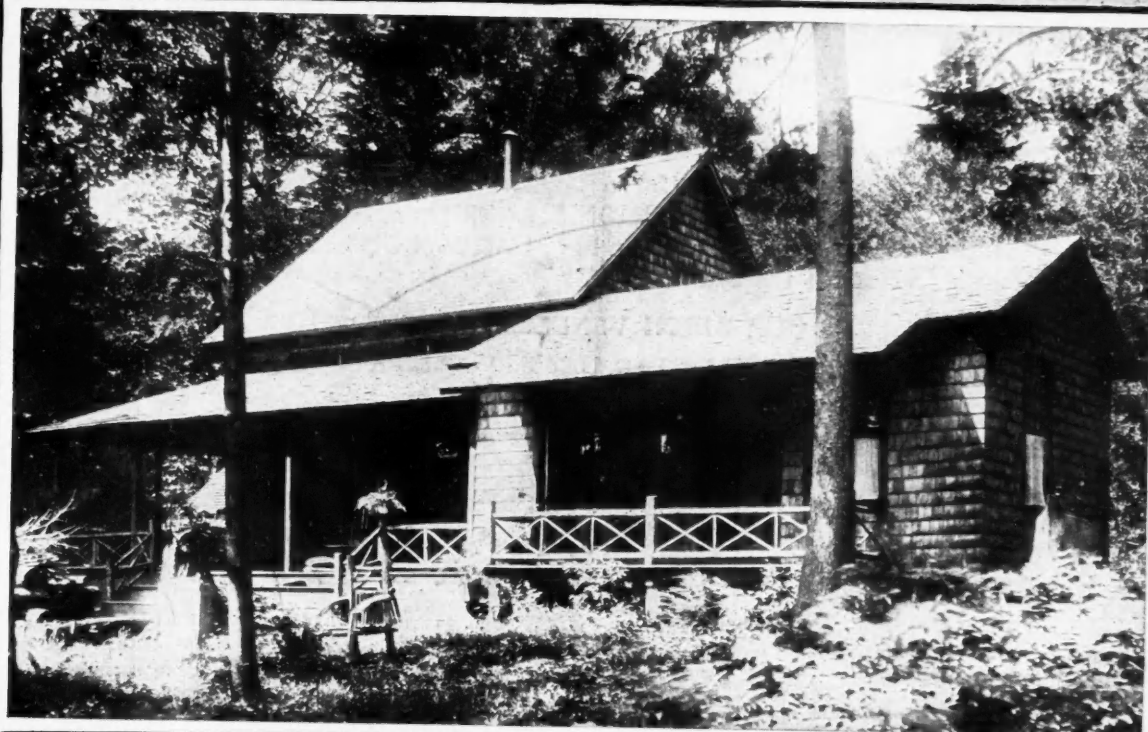


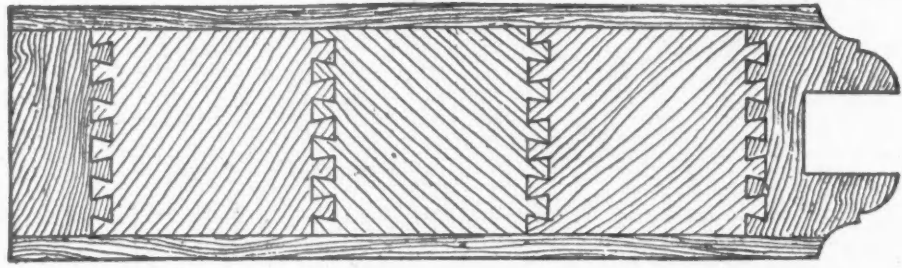
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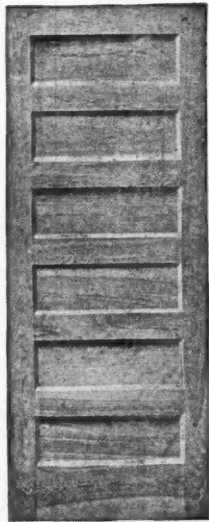
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THE **KORELOCK** CORE

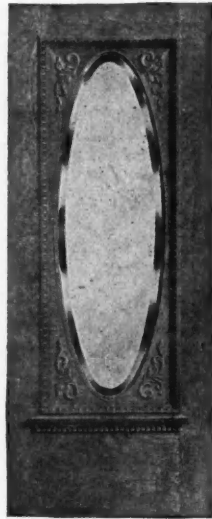
Every
KORELOCK

The
KORELOCK
DOOR

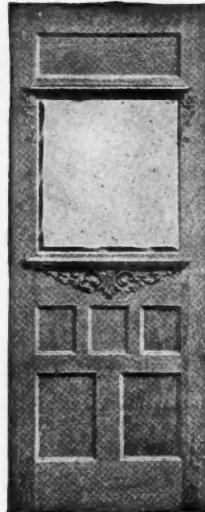
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**Complete
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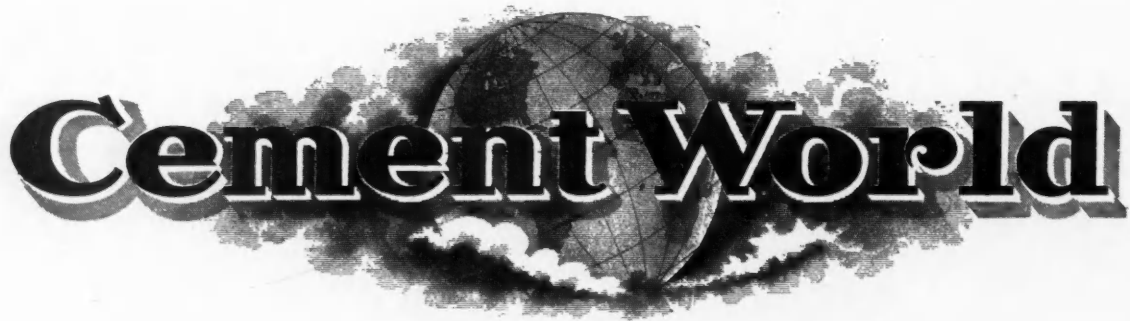
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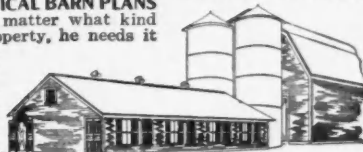
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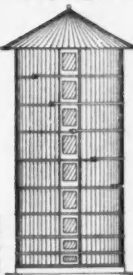
Poultry House.



SECTION OF HORSE HOUSE

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in the book is accompanied by a lengthy written description explaining and giving the details of the drawings, and so worded and arranged, numbered and indexed, that it must be readily understood by anyone who reads it. Your money back if you are dissatisfied.

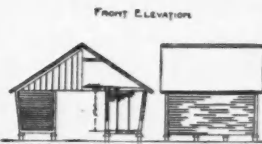


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90 Buildings—250 Illustrations

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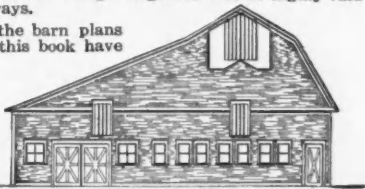


Smoke House

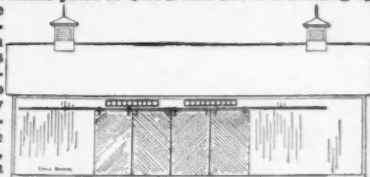
book. It is a book which should be in every farm home, if you only intend to repair a little, or just build a small chicken coop. It is a good thing to even sit down and read, as the knowledge so gained will be highly valuable in hundreds of other ways.

A GREAT MANY

of the barn plans in this book have been contributed by farmers themselves from all over the United States and Canada, and are therefore the product of practical experience from farmers who have learned by actual necessities the barn that was most practical and best suited to their needs. They are not fancy barns and buildings, but practical barns such as every farmer likes. They contain a great many little advantages that are not usually found in ordinary barns.



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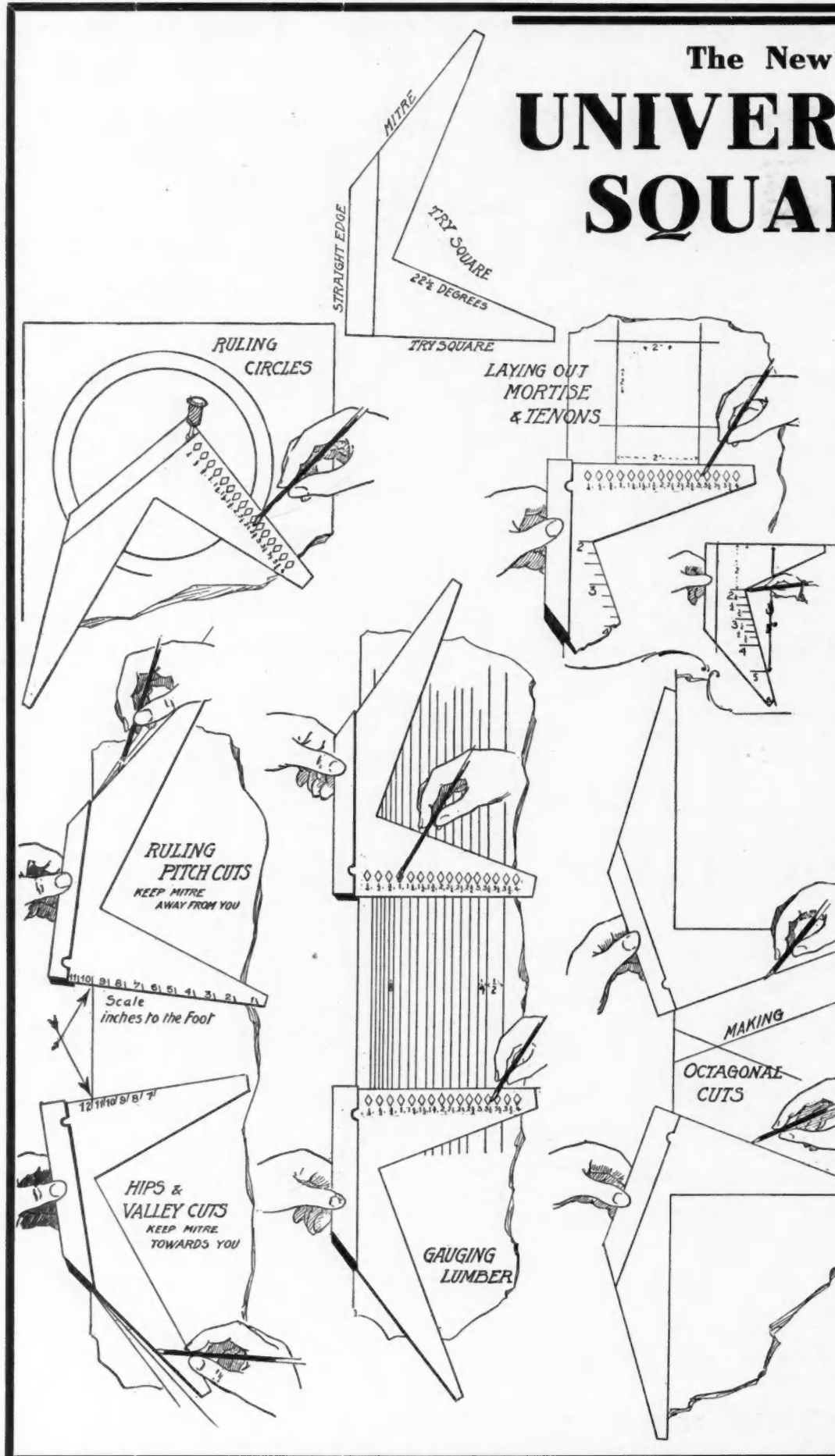
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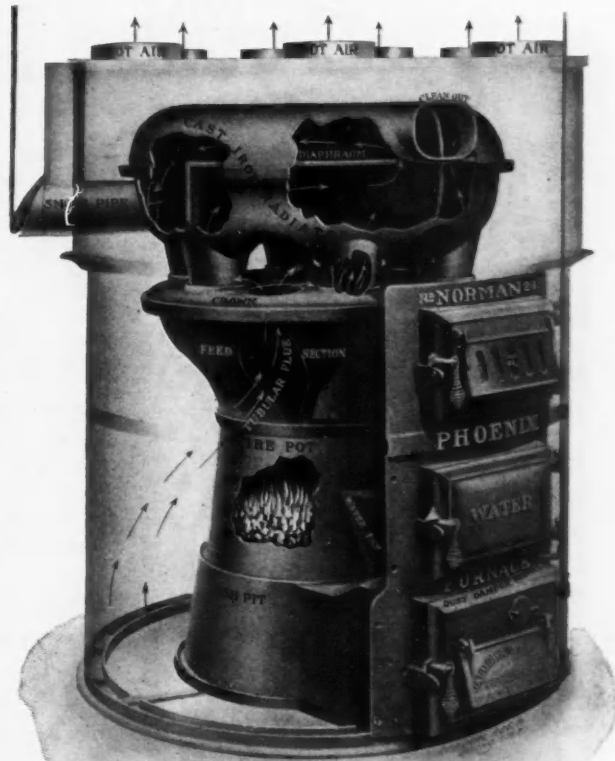
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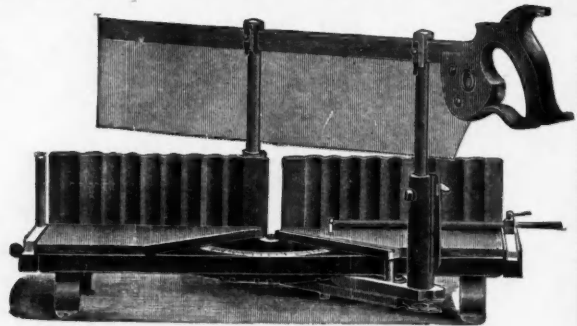
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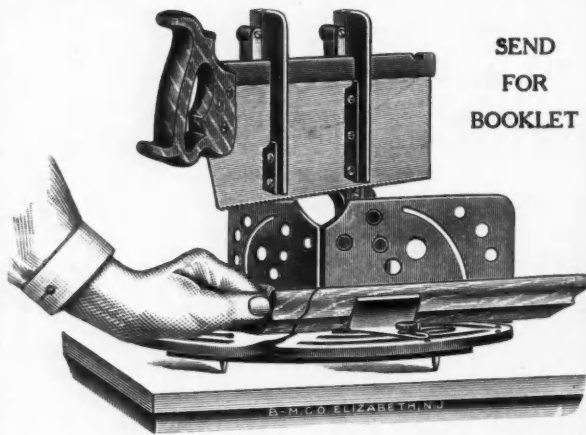
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Send for Circular C

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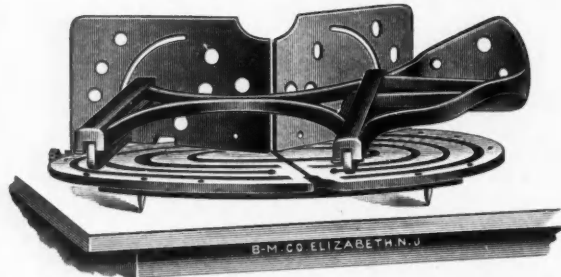
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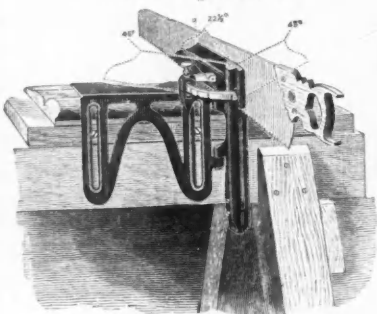
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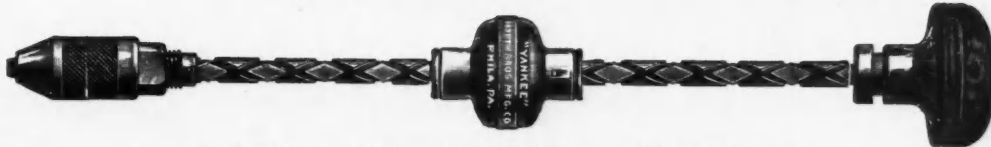
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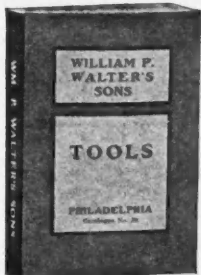
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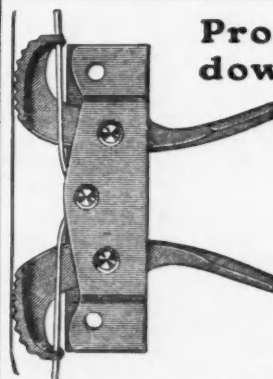
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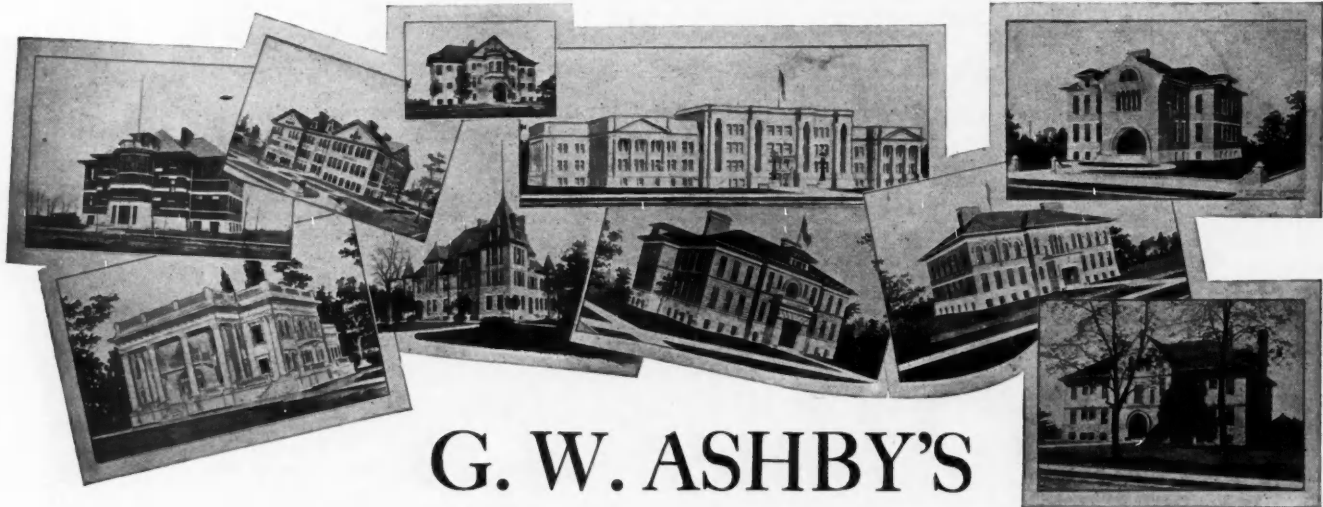
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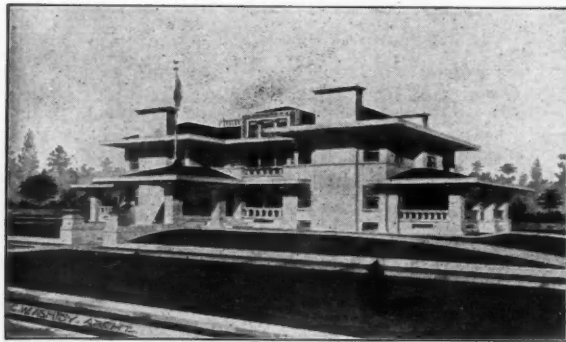


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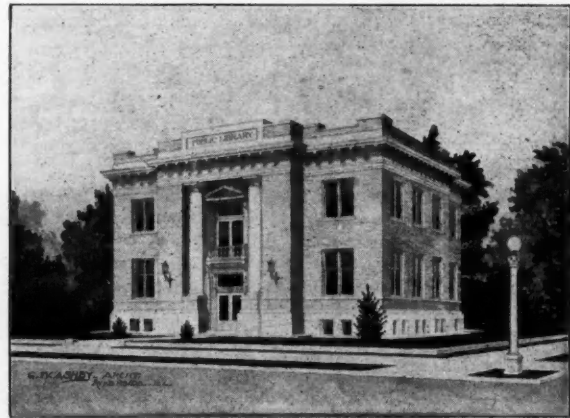
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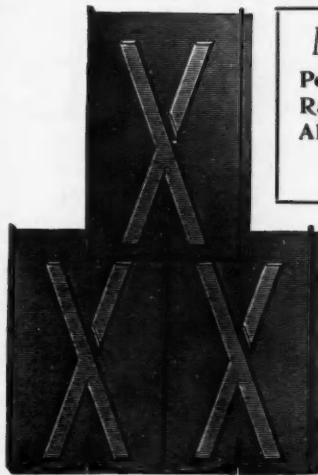
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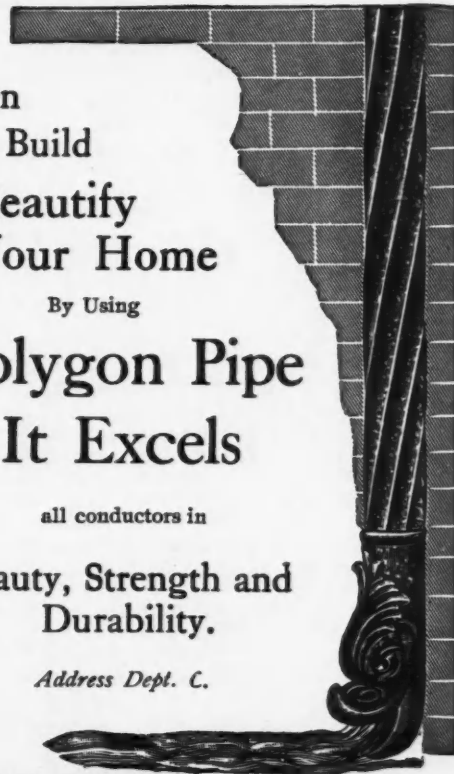
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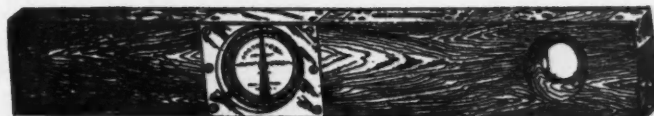
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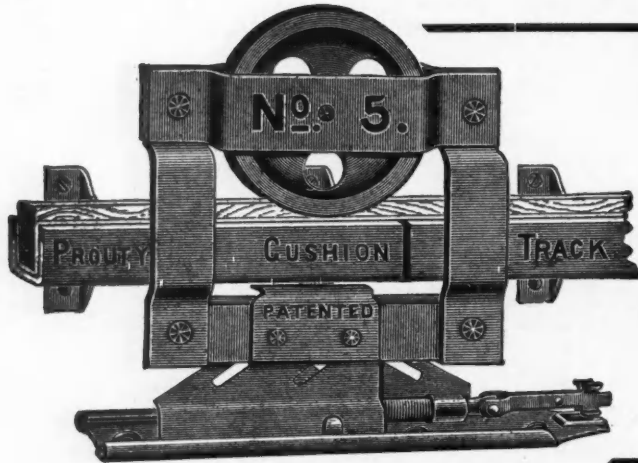
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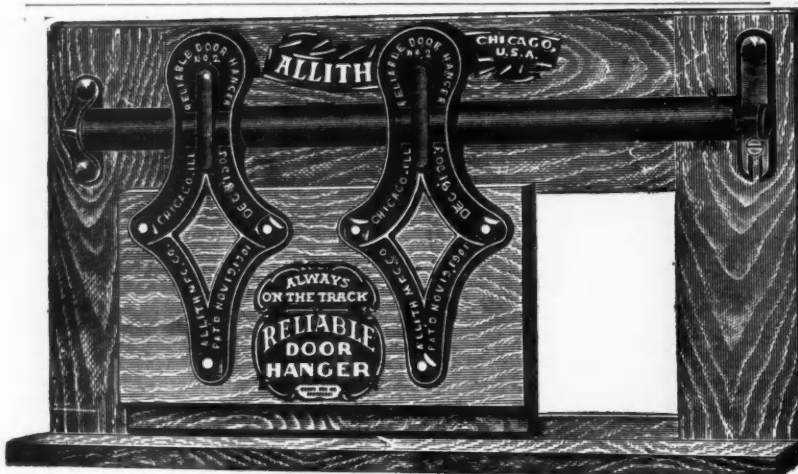
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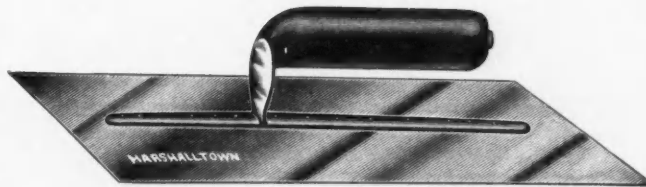
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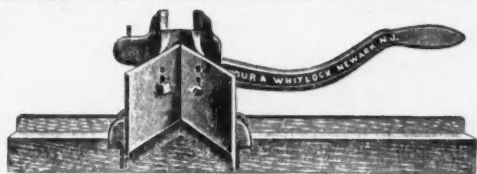
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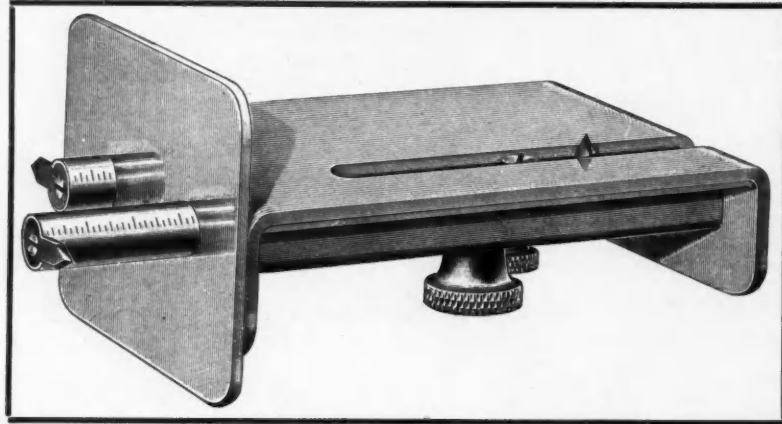
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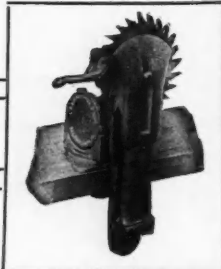
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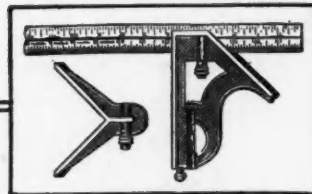
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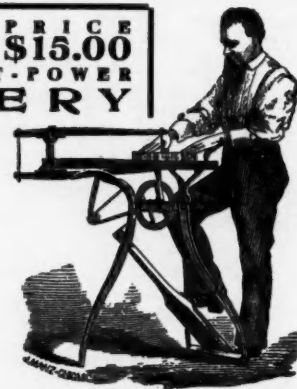
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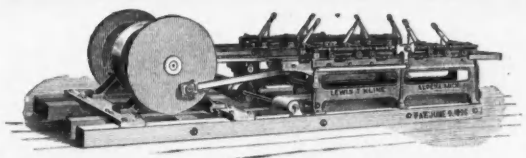
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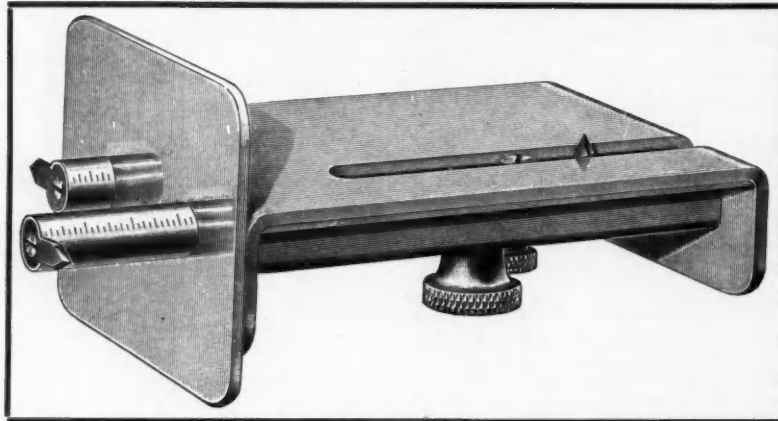
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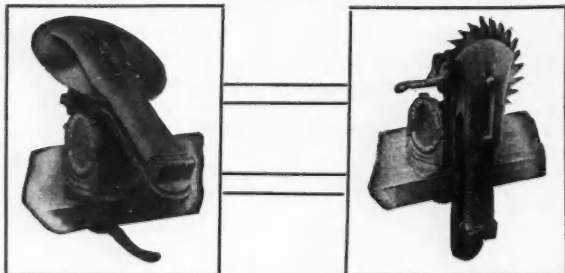
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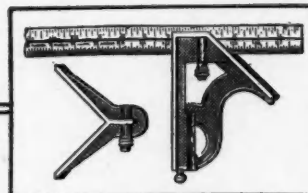
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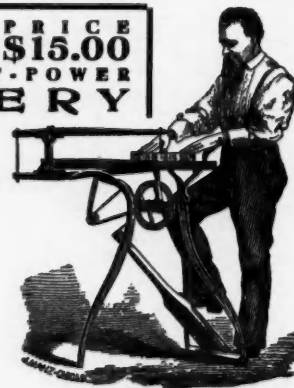
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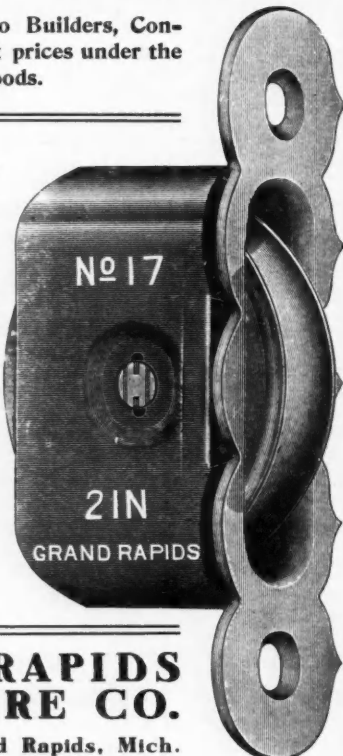
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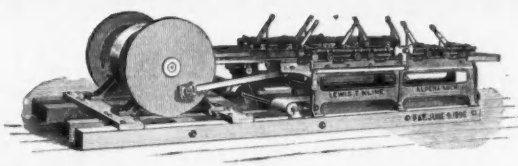
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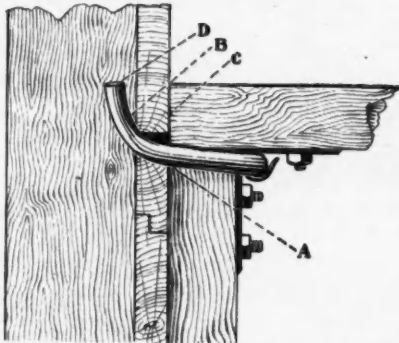


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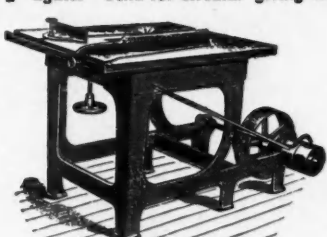
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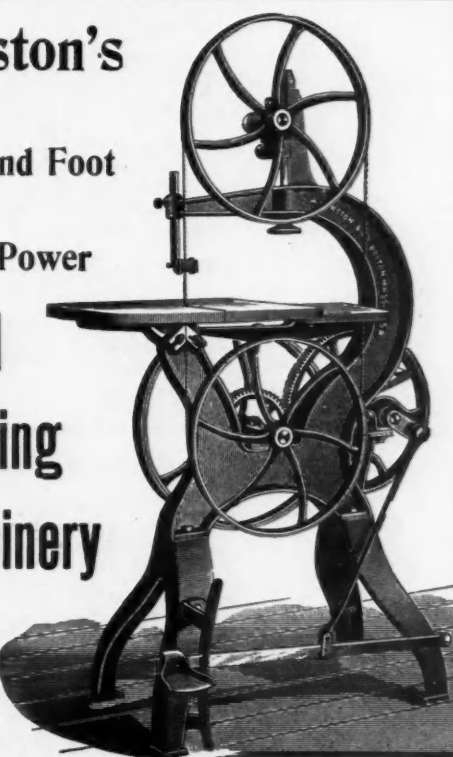
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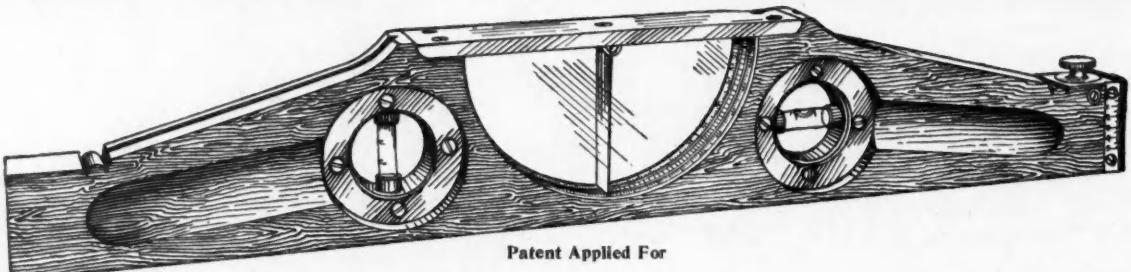
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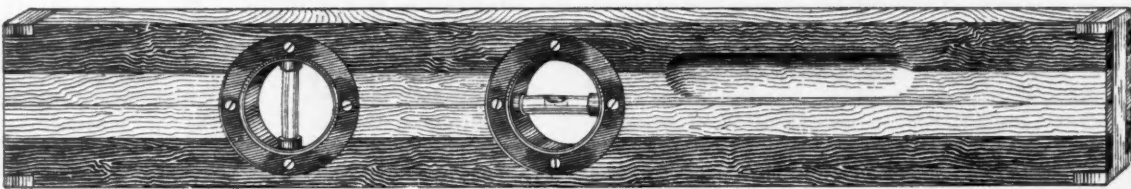
Hight's Micrometer, Level and Grade Finder



Patent Applied For

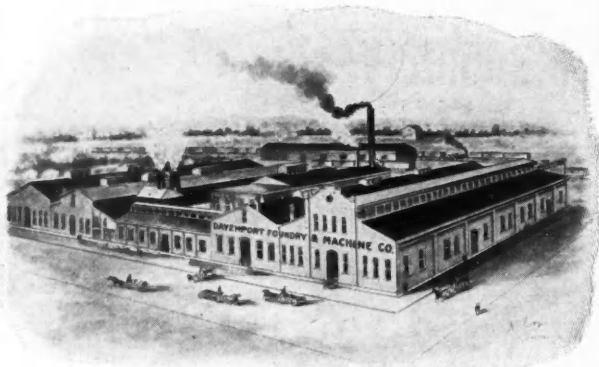
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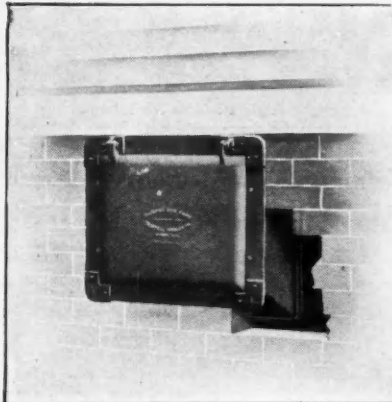
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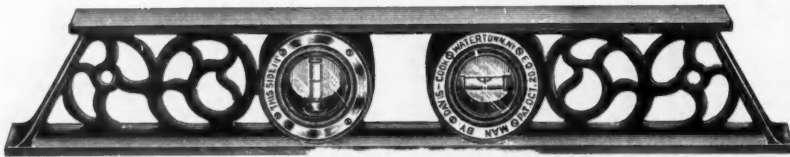
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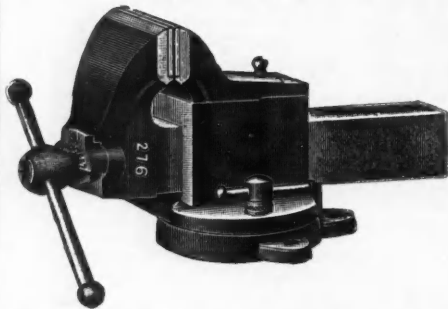
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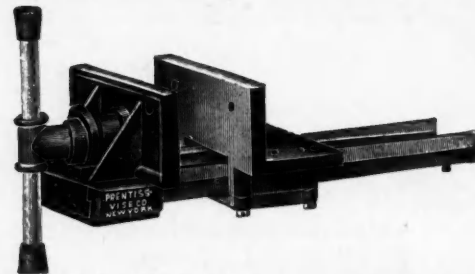
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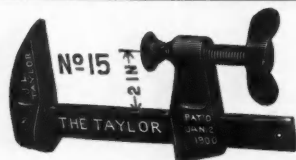
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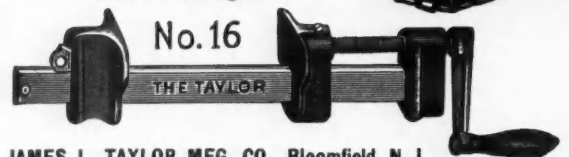
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A new feature indeed, and the neatest article ever offered the public for that purpose. It is fully guaranteed. It saves time and money.

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"ELECTRIC" FLOOR SCRAPER

Best Results.

Does work of Jack Plane and Hand Scraper.

Gives a uniformly smooth surface after floor is laid.

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Read.

DES MOINES, IA.

In reference to the "Electric" Floor Scraper as manufactured by Cobbs & Mitchell, we desire to say that we are well pleased with the trial we gave it and that it is all that is claimed for it and to our mind an ideal tool for finishing floors, reaching all corners and leaving the floor absolutely smooth; it will furthermore do a better job at one-third the cost than the old style scraper, besides avoiding the employes' dissatisfaction with the old method, which is always a disagreeable task to the one using it.

CHARLES WEITZ' SONS,
General Contractors.

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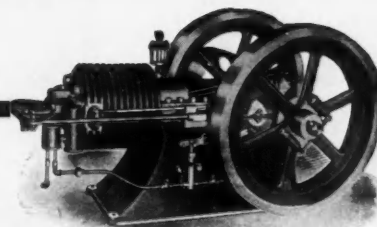
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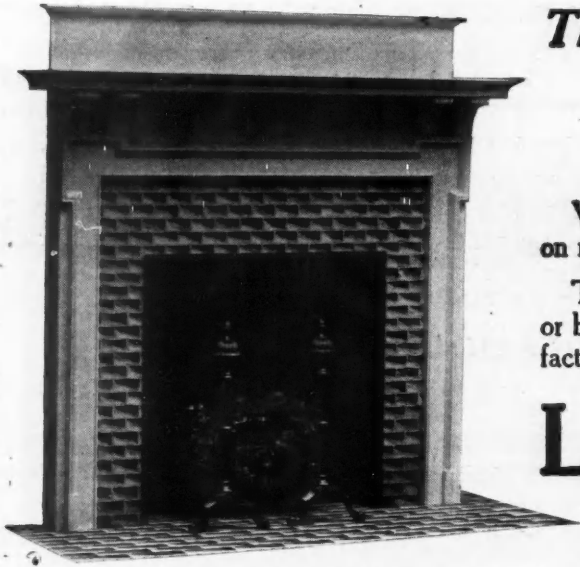
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This Beautiful Colonial Mantel \$12.00

We will ship this artistic, well-built mantel to any address on receipt of price. (Read full description under illustration.)

This design is especially well adapted for the living-room or bed room, and is only one of the great variety we manufacture. Nothing neater could be desired in any house.

Lorenzen Mantels

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display individuality in every line. They are made of well-seasoned material, in all woods and finishes, and every

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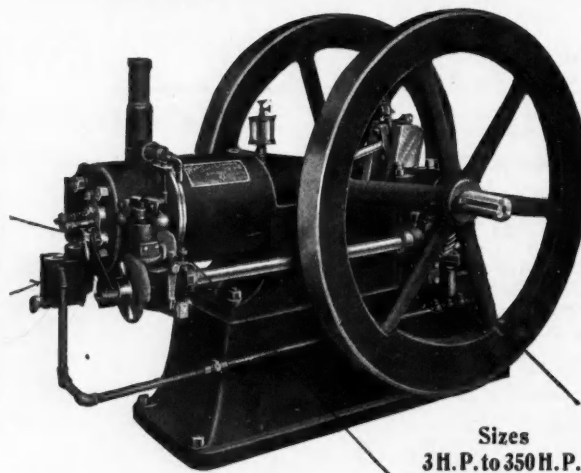
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Weber Gas Engine Co.,
Kansas City, Mo.

Gentlemen:—The 3 H. P. Weber Engine I bought of you about 18 months ago gives entire satisfaction.

I am using it in my shop to make door and window frames, and such work as is wanted in the building line. I am running a rip saw, cross cut saw, one wood turning lathe, a planer, grind stone, and other machinery which is used in a carpenter shop.

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HENRY STOLTE,
Carpenter and Builder.



Sizes
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MER ROUGE, La., Feb. 2 '06
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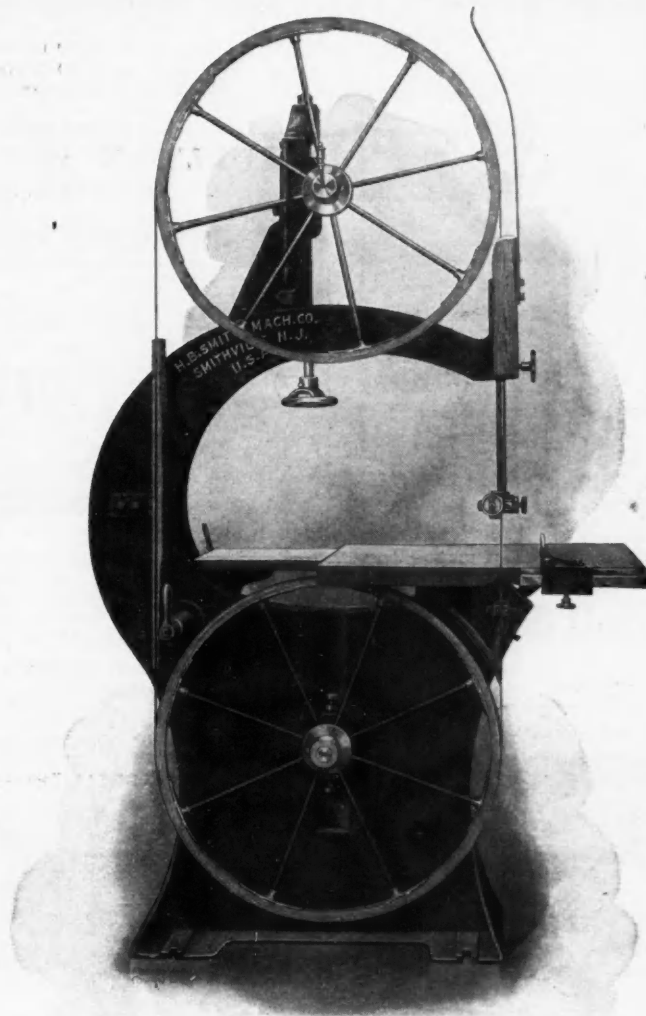
Yours truly,
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Carpenter and Builder.



Write for descriptive catalog, stating the H. P. you need.

Weber Gas Engine Co., P. O. BOX 406
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The Smith Band Saw

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Write for circulars and prices.

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American Carpenter and Builder

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

WILLIAM A. RADFORD, EDITOR-IN-CHIEF.
WILLIAM REUTHER, EDITOR.
ALFRED W. WOODS, ASSOCIATE EDITOR.

Published monthly by

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CHARLES W. RADFORD, Vice-President.
O. F. BYXBEE, Secretary and General Manager.

VOL. III JULY, 1907 No. 4

The AMERICAN CARPENTER AND BUILDER is issued promptly on the first of each month. It aims to furnish the latest and the most practical and authoritative information on all matters relating to the carpentry and building trades.
Short practical letters and articles on subjects pertaining to the carpentry and building trades are requested.

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Using Printed Letter Heads

WE ARE pleased to note the great number of our subscribers who use a printed letter head. This fact was also mentioned to us by a prominent tool company which is advertising in our publication, and they complimented us on the fact that

most of the inquiries coming from the readers of the AMERICAN CARPENTER AND BUILDER were written on printed letter heads.

DON'T strive to take advantage of each other, but use the time together in taking advantage of your work.

Building Operations for May

REPORTS of building operations throughout the country for the month of May show a far greater activity than was to have been expected under the unfavorable conditions of a backward season and unpropitious agricultural reports, which play an important part when actual money is to be liberated for building construction. Compared with May, 1906, the past month shows a loss of only 1 per cent in the aggregate building construction in some fifty cities. The losses and gains are in cities widely scattered throughout the country, plainly indicating local causes. The principal gains are as follows: Detroit, 40 per cent; Duluth, 11; Evansville, 71; Hartford, 17; Milwaukee, 202; Minneapolis, 91; Memphis, 15; Mobile, 42; New Orleans, 69; Philadelphia, 16; Paterson, 35; Portland, 5; Seattle, 28; Spokane, 111; South Bend, 198; Syracuse, 82; Toledo, 15; Tacoma, 16. Losses are scored in a number of thrifty cities, which can well afford a decline in building operations. Atlanta lost 21 per cent; Birmingham, 17; Bridgeport, 40; Buffalo, 42; Dallas, 11; Denver, 27; Grand Rapids, 18; Louisville, 18; Omaha, 37; Pittsburg, 21; Reading, 19; Scranton, 37; Salt Lake City, 67; Washington, 42; Worcester, 60; Wilkesbarre, 59; and, in spite of this setback, as compared with May, 1906, each of these cities has in progress a fairly good number of building projects.

Monthly Payment Homes

ANALYSIS of house-buying on the monthly payment plan has developed the interesting information that only 2 per cent of those who enter upon such ventures fail to carry their deals to fruition. An expert who has looked into facts and figures in all parts

of the country says his investigation has shown that when the family once realizes that the property belongs to it, even if only the earnest sum is paid, the husband and wife and children at once begin to take better care of everything. They plant trees, shrubs and flowers, lay out garden patches, and flower beds, and keep everything in repair. They know that from now on there will be no more complaints to make to the agent when the rent is paid about repairs and other necessary things about the place.

After acquiring a home on the monthly installment plan the purchaser begins to feel his responsibility, and so does the family. They realize that monthly notes are to be paid, and though they may have been living modestly, they begin to economize and save up. In a short time they often find themselves with enough money ahead to take up several notes in advance and save interest.

When this is done the greatest lesson in economy that can be taught to a householder has been learned. He has learned to master himself, perhaps to forswear smoking, to live on plainer but as wholesome food and be satisfied because he knows he is doing it for a good purpose. It is safe to say that a person who has gone through these trifles, which may seem a hardship at first, and has accomplished what he set out to do—buy a house—would never go back to renting if he had to live the life over again and undergo hardships twice as great.



The Architect and His Work

IN LOOKING over the pages of the April AMERICAN CARPENTER AND BUILDER, our eyes caught the lines penned by Mr. J. R. Mills, of Dallas, Ore., to the head pencil pusher of this magazine, "To induce the writer by threats or otherwise to tell how the architect goes about it to design an ordinary house; what, aside from any set general dimensions, influences him in his work; how he secures harmony of proportion, etc." Of course we would not wait to be forced, but must confess that we know of no royal road to success in architecture, except by hard work and plenty of it. The planning of an ordinary residence is, we believe, the poorest class of work that falls to the lot of the architect. If his practice does not extend beyond residence work, he indeed has a hard time of it, so to speak, to make ends meet. Not that he is not capable from every standpoint to intelligently perform the work, but because he has not the opportunity. His influences are many and varied. Most every prospective builder and every one should know about how much room they want and approximately how much money they can put into the proposed building. This, with the knowledge of the building site, together with a general idea of arrangement desired, should be the architect's guide in planning the house. He should be allowed to have his own way, but unfortunately, as a rule this is not the case. He

has too many to please and his desire to please requires patience and diplomacy to harmonize or explode the different ideas suggested and even then, when his work is settled on he may hardly know his own production. He can fix it up to perfection as he supposes with the man of the house, but when other members of the family are called in to pass on the plans, the deal is off. Then too, outsiders are often too free about giving advice, which is too often heeded, as to how this thing and that thing should be arranged, and it all takes time. Finally when the plans are acceptable (to the owner) they have grown in size and otherwise to a figure far beyond that first cost price talked of, and when the bids are opened, they are found to be greatly in excess of the contemplated price, and bitter disappointment follows. Both are to blame. The owner for adding a little here and there, till the aggregate to him is simply appalling. The architect is to blame for not putting on the brake, or at least giving a warning signal as to where the thing is going to round up. His negligence to do so means to start over again and that usually at his own expense. The questions asked cover a wide range, upon which volumes might be written and yet not tell it all. Therefore, we cannot, in this article, enter into the different branches of the subject beyond a passing notice, as we have observed it, and while we have passed more than a score of the mile-stones on the way, they have served better telling what course should have been pursued, rather than the way to proceed.

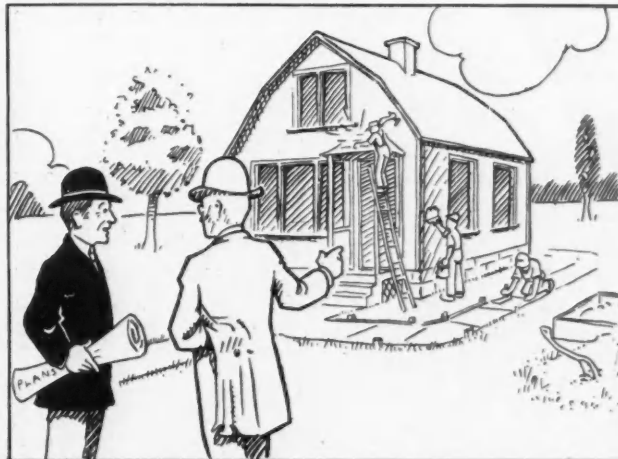
First of all, the professional trade of any calling should be backed with a trained education along those lines, the more advanced the better. This applies to no trade more particularly than that of architecture. The day is fast approaching when the schooled tradesman will supplant the so-called self-made or apprentice mechanic. In other words, mechanics who are in certain lines of work more from force of surroundings than choice, drifting into their vocations for the want of something to do; while the trained mechanics, from a fixed choice, are brought up in the trade schools and necessarily have a foundation back of them upon which to build and spread out to meet and overcome the obstacles in the path to perfection and ultimate success. Thus equipped, it is but a question of the survival of the fittest. The weak in any profession must sooner or later drop by the wayside to let the man who knows pass by to reach the goal of their aspirations. Unfortunately it is not within the province of all to have the advantage of a trained education along trade lines, but with the advantage of home studies, in the way of trade papers and correspondence schools, the really ambitious, if not found in the front rank, will be far from the rear end of the great army of toilers that act as the mainspring of our commercial industries throughout the world.

A. W. WOODS.

The Man Who Took Everybody's Suggestions



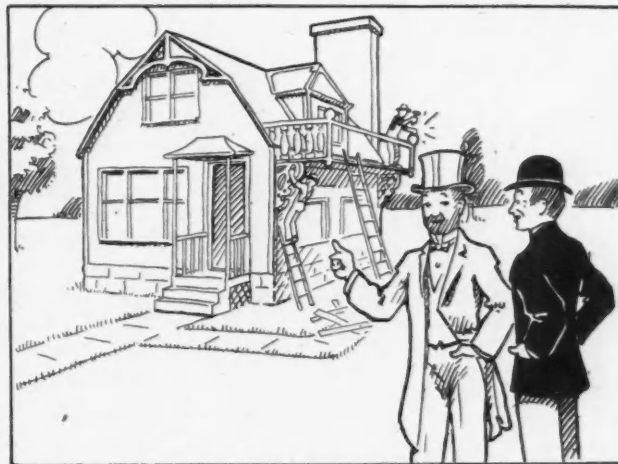
The Man—By George! Its nearly complete and to think I planned it all myself.



Jones—Your house lacks one thing, you should have a large chimney on the back and a dormer window on this side.



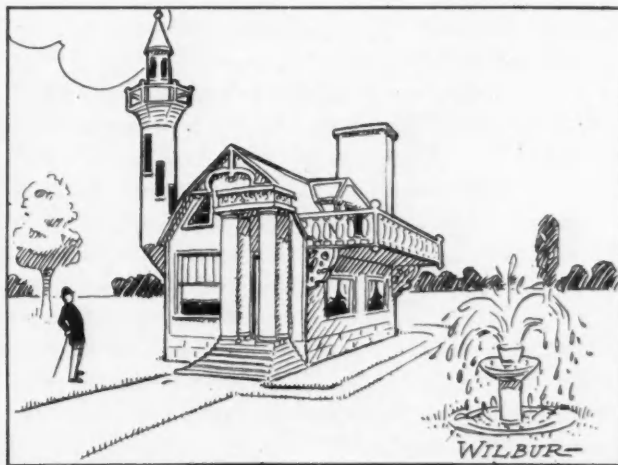
Smith—You must have a balcony on this side, it's just what it needs.



Brown—It would be all right if you had a minaret on that corner.



Dubb—Now all you need are some Doric columns and broad steps.



This is the house built on the advice of Jones, Smith, Brown, Dubb, etc

Log Cabins and Forest Lodges

BY WALDON FAWCETT

THE construction of summer or vacation homes for the American people has come to be a very important branch of the building industry in this country. The activity might, from a technical standpoint, be subdivided into several branches, determined largely, not only by the character of the houses—that is, as to the class of building material employed—but also by the general location. For instance, the “cottages” erected at seashore resorts differ as a class from the habitations of the mountain regions, and similarly, lakeside homes have common

of a tent or the crudest of frame shelters with dependency upon nature for all that is artistic and beautiful in the surroundings. To be sure, the modern camper studies art in relation to nature, both in the erection and equipment of his home, but the present-day “camp” is a misnomer, judged by the standards of the olden days. Not only is it of permanent character—in many instances the construction is so ruggedly massive as to suggest defiance to the ravages of time—but its appointments include most of the conveniences embraced in that comprehensive term “mod-



Log Cottages in the North Woods

characteristics that distinguish them from those with a purely pastoral setting.

Of all these lines of building development, however, none has equalled in the expansion recorded, that shown in the construction of log cabins and other forms of rustic lodges. The secret of the mushroom growth in this sphere is found, of course, in the tremendous popularity of woodland life and “camping” in one form or another. It has almost seemed, during recent years, as though the American people were ready to conform to the ideas of Moses of Biblical fame, who made it a law that his people should spend a few days each year camped out, as their fathers had done in the wilderness.

In this progressive twentieth century, however, “camping out” no longer means temporary occupancy

ern improvements.” Thus we find in the heart of the primeval forest many a log cabin equipped with porcelain bath tubs, electric lights, hot water heating systems, etc.

Nor are these rustic retreats confined to the mountain regions which constitute some of the nation’s principal playgrounds. Whether it is to be attributed to their quaint beauty, charm of simplicity, or comparatively inexpensive cost, might be difficult of determination, but certain it is that this thoroughly American form of architecture has attained tremendous popularity among property holders, in all sections of the country, who have building sites sufficiently sylvan in character to render such rusticity appropriate.

The best examples of the woodland residence as a type are to be found in the far-famed Adirondack



Slab and Shingle Construction

region of northern New York, and in only a slightly lesser degree in the Catskill mountains and the Maine woods, but most credible achievements in the line of rustic construction are making their appearance in increasing numbers in the lake district of Minnesota and Wisconsin, in the Blue Ridge mountains of Virginia, on the banks of the Columbia river in Oregon and Washington, in the White and Green mountains of New England, on the shores of the Great Lakes, and, in short, wherever natural conditions are auspicious. This too, despite the fact that in most sections of the country, the cost of log construction has advanced sharply during recent years.

Rustic structures designed for occupancy during all or a portion of the year may be classified in several general groups. In the first class should be placed all those built wholly or in great part of logs. From the logs thus employed the bark may or may not have been removed, according to the preference of the builder. The second classification would embrace all frame buildings which are covered exteriorly with slabs or half logs with the bark on. A third group is made up of the shingle houses, and a fourth (in the minority as to numbers) comprises the structures built of field stone. The two last-named classes do not, of course, represent types restricted to the woodland region, but when placed in such environment they are usually invested with distinctive features.

Of all the "houses in the woods" those built exclu-

sively of logs represent the most expensive form of construction and have proven emphatically the most popular with persons who have not been limited as to monetary outlay. The logs best adapted for use in the erection of such structures are spruce, hemlock, pine, tamarack, and balsam, and they must of course be straight and sound as well as of uniform size. The hard woods will answer the same purpose, but such logs are difficult to handle when green, owing to their weight, and are less durable than those above mentioned. If the site provided by a house builder comprises several acres of heavily wooded land the contractor will probably be able to obtain on the ground sufficient logs for construction purposes.

Whether, from the standpoint of durability and other considerations, the logs should be placed in the structure with the bark on or should be stripped, is a mooted question in this branch of the building world, and one on which no two craftsmen seem to agree. The advocate of smooth logs declares that it is a mistake to leave the bark on the logs for any permanent structure, since such covering not only harbors all sorts of creeping things, but also encourages moisture and the wood-boring larvae of certain beetles, which last two in combination soon produce dry rot in the best of lumber, with the result that the logs are likely to crumble away. Against the argument of the more attractive appearance of logs with the bark on, the champion of the stripped tree trunk places the assur-

ance that sun, wind and frost will speedily tone down the fresh appearance of peeled logs and impart to them a pleasant neutral tint that harmonizes with forest surroundings.

On the other hand, there may be found experienced builders who declared that if the trees are felled at the proper season and the selection carefully made, logs with the bark on can be counted upon to remain in satisfactory condition for many years. To sum it up the matter may be disposed of by saying that both advantages and disadvantages exist in the case of each class of material and the decision must needs be left largely to individual taste, tempered by experience.

The getting out of the material for a woodland house is a most important preliminary of actual construction. The season best adapted to this class of operations is dependent upon the snow and rainfall, and therefore varies greatly in different localities. If the bark is to be left on the trees, the late autumn or early winter is usually chosen as the most opportune time for cutting and assembling the material. Some builders declare that logs should invariably be cut during the interim between October 16 and December 15 and stacked to dry at an angle of 45 degrees.

If smooth logs are to be employed there must either be some change in the program or else the tree sections are allowed to stand over one season after cutting, for in the Adirondack region, for instance, the bark will peel from the trees during the interval from May to July inclusive, but may be removed most readily during the month of June. The handling of all material during the time when the ground is cov-

ered with snow is a decided advantage in those regions where transportation facilities are limited and where, in some instances, the logs must be conveyed through a trackless forest.

The general policy as to construction followed by present day builders in the erection of log houses shows few departures from the methods followed by our great-grandfathers in the provision of the matter-of-fact cabins of pioneer days. In most instances logs forming the sides or partitions are flattened top and bottom in order that they may fit smoothly, and in some structures the logs are hewn square or rectangular, after the Swiss or Norwegian fashion. There are several well-known schemes for cornering the logs. One method—known in the backwoods of Canada as the "hogpen finish"—consists in simply flattening the logs where they touch. The really skillful forest carpenters usually dovetail the corners and saw them flush.

Many log cabins are finished with moss plugged into the crannies between the logs, but mud worked into plaster is generally considered preferable. Such plastering is generally most effective when done by two plasterers working in conjunction, one inside the building and the other on the outside. In the south, many builders have, in chinking logs, found ordinary excelsior an excellent substitute for the moss of the northern woods. It is claimed that by twisting the excelsior into ropes and driving between the logs with wedges a joint can be made that requires no sealing with mud plaster, provided, of course, the logs be properly laid.



Rustic Cottage in the North Woods

While the out-and-out log house still has the call among a majority of persons who can afford such construction, there has been manifest during recent years a growing sentiment in favor of frame construction with exterior sheathing of slabs with the bark on. The appearance of such a building is so very similar to that of a *bonafide* log cabin that in case the work of fitting the slabs is carefully and neatly done it is difficult to detect the difference between the two forms of construction except by close inspection. The two principal advantages of the slab construction, aside from its moderate cost, as compared with a log building,

the sap is out, are wonderfully lasting. They have been found to be clean, sound and tight after eighteen years' use. In the Adirondacks, cedar is used almost exclusively, and when cut under similar conditions, is almost as good as the basswood. Lately there have been introduced several chemical preparations which it is claimed will prove a preservative if carefully applied to slabs.

The general principles governing the construction of shingle or rough stone houses on woodland sites are identical with those obtaining in the case of similar buildings in other surroundings. Houses in the woods



A Shingle Cottage in the North Woods

are found in the circumstance that it insures a warm house and that it spares the owner the worries caused by the destruction wrought by "borers" and other insects. Such pests may, of course accomplish the destruction of a slab now and then, but replacement is a simple matter, compared with the substitution of a log.

In slab construction the cottage is constructed in the ordinary manner, and then after furring the boarding the exterior is covered with slabs prepared and joined, as has been explained, with the bark on. These slabs may be set vertical or horizontal. Slab construction presents, of course, the same problem as to durability that has already been noted as existent in the case of buildings constructed of logs with the bark on. However, Canadian basswood slabs, which are extensively employed, when cut in the winter when

are, as a rule, set at least one foot above the ground to insure dryness. The standard practice is to rest the building upon massive foundation posts sunk several feet in the ground, but in some instances foundation piers of stone are provided. The majority of buildings of this class have high pitch roofs, which are covered with shingle, bark or thatch—the first mentioned material having strong preference.

Where bark is employed, it may be introduced in the form of shingles, but is more likely to be utilized as solid strips about four feet in length and of width equalling the circumference of the tree from which the bark was taken. A thatched roof is decidedly difficult to build and will not last over ten or twelve years at best, as compared with fifteen or twenty years, the time usually allotted to a shingle roof. Moreover,

(Continued on Page 513)



STEEL SQUARE.

ALFRED W. WOODS

How to Use the Steel Square

SHOWING PRACTICAL APPLICATIONS OF THE STEEL SQUARE IN OCTAGON FRAME WORK IN GENERAL, ALSO THE RELATION OF SAME TO COMMON GEOMETRICAL DIAGRAMMS FOR THE SAME PURPOSE

WE WILL now take up the subject of the various cuts contained in and about a regular octagon roof. In the "regular" it will be seen that the seat or the hip line rests at the bisecting line between the lines of the plate, as shown in

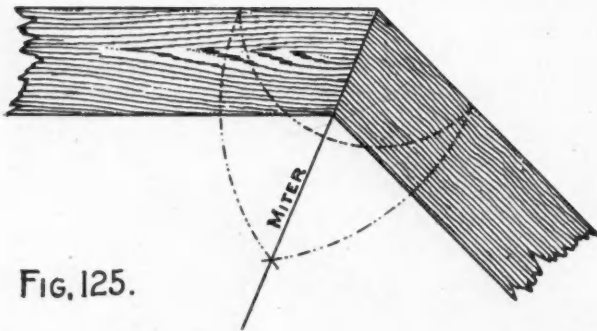


FIG. 125.

However, this may occur in the irregular, but the hip lines will not run to a common center, as they would intersect before reaching the center and would, therefore, form the corners for a rectangular deck, the length of whose sides would equal the difference between the sides of the octagon, as shown in Fig. 126, or they would form the juncture with the

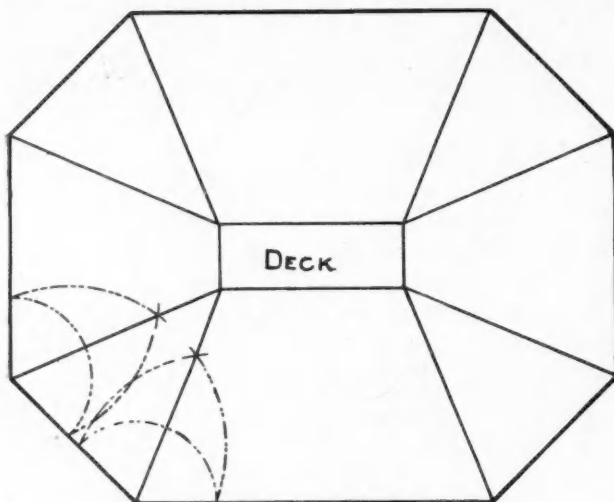


FIG. 126.

hip for a common square building with sides equal the diameter of the octagon, as shown in Fig. 127. But this would be considered an oddity and otherwise impractical, because it cannot be said that it contains any

features from an architectural standpoint worthy of emulation. So we will pass it by and later on will take up the cuts and bevels for an irregular octagon roof, as shown in the plan at Fig. 124, of our last article. In that article we also illustrated the figures to use on the steel square (See Fig. 122), as a basis for regular octagon work. These figures are 12 on the tongue and 5 on the blade, but of course these proportions could be reversed on the square and the

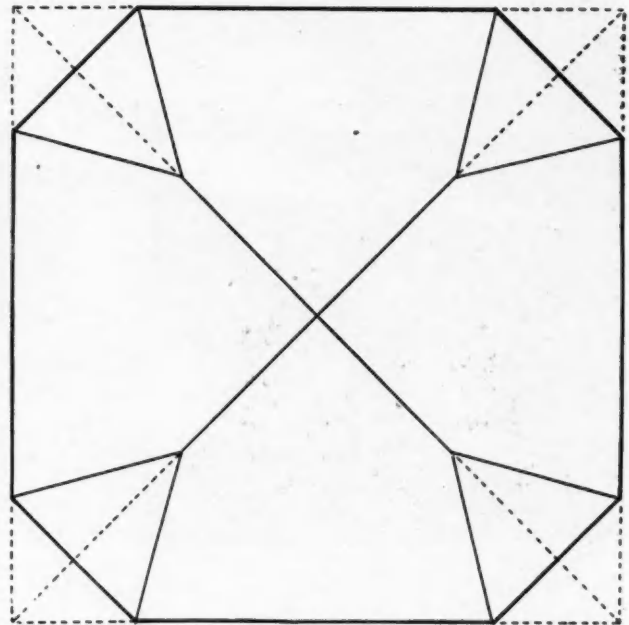


FIG. 127.

results would be just the same. However, it is better to use a standard on one arm of the square and as the blade, on account of its extra length, gives a wider range for obtaining the side cuts of the rafters for steep pitches, we use 12 on the tongue for the starting point for all cuts and bevels. The part bounded by A, B, C in Fig. 128 is a reproduction of the angle shown in Fig. 114 of the May number, which forms the basis for octagon framing. To this diagram we have added other angles which, with the exception of that bounded by A, C, E, are governed by the rise given the roof. In this we have used the 9 inch rise to the foot run, or, in other words, it is a $\frac{3}{8}$ pitch. From these angles all of the cuts and bevels in and

about the octagon roof may be obtained, and by referring back to Figs. 94 to 97 of the December, 1906, number, they will be found fully illustrated in connection with the steel square. However, as many of the

arriving at the edge or miter cut of the roof boards to fit over the hip. In other words, it is generally known as the hopper cut. We have several other formulas for arriving at the same result, but as we have planned to take up the subject of hopper work later on, will not produce them at this time. However, as a rule, this cut in roof work is usually lost sight of as far as obtaining the same with the steel square, as the boards are usually cut on the roof and more often it is obtained by shoving the board a little past the edge of the hip and by sawing the board alongside of same, will give the cut near enough for roof work anyway.

Referring to the illustration, 5 and 12 gives the miter as before illustrated, but when there is an incline given the board, then the 5 inches is taken on the

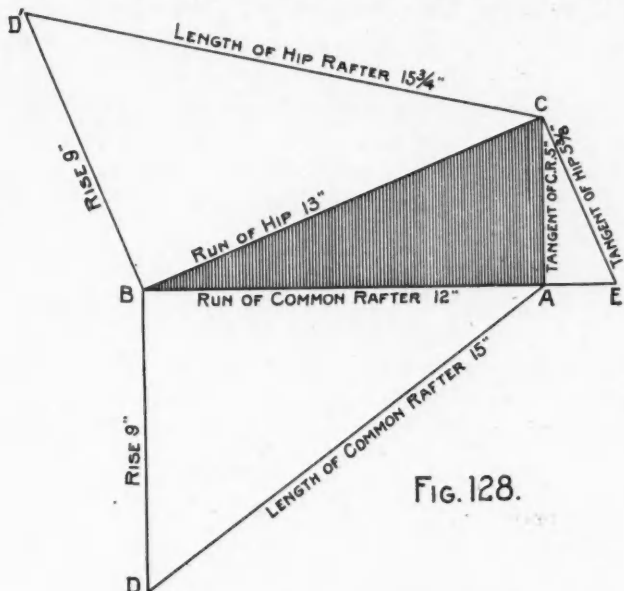


Fig. 128.

present readers are not in possession of that number, we will take the proportions from Fig. 128 and apply them separately in connection with the steel square to the timber direct, as follows:

12 and 5 gives the octagon miter, as shown in Fig. 129; 12 and 9 gives the seat and plumb cuts of the common and jack rafters, as shown in Fig. 130; 13 and 9 gives the seat and plumb cuts of the hip rafter, as shown in Fig. 131; 5 and 15 will give the side cut of the jack to fit against the octagon hip, as shown in Fig. 132. These figures also give the face cut across

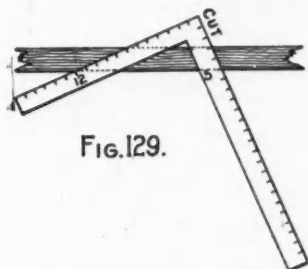


Fig. 129.

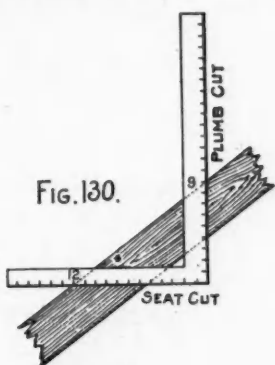


Fig. 130.

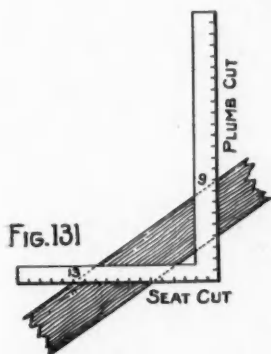


Fig. 131

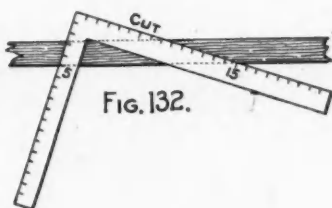


Fig. 132.

the roof boards to fit to the hip, but the cut is the reverse, *i. e.*: The blade giving the cut in one and the tongue in the other.

In Fig. 133 is shown a very simple operation for

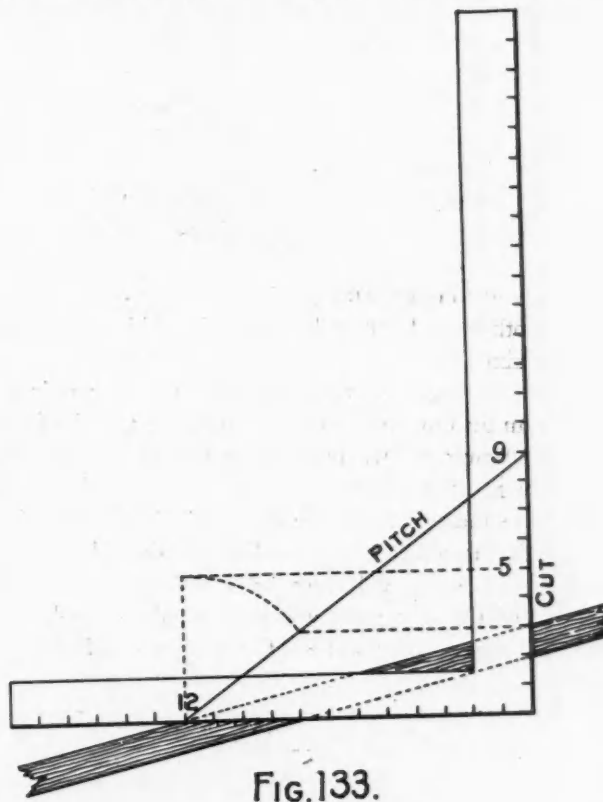


Fig. 133.

incline and carried across to the blade, as shown.

Five and three-eighths and $15\frac{3}{4}$ will give the side cut to fit in the peak of the roof, as shown at Fig. 134. However, framing of this kind could not be considered good construction, as the hips would run to a feathers-edge, or wedge shape, and therefore would not have a direct bearing against each other. The common rafter, if used, would also have to be wedge shape to fit in the angle formed by the hips, the side cut of which would be the same as that for the side cut of the jack, as illustrated in Fig. 132. However, it is better to run only the hips to the center and by using an octagon shaped block or pole set with the sides so that the hip will rest against it squarely, thus affording a good nailing space as shown in Fig. 135, besides letting the block extend above roof, furnishes an excellent stay for a finial.

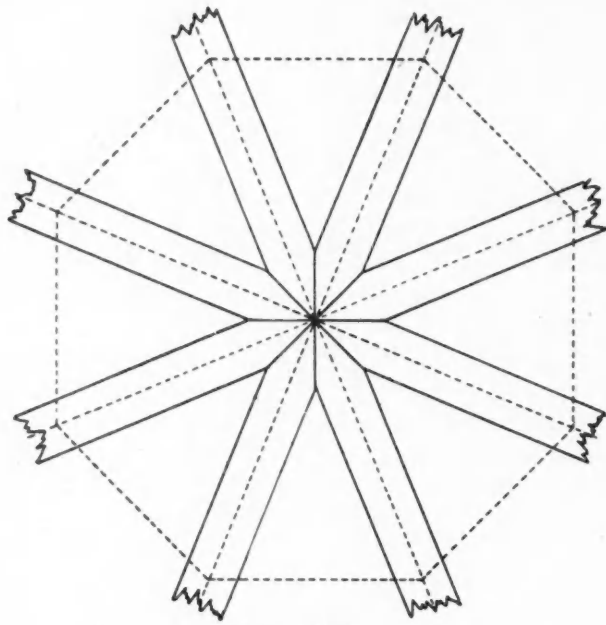


FIG. 134.

While we are at this point, it might be well to show other methods of framing the rafters in a case of this kind.

In Fig. 136 is shown probably the most common way in general use. In this, the first pair of hips set up are allowed to butt against each other. The next set rests against the sides of the first pair, which requires a deduction in the length of the rafter and may be found by measuring square back from the plumb cut (for the full length) one-half of the thickness of the hip, will give the point for the required plumb cut. The remaining two sets will be of like length and cuts, and as will be seen, will require a reduction from the length of the first pair, which is equal to one-half of the 45 degree diagonal of the thickness of the hip.

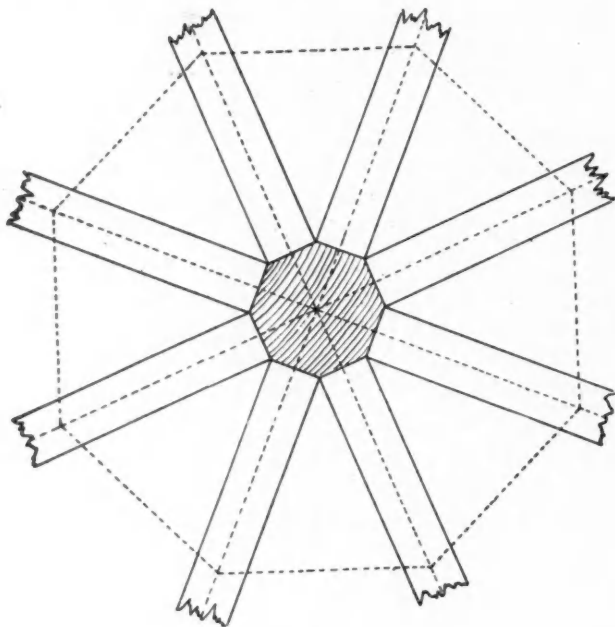


FIG. 135.

measured square back from the plumb cut for the full length, will give the net length, and from this set back one-half the thickness of the hip will give the proper plumb cut.

NOTE.—This hip intersects the sides of the other hips at an angle of 45 degrees, or the same as that of the jack in the common square building. Therefore, the same figures used on the steel square for the side cut of the jack will give the side cut of the hip in this case. In this example (the pitch being $\frac{3}{8}$) it would be 12 on the tongue and 15 on the blade. The latter giving the cut.

It might be well to show another diagram, as shown in Fig. 137, pertaining to the same subject, but in this, the cuts and lengths are arrived at by the measurements direct from the diagram which should be made full size. This diagram is from our pen and was first published in a trade paper a number of years ago.

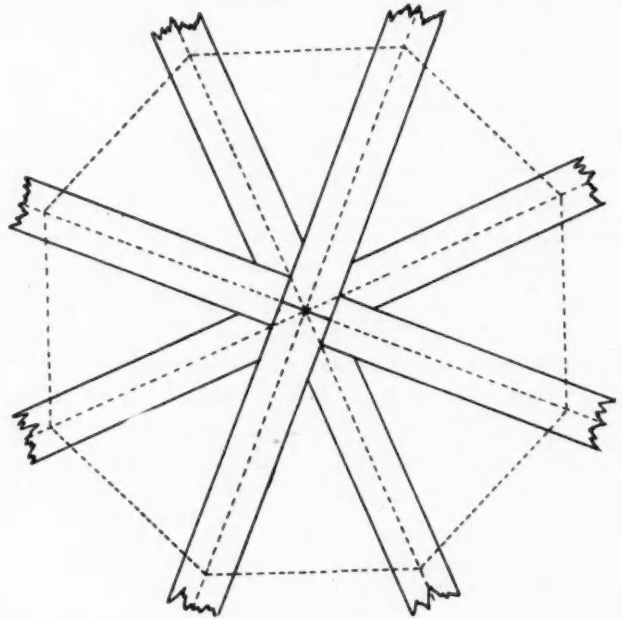


FIG. 136.

We mention this fact because it has since been widely copied without due credit. However, it is not given here as containing any special merits, but rather as a comparison as between obtaining the cuts by means of the diagram and direct from the steel square. Simply giving the figures to use on the steel square for certain cuts is not so easily grasped, but when two methods are shown up together, one helps to simplify the other. This diagram is the same as the preceding, except in the latter the common rafters (No. 4) are added. The side cuts of which are the same as before illustrated for the jack rafter in Fig. 132.

The lengths and cuts may be found in the diagram as follows:

The runs are reckoned from the outer edge of the plates to the center, as G O for the common rafter and O F for the hip, but since all of the rafters do not run to the center there must necessarily be a deduction from the runs, as given above.

In the plan, it will be seen that only one set of the hips (No. 1) meet at the center. Set No. 2 lacks the thickness of No. 1 of coming together, or an amount equal to O A taken from the run of each rafter. The next two sets, No. 3, are of the same length, and the deduction for this is equal to O B plus B C to obtain the plumb cut for the side bevel. The run of the common rafter, No. 4, being G O the deduction from

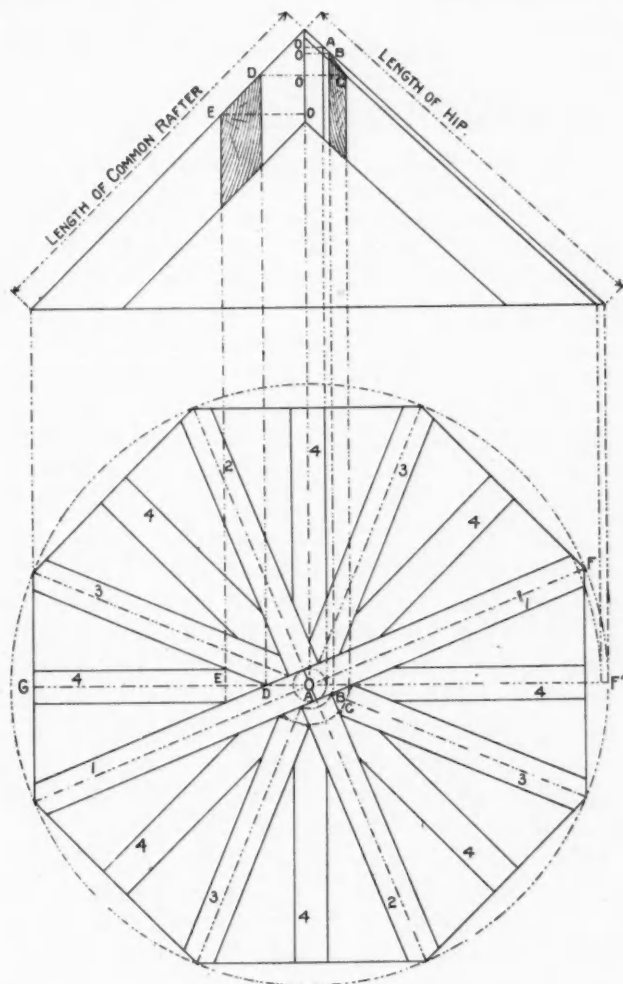


FIG. 137

which is equal to D O plus E D to obtain the plumb cut from the side bevel.

Now, referring to the elevation, the above reference letters are used for like measurements, showing the proper deductions to be made to obtain the lengths for the different rafters by simply squaring back from the plumb cut for the full length of rafter.

The run and rise taken on the square regulates the seat and plumb cuts, but the above deductions remain the same for any pitched roof.

With this we will close for the present, but in next month we will continue along the same lines, illustrating steep roofs for spires, curved roofs, etc.

Good luck to the AMERICAN CARPENTER AND BUILDER. It is the best carpenter paper I have ever seen.
 JOHN W. EVANS, White, S. D.

Log Cottages and Forest Lodges

(Continued from page 509)

a shingle roof may be stained a mossy green, thereby contributing markedly to the artistic effect of the completed structure.

Woodland structures, with the exception of the log cabins, may be completed very expeditiously. The log houses, however, usually require a repetition of the caulking operation—the forcing of oakum or cement or moss into the joints from both sides of the logs—during the second season and consequently conservative builders in many instances do not attempt to finish such structures until the year following the commencement of operations. Wide latitude is allowed in finishing the interior of houses in the woods. The interior of many a log cabin simply presents the rough surface of the logs, either peeled or with the bark on. Or again, the faces of the logs may be hewn to a perpendicular plane. In “camps” where there is less striving for rustic effect it is customary to have the interior ceiled.

Partitions in many forest lodges are of matched and beaded boards, but in the estimation of some builders this savors too much of civilization and when allowed to exercise their fancy they introduce slabs or sheets of bark. In some instances the inside walls of log houses have been covered with shingles laid in patterns and which constitute a durable as well as decidedly ingenious wainscot. Stairways are a detail in which free rein is given to rusticity in the average house of this character. An example of possibilities in this direction is afforded in the Adirondack home of Hon. Timothy Woodruff, of New York, where each step is formed by a half log, set, of course, with the flat side uppermost, while the rails and balusters are rough poles.

A recently completed log cabin, which may be taken as fairly representative of a large class of such structures of moderate cost, is ceiled and partitioned with $\frac{3}{8}$ inch clear, matched Norway, dressed and beaded and laid on the rough joists. The flooring throughout is $\frac{7}{8}$ inch quarter-sawed southern pine. The door and window frames are 2 by 10 inch dressed Norway, and the casings are likewise of Norway pine. The windows are single sash, glazed with lights 7 inches square and hinge hung to swing inside. All doors are of pine, 6 feet 6 inches by 2 feet 6 inches. Both interior and exterior walls present a rough bark surface. Interstices are chinked with split cedar strips and the cracks plastered inside and out with white mortar. The fireplace stack is 6 feet square at the base and is carried up $14\frac{1}{2}$ feet. The flue is of brick, dimensions 12 by 20 inches; is laid in mortar and veneered with field and water-washed stone in cement.

The lottery of honest labor, drawn by Time, is the only one whose prizes are worth taking up and carrying home.—Theodore Parker.



Casement Window Construction

SHOWING THE CONSTRUCTION OF INWARD OPENING CASEMENT WINDOWS — PROOF AGAINST WIND AND RAIN

IN THIS installment we will consider a very successful method of constructing an inward opening casement so that it will be proof against wind and rain.

The jamb of the frame is set in a rebate in the masonry wall and has a semi-circular groove cut in its outer edge for a corresponding semi-circular tongue on the stile of the sash. The sash tongue fits snugly into this groove and makes a perfectly weather-tight joint. This form of construction requires that the hinges or butts shall be set so that their pins are from one-quarter to three-eighths of an inch inside of the inner surface of the sash, so that when the sash is opened it will turn on a center sufficiently away from the sash to throw the sash slightly into the room and prevent binding at the tongue and groove.

The head of the frame has a double rebate and the top rail of sash a single rebate to exclude the weather.

The joint of the sill and the bottom rail of the sash in inward opening casements is a particularly difficult one to make weather tight, and we know of no better way of constructing it than that shown in the illustration. Windows constructed in this manner have remained tight under driving rainstorms.

A molded member is placed over and tongued into the top inner edge of the wood sill and is rebated for the bottom rail of the sash. This member for its entire length has a semi-circular groove or gutter in the rebate, as shown, to catch any water which may beat in at the junction of the sash and sill. At intervals of about one foot, reamed holes are provided from the gutter to the outer surface of this strip as indicated by the dotted lines in the illustration, Fig. 181, to carry away and discharge on the sill any water which may accumulate in the gutter. The holes should be reamed perfectly smooth and painted and the joint of the sill and the member immediately over it should be made in white lead.

The bottom rail of sash is rebated and on its outer face has a drip mold let in and jointed in white lead. This mold, under ordinary conditions, will prevent water from entering under the sash. In driving rainstorms it may not prevent a little water from working

in, but any such water will be caught at the undercut drip on the bottom surface of sash and will drop into the gutter in top member of sill.

A small molded staff bead covers the joint of the masonry and the window frame, and all interstices about the frame are calked with oakum, as indicated, so as to be windproof. Jamb and head linings are tongued into the frame, and where deep inside jambs occur are better paneled.

The trim is worked out of seven-eighths inch material, molded and hollow-backed, and provided with face mold, back band and small flexible wall mold. Joints at angles are mitred and put together with slip tongues, glued and screwed. In the better class of work the trim is put together at the carpenter shop, and all surfaces, including backs, edges, ends, splines, and faces are primed. It may then be brought to the building without risk of damage through the dampness in the atmosphere or at the building.

The trim is carried to the floor and finishes on molded wood plinths. The inside recess of the window is carried to the floor, the masonry wall being made four inches thinner under the window. A stool and apron is provided, butting into the jamb linings, and the base breaks around the recess, thus forming a plaster panelback. This plaster panelback may be painted or grained to match the adjoining woodwork and the effect of a wood panel secured.

The opening in the masonry wall has a stone sill and lintel and the inside of the wall is furred with one inch by two inch strips. Grounds (G) are set wherever required for a nailing for the interior finishing woodwork.

✦

I want to say that I consider the AMERICAN CARPENTER AND BUILDER the finest magazine of its kind that I ever had in the house, and every American mechanic owes it to himself to profit by the brains, energy and push at the head of this publication.

WILLIAM Y. SANFORD, Springfield, Ill.

✦

Real estate in New York City is valued at \$5,800,-632,132, according to the figures of the assessors.

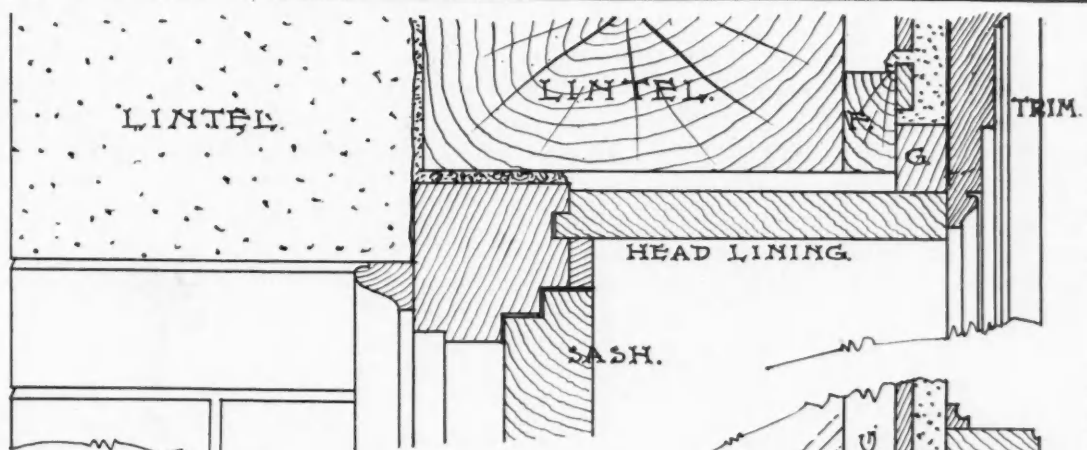


FIG. 179.

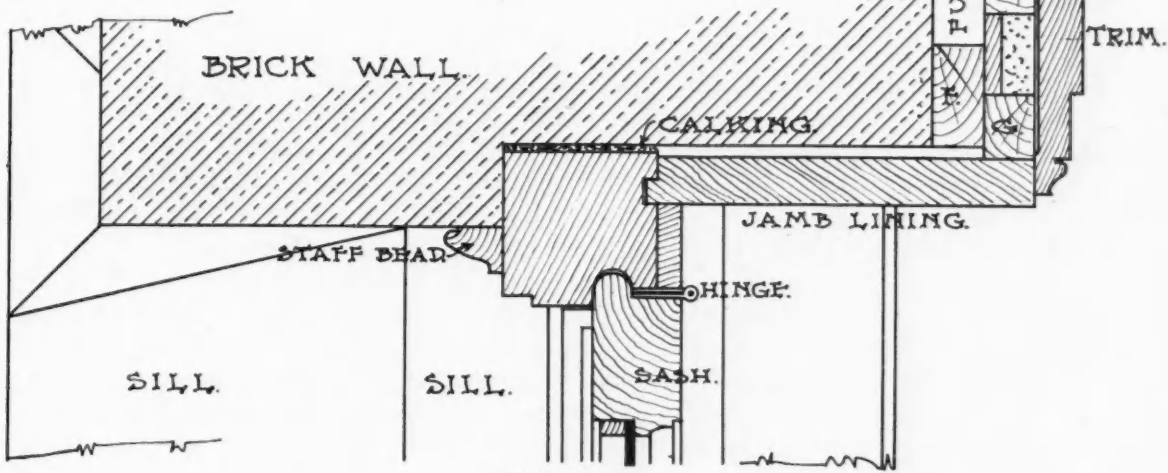


FIG. 180.

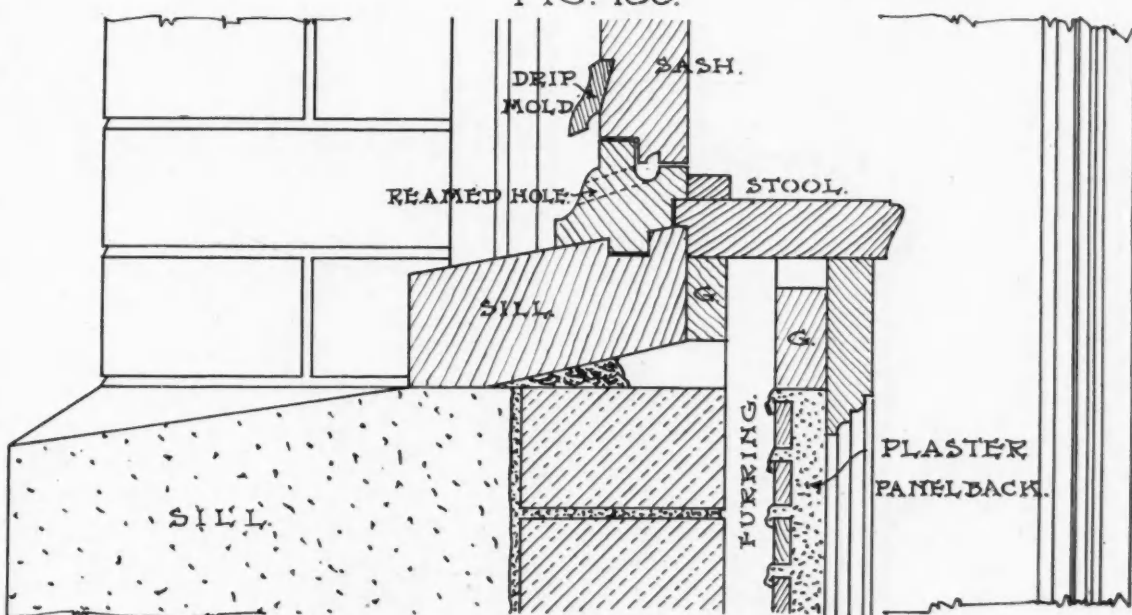


FIG. 181.

PLATE 42.

WINDOWS.

Fashions and Fads in Building

BY HERBERT SHEARER

THE present high prices of building materials are working some queer changes in architects' plans. I notice it especially in dwellings of all kinds, whether it be a small single family house, a double house or the apartment building intended to shelter a dozen families. You know instantly when you get inside of a building intended for human habitation if it has been built in the present century just by the size of the rooms. Years ago it was comparatively easy to be liberal in regard to space because it did not cost a great deal for the extra material, but lately no one wants to enclose a great deal of unnecessary air space with walls of wood, cement or any other material at present values, because no builder is sure of getting his money back, but in my opinion some of



the brethren are pruning a little too close when they leave out the pantry and cut the kitchen down to six feet one way by seven feet the other. In my way of thinking it is too much like the way the Indian cut his dog's tail off. A white man who had no respect for the dog held the animal's tail over a log for the Indian to operate on it. While the ax was descending the white man pulled the dog so far back that the amputation took effect just behind the dog's ears and the Indian declared that he had cut the tail "plenty too short enough." Now, that is just my opinion of the way a good many new dwellings are being shortened up from behind, and I want to emphasize the fact that we are commencing at the wrong end to economize on building space. Economy is a good thing, but it is easy to overdo the matter. Once upon a time a devout old lady who was very fond of a good garden prayed long and earnestly for rain. A few hours afterwards a hailstorm made a circuit of her garden and cut her cabbages all to pieces. She said, "The Lord overdid the matter that time," and she seemed quite put out about it.



There are lots of young turtle doves who are perfectly willing to live on love and moonlight on the front porch, but unless there is some satisfactory commissary arrangement in the rear of the cottage there is likely to be less moonlight and more moonshine or something else that is equally strong or exciting, because all healthy men are constructed with stomachs that demand attention at frequent intervals.

I visited one of these pretty little bob-tailed abbrevi-

ations a few days ago. The real estate agent mistook me for a prospective customer and painted the beauties of his little apology for a house in rainbow hues. I asked him if the builder had forgotten the pantry or left it out in the vacant lot somewhere, and he assured me that ladies had no further use for pantries, that they much preferred a cabinet of shelves, and he pointed with pride to a

three by seven affair with glass doors and shelf room for four tea-cups, besides racks enough to hold three platters by turning them carefully on edge. I meekly accepted his lesson in pantry economics and turned my attention to the kitchen. It was a very near neighbor to the dining room and was built on the close communion order. It had a pretty little hot water



boiler with gas pipes attached and, old foggy like, I hunted for the chimney, but the agent informed me that the old fashioned ranges have gone out of style and chimneys were no longer needed. That was news for me, but I never claimed superior knowledge on any subject. I am always open to conviction and willing to learn. I asked about the refrigerator and he assured me that there was plenty of room for an ice-box in the kitchen.

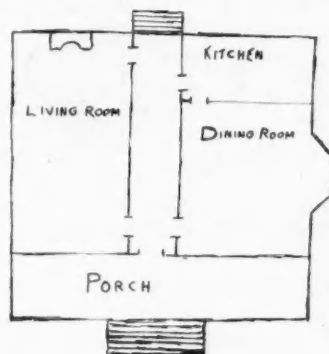
Well, you have heard about rooms large enough to swing a cat in. I don't suppose a person wants to swing a cat very often and maybe it is not necessary to do it in the kitchen more than once or twice in a man's lifetime, but if a man ever should want to do such a thing he certainly would require more room than he could find in that kitchen and I thoughtlessly



said so, when that agent turned loose with a few heated remarks to the effect that a woman don't want a whole half acre to tramp over when she is getting meals ready and informed me that any such notion was a back number and the quicker I got rid of it the better. I thanked him for the informa-

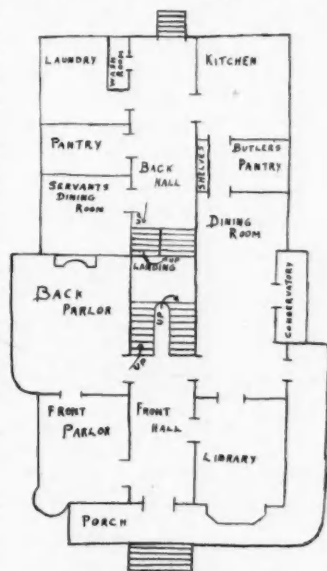
tion and wandered out to the side walk in front where

I could get a good perspective view of the house, and I decided that so far as the front twelve or sixteen feet went the house was a beauty. There was a hall in the center with a dining room on one side and a living room on the other that reached from fore to aft with a splendid fireplace in the far end. That room was built for comfort and solid enjoyment on a full stomach, but the main requirement for a hungry man certainly was left out of the calculations.



When our grandfathers set out to build a small house they built a small house, but they always had a business end to it. The front door may have opened directly into the sitting room, dining room and bedroom combined, but they had a chimney somewhere in the rear that would coax a fire up through chunks of wood or coal, and there was room somewhere to store the necessaries of life. We are in the habit of priding ourselves about our superior knowledge and the great advancement we have made during the span of our life time, but when I sit down quietly at night to think over the foolishness I have run across during the day I am inclined to respect some of the old foggy notions that my grandfather entertained when I was a boy.

Early in my building experience a wealthy man in town built a very handsome house. It was the talk of the place and people drove around on his street to show it off and brag. It was a good sized house, in fact, the dimensions were generous enough to entitle it to respect in any neighborhood. The house had two parlors, one in front of the other. These were talked about as the front parlor and the back parlor. I don't think any of the gossips really understood just exactly where the social functions of the first parlor were supposed to leave off and the grade of sociability belonging to the back parlor should commence. At any rate, I never heard of the line being very sharply drawn, but the house had a front parlor and a back parlor, and that entitled it to much more than ordinary consideration. That house was a leader in the social ambitions of the community. After it was built every house in town just had to have two parlors, and



I am sorry to say that the infection spread to other communities.

For several years afterwards every new house plan that came to my office contained provisions for two parlors. One house might be three times as big as another, but the invariable rule was to have two parlors, regardless of the size of the foundation. After a while some genius discovered that the front parlor could be married to the back parlor and have the two rooms set up a sort of mutual admiration of each other. This was accomplished by running a partition part way across from each side with an archway overhead. Then a thousand variations of this scheme developed, each architect lay awake night after night to devise some new scroll or grill design to vary the proposition in some way, but the idea itself stuck and hung like a dog to a root. You probably have noticed that fashion, when it does strike a new idea, sticks to it worse than the grippe in bad weather, and the more inconsistent the notion is the more it sticks. If there ever was a fool notion in building, it was this semi-division in a room that would otherwise look well and feel comfortable. For years no one had the nerve to cut the blame thing out until it run its course and finally died of old age. It is a curious fact that such nonsense will creep in and stick and hang until every one is thoroughly disgusted before reason reasserts itself.

The two parlor idea in the first place was all right in certain large houses where important social functions were common, where men and women understood the art of entertaining and had the money and the desire to do so, but what is all right in one case is all wrong under different conditions; what is suitable for a large house generally is altogether out of place and nonsensical in a house half the size, but unfortunately a great many people don't realize the difference. Mrs. Jones, with her three servants and an income of ten thousand dollars or more per year, can use to advantage a house that would simply be an encumbrance to Mrs. Smith, with half the income and with tastes running in an entirely different direction.

Large houses are still being built, but the proportion of large houses to small ones is very much less than ever before. The servant problem had a great deal to do with it. People are learning to live differently. It is no longer possible for people with money to keep up private establishments on the same plane that they did twenty or thirty years ago. They can't get the help to do it, that is, money won't hire the right class of help. You can get excuses in plenty, but the annoyances are all out of proportion to the satisfaction there is in maintaining a private hotel.



I think the AMERICAN CARPENTER AND BUILDER is what all carpenters ought to have. It is all O. K.

J. P. EARL, Pendleton, Ore.

PRACTICAL CARPENTRY

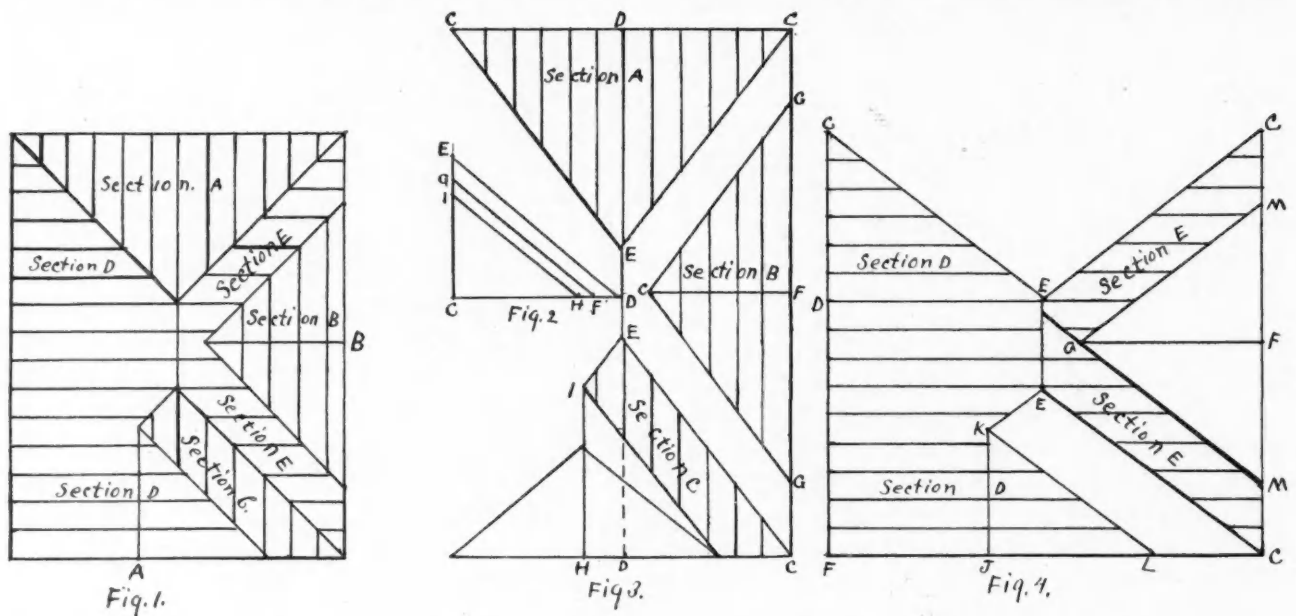
Problems in Roof Framing

PRESENTING SOME SPECIAL FEATURES IN ROOF FRAMING — DIAGRAMS CLEARLY SHOWING EVERY STEP— LABOR SAVING METHODS DESCRIBED

By I. P. Hicks

FIG. 1 represents the plan of a roof with hips and gables which will present some special features in roof framing. There is a gable at A and at B. The lengths of rafters are not shown in the plan of roof, other diagrams being necessary to show these. The first step is to find the length of the principal common rafters, which is very easy, and is shown in the small diagram, Fig. 2. In this diagram we draw a horizontal line half the width of the main building, C D. From C draw a perpendicular line to E, which must be of the length that represents the

common rafter for this section, as D E, and connect C E, which gives the length of the two hips, C E. Space the rafters on the line C C and draw perpendicular to the hips, which will give the length of every rafter in this section of roof. We will take section B next, which is a gable section. C F represents the length of ridge and is the same length as C F in Fig. 2, and F G is the length of common rafter, same as F G in Fig. 2, and C G is the length of valley, and the perpendicular lines drawn from ridge to valleys represent the length of all the rafters in this section.



rise of the roof; then the line from E to D represents the length of the main common rafter. The line C F represents the run of the longest common rafter on the gable, B; C G the rise, and G F is the length. C H represents the run of the longest common rafter on the gable, A; C I the rise, and I H the length. We now have all the lengths of the common rafters established necessary to find the lengths of hips, valleys and all the jack rafters.

Referring now to Fig. 3 we will proceed to find the length of rafters in the different sections of the roof. We will first take section A. In the center of section A draw a perpendicular line the length of the

Next we will take section C. The length of rafters for this section is obtained as follows: D E in section C represents the length of main common rafter, D C the run of main rafter and E C the length of main hip. H I represents the length of common rafter drawn perpendicular from the center of the gable, A; then a line from I to J, where the valley starts, will represent the length of valley for section C, and a line, I to E, represents the short piece of hip; then lines spaced and drawn perpendicularly from plate and valley to the hip will give the lengths of all rafters in this section.

We will now take section D. Referring to Fig. 4,

C D E represents the opposite side of the hip, as seen in Section A, the measurements all being the same. Next, draw the length of ridge, as E E. J, K represents the length of ridge for the gable, A, and K E the length of short hip. J L is the length of common rafter on this gable and K L the length of valley. Now space the rafters on the plate line, C D F, and draw lines to the main hip C E, the ridge E E, short hip E K, the ridge K J, and continue the same to the valley K L, which will give the length of all the rafters for section D of the roof.

We will now take the last section of roof, section

E. The lines for this section are obtained as follows: C E is the same as in section D, G F is the length of the common rafter on the gable, B, and is the same as G F in Fig. 2. F M is the same as F G in Fig. 2. Then E C represents the two main hips and G M the two valleys. In order to give the roof additional strength it is best to continue the valley rafter, G M, till it strikes or intersects the ridge, as shown. The lines spaced and drawn from the ridge and main hips to the valleys will give the length of all the different rafters in this section, thus completing diagrams for the entire roof.

A Simple Ventilating Device

SIMPLE AND INEXPENSIVE METHOD OF SECURING VENTILATION WITHOUT CAUSING A DRAUGHT — METHOD OF CONSTRUCTING AND INSTALLING SAME

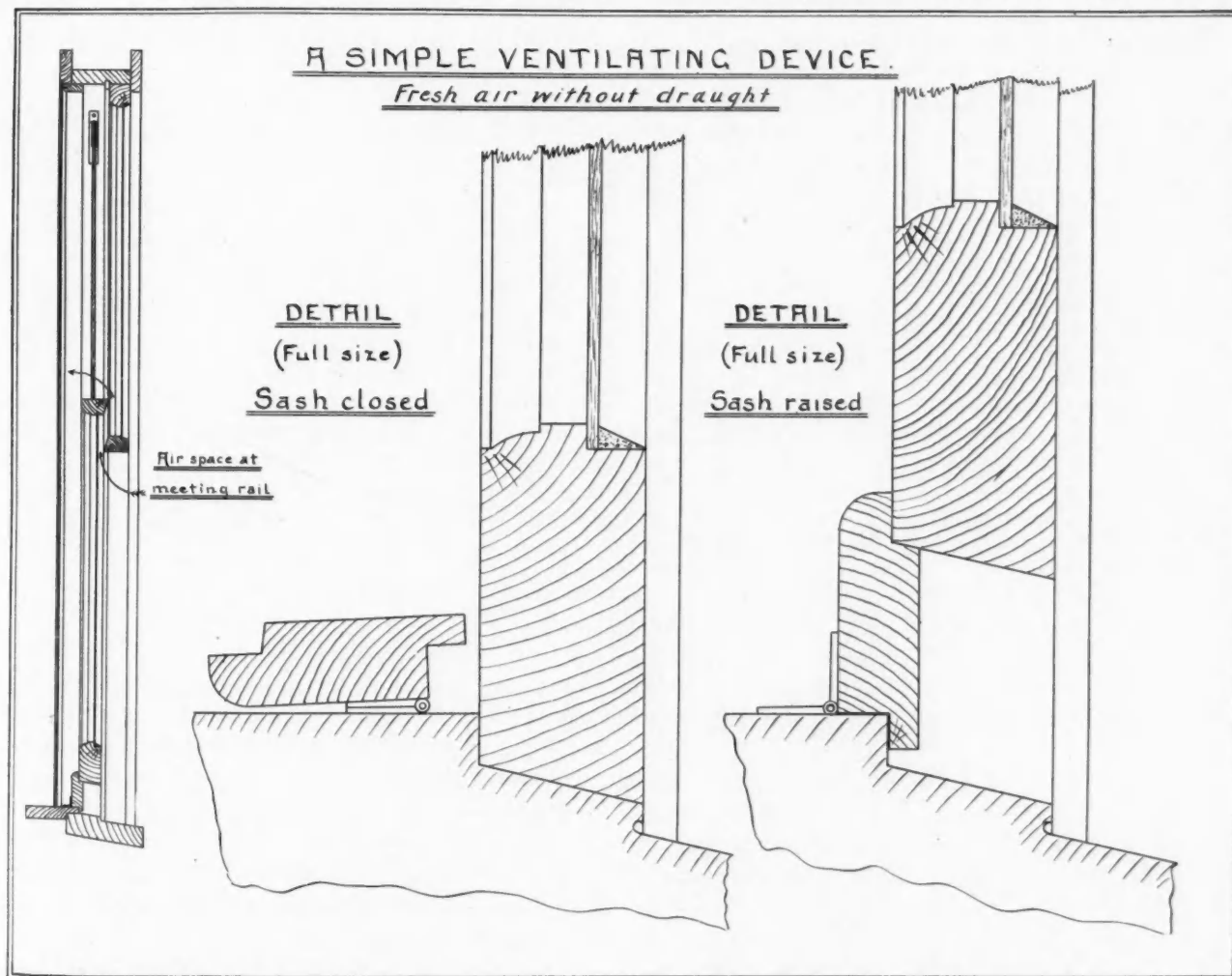
By T. B. Kidner

AMONGST the several theories as to the proper method of ventilating rooms where numbers of persons may be congregated at one time, there is one detail upon which the advocates of the several systems are agreed, viz.: That the supply of fresh air should be admitted above the heads of the occupants of the room. This applies equally to warm or cold air inlets, the reason being that the fresh air rapidly mixes with the air in the room,

without causing a draught to strike the occupants.

There is another important point which the writer has had borne upon him by a working experience of several more or less elaborate ventilating systems, and that is, that they should be "fool-proof." For many a good system has gone wrong and given trouble through the ignorance or carelessness of the persons intrusted with its operation.

There are, however, many houses, schools and other



premises where regular systems of ventilation will never be installed, but yet which should be supplied with some means of changing the air in their rooms. In the course of his professional duties, the writer has been able to meet the needs of many rural and small town schools for some cheap and easy means of ventilation by a simple device which is illustrated herewith.

It has, of course, nothing new in the idea, for most writers on ventilation have suggested that a strip of wood could be employed at the bottom of the window sash, so as to admit air at the meeting rails. The writer has found it best, however, to hinge the strip to the stop or to the window board, and also to rabbet it as shown.

When hung in this way it is always ready at hand and cannot be taken out and lost. The rabbets are useful in preventing any draught from blowing in upon persons sitting near the windows. The cold air passes in an upward direction between the meeting rails of

the upper and lower sashes and, mixing with the warm air of the upper part of the room, comes down to the occupants without making any perceptible draught.

Of course, some outlet for the foul air should be provided, and for this there is nothing better than an open fireplace with a fire burning in it. Where this is not available, an opening should be made into some flue or duct provided for the purpose.

By means of this simple device of raising the window at the bottom and providing a close-fitting bead as shown, and also some means of escape for the foul air, the writer has been able to afford fairly adequate ventilation for some dozens of schools during the past three or four years. These schools have ranged in size from the "little red school house" of one room, up to ten room town schools.

The merits of the device are: First, its cheapness; second, its simplicity; and third, it is always in sight, and therefore its operation cannot be tampered with by ignorant persons.

Lessons for Learners

GETTING THE LENGTH OF A ROD OR TRAMMEL FOR STRIKING SEGMENT OF CIRCLE — EXPLAINING OCTAGON SCALE

By A. G. Beard

YOU may notice on some pocket rules, and on nearly all of the slide rules, a double scale, side by side, marked "M" and "E." One of those scales is divided into 24 equal parts, and the other into 34. Its uses are various, often taking the place of the framing square or compass, and, on many occasions, more readily applied to some piece of work in hand.

To begin with: It is a perfect table of equal runs and braces, the line, E, giving the runs, and M, the brace. Thus, if the run is 24 the brace is 34.

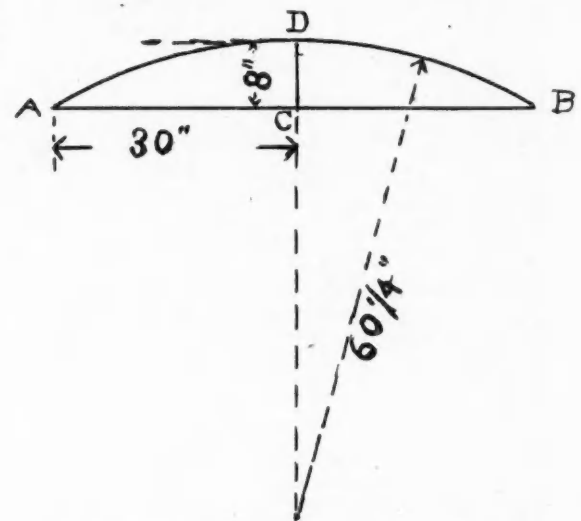
It is a table of lengths of rafters (not counting the projections), for any half-pitch roof up to 48 feet wide. Useful in showing at a glance how long a timber you will need to order. The line, E, gives half the width of the building, and the line, M, the length of rafter to plate.

It is used as an "octagon scale" as follows: Let us call the line, E, a scale of "edges," and the line, M, a scale of "middles." You have a stick of timber, say 8 by 8, and wish to make it eight square. Set your gauge to 8, on the line E, gauging from the corners on all the sides, and you are ready to go at it, without having to draw any lines with either compass or square.

There are cases in which the foregoing rule will not work; for instance, if the stick of timber should be tapering. In such a case we must use the line, M, and work from the center of the stick. Suppose it to be 8 by 8 at one end and 4 by 4 at the other. Set your compass at 8, on the line, M, and set off this distance from the center each way at the larger end.

Proceed in same manner at the small end, setting the compass at 4. All that is now necessary, in order to complete laying it out, is to connect the marks at the ends with a line or straight-edge.

Rounds and half-rounds may be much more easily gotten out if first blocked out octagonal, and the rule



will be found to be a great assistant on such classes of work. A special gauge may be made for gauging tapering pieces, but may illustrate that in some future number.

Striking Segment of a Circle

To get the length of a rod, or trammel, for striking a segment of a circle, use the following formula:

Formula: $A^2 + C^2 \div C D \div 2 = \text{Radius}$.

Rule: Square half the chord, and the versed sine

(rise); add the products together and divide their sum by the rise, and again divide this last quotient by two, which will give length of rod.

Note: "Squaring" a number is multiplying it by itself; thus, the square of 30 is 900.

Graphical Demonstration

Suppose the chord, A B, is 60 inches, and the rise, C D, is 8 inches. We take half the chord, 30 inches, which, squared, gives 900. The rise, 8 inches, squared, gives 64, total 964; which divided by the rise, 8, gives 120½ inches. This latter figure represents the diameter of the circle if completed, so now all we have to do is to again divide by 2 in order to get the radius, or length of rod, 60¼ inches.

Some men get confused at an array of A, B and C's, and intricate lines resembling spider webs, and one can't much blame them; yet nearly all are intelligible to the one who has the patience to follow them through. Now the above problem is not half as hard

as it looks, and is very easily committed to memory, and one of the most useful of geometrical problems.

How often have you not been obliged to "feel" for a "center," only to find, after much time was spent, that your rod was too short? Again, you will divide your arc into two chords, drawing *lines* at right angles to their centers, both cases requiring a lot of room. Just try a simple problem of this description, entirely by "figures;" try not only one but half a dozen of different widths and heights, until you have confidence in yourself that you can get them right. Then enter in your indexed note-book a small diagram and the formula and rule for working them out.

If fractions of an inch occur in either of the dimensions all of the calculations must be made in the lowest denomination; for instance, if the rise is 6½ inches call it all half inches, viz.: 13. If half the chord is 24 inches call it 48; make all your figures in these whole numbers, and your final result will be *half inches*.

Jointing of Tile Work

PROPER METHOD OF LAYING A CERAMIC MOSAIC FLOOR—MATERIALS TO USE AND HOW TO DETECT IMPERFECTIONS

By C. J. Fox, Ph. D.

A TILE layer in the proper execution of his work cannot give too careful attention to the subject of grouting or filling in the joints between the tiles or mosaic tesserae, as the individual pieces of a ceramic mosaic floor are called. The purchaser of a tiled floor or wall, if he desires to give any personal attention to the execution of the tile setting, cannot lay too much emphasis on the proper filling in of the joints.

The tiles or ceramic mosaic are set in a cement mortar applied over a rigid concrete foundation. As the tiles, or tesserae, are gently tapped into the mortar, a certain amount of it naturally rises between the joints. In obedience to the laws of gravitation, however, it frequently happens that when the cement mortar is in too liquid a form the lightest and weakest part of the mixture is that which rises between the joints, and when his "drowned" cement dries and sets it is naturally too weak for any part of a floor surface.

After the tile or tesserae are set, the joints between them are grouted or filled with a hard, pure cement. Here it is of importance that the cement grouting be properly mixed; that it is made to fill up completely the joints between the tile; and that in rubbing off the cement which is spattered over the surface of the tile, none of the cement in the joints is removed with it. A brush, for instance, should never be used in removing the mortar from the surface of the tiles because it is almost impossible to prevent it from brushing out some of the cement in the joints. The best way to apply the grouting is by hand, and it is necessary to make certain that every crack is thor-

oughly filled with fresh mortar mixed to the proper consistency. What the tile layers call "slushy, drowned or dead" cement, containing up to seventy-five per cent of water, should, for obvious reasons, not be used.

If the joints between the tiles or tesserae are not filled, or are filled with a soft cement, the edges of the tiles or tesserae are left exposed and soon become chipped. This chipping of the edges of the tile is called "spawling." The spawling of the tile is never the fault of the material itself, but always due to the carelessness of the tile setter who has used an improper or an insufficient grouting.

Tiles are the most durable of all known coverings for floors. In fact their extreme durability is the most important of their several properties which enable them to compete successfully with other floor coverings used as imitations or substitutes. The sharp steel nails of the shoe cannot even scratch, much less wear, the surface of a vitrified or other floor tile; but it is only natural that the exposed edges of a tile cannot withstand, without chipping or spawling, the hard knocks and blows incident to all flooring material. Consequently, these edges should be protected by filling in the joints with a hard pure cement which in setting becomes almost as durable as the tile itself. In a properly grouted tiled floor the cement joints protect the tile and the tile in turn protects the cement.

If your tiled floor is "spawled," you must blame the tile setter and not the tile themselves. If you wish to avoid this, caution the tile setter when he begins his work.

Landscape Conveniences

BUILDING NEEDS ON THE HIGHWAYS AND SOME AMUSING PROOFS GLEANED FROM A ROUND TABLE OF ANCIENT GUISE—SUGGESTIONS FOR IMPROVING THE SMALLER TOWNS

By C. Bryant Schaefer

THE summer residence is the common connection between artificial life and natural environment. Every convenience for airy enjoyment during the mild seasons is a provision of benefit. Porches and balconies are made for use. Sun houses are built for those who shrink from contact with the open air. Camps are provided where invalids recuperate. They are the preliminaries of those open air features which come within the province of the land-

past. Some are artisans, others are students, musicians, artists, jovial adventurers and mendicants of course abound. It is among these countries that the troubadours found their way and the minnesingers and wandering actors picked their courses from court to court, delivering their improvisations fraught with news and natural truths. Something of their poetry and enthusiasm beats in the heart again today among those who follow the paths they trod. Think of the

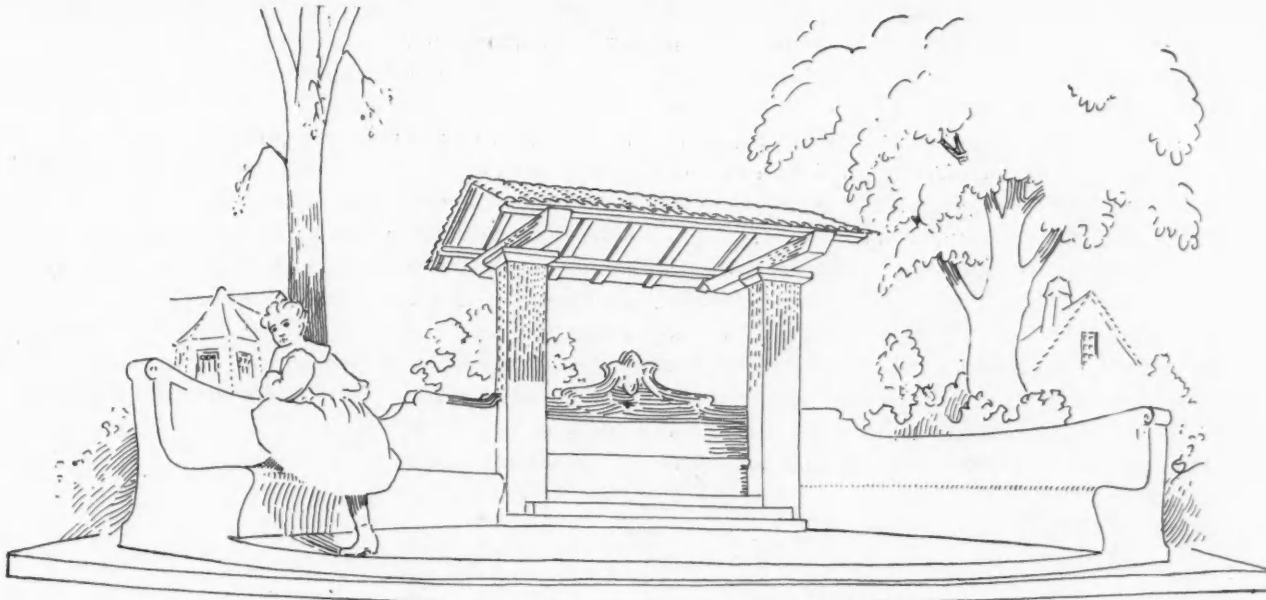


scape designer. It is for the builders to co-operate in bringing the real advantages of outside life within the salutary reach of those who seek the more wholesome sphere. They can hardly credit the splendid field of employment which is presented.

People have a longing for something new in addition to their experiences. Foreign countries are often sought in order to satisfy longings which have little opportunity for cultivation at home. There is also a wider field of choice. Pedestrians foot the traveled road from village to village. Some are enjoying their vacations, some are sight-seeing, others are seeking recreation, while many are on pilgrimages to distant friends or localities. They are often actuated by old time customs, or they are reviewing traditions of the

historical localities that abound, of the scenic vantages that are made accessible, picturesque environments and scenes of strange tales where strangers are made welcome. Indeed! have not the greatest masters in music and art risen through the experiences of their homeless wanderings? They learned to make their art their power and refuge before accepting the support of intermediaries. Hardships there may well have been as viewed by people accustomed to luxurious surroundings, but even the most favored must encounter circumstances that try their patience and endurance.

Delving back through the ages of history one learns that ancient Europe, with a culture uncomprehended by the southern mind, lived in a constant progress among the northern forests. Theirs were the "Wan-



Siesta Exedra.

derzeiten," the primeval foundation of all wanderings, the precedents of which still stir the breast with vague restlessness.

Open air experiences are indispensable to the artist and his establishment. The irksome period of being an apparent outcast is really a term of formation. He becomes identified in the natural organization where sculptors, painters, musicians and poets finally take a leading part in the control of unrecognized organizations. Of these the architect is best understood today.

His labors before reaching definite reward are tremendous.

In America, at present, activity at large is monopolized by tramps and hoodlums. They have a clear field. There are certain formal recreations, to be sure, that are greatly enjoyed, but their organization, as a matter of course, imposes restrictions that preclude the independence of the maturely disciplined. In consequence the suggestion of informal improvement seems like catering to the very element of society that



A Watchman's Shelter.

is most vexatious instead of recognizing the demands of the most deserving. Yet it must be borne in mind that any refinement with which unruly people come in contact is sure to redound to their betterment. More than that. The noisy, irrepressible lives are bound to make acceptable places for themselves. The ideals of the exclusive suburbs with their deserted streets and hush of life have no attractions for their emulation.

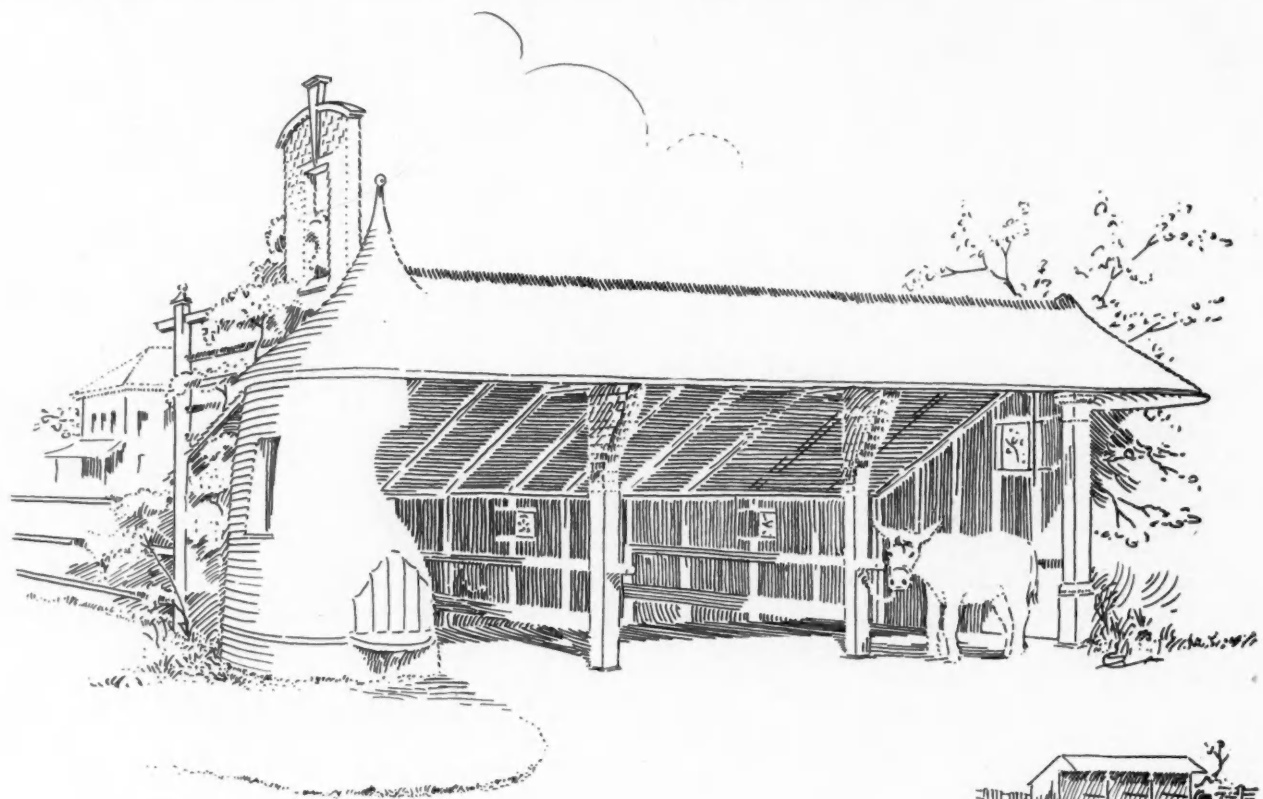
Our American grandparents kept their "best room" locked most of the time. The occasions were few and short when the men folks could be inveigled into the confines of these old fashioned parlors. The barn, the porch, the gateway, some place under the trees or down the road was much more agreeable to them for social congregation. A fence or a stone wall was

amusing arguments, facts that can not be controverted by elastic reasoning.

A few years ago a responsible resident of the city took occasion to visit a quiet town located among the trees and farms not remote from one of the great centers of population. A wholesome relief was enjoyed beneath the country shade upon the grass grown wayside. This gentleman was not alone in departing from the perfunctory course, but instead was one of a party who often deplored the petty exactions of fashionable recreation.

A few years passed by and this person resolved to again visit this old retreat for its surcease from busy cares.

But what a change!



Carriage Shelter.

allowed to be good enough notwithstanding the self-denial and laborious service of their lives. Let us then consider the out door comfort of these worthy ones, certain of taking up a thread of advancement that will solve an accumulation of modern perplexities.

In this respect designs for the public streets become especially appropriate types that are useful and suitable for home building and local adornment. They become instrumental in developing the refinements of the open and serve as a haven for people less acquainted with the exterior.

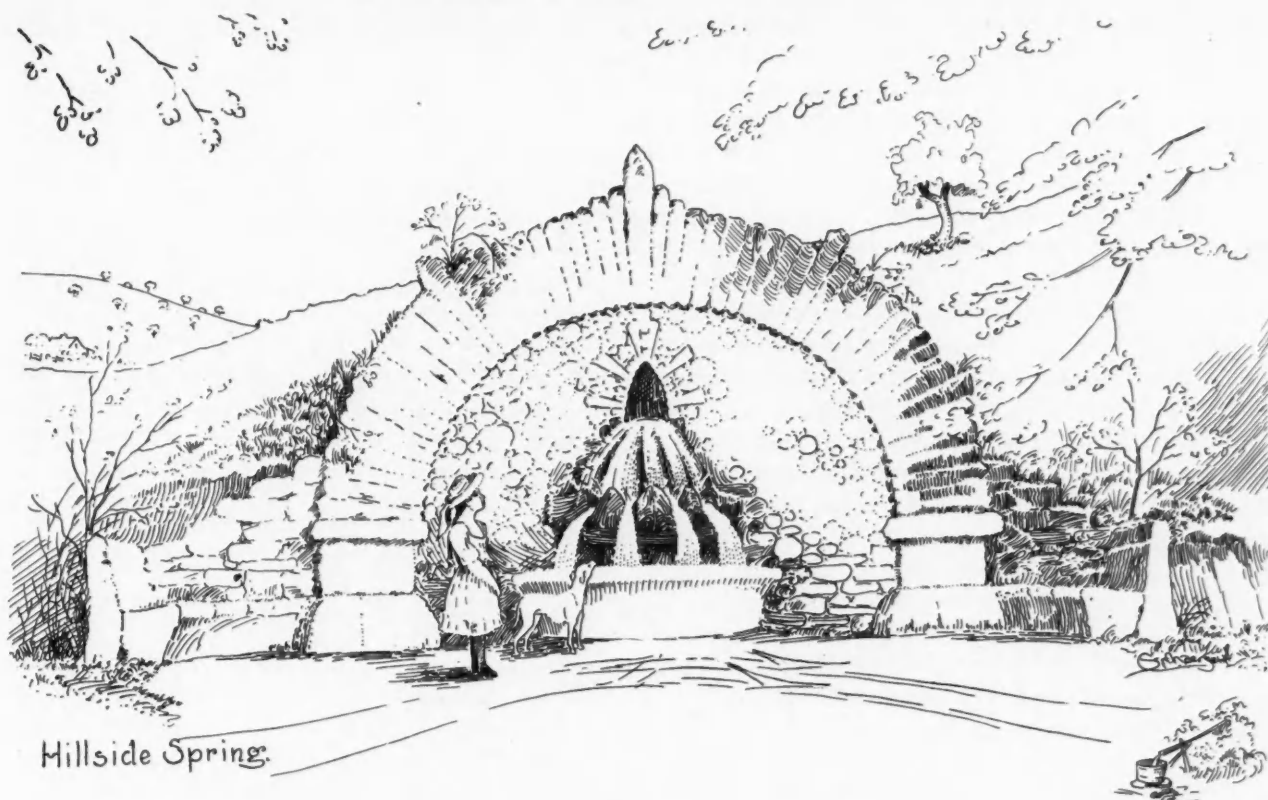
The first design offers to serve a variety of country uses that are usually scattered about in a haphazard manner.

Some experiences, owing to the absence of convenient facilities which are here advocated, will prove

The traveling bag was left at the same hostelry, but it was under new "up-to-date" management that requested security. "Just a rule, you know." Outside there were notices staring from every post and corner declaring what one should and should not do, under dire penalty. Along streets, the curbs of which seemed to have been rip sawed out at one slash, they were so uncompromisingly straight, from block to block—vain was the search for some of the ease of old times.

Finally he let himself down upon a hillock of the curb grass plot beneath a trim elm. It was the same friendly tree of former occasions. But he had barely resolved to overcome his uneasiness when an authoritative tone from the evening shadows demanded:

"Whacherdointhere?"



Hillside Spring.

And a pink faced officer in dandy blue and brass and with a polished tin star halted on the curb of the equally immaculate walk.

Explanations were useless, so he had to rise up to move on. As the officer turned away, however, he slid around the big tree and let himself down again upon the opposite side. But he had underestimated the perversity of this imitation of municipal officialism.

"Ybettercomerlongwithme," was the next unexpected hail.

This was too much for toleration.

He jumped up and told the officer he himself was caught neglecting his duty, that he should have taken hold of the noisy gang that were smashing through the garden down the street, over the fences and away; that he had been sneaking behind the buildings looking for an easy mark, that he was perverting his post and laying the foundation for an incubus of municipal corruption. Then some rules were injected regarding the privileges of respectable people in general and rights of pedestrians in particular. He was a wiser officer when he turned away.

In its progress this little city had lost from its estate. Some day not far off the older inhabitants would begin talking about the good old times.

The exedra, or seat and shelter, would have supplied the want here, as shown in the second design. It is suitable for small open spaces and would transform many a shady street into a park. The plan is in the form of a semi-circle. The construction is best of cement with frame and red tile roof.

This feature would establish more good habits than

many prohibitory measures. Here the mother could rest with her charges. The romping hoidens would be drawn from other people's gardens, and grown persons would find it more suitable for a chat than the usual curb stones.

The tub of water standing by the road in its pool of mud and fed from a spring up the hillside is one of the happiest subjects for design. The third illustration is a good suggestion in this connection. There is nothing equal to boulder stone for material where vines and wild growth abound. The pieces should be sorted out to secure the desired shapes and very little broken. A cement basin high enough to water horses without unchecking completes the arrangement.

Once while upon a country expedition it came to me that country folks are so accustomed to finding "Weary Walkers" by the roadside that they have little expectation for better fortune. I had reached a certain locality by a most circuitous route. It involved waits and changes that proved an agreeable variety. In the time occupied with a variety of methods for transportation I might have been shipped through to either seaboard from the middle of the continent. But getting down from a mere spectacular view of the country to a position of actual interest was a desirable novelty.

In the course of one of my sallies I threw myself from the heat of the day upon a log that bordered the road. Below in a ravine was a rivulet that came under the way and a thick maple cast a shade from over head. It would have been a beautiful spot for some rustic stone work and a pool of water. I was

watching two of those insects called a walking stick and considering their life too feeble to extricate them from resemblance to their environment when a rattle and clatter timed to a sedate jog trot came upon my hearing. I gave no attention until the noise ceased and I was accosted with:

"Hi there, Hiyer! Getoutothere."

I sat up. A horse stood in the road hitched up in a variety of ways to an old buggy. A middle aged woman in large round glasses held her hands aloft in deprecation while the man on the farther side waved a whip that flopped at the end like a broken limb.

"Eh!" I said in surprise.

"Hiyeryegitouterthere," came back.

I thought not to embarrass the worthy couple in their mistake and inquired if they wished to know the time, and pulling out my watch as the most civilized article I had to display, announced: "Half past ten."

Time pieces and tramps were irreconcilable.

She grabbed one rein while he plied his limp whip and yanked with the other, and Dobbin made a spurt of astonishment around a bend in the road.

If ever asked why you do not see your own land before going abroad, say the country is wholly unprepared, that it needs educating and cultivating to insure confidence. Landmarks are necessary to stimulate the recollection and appreciation of local inhabitants as well as strangers and many mutual building conveniences need development.

The man was quite different who drove along in his buggy one day, picked me up and took me home with him to enjoy a most bountiful hospitality. He

finally offered me his entire estate at a most reasonable price.

Why should those guide posts at the corners not become more important features? A board upon which to post sale and exchange notices would soon make the corner a place of common intelligence. Business in the country would be facilitated and the tree trunks in suburban districts would be relieved of an unsightly clutter. The effect would be somewhat as outlined in the fourth design.

One springtime, when the sun was becoming warm upon the earth and the trees were budding into fullness I jumped from the train as it stopped on a country road. I found pleasant accommodations in the cluster of homes which comprised the village. In the evening I was invited out to hear the local band at its weekly practice.

A lantern was lighted and we followed the path through the tall grass, the long shadows streaming back and forth from our swaying light.

We went around the principal store and entered a lean-to at the side. Half a dozen young farmers met here for weekly practice. They did well, too, but the little space was bursting with sound. All the sides could be reached by two or three steps from the middle of the floor. The roof, from which a light was suspended, was also almost within reach. At a hole through the wall one side the girls without took turns sampling the full effect of the musical strains. But inside, the blast from the lusty brass instruments was a cloud-burst to a quiescent listener.

These musicians should have been provided with



better accommodations. That was the duty of the non-performers. The circumstance is typical of many talents throughout the country that suffer for want of moderate accommodations. The people who had incorporated a township on this small tract were under obligations to advance every urban manifestation, especially because it furthered their own interests. Often small improvements may be made rightly while pretentious accomplishments become too involved for instant correction by later discoveries.

The following design will be interesting in connection with musical possibilities. It is a musical instrument; a band stand. In its own way it should be built as one would construct a violin or horn, conforming to acoustic principles. Easy as this may seem, it has never been intentionally accomplished. A band stand should never be made of cement or marble. It should not be perched above surroundings, it should not have a hollow peak or dome in the ceiling. It should not have an open top, or it were better to omit the floor and put a roof on.

The design here presented is for the roadside. It is of light framework, including a sounding board roof. Every fibre is on the stretch, just slightly bent and screwed into place. Probably few carpenters or joiners could be prevailed upon to erect a structure as this should be, with sprung supports, warped floor and a roof bottom side up. It is another chance for the unbiased artisan to distinguish himself by wrenching the notions of people from some of their careless fallacies.

A suitable structure increases the richness of the music with sympathetic vibrations, adds sonority and grandeur to the climax of expressions, gives a singing charm to melody and penetration to the softest strains. But from the heavy structure music sounds dull, laborious and flat.

In pleasant weather crowds of people may often be seen following the thoroughfares that lead into the country. With them the formalities of parks and picnic grounds are undesirable, considering the little time they have to spare and less time for preparation. Legislation will never corral them into public parks. They are fleeing from unnecessary supervision, some on foot, some in wagons, parties piling into electric cars or steam coaches, all seeking a chance to trollop around the country or camp in any place where they will be undisturbed. There are many barren spots that could be made acceptable to them, and their presence would add life to many a staid homestead as well as make the sports of airings agreeable.

The hill top eyrie is planned for one of these locations. It furnishes shelter and makes an attractive objective point. In addition, the landscape view becomes interesting also.

If some of the unsightly sheds in semi-public places were made more tenable visitors would lend their presence to many uninteresting localities. The last of

the illustrations contains some good hints in this respect. Vines may be found among the natural growths of most any section that become highly ornamental when combined with a tasty foil upon which to spread.

Ages ago, where the highway was obliterated by the sand swept desert, a massive granite lintel arch was erected to bring those together who journeyed to and fro, that they might benefit by contact. Many conditions have been carved upon those architectural monoliths, but when we brush aside the sand and our preconceptions, when we brush away from our minds the promulgations, the misconceptions and the hallucination we have learned about them, the truth remains written there: "Meet, find and pass on." The occasional wanderer as well as others has ancient references of culture, and the flirtatious person also. In their way they know whom they meet and are equal to their responsibilities, have their duties and benefits to society. The three wise men of the east, who met in the desert, were of the same understanding.

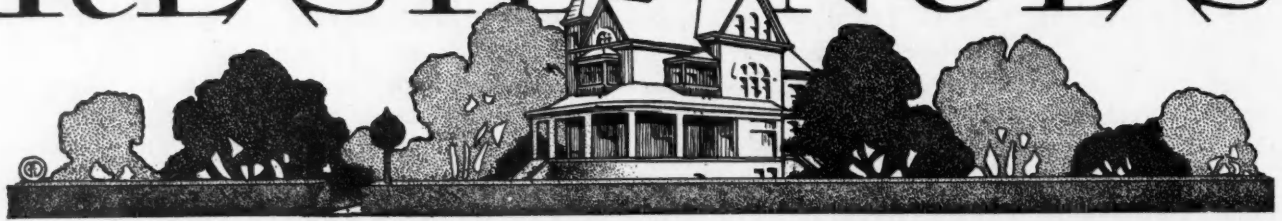
Building requirements as well as laws of ancient people of open air life were different from modern customs. Such is also still the case in equable climes. It is against the law to injure a burglar in Cuba because, in the enjoyment of natural liberties, an innocent person might be mistaken for a trespasser. Thus many institutions of aboriginal people are founded upon primeval experience and bound to revive under similar conditions.

The greatest roadway in the world was probably built by the ancient Americans. It extends two thousand miles along the western coast of South America. It is a marvel of engineering skill. Often cut through solid rock and again spanning abysmal chasms, it wends among hills and mountains. But think of the social engineering that united widely differing types of humanity throughout its length! Its builders conducted obscure natives to their cultured equatorial centers and shared their best among them. All out doors was their mansion. The mountain heights were sought for coolness and the valleys were entered for warmth. They endured the changes of the elements until the arts were instilled by nature. The stars, the winds, the waters and temperatures were met like an exercise for strengthening their individual natures. As the artist paints his picture from the landscape, they similarly shaped their experiences. They searched not only the mountains for natural phenomena, but also extended their comprehensions out into infinite space. And for the benign furtherance of their culture they erected in Yucatan some of the most remarkable examples of open air buildings that are to be found.



Don't scrape off dried ink from the inside of a ruling pen with a knife or any hard instrument.

RESIDENCES



Artistic House Designs

COMPLETE PLANS AND ELEVATIONS SHOWN—DESIRABLE FEATURES POINTED OUT—CONCRETE BLOCK HOUSE DESCRIBED

WE ARE herewith illustrating a very artistic residence having an exposed beam and rough cast plaster exterior effect. The exposed wood should be re-sawed, thus giving it a rough surface and stained to suit the taste of the owner. Re-

house is by means of hot water. The chimney and partitions are brick under the center of the house, making an ideal support for the partitions over head. The house was designed for an east exposure, thereby placing the dining room, one end of the living room



sawing wood causes an effect which will harmonize better with the rough cast plaster. The roof is covered with stained shingles. The drawings of this house as herewith illustrated are complete and taken direct from the originals. The foundation is of solid concrete including the footings up to the bottom of the joists. Above this point the building is frame.

The basement is divided into laundry, furnace and vegetable rooms and coal bin. The heating of the

and the screen porch at the south, making an ideal exposure. One of the fine features about this house is the screen porch, which also can be used in winter by putting in storm sash. This makes a splendid summer dining room and there is a direct entrance to it from the butler's pantry.

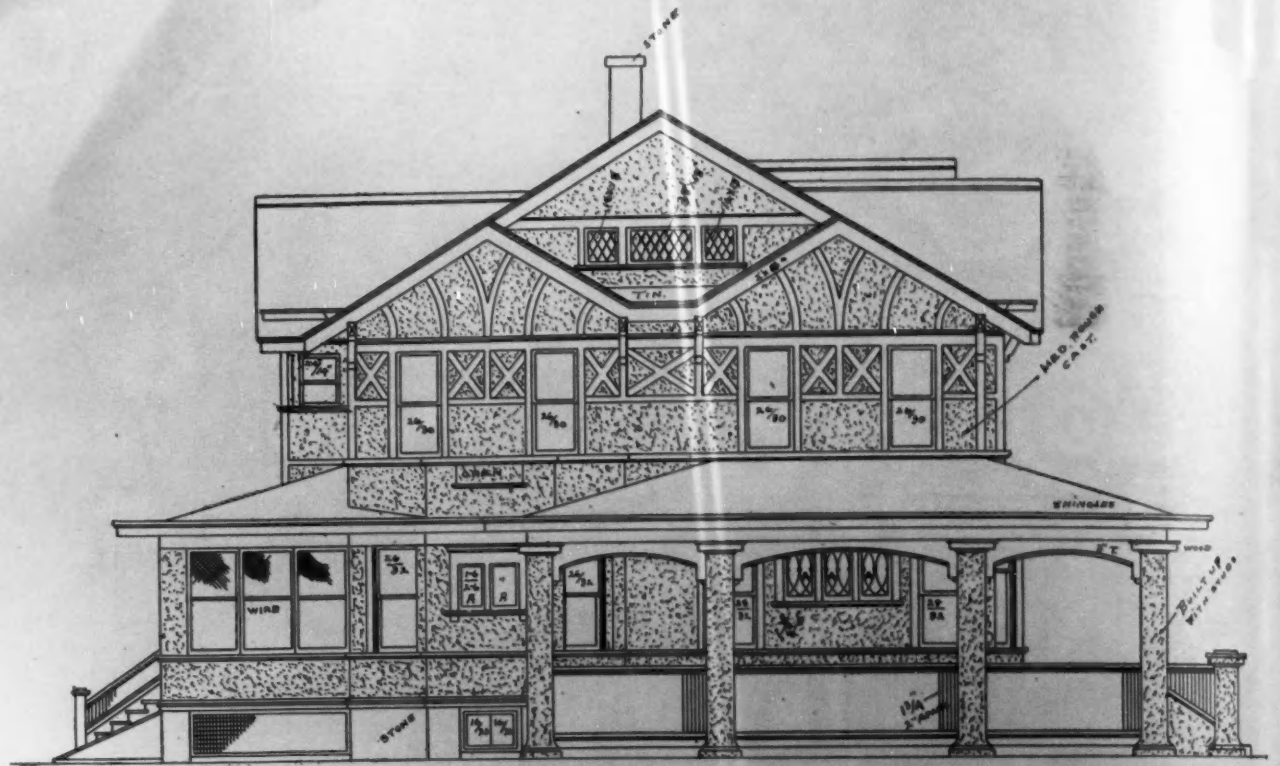
The living room is 23 by 15 feet in the clear and also has a recess nook which contains the mantel and seats. The elevation of the mantel is shown in detail.



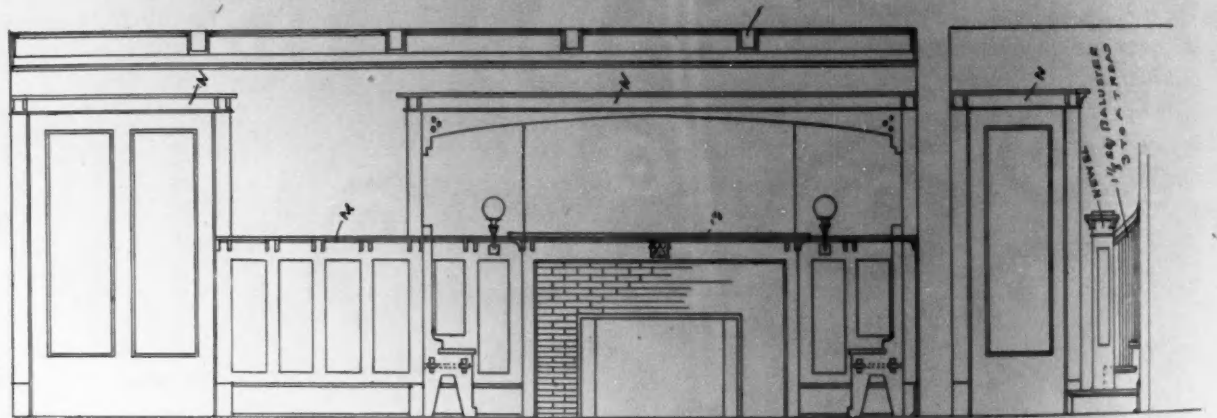
The ceiling in both the living and dining rooms is beamed, and the wainscoting is 5 feet high, and the panels underneath are of burlap. There is both a front and rear stairway and one of the features of the house is that you can go from the basement to the second floor without interfering with the main part of the house.

The second floor is divided into three bedrooms and a bath room. The front bedroom is exceptionally large and can be used for a living room and insures privacy to the occupants. It has a large fireplace and two closets. The details show the construction of the porch, ceiling beams, wainscoting, fireplace and the window frames.

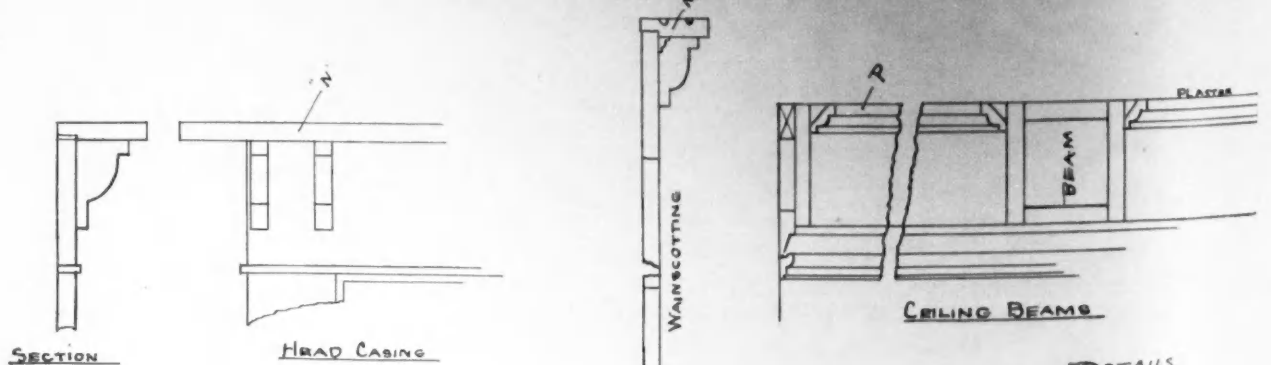




SIDE ELEVATION



SECTION THROUGH LIVING ROOM.

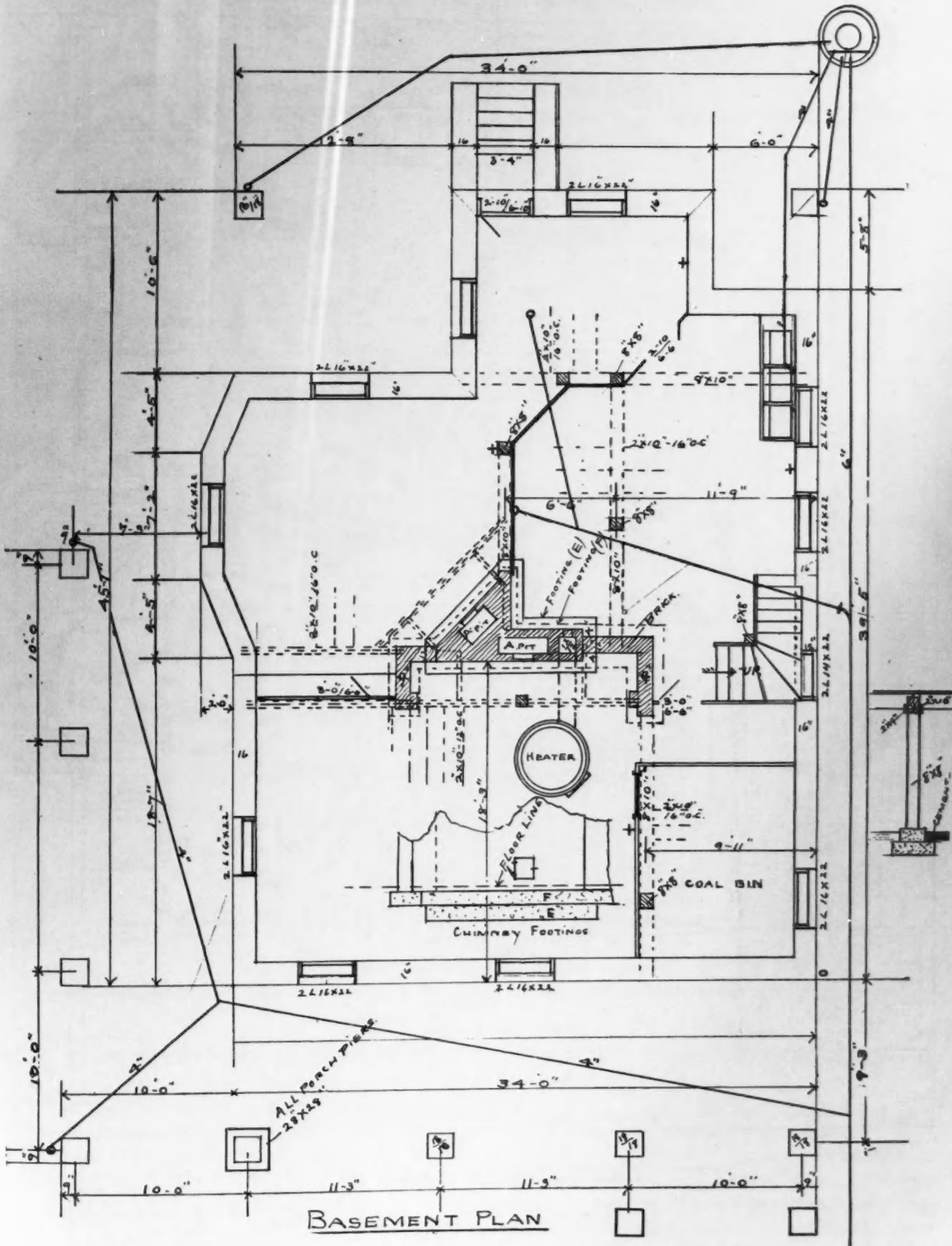


DESIGN OF TRIM, BEAMS, AND WAINSCOTTING
 IN HALL, LIVING RM, AND DINING RM.
 SAME TRIM HALL U.S. AND MAIN FRONT
 CHAMBER BUT NO BEAMS OR WAINSCOTTING
 BAL OF TRIM IN BUILDING TO BE NEAT
 MILL DESIGN.

A Concrete Door

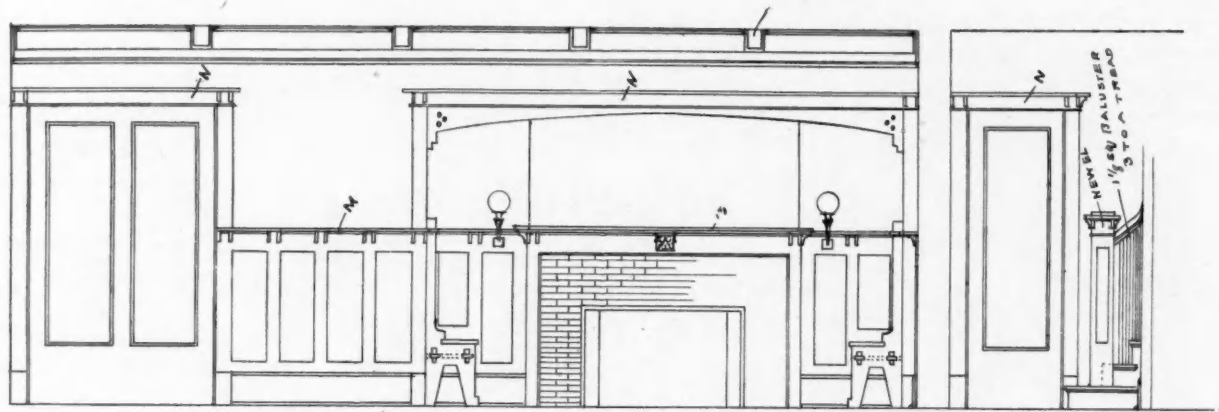
A reinforced-concrete door has been designed and patented and will be placed on the market. This door, it is claimed, will have a maximum of strength combined with a minimum of weight, this being accomplished by making the interior of the door, where the

panels of a wood door are placed, thin, and the edges thicker to withstand the wear and tear of opening and shutting. Both the hinge and the lock edges are protected by a curious weaving of wire "fingers," and the lock and latch are made secure by a combination of wire and concrete.

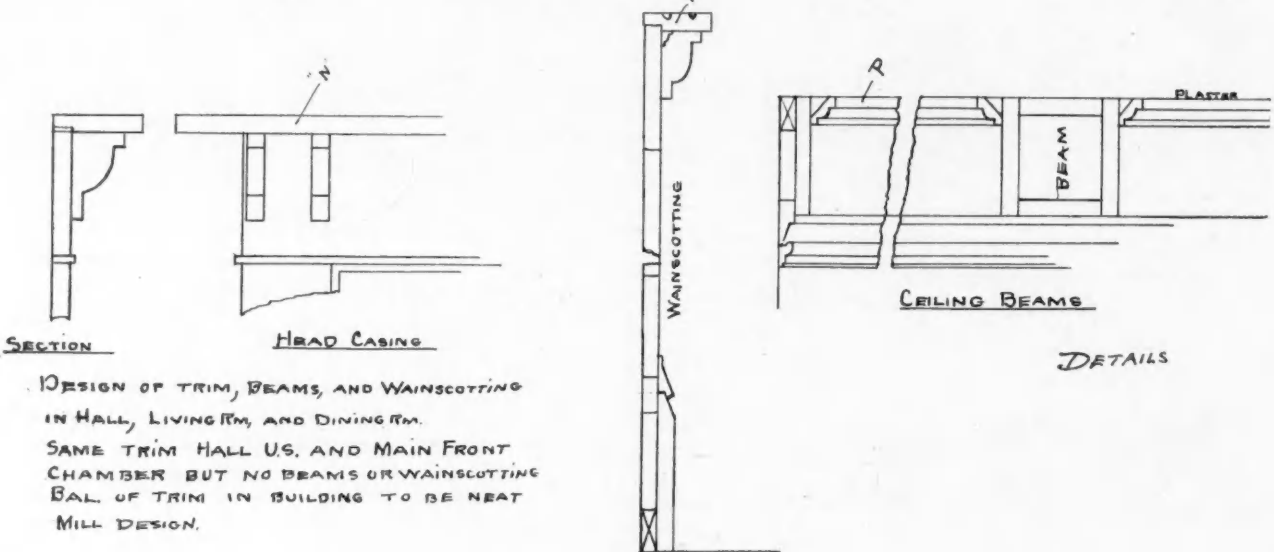




SIDE ELEVATION



SECTION THROUGH LIVING ROOM.

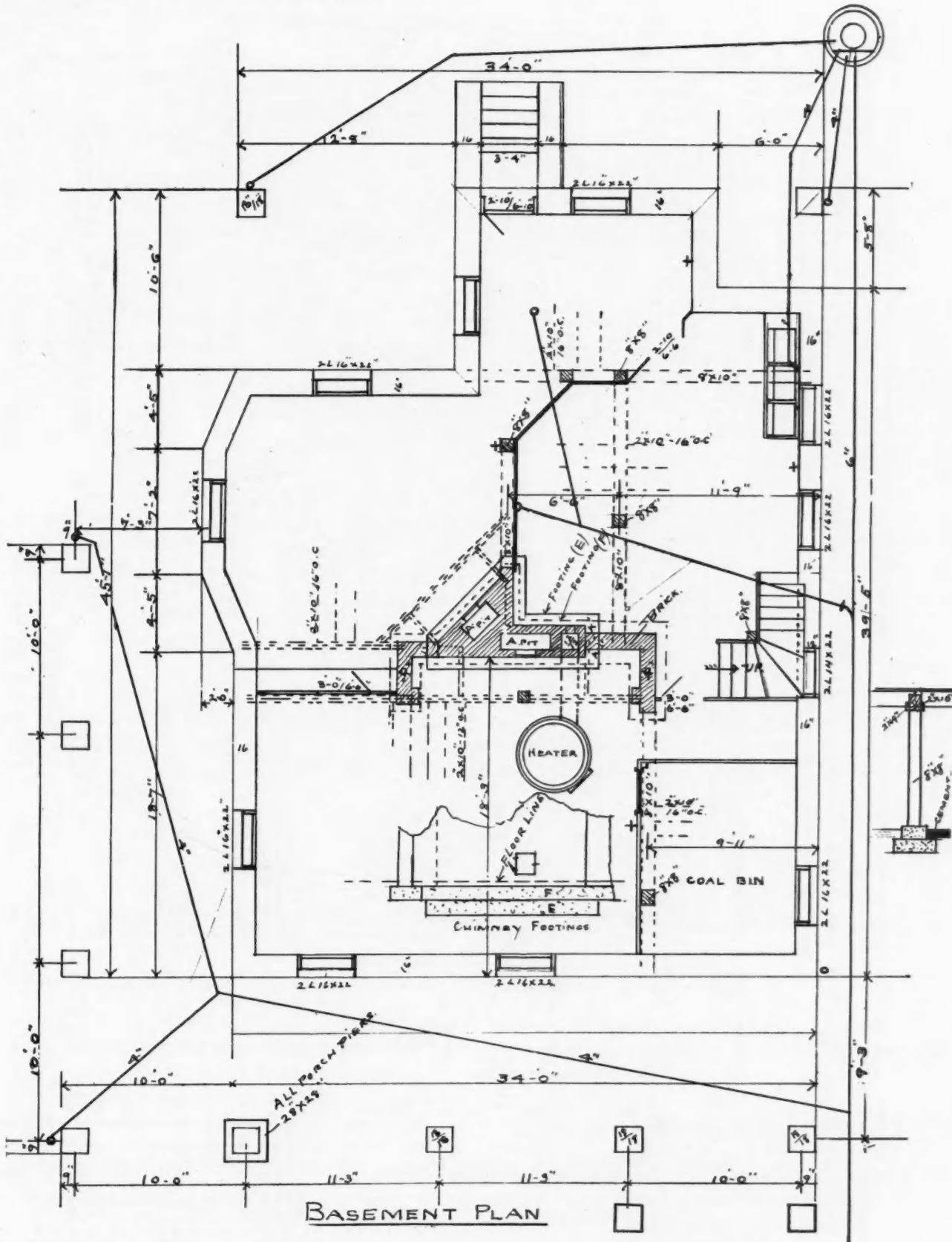


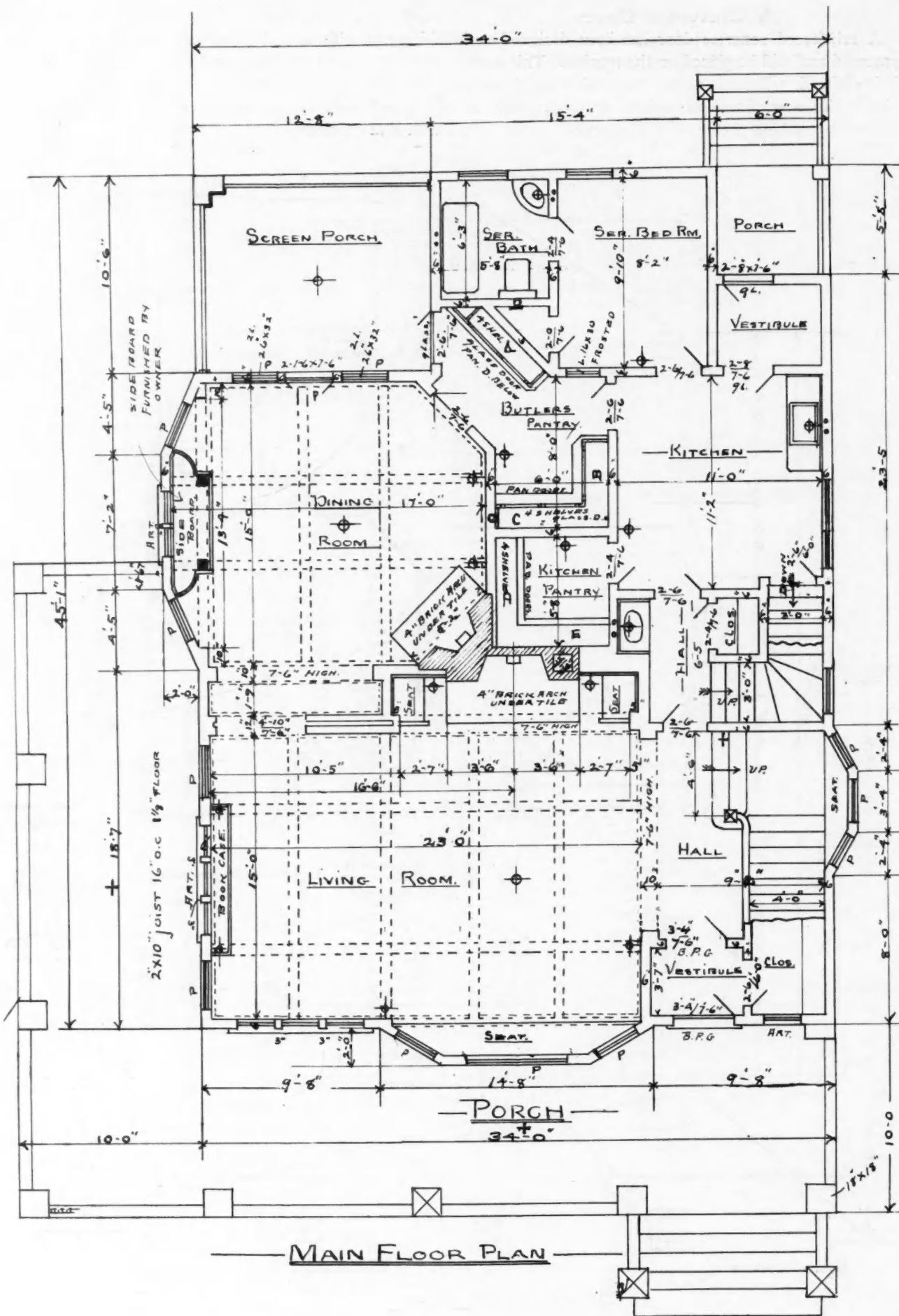
DESIGN OF TRIM, BEAMS, AND WAINSCOTING
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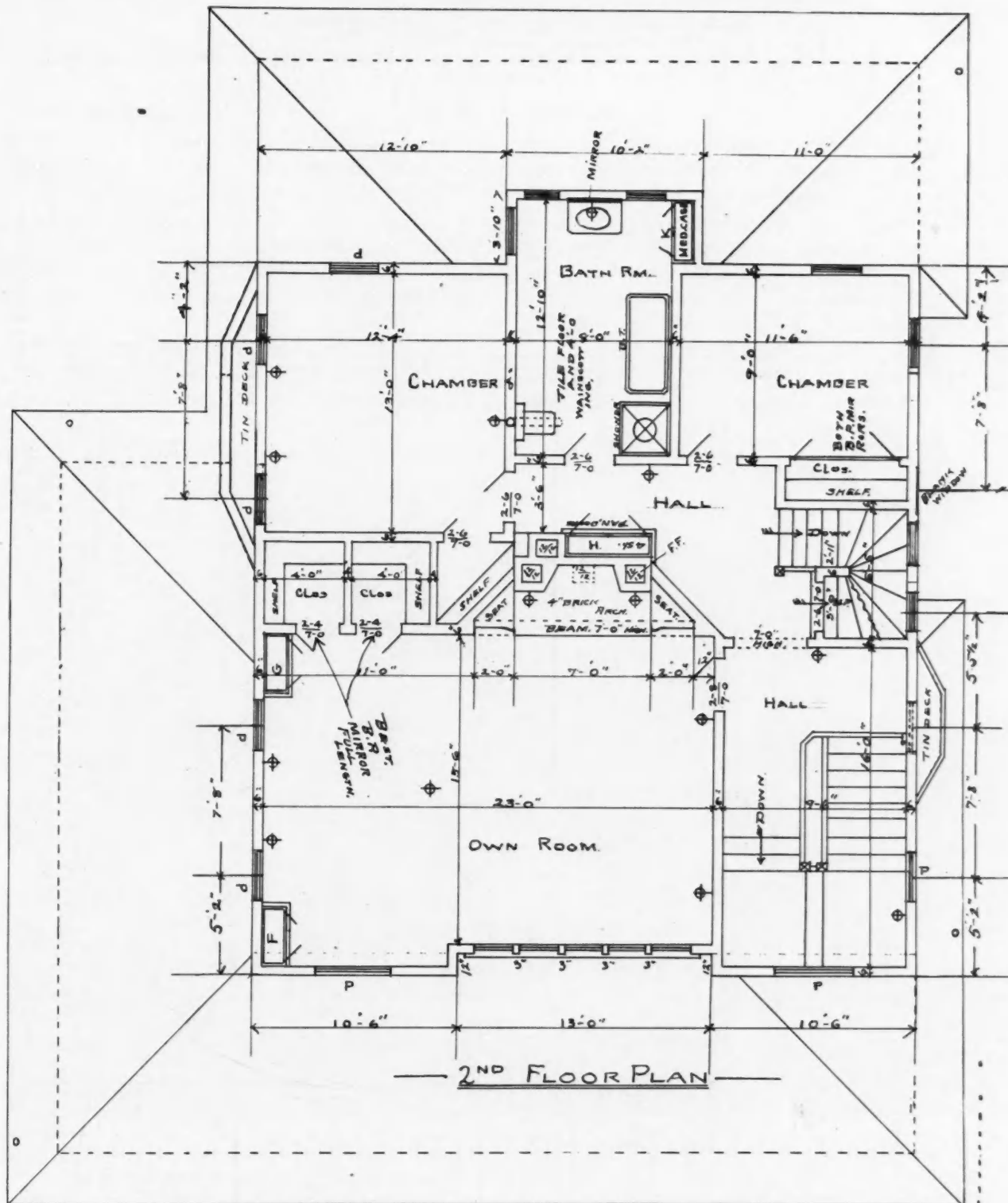
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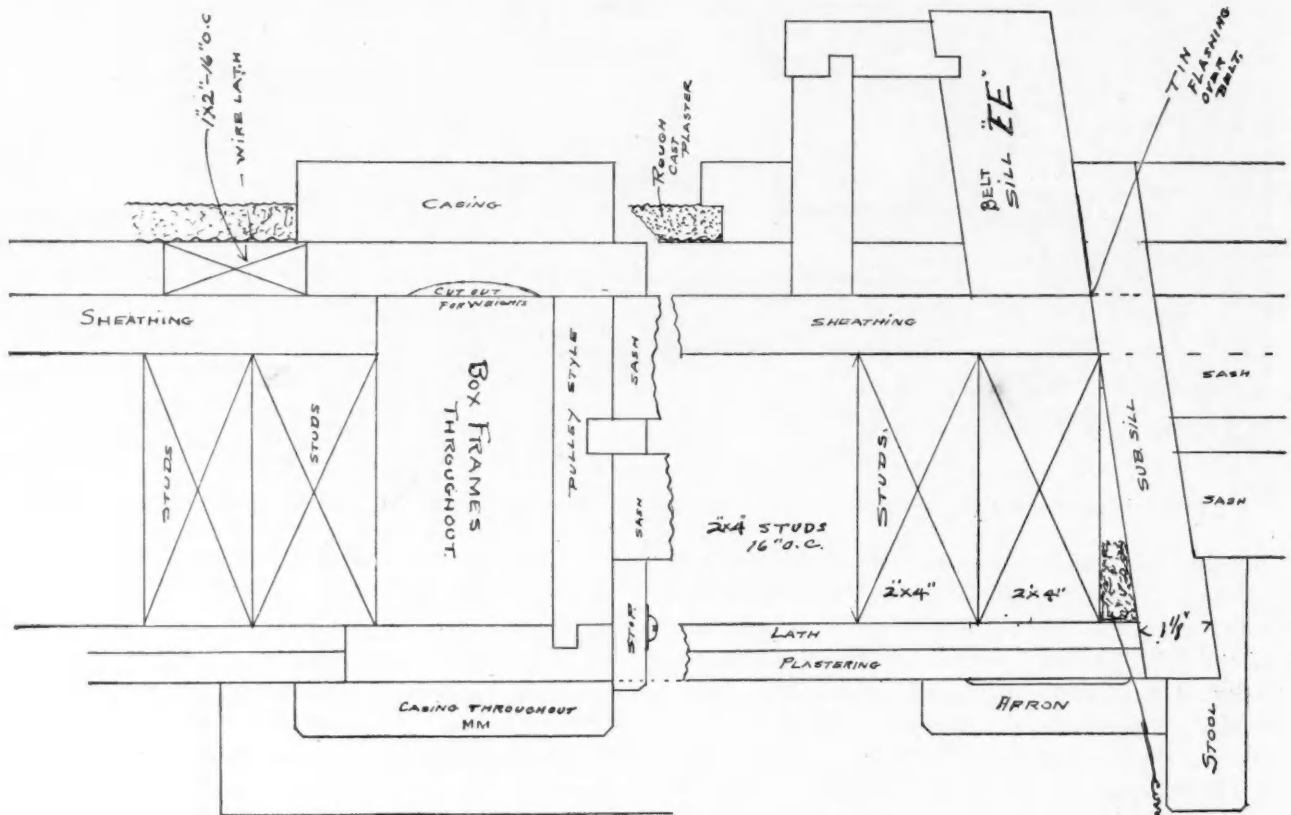
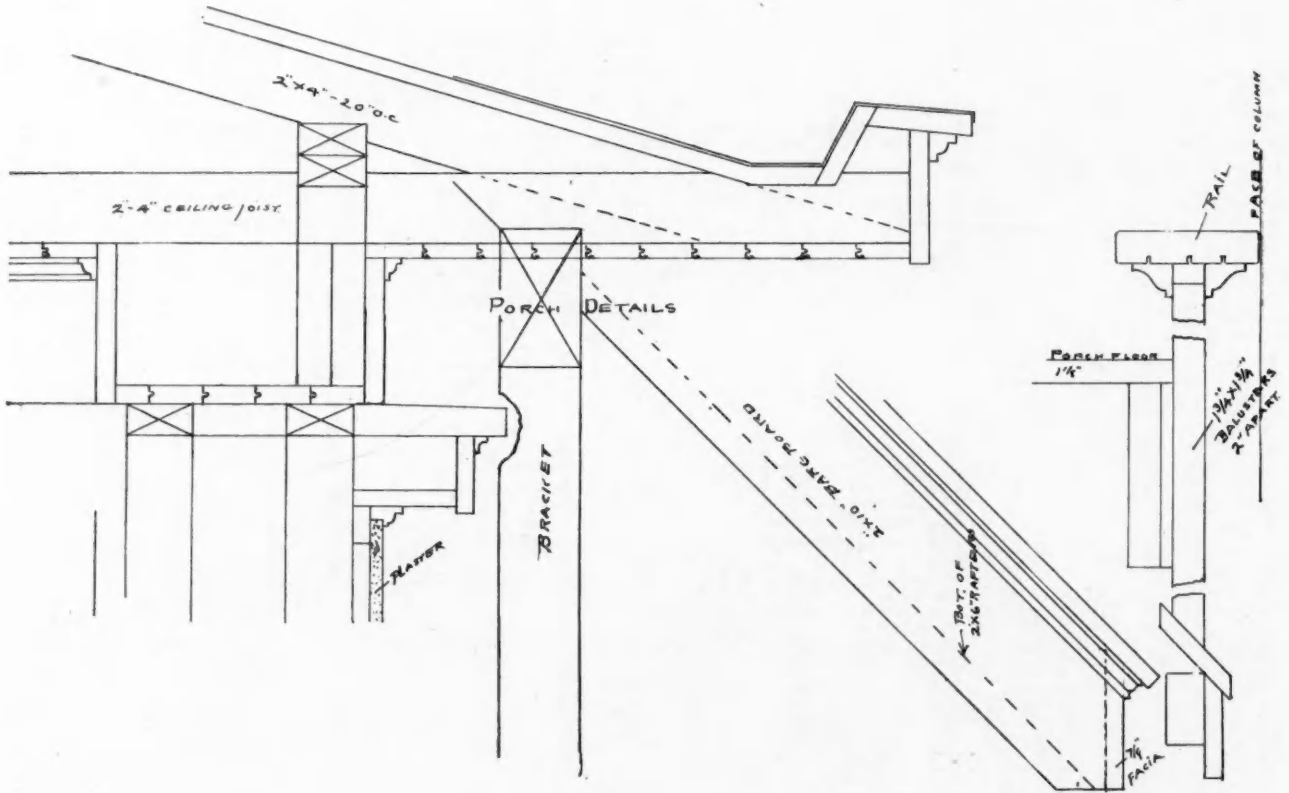
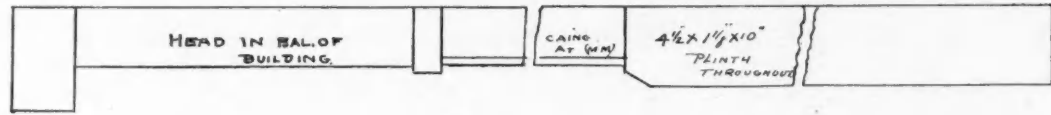
Transverse metal strips are used to reinforce the top and bottom, and the hinge edge is reinforced by a flat vertical strip. Threaded nuts are introduced behind this reinforced strip, and screws are inserted before the concrete is poured. After the door is welded, these screws are withdrawn, thus leaving openings for the hinge strips.

The body of the door is made of finely woven wire mesh suited in size and strength to the purpose for which the door is to be used. Over this the concrete

is poured, and the door when molded and dried can be smoothed off like wood. The doors can be stained any color desired.

Received Many Suggestions

We think the AMERICAN CARPENTER AND BUILDER is the best thing in trade journalism we have ever seen. We have received many hints and helpful suggestions from reading it and intend to always keep it on file in our office. CHILD BROS., Tallahassee, Fla.



DESIGN OF WINDOW FRAMES

Cement Stucco House

COMPLETE DESCRIPTION OF HOW TO CONSTRUCT A CEMENT STUCCO HOUSE—ITS ADVANTAGES OVER OTHER MATERIAL

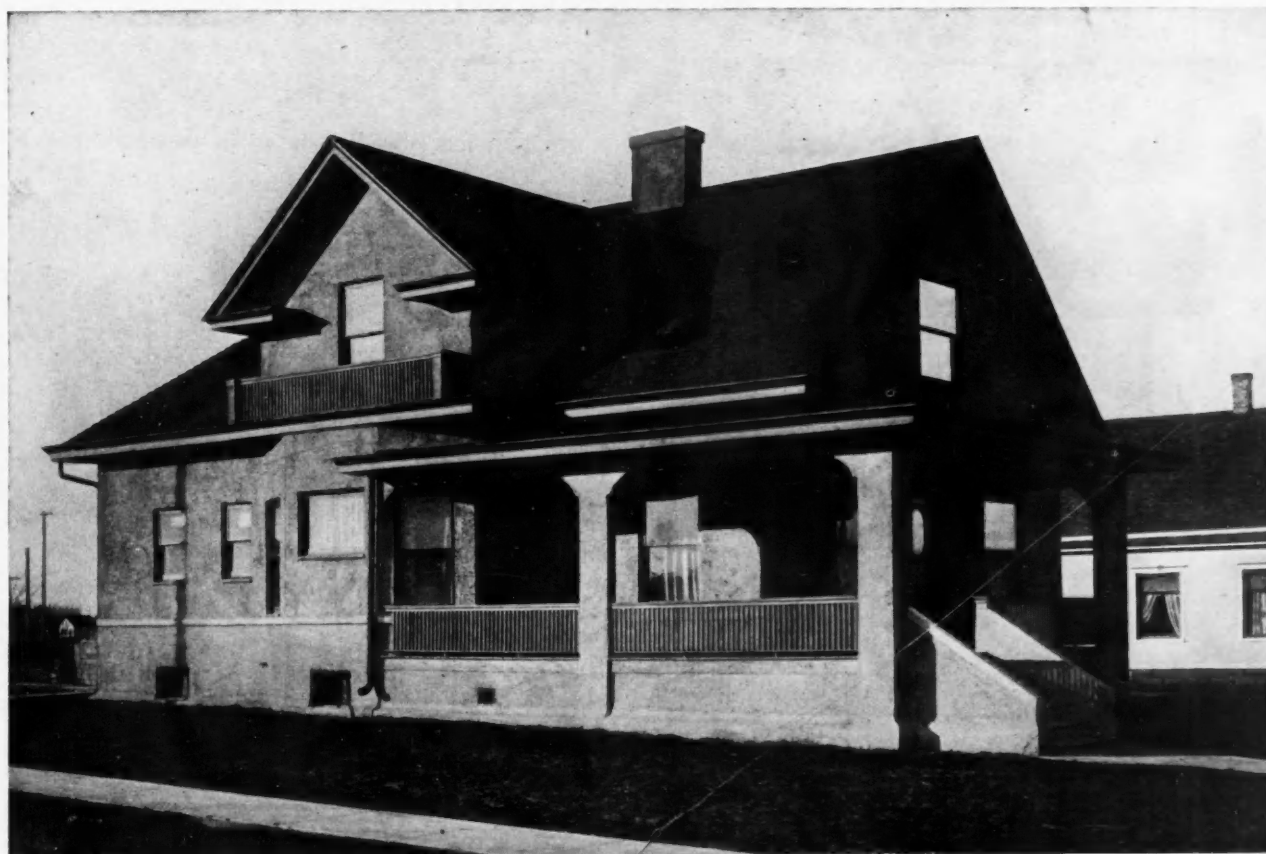
By F. K. Mayne

WE ARE illustrating herewith the perspective and floor plans of a cement stucco house designed and erected by F. K. Mayne, Lincoln, Neb., and described by him as follows:

Ten years ago most of the exterior plaster work which had been done in the east was used in connection with half-timber construction, or on gables where it fulfilled an ornamental rather than a structural purpose. With the steadily increasing cost of wood, plaster became more freely used, and lately there has been a growing tendency to use this material in place of

reliability of exterior plaster has been established. If properly mixed and properly applied, it will, in almost every case, form a more durable, a warmer, and a more attractive exterior than shingles or clapboards.

The groundwork for the merit of cement stucco may be summed up in the following remarks. The greater investment required in building today, because of higher priced materials and labor in the construction, demands walls that will protect this investment from loss by the comparatively rapid deterioration of wood siding. It is not only that the siding and sheath-



shingles and clapboards. This has brought into consideration the lasting qualities of plaster when it has to be used in covering practically the entire walls of the building. In the half-timber and gable work, the plaster usually appeared in the form of a panel framed by wood, and the question of whether plaster would stand as corners, angles, belt courses, etc., did not have to be seriously considered. During the last few years, many frame houses have been plastered so that there is an unbroken coating of plaster around the house. There have been failures in sufficient numbers to make people question the value of the material; but I think it may safely be said that the successes have out-numbered the failures in such proportion that the

ing that the cement replaces is now much higher priced than formerly, but that the entire cost, including the finishing inside, the foundation, the labor, and all that goes to make up the whole house is greater. People who build homes under these conditions should make their investment secure from loss on the line of durability, small repair expense, etc.

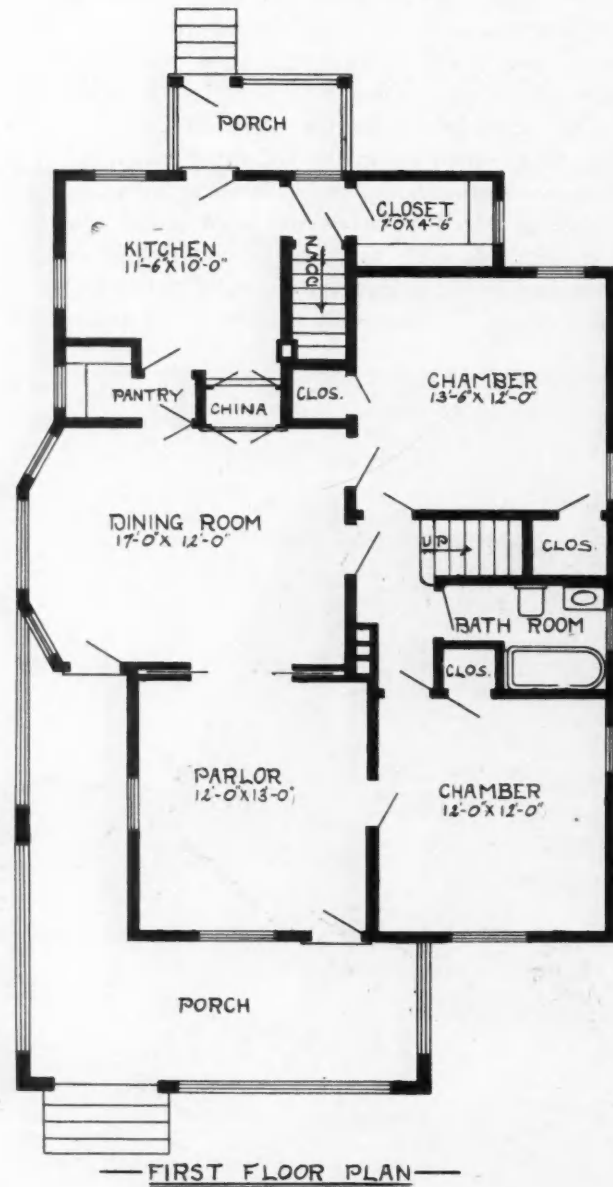
With Portland cement of first quality at hand, we can build as securely and as attractively with moderate means today as only people of large means formerly could with cut stone, pressed brick or terra cotta. The number of large and expensive dwellings that have already been finished with Portland cement exterior plastering all over the country, especially by wealthy

people of California, is a sound argument that it is a safe investment and a complete success. From what is known of Portland cement that is properly set or crystalized, we cannot conceive of age affecting the cement work on a building in the way of deterioration

as far as the outside walls are concerned just the same as brick or stone buildings. To prove this, they take the same insurance rates as brick or stone dwellings. Fire can spread only very slowly from room to room, if caught on the inside of the house, giving extra opportunity to put it out.

Pebble finished cement plastering gives an effect of life and attractiveness to the cement work on a building only to be realized by a person who sees it. Coloring the finishing coat any desired shade (the term shade is used to distinguish it from a strong paint effect) adds much to the appearance. A small per cent of dry mineral in buff, brown, light red or dark red added to the last coat and tempered with the cement mixture gives modest and perfectly durable shades much more harmonious to surroundings than is possible to obtain in wood and paint.

Cement stucco harmonizes with landscape and natural surroundings unusually well—far better than wood siding of buildings. The effect of climbing vines about the walls is particularly artistic. The comparatively large surfaces of pebble work are never mono-

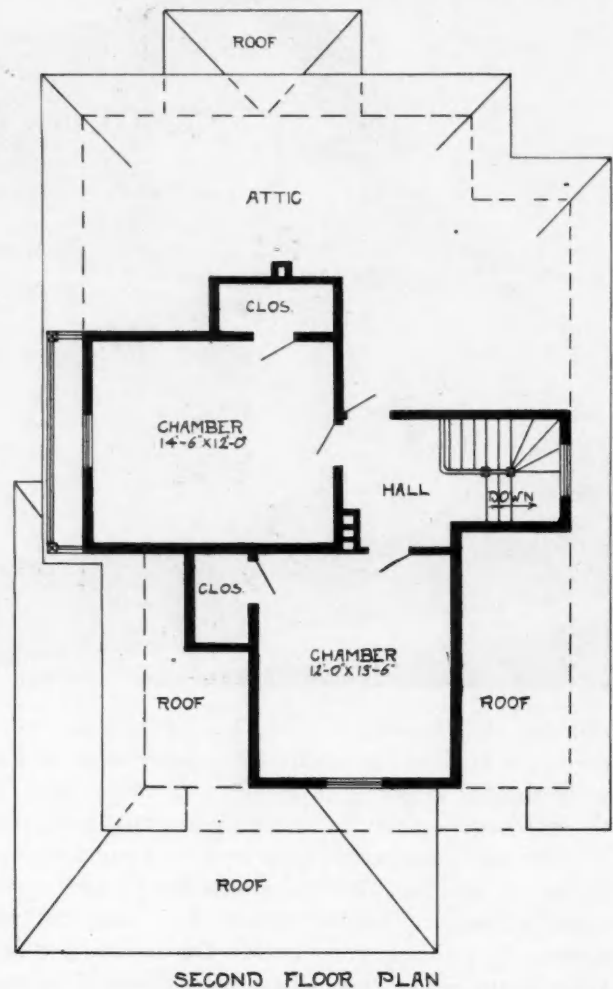


—not even so much as exposed brick or stone in structures.

The whole outside of the building excepting the door and window openings being a solid plate or flag of cement, and being so dense that no air can penetrate it, we have a house of unusual warmth.

The walls of a cement stucco building are not damp. The reason the walls are dry is due to two principles: First, the cement is applied in a thoroughly saturated state, and is in the best condition to set both hard and dense; second, the walls are not a thick mass that conducts the cold through in winter, condensing moisture on their inside surface like solid masonry walls of all kinds.

Cement stucco finishing makes buildings fire proof

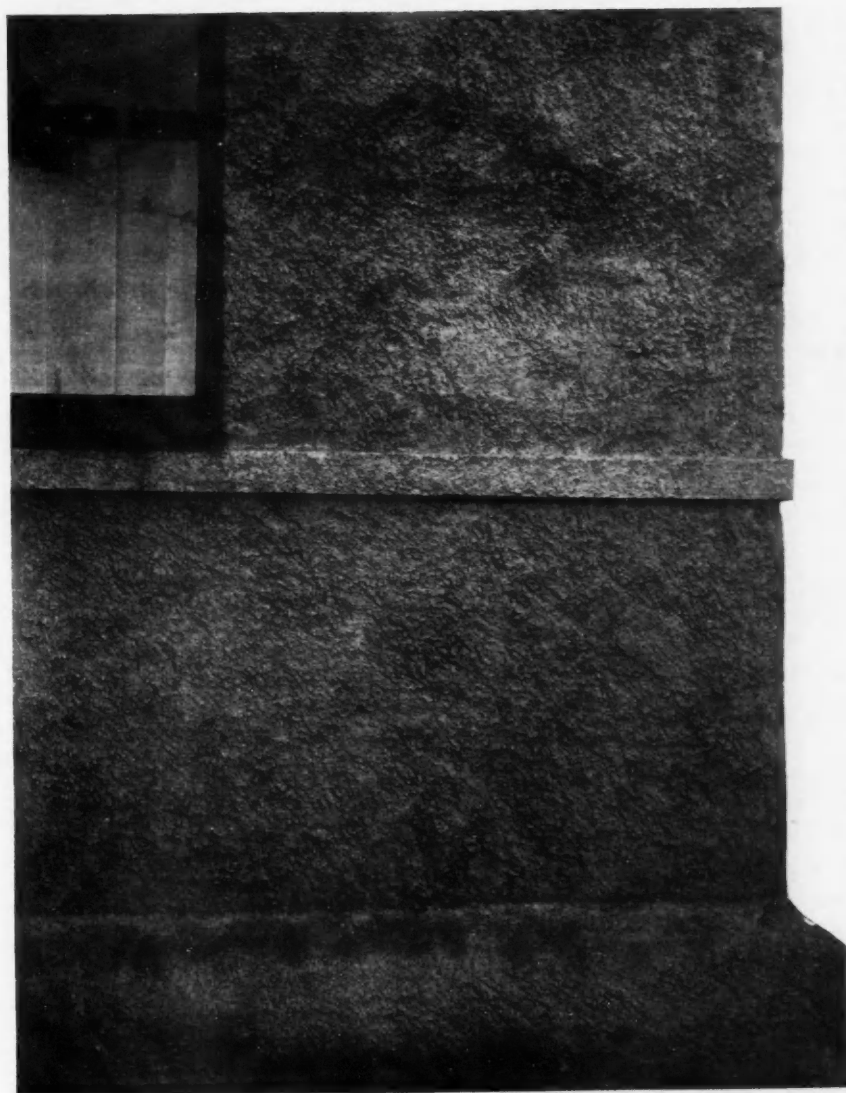


nous, because of the endless play of light and shade.

The modern buildings of today built in Berlin, Paris, London and New York are ornamented with plastic ornaments cast in cement composition for exteriors. These ornaments are applied as panels,

door and window tops, centers, rosettes, bells, leaves, flowers, bands, running ornaments, ribbons, pearls, beads, reels, egg and darts, lambs' tongue, cornice, moldings, etc. In small buildings or cottages, the demand for ornamentation is confined to simple belting and base form. In buildings with large surfaces, the demand for some ornaments of the above description may exist.

From an artistic standpoint, cement exteriors are incomparable, and, from a utilitarian view, economical;



as they will outlast, many times over, a wood exterior, and not require the periodical coat of paint to keep from rotting. Cement exteriors will wear better than stone, and acquire with age the correct tone.

Taking in consideration the absence of any painting bills or repair work on the walls, which is always a fixed item of expense from year to year on wooden buildings, and which should be computed as a rate per cent of loss on an additional cost to these wooden buildings—considering this item alone and saying nothing of the saving on fuel consumption, etc., cement stucco is actually a cheaper investment than wooden

construction, although the first cost is a little more than for wood. Another practical item of extraordinary importance is that, if a wooden building be considered a first class investment for twenty years, a cement stucco building may more conservatively be considered a first class investment for fifty years.

Most of the failures that have occurred in exterior plaster work have been caused by lack of experience or by neglect on the part of the superintendent or contractor to use the best materials in the proper way.

Each plasterer who has had years of experience in this work is quite likely to have certain methods quite his own but there are a few general rules that must be followed by everyone in order to produce satisfactory results. Unless circumstances are such that one can procure an experienced superintendent to stand over his men every minute during the plastering and see that his orders are carried out, it is well worth while to have exterior work done by an experienced plasterer. Success depends absolutely on first class methods and materials.

Some buildings of this style have proven failures for the following reasons:

First, ignorance as to the principles of lathing, mixing and applying cement. A plasterer may have a full mechanic's experience in general and in ornamental plastering, and yet he will not in all probability know some of the technical, or rather the scientific principles which the successful use of Portland cement for plaster work demands that he should know.

Second, it is never safe to mix cement plaster for exterior work by hand; that is, with a hoe and box like plaster for inside walls. The proportioning of the cement with the other materials must be exact and the mixing must be thorough, so that the cement, which is the life

of the plaster, is equally distributed. Otherwise, some parts of the plaster which would be too lean might crack and fall off under strain and exposure. Mixing with a machine is the only safe process.

Third, the improper proportioning of the other parts to the mixture besides the cement may cause failure. For instance, the use of lime, which is necessary to a limited extent in this work, may be abused in the first and second coat mixtures where it may be thought to be out of sight or where its free use may be thought to be less harmful. The result of thus using lime will

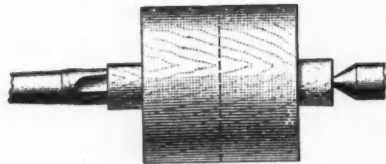
(Continued on page 549.)



Turning Wooden Balls

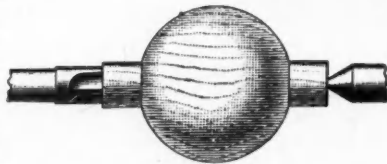
HOW TO DO IT ON AN ORDINARY LATHE — VARIOUS PROCESSES SHOWN IN TURNING OUT THE FINISHED PRODUCT

THE turning of wooden balls on the ordinary lathe is a matter about which there is quite a difference of opinion and different practices prevail, even among those who are experts at the business. It is a task, too, that the average wood turner, accustomed to do straight work, is usually at something of a loss as to just how to tackle it. It should be said at the outset that the turning of wooden balls, if it is intended to be made a business, and they are to be produced in large quantities, should be done on special lathes where the movement of the cutting tool



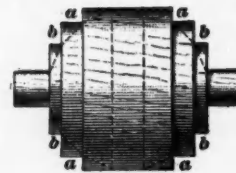
is positively controlled by mechanical devices. There is no need, however, to go into details of how these special lathes make balls, because what the average wood turner in the planing mill wants to know is how he can handle special orders for spherical work on the regular turning lathe.

When ball effects are turned on pieces of furniture, on balusters and newel posts, they are made in the same manner as any other vex curve with a skew chisel, and the turner generally depends on the skill of eye and hands to quite a large extent in doing the work. In this class of work a little variation from the true sphere does not make any appreciable difference, and the skilled turner can, by being careful about his work, produce good results with practically nothing else to guide him but his eye, and a little space measuring as a stater in laying off the work. Sometimes, even in turning balls where great accuracy is not imperative, something like the same method may be pursued, especially after one has had considerable practice.



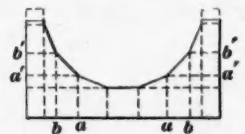
In practically all manner of ball turning the first step in the procedure is to turn the stock to cylindrical form, making the cylinder of the diameter it is desired to have the ball, and then laying it off in lengths equal to this same diameter with extra space at the

end for holding the stock in the lathe. In between the two lines made on a cylinder to indicate the length a center line is drawn as a starting point for the convexed curves of the side. Then, if the turner is



skilled in his work, and the requirements in the way of accuracy are not very stringent, he may take the short cylindrical block shown in Fig. 1 and reduce it to the form shown in Fig. 2 without any further guide than his own eye and any skill. There is in this work a natural tendency to cut down too quickly on the sides that must be guarded against, especially by the new ones undertaking it, and always it must be remembered that it is better to leave the sides too full than cut them out too much, because fullness can be corrected afterwards, whereas if the sides are cut down too much there is no way to correct the work except by reducing the size of the ball. One can, as the ball nears completion, make tests with the calipers and caliper gauges, and by having gauges varying a little in size for calipering can take a little extra time and pains and make a ball pretty near perfect in this way.

Where great accuracy is desired in making balls, or where lack of skill from continued practice makes one uncertain of one's ability to do the work right, there are different methods of laying out and gauging the work as a guide in turning to spherical form. In either case, however, the wood is first turned to cylindrical form such as shown in Fig. 1, then one method of laying it out, described in the International Library of Technology, is as follows:



"Make a templet of sheet metal (as shown in Fig. 3), the lines on the hollow side being the size of a regular polygon. The number of these sides may be as great as convenient, but it must be remembered in making the templet that allowance must be made for the projections at the ends of the wood by which it is to be held between the lathe centers. The lines that mark the corners of the polygon are carried to the straight side of the templet, as shown by the dotted

lines, and are also carried out to the ends. When the wood has been cut to the form shown in Fig. 1, these marks are laid off on the face and sides of it while it is revolving. By taking a corresponding pair of these marks, a, a', and cutting down from a, and in at the side from a', a step is cut in the cylinder, as shown at a, Fig. 4; then by placing a mark on the new surface for b, and cutting in from b' to meet it, and so continuing as far as may be made necessary by the number of sides on the polygon, the stock will have a number of steps across it, as shown in Fig. 4. These steps may be cut off by beveling from inside corner to inside corner, leaving the wood of such shape that it will fit the inside of the templet, as shown by the dotted lines in Fig. 4."

For finishing and truing up balls, the best plan is to have a hollow wooden chuck, which can be made by building up a cup-wheel out of segments on a board base, truing it up in the lathe. It should be turned out so that the ball will fit snugly; that is, it should be a trifle less in diameter than the ball. With this chuck the ball can be turned and placed in various positions for truing up, and when trouble is experienced in holding it one can, by padding with a piece of leather or something of the kind, bring the tail stock up and let it press it with the padding intervening between the stock and the ball so as not to mar the work. In this work of truing up, care should be exercised that one does not cut too deeply into one place, because when this is done it will be necessary to reduce the size of the ball to correspond with the low place to make it a perfect sphere again.

There are some other methods of turning balls, both in the way of scribing the blanks and of holding the tools. Among the best of the devices for this purpose is to make a tool holder in the form of a pivoted lever with a pivot coming under the center of the turned work and the tool being held firmly on the lever at the right distance away to equal the radius of the ball it is desired to turn. Naturally, by swinging this lever around a half circle one produces a complete sphere. One might have such a lever, and instead of having the tool attached firmly to it, have it act as a sort of a tool rest, and have gauge marks on it so that one could rough off with one tool and take up a finishing tool and finish down to the exact size, and the tool being guided by this lever in its movement around the circle the ball would naturally be true without the exercise of any particular skill of eye or hand, and some device of this kind is probably the best thing one can turn to when it is desired to do any great quantity of ball turning. It should be understood, of course, that this pivoted lever, or tool holder, can not come out straight from the actual center of the ball, but is attached to a pivot underneath the center of the ball as it is held in the lathe, and then, making an elbow, comes up to the nominal position of a tool rest, reminding one somewhat of the tool holder of a latch lathe, only it is pivoted to swing around the center instead of sliding along a guide parallel to the centers of the spindles. There is room in the making of such an appliance for one to exercise his ingenuity. Get the main idea right and then work out the details to suit your own views and conveniences.

Holtzapfel's Honeysuckle Ornament

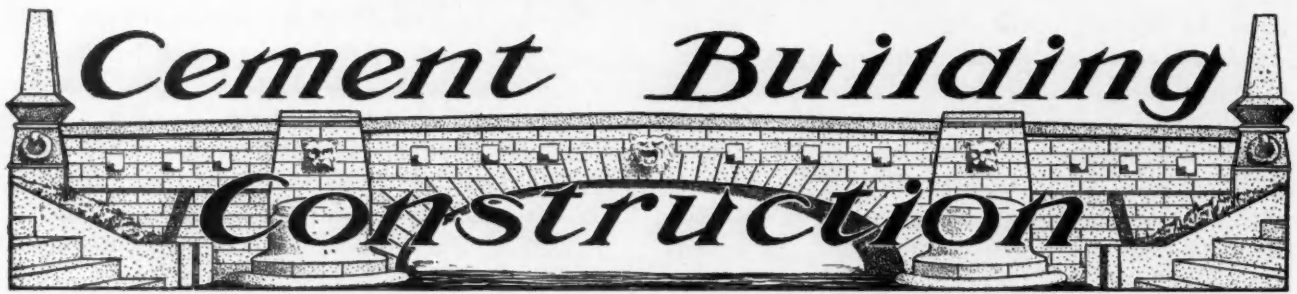
ORNAMENTAL DESIGN OF CABINET WORK WHICH IS OF INTEREST TO EVERY CARPENTER — COMPLETE DESCRIPTION OF HOW TO MAKE THE SAME

THERE is an ornamental branch of cabinet work that every carpenter is more or less interested in at times, because aside from its application to the ornamental features of house building and the regular call of work, the average man likes to make a few things himself of special design and containing unique features. There are scroll work and a number of kindred lines variously named because of their peculiarities. There is the laquer and inlaying work of the Chinese and Japanese and the Buhl work of the old furniture manufacturers, and inlaying and carving of various kinds. There is to be found in this connection an interesting description of inlaying as a species of veneering in patterns among the writings of that old authority Holtzapfel, which has been oft quoted by industrial writers and is worth repeating here. That is, his excellent description of the mode of making what is termed the honeysuckle ornament, which is as follows:

"To make this, two pieces of veneer of equal size, say of ebony and holly, are scraped evenly on both

sides with the tothing-plane, and glued together with a piece of paper between, for the convenience of their after separation. Another piece of paper is glued outside the one or other veneer, and on which the design is sketched; a minute hole is then made with a sharp-pointed awl or scriber, for the introduction of the saw, that spot being selected in which the puncture will escape observation. The buhl-cutter being seated on the horse, the saw is inserted in the hole in the veneers, and then fixed in its frame; the work, held in the left hand, is placed in the vise, which is under control of the foot, and the saw is grasped in the right hand with the fore-finger extended to support and guide the frame; the medium and usual position of which is nearly horizontal and at right angles to the path of the saw. The several lines of the work are now followed by short quick strokes of the saw, the blade of which is always horizontal; but the frame and work are rapidly twisted about at all angles, to place the saw in the direction

(Continued on page 543.)



Practical Building Code

BEING THE FIRST PART OF A COMPLETE BUILDING CODE WHICH WILL BE PUBLISHED FROM MONTH TO MONTH—COVERS THE WORK IN ANY CITY

By Fred W. Hagloch

WHILE this code is intended to cover the construction work in cities of less than 100,000 inhabitants, it would require little additional matter to cover the work in cities of much greater population, it is also fully practical for cities and towns of a few thousand inhabitants except that this code has much that would never be called into practice.

The author does not claim that this code will exactly meet the requirements of every city, as local conditions vary, but that it will deal out justice to the citizen, the owner and the contractor by promulgating substantial buildings without imposing unnecessary cost is the object of this code.

The Building Code

ARTICLE I. The buildings hereafter erected within the limits of this city shall be erected in accordance with the following rules, regulations and requirements.

Section 1. No building shall be erected, remodeled, altered or moved without a permit issued by the city building inspector.

Section 2. The fees charged for such permits shall be as follows: Five (5) cents per hundred square feet of ground occupied by the building and five (5) cents for every foot of height of such building; chimneys, flues, stacks, towers and steeples not to be included in height measurements.

The minimum charge shall be one (1) dollar per every sixteen feet in height or fraction thereof.

The permit shall be kept on the building site during all working hours from the time work has begun until same is completed.

Should a permit be lost before building is completed the building inspector shall issue a new permit upon application of the owner, contractor, engineer or architect, said second permit shall be marked with red ink across its face, "Second Permit"—the fee shall be one (1) dollar. Same may be issued a third or as many times as applied for, but a record must be kept and each issue be marked "Third Permit," and so on as often as issued.

Section 3. Permits shall be issued upon the following conditions:

The applicant must fill an application blank fur-

nished by the building inspector, same must be a true statement and be accompanied by a location drawing showing the exact size of the building and its relative distance to other buildings on the property and all lot lines and streets and alleys bounding lot or tract.

All buildings containing more than 2,000 square feet of ground space or higher than 32 feet must have plans and specifications accompany the application for permit, and all buildings of less than above dimensions the furnishing of plans, etc., is optional with the building inspector.

All drawings, specifications and application for permits to be the permanent property of the building inspector's office, always open for public inspection, and should not be removed or destroyed without the consent of the chief of the city fire department and the chief executive.

Section 4. The building inspector shall keep all drawings, applications, etc., in a fireproof file and shall keep two indexes, one alphabetic, of the owners' names, and one location index as to streets, roads, highways and alleys upon which same may border.

Section 5. All permits to build shall be in accordance with the following articles and the building inspector may revoke any permit upon proof of violation of this code or any part thereof.

It shall be deemed a misdemeanor to wilfully violate this code or continue building operation after a permit on building has been revoked, or to continue building while pending an appeal from the building inspector, except by written consent of said building inspector.

Section 6. Nothing in this article shall be so construed to prevent any owner, contractor, architect or person from making his or her own drawings and specifications or employing whom they may choose, except that same must comply with this code, must meet the approval of the building inspector and the state statutes governing same.

ARTICLE II. The following definitions of words, terms and phrases used in this code must be accepted as correct:

Alteration.—Any change, addition or modification

in construction, class or grade of a building or part thereof.

Arcade.—A range of arches.

Arch.—An upward curved beam or girder supported by piers or abutments, to carry weight and resist pressure.

Area.—An open space or court within a building; also, an uncovered space surrounding the foundation walls.

Areas.—Open sub-surfaces adjacent to a lot line or building.

Artificial.—Any manufactured material that fills the requirements of some natural product.

Attic story.—A story situated wholly or partly in the roof.

Backing of a Wall.—The rough inner face of an outer wall.

Balcony.—A projected floor from the face of a wall, supported by columns, corbels or consoles.

Basement.—A story partly below the street or grade line. When a basement ceiling is more than seven (7) feet above the grade at the building line it will be rated as the first story.

Bay.—The space between two rows of columns; the space between two pilasters or columns.

Bay Window.—A window projected from the face of a wall and supported by a foundation. When supported by brackets, etc., see Oriel Window.

Beam.—A horizontal support over an opening or space.

Batter.—A vertical side inclined from you when you stand before it.

Bearing.—The proportion of a beam, arch, truss, etc., that rests on its supports.

Bed.—The horizontal surfaces upon which the material of walls lie in courses.

Bond.—The connection of brick, blocks or stone formed by lapping them over one another in building a wall.

Bond Timbers.—Timbers placed in a horizontal direction in the walls of a brick, block or stone building in tiers.

Breaking Joint.—The arrangement of blocks, bricks or stones so as to prevent two vertical joints from forming one joint.

Bridging.—Stiffening floor joist and partition studs.

Building.—Any structure erected by art and fixed upon or in the soil and designed for use in the position in which it is built.

Building Line.—The line formed by the intersection of the outer face of the enclosing walls of a building and the ground.

Building Lot.

Open Lot.—When bounded on all sides by streets or alleys.

Corner Lot.—When bounded on two or more but not all sides by streets, alleys, etc.

Through Lot.—Lots whose opposite ends form street lines.

Interior Lot.—When enclosed on all sides but one by other property than streets, alleys, etc.

Cellar.—That portion of a building beneath the first floor and at least half its height below the grade line.

Columns.—Isolated vertical supports.

Concrete.—A composition of cement, sand and aggregates.

Plain concrete.—Above composition without metal reinforcing.

Reinforced Concrete.—Above composition with metal reinforcing.

Slag Concrete.—A composition of cement, and crushed slag.

Limestone Concrete.—A composition of cement and crushed limestone, sometimes known as litholite.

Fireproof concrete.—A cement, sand, etc., composition that will endure a temperature of 1,200 degrees Fahrenheit without injury.

Grout Concrete.—Cement, sand and aggregate composition with sufficient water to enable pouring.

Courts.—Unoccupied space between building lines and lot lines other than a yard, free and open from the ground to the sky.

Inner Court.—A court enclosed on all sides.

Lighted Court.—An inner court covered with skylight.

Open Court.—A court having a passageway to a thoroughfare.

Outer Court.—A court open to a thoroughfare.

Court-way.—A passage between two or more courts.

Court Yard.—The space between the rear of two buildings on the same lot.

Recessed Court.—An open court opening into another court.

Elevation.—The external upright parts of a building.

Facade.—An exterior side of a building that can be seen at one view.

Flue.—The space or area within a chimney.

Factor of Safety.—The quotient obtained by dividing the breaking load by the safe load.

Footings.—The projected courses at the base or foundation of a building wall.

Foundation.—The earth upon which any structure rests; also the part of a building below the ground.

Framing.—The rough timber work of a building.

Furrings.—Flat timber used to bring irregular walls, etc., to an even surface, or for creating an air space between walls and interior surface.

Gauge.—A measure of sheet metal and wire.

Girder.—A large timber, iron or concrete beam for supporting joist, floors, walls, etc., over openings.

Grade.—The surface of the ground, street or sidewalk at the building line. The established grade of the city is the curb line.

Ground Floor.—The story of a building whose floor is the first above the grade or ground line.

Gutter.—A channel for carrying off rain water.

Hall.—A corridor or passageway used by the occupants of a building.

Headers.—In masonry, are stones, blocks or bricks extending over the thickness of the wall. In carpentry, the larger timbers into which the common joist are framed in framing openings for stairs, fireplaces, chimneys, etc.

Height of a Wall.—The distance from its base at the grade line or at the top of the girder or off-set upwards to the top of the wall. Foundation and retaining walls are measured from the grade downward.

Height of Story.—The vertical distance from top to top of two successive floors, joists, beams or slabs. The height of the topmost story shall be measured from the floor to the top of its ceiling joist.

Inspector.—The city building inspector.

Insulated.—Separated from the surrounding by non-conductive materials or space.

Isolated.—Separate, free or detached from surrounding work.

Incombustible Materials.—Brick, stone, terra cotta, concrete, iron, steel, sheet metal, asbestos and all non-perishable materials from heat when used alone or with other material of like nature.

Incombustible roofing.—Not less than three layers of two or more ply felt roofing covered with a coat of tar and gravel: three ply of asbestos; asbestos shingles; slate; ceramic or composition tile or reinforced concrete.

Incombustible Partitions.—A partition of metal studs and metal lath, plastered on both sides, a partition of brick, concrete or terra cotta. A partition plastered on both sides on metal lath on wood studs shall be termed semi-incombustible partitions.

Lot Line.—The line of demarcation between either public or private properties.

Lintel.—A beam or girder placed over a window or door and resting on the masonry at each end for the purpose of carrying the wall above such opening.

Loads on Buildings.—The dead load shall consist of the weight of the materials of which the building is constructed. The live load shall consist of all imposed, stationary or transient weights other than the dead load.

Oriel Window.—A projecting window supported by brackets, corbels or consoles.

Owner.—Any person, persons or company owning the building, or the property under consideration or being built upon. Guardians, trustees, etc., will be regarded as owners. When a tenant erects any building, both the tenant and owner of the property will be regarded as owners of the building.

Offset.—The offset or change in thickness of a wall.

Partition.—An interior sub-dividing wall.

Party Walls.—Partition walls between two adjoining properties, tenants or industries.

Piers.—The solid parts of a wall between windows. Isolated brick work, stone or block masonry supporting arches, beams, trusses and similar structural work.

Post.—A wooden support or column.

Plan.—A horizontal section of a building showing the walls, apartments, etc.

Purlins.—The supports which carry the roof rafters.

Puzzalon Cement.—A cement made of furnace slag.

Portland Cement.—A cement made by a calcin process, the raw materials may be shale, clay, stone, marl or slag, or parts of each.

Pilaster.—A projection of masonry in brick, stone and block walls, or a molded projection on concrete walls from the base or foundation upwards for the purpose of strengthening the wall.

Random Work.—Walls built of random sized stone with no attempt to lay them in courses.

Ridge.—The top of a roof which rises to an angle.

Remodeling.—The reconstruction of a building which may or may not change its class or grade.

Repairs.—The reconstruction of a building without changing its class or grade.

Rubble Work.—Rough undressed masonry.

Roofing.—A water shedding material used for roofing buildings.

Roughcast.—A rough finish given to cement plaster.

Rock Face.—Stone or concrete face to resemble broken stone finish.

Rustic.—The natural exterior of materials; in stone it is rock face; in wood the bark or exterior surface.

Sagging.—The bending of a body at the middle, either by its own weight or the load placed upon it.

Staging.—A temporary support for workmen and materials.

Steeple.—A general name for a tower, belfry or spire.

Studs.—The timbers or irons used in partitions and outside walls.

Street Line.—The line of demarcation where the building line and the lot line coincide with the line of any public property.

Show Window.—A store window in which goods are displayed.

Skeleton Construction.—This term shall apply to all buildings wherein all external and interior loads and stresses are transmitted from all parts of the building to the foundations by a skeleton or frame of metal or reinforced concrete.

Terra Cotta.—Baked clay used for fireproofing.

Tie.—The method or means of holding two or more bodies together.

Tile.—Flat pieces of burned clay, marble or concrete used for flooring. Also, burned clay or concrete pieces used on roofs instead of slate or shingles.

Valley.—The internal angle formed by two inclined sides of a roof.

Vault.—Any underground construction covered on top. Sidewalk vaults or areas are covered areas extending beyond the street line.

Veneer.—The outer wall or facing of brick, stone, blocks, tile or metal of an enclosing wall.

Wainscot.—An interior lining for walls.

Wall Plates.—Timbers placed on walls for supporting the roof. Also, metal plates placed on the walls under beams, girders, etc.

Walls:

Apron Wall.—That portion of a wall above the window and door lintels of one story and below the window and door sills of the next story above.

Bearing Wall.—The wall on which any portion of the floor or roof rests.

Cross Wall.—Any wall connecting two or more walls may be termed a cross wall.

Curtain Wall.—Any wall enclosing an opening in an iron, steel or concrete skeleton frame structure.

Division Wall.—The bearing wall separating the building into several parts.

Dead Wall.—A wall without openings.

External Wall.—The outer wall, vertically enclosing the building.

Fire Wall.—The coping or parapet walls above the roof. Also, all division and party walls are fire walls.

Foundation Wall.—That portion of an enclosing wall below the first floor joist, beams, girders or slabs and above the grade line. Also that portion of an interior wall or pier below the cellar floor.

Partition Wall.—Any wall subdividing a building into compartments.

Party Wall.—A wall that separates a building into two or more buildings, and forms a part of each building.

Retaining Wall.—Any wall resisting lateral pressure from either side.

Return Wall.—A wall at right angles with any other wall no less than two-thirds the height of such other wall.

Thickness of Wall.—The shortest distance through the wall at its base.

Web or Withe.—The bond or tie between two parts, the tie and parts being identical materials, as the bond of a hollow concrete or tile block.

Withes.—The partition between two chimney flues in the same stack.

Wired Glass.—Wire woven glass not less than one-fourth inch thick.

(Continued in the August Issue.)



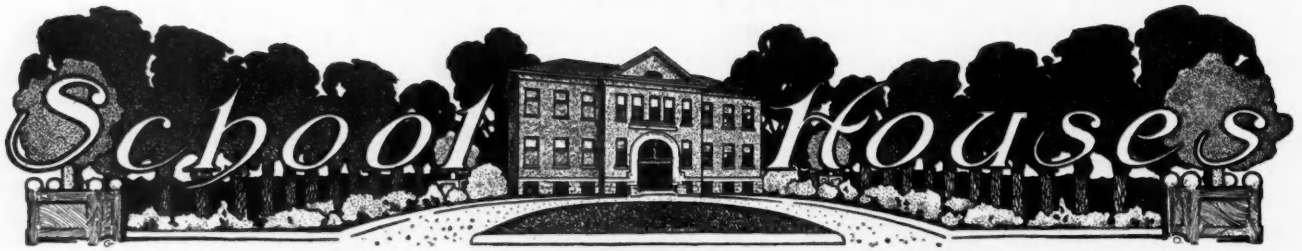
By all means I would not be without the AMERICAN CARPENTER AND BUILDER for many times the price.

R. S. ANIS, Alpena, Mich.

Holtzapfel's Honeysuckle Ornament

(Continued from page 539.)

of the several lines. Considerable art is required in designing and sawing these ornaments, so that the saw may continue to ramble uninterruptedly through the pattern, whilst the position of the work is as constantly shifted about in the vise, with that which appears to be a strange and perplexing restlessness. When the sawing is completed, the several parts are laid flat on a table, and any removed pieces are replaced. The entire work is then pressed down with the hand, the holly is stripped off in one layer with a painter's palette-knife, which splits the paper, and the layer of holly is laid on the table with the paper downwards, or without being inverted. The honeysuckle is now punched out of the ebony with the end of the scriber, and any minute pieces are picked out with the moistened finger; these are laid aside; the cavity thus produced in the ebony is now entirely filled up with the honeysuckle of holly, and a piece of paper smeared with thick glue is rubbed on the two to retain them in contact. They are immediately turned over, and the toothings, or fine dust of the ebony, are rubbed in to fill up the interstices, a little thick glue is then applied, and rubbed in, first with the finger, and then with the pane of the hammer, after which the work is laid aside to dry. When thoroughly dry, it only remains to scrape the bottom with the tothing-plane, or, when the work is small, with its iron alone, and then the buhl is ready to be glued on the box or furniture in the manner of an ordinary veneer, as already explained; when the work is again dry, it is scraped and polished. Exactly the same routine is pursued in combining the holly-ground and the ebony honeysuckle, and these constitute the counter, or counterpart buhl, in which the pattern is the same, but the colors are reversed. It is obvious that precisely the same general method would be pursued to make four satin-wood honeysuckles at the respective angles of a rosewood box; the veneers for which would then be selected of the full size, and glued together with paper interposed. To insure the exact similitude of the several honeysuckles, one of them having been cut out would be printed from, by sticking it slightly to the table, dabbing it with printing-ink, and then taking impressions to be glued on the other angles of the box at their exact places. The counter would have, in this case, a satin-wood ground, with the honeysuckles in rose-wood. To advance another stage, three thicknesses of wood may be glued together, as rosewood, mahogany and satin-wood, and a center ornament added to the group of four honeysuckles. The three thicknesses, when cut through, split asunder, and recombined, would produce three pieces of buhl-work, the grounds of which would be of rose-wood, mahogany, and satin-wood, with the honeysuckle and center of the two other colors respectively."



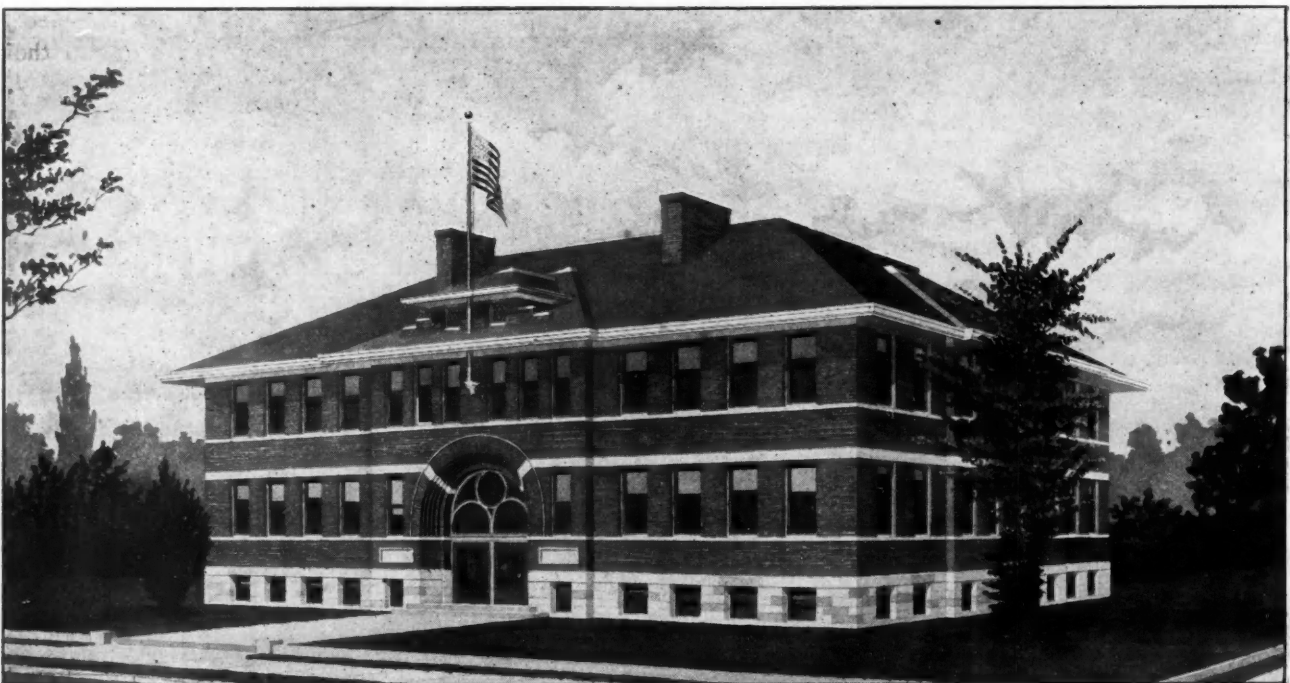
Combined Grade and High School

PERSPECTIVE AND FLOOR PLANS SHOWN—GOOD INTERIOR ARRANGEMENT FOR THIS CLASS OF SCHOOL BUILDING

WE ARE this month illustrating a combined grade and high school, designed by G. W. Ashby, architect. It is constructed of red paving brick and stone trimming, and the roof is of slate. There is a high well lighted basement under the entire building which is divided into boys' and girls' play rooms, toilet rooms, furnace room, fuel room, and two rooms which can be used for domestic

erection on the upper Snake river, twenty-seven miles from these cities, of a large sand-lime plant.

The parties interested in the plant are from Tacoma, Anaconda, Portland and Lewiston. Severe chemical tests made in these cities have determined that the clay deposit owned by the company is exceptionally adapted to the making of sand-lime brick. It is the intention of the company to begin immediately the



science and manual training if so desired. The first floor is divided into five school rooms and the teachers' room. It is better to have the lower grades in the rooms on the first floor as they are less able to climb the stairs than the older pupils, and in case of fire, they are nearer the entrance and will therefore cause less confusion.

The second floor is divided into three school rooms, two class rooms and the assembly room. The assembly room is 33 by 54 feet and so arranged that exercises of various kinds can be held there.



New Brick Plant

Construction work in the cities of Lewiston and Clarkson, Ida., will be given quite an impetus by the

erection of a \$35,000 plant to be given over exclusively to the manufacture of brick. Later a \$300,000 cement plant will be erected.

It is estimated that the new company will deliver brick in the Twin Cities for \$15 a ton, this being \$35 a ton cheaper than it can be done at present.



Portable Houses By Emery H. Chase

The subject of portable houses is one that ought to be of great interest to carpenters and builders everywhere. It is the one subject which most of all has been neglected in this country.

It is true that a few contrivances to which that name can be applied have been gotten up and are manufactured and for sale; but almost the first glance

at the catalogs will, I think, convince anyone that this branch of building science has not nearly kept pace with improvements in other lines.

In perusing these catalogs the first impression one obtains is—

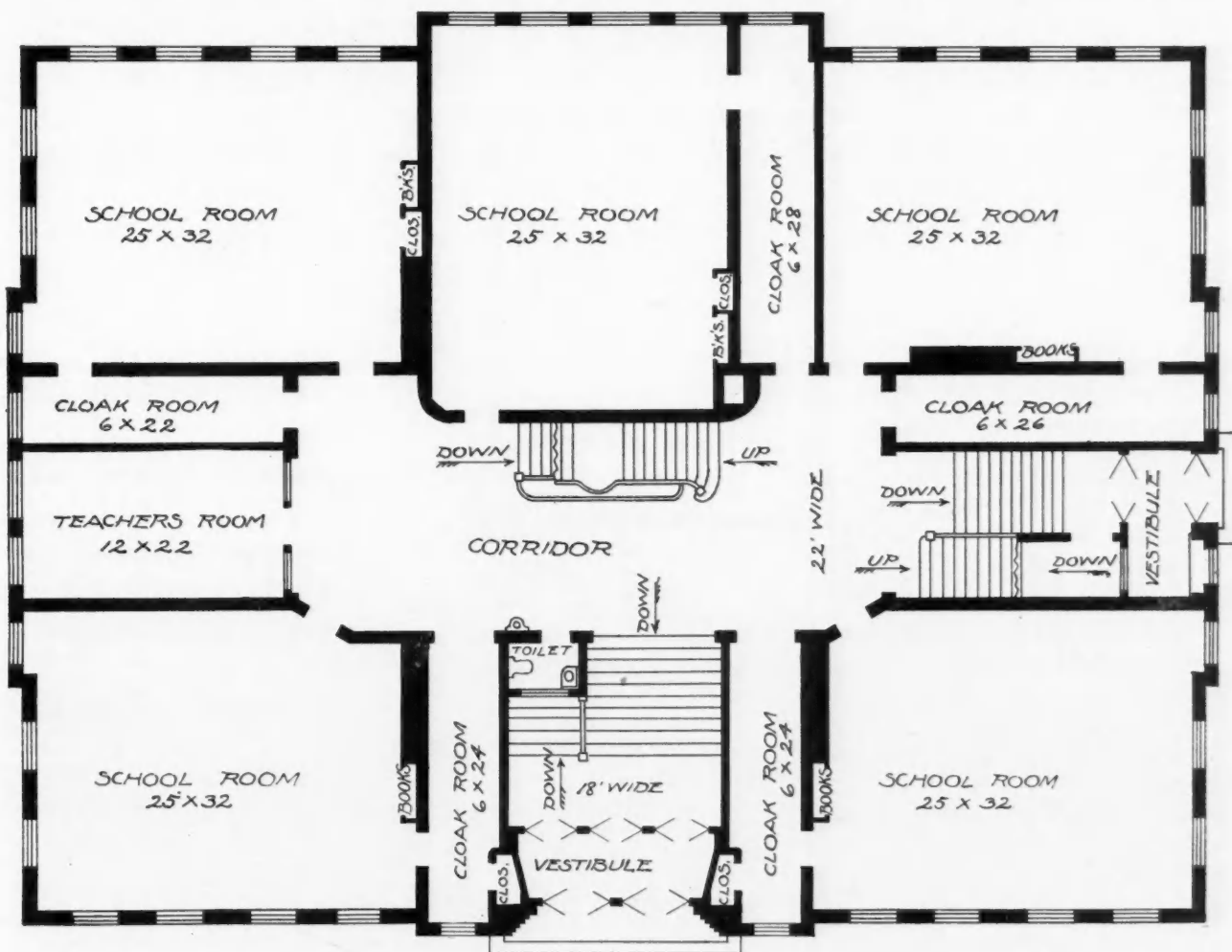
1st. The cheap, shanty-like appearance of these buildings.

2d. The fact that they are mainly for summer use, therefore cold.

3d. Size for size considered, these houses cost more than do the stationary buildings, and therefore they

considered, namely: For the one class who locate at industrial centers during the period of such activity, but who then move to a more favorable locality when their trades or callings require it. This would represent a very large class of the population, and the type of house for this class could be a little more elaborate and provided with more convenience than some of the others, since the house would probably be moved only once in three to six years or more.

Another class would be those whose business would require residence in a certain place for only a few



are robbed of their essential requirement—that is, to be a *substitute* for the more permanent dwelling.

4th. One type of house, or nearly so, thus far, for all uses.

Now it is plain that unless these difficulties are overcome, the portable-house problem will remain where it is—unsolved.

For the man who invents, in detail, a serviceable portable house that will be of use equally well in summer or in winter, at low cost, with moderate conveniences for the common people, and with a reasonable amount of beauty, there should await a material reward.

But, in order for such buildings to be a success, I think at least two or three classes of users should be

weeks or months. Among this class would be enumerated engineers, architects and other builders whose use for such buildings would be solely that of a small office.

And still another class there might be whose stay in any place would be even more transient than those mentioned, and of which hundreds of callings might, perhaps, be mentioned. These houses would probably be the smallest of all, and would necessarily partake more of the lunch-wagon variety of building construction.

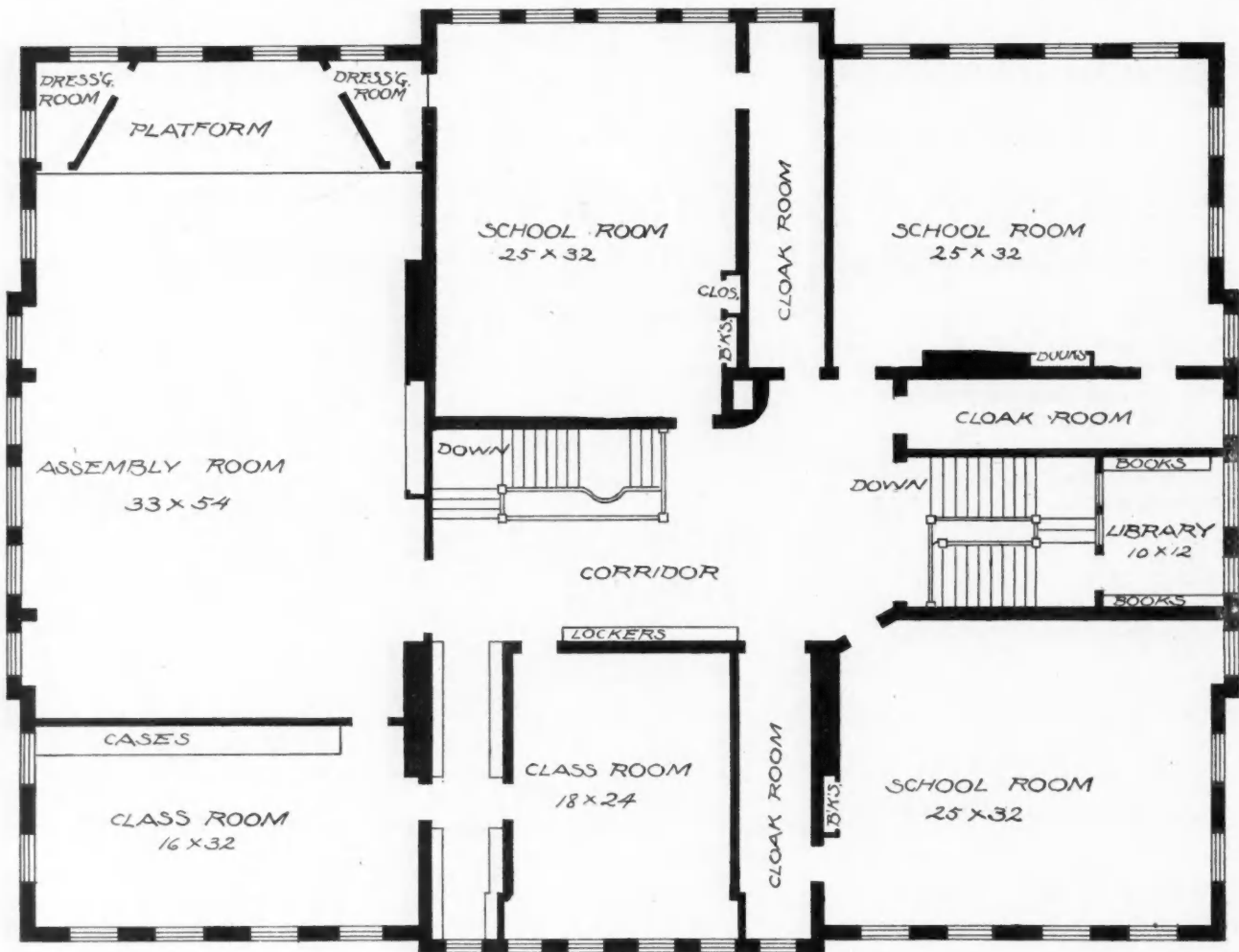
In the invention and planning of all these buildings there is a chance for much investigation and for wide discrimination as to the materials to use. Materials of great lightness, cheapness, strength or compact-

ness—any or all to be considered as desired for each special purpose. And with these ideas there should be kept in mind the remembrance of such things as translucent fabric for roofing; the paper houses of some of the Eastern countries; asbestos, fiber, and mill-board materials; and many others, the existence of which investigation alone could disclose.

It is possible, and even probable, that there could and should be developed a separate type or style of building construction suited to these needs. It is not absolutely necessary that portable houses should imitate the style of stationary buildings any more than a locomotive should be made to look like a horse or a steamship.

cities where industry would lag, or stop, the houses would begin to move away to localities more favorable to the needs of the inhabitants; or in case of little or no industrial activity, the houses could be moved to and remain in the country, where fuel and other necessities would be low-priced, with no water rent or city taxes to pay.

The chief advantage would be for the great middle or working class; and the disadvantages wrought chiefly to the railroads; because, after establishing facilities for a great center or terminal at some point, they might awake some morning to find the large city had moved to the other end of the division. But as inventors, builders and common citizens, it is not



Aside from the design of the details of the building, a separate and original type of beauty could be formed which, after being a familiar sight for a short time, would appear as beautiful as do other buildings now; and there would then be as much inclination to adopt these beauties in other buildings as the tendency is now to make portable houses appear like the stationary type of dwelling.

A successful solution of the portable-house problem in its entirety would mean an economical and industrial revolution in this country. Large cities could be formed in a week or, at the outside, a month; and

within our province to provide for their welfare. Perhaps our portable houses would call for portable railway switches, roundhouses and turntables, etc. But this is an after-consideration.

As a benefactor of the people, it seems that to properly investigate and experiment in this portable-house problem would be a very good undertaking for our Uncle Sam. And after a suitable design had been found, the invention should be free of patent and the full benefits belong to all the people. But until he does take the matter up, the problem seems a very good one for inventors.

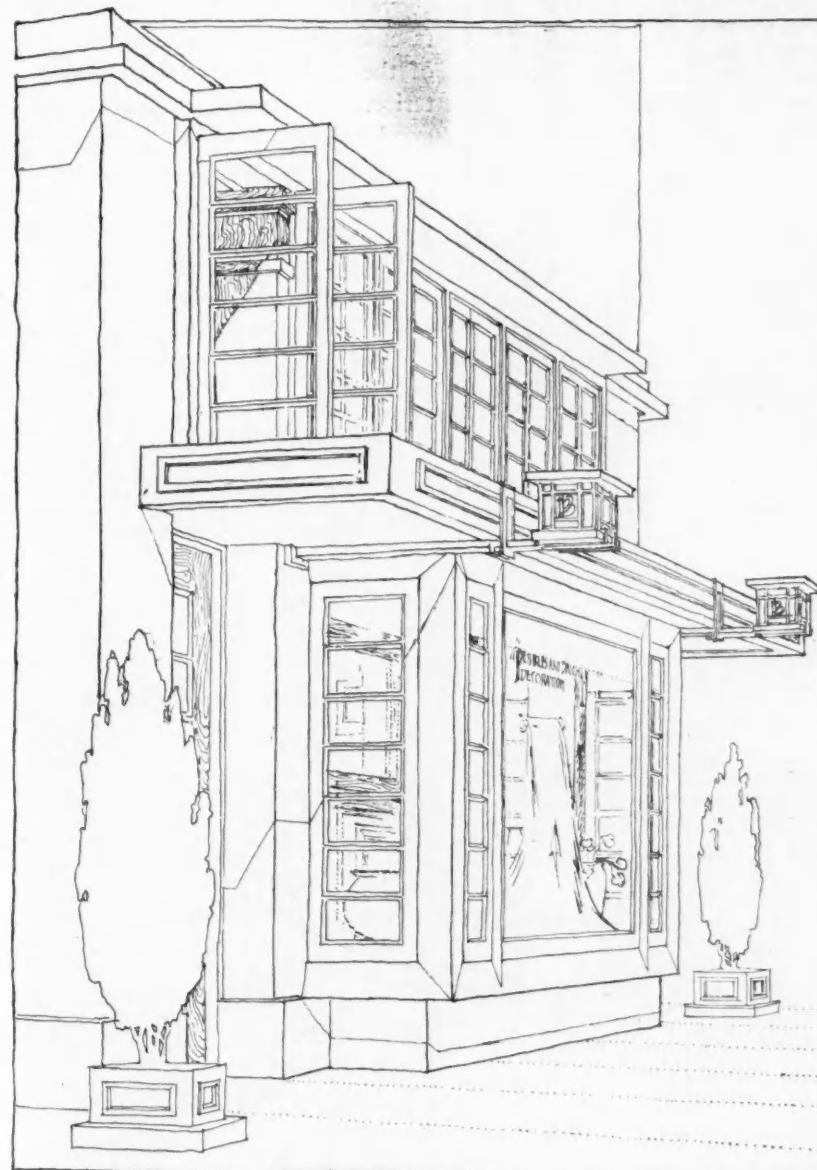
Attractive Store Front and Exhibit Room

HOW A SMALL STORE CAN BE MADE AN ADVERTISING FEATURE AS WELL AS A PLACE OF BUSINESS—
SHOWING INTERIOR ARRANGEMENT

By Ira S. Griffith

THE success of no other dealer depends so much upon the appearance of his place of business as does that of the dealer in decorators' supplies. A buyer will be influenced by the look of prosperity which pervades the offices of the lumber company or the store of the hardware concern. The dealer in decorators' supplies, however, to make an

impres- sion, must have a store which has something more than a look of prosperity to recommend it. The store is, as it were, an advertisement of the owner's taste, and a customer usually judges accordingly. It must be admitted that there is some justification for his so doing.



The ordinary store building does not lend itself readily to original decoration and arrangement and the dealer has no small task upon hand when he pre-

pare his place for business. It is a difficult matter to convince a landlord that his building needs some labor expended upon it before it is likely to assist in drawing trade. The window display may show taste and variety; the goods may be arranged orderly; the color scheme used in decorating the store may show study and the workmanship show care; the trade may be cared for promptly and politely; under the stress of competition these things are necessary for the conduct of any business at all so that they of themselves will not attract the attention of the trade. The purpose of this article is to show how even a small store can be made an advertising feature as well as a place of business.

We have become so used to block after block of plate glass store fronts that most of us have taken it for granted that there is but one way to make a store front. In our houses we strive to show individuality. No builder, in an enlightened community, would dare to build a block of houses all alike and expect to sell them profitably. In our store fronts individuality is a thing which not only does not exist but is a thing the lack of which by most people is taken as a necessary evil.

What could be more interesting than the rows of pretty shop fronts of the English villages, each one with as much individuality as is found in the homes in high class American city suburbs?

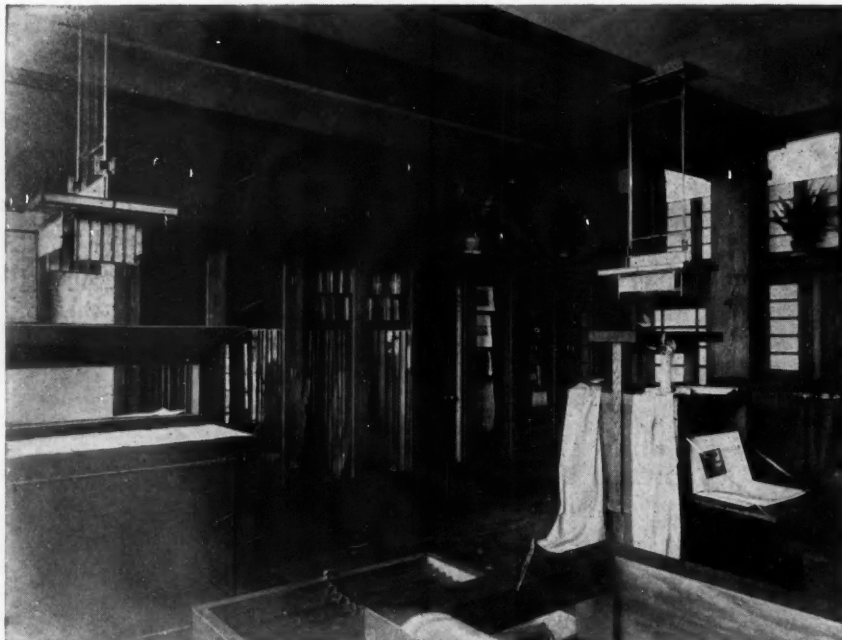
Probably, the desire to have as much "show" window as possible with the limited frontage has led to our present type of store architecture. Each one has thought only of his own and all have thought alike, hence the dread monotony of it. But we need not sacrifice the "show" window. Fig.

1 shows a store front remodeled for Pabbles and Balch, of Oak Park, Ill., after designs by Mr. Frank Lloyd Wright. This front is calculated to catch and hold the attention of even the casual observer. Not only does it hold the attention, but it pleases and at the same time leaves plenty of plate glass for the display of goods.

Such a window, be it said to its credit, will not admit of such vulgar displays as are obtained by

placing in the window one of every article in stock, or the promiscuous stacking of cans and boxes, oftentimes empty. Well proportioned spaces and harmonious lines bespeak simplicity and good taste on the part of the architect. The good taste of the dealers is shown

monogram of the firm appears on the central glass panels of the especially designed cases in which hang incandescent globes. The firm name is in just as good taste and is in artistic lettering of gold just large enough to be easily seen. It is placed up and at one side of the large plate window.



On either side of the store front, stand boxes of artistic design containing Belgian box wood foliage, the green of which helps to make the entrance inviting.

If the exterior must have merit above the ordinary in order to attract favorable attention on the part of the trade, no less must the interior. The interest aroused by the good taste shown in the exterior must be maintained, else it were better not to have aroused any interest at all. A shop or store room with shelving around the walls filled with wall paper and other stock and a floor piled high with cans of paint is not a good arrangement from either an artistic or an economical point of view. It costs but little more to have an exhibit

room separate from the stock room, one cross partition will suffice. Two partitions will give a paint room in addition.

Fig. 2 shows the exhibit room of the store spoken

of above.

Such a window will admit of frequent change of display with comparatively no expense either in time or goods. That dealer who is accustomed to spend hours of his precious time filling his window with what he chooses to call a display and which he expects to leave until the flies and sun compel a change for decency's sake, probably cannot appreciate a window so easily and quickly prepared, nor will those patrons of his who are accustomed to visual gormandizing of such window displays.

The floor of this store is on a level with the street, so that entering is an easy matter. This also places the window low enough that goods shown may be seen by anyone. The ceiling is high, so that casement windows opening outward have been placed above the display window, thus insuring good ventilation; an advantage not to be had with the ordinary solid glass front.

At night, instead of the glaring electric signs, the



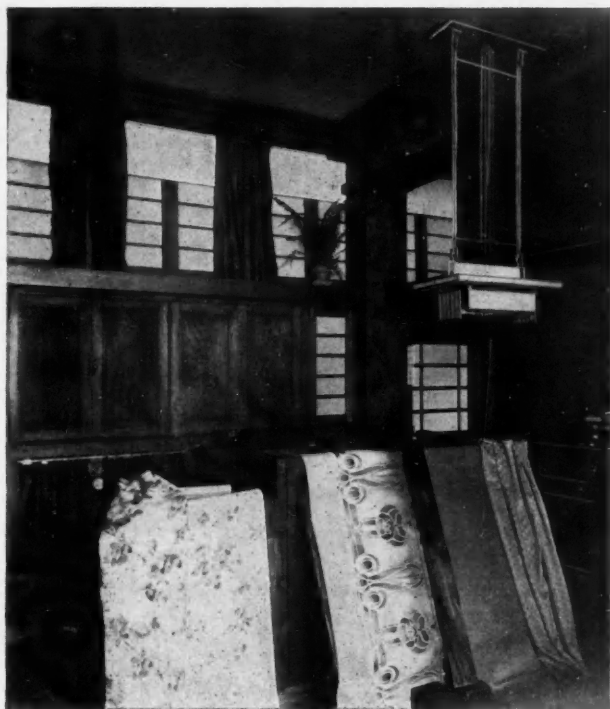
A clear aisle from the front door of the store to the door into the stock room is afforded.

The decoration and interior finish of this exhibit room are in keeping with that of the exterior. Two heavy beams extending from front to rear and supported at either end by massive pillars are suggestive

of strength and serve to break the ceiling into appropriate panels for decoration. These panels act as repeats in the arrangement of the room below, as shown in the aisle on the one side, the four stands in the middle and the stair and desk room on the other side.

Fig. 2 also shows the admirable arrangement of enclosed wall cases. No ladders with the accompanying ungainly gymnastics, loss of time and showers of dust. In these cases can be kept samples of brushes, shades, curtain rods, picture mouldings, wood finishes, table drapery, silk and lace hangings and wall papers of delicate shades.

Directly back of the display window is a long seat with comfortable cushions. Fig. 3 shows the view one gets from this point. The stands shown in the foreground serve a variety of purposes. Within and



enclosed are kept wall paper and other samples; on top is displayed the art pottery, and sheet metal work, photographs of interiors, etc.

This picture also illustrates the novel manner of lighting. Over each stand is an electrolier of novel design. Two rows of incandescent globes are enclosed by art glass hangings. The direct light is thrown upon the object displayed while the light which reaches the eyes of the observer and which spreads over the store is diffused and softened. The rich color of the brass, the quiet tone of the colored glass, the restfulness of the lines and the pleasing space proportion make these fixtures integral parts of the entire decorative scheme.

This picture shows the manner of arranging the desk room and the stair, which give entrance from the street to the second floor, so that the symmetry of the scheme is not appreciably broken, the stair wall

being on a line with the beam above and the beam being carried over the desk space.

In Fig. 4 will be seen the manner of conveying light through the partition to the stock room. These glass panels are opalescent and assist materially in the decorative scheme. The doors which also have glass panels are especially pleasing.

The closed cases contain the paints and stains and are easily reached.

The color scheme for the walls is as simple as is the woodwork. A patent covering well suited to withstand wear is used. The colors are soft and shade from dark brown through copper color to ivory white. The woodwork is finished in tobacco brown, which dwells in quiet peace with the wall coverings.

One is struck with the attention which is paid to the small details of the trade. Art pottery, tooled leather, sheet-metal work, etc., find a place in the display and, indeed, add much to the decorative scheme of the exhibit room.

Possibly the demand for arts and crafts products is but the outgrowth of a fad; nevertheless it is not for the dealer to scoff at it, but to try to understand the feeling which prompts this demand and to supply it. The writer is certain that the simplicity to which this movement has returned is not a fad and that, in spite of some of the resultant crudities, the dealer may profit thereby if he keeps this in mind when laying in future stock.

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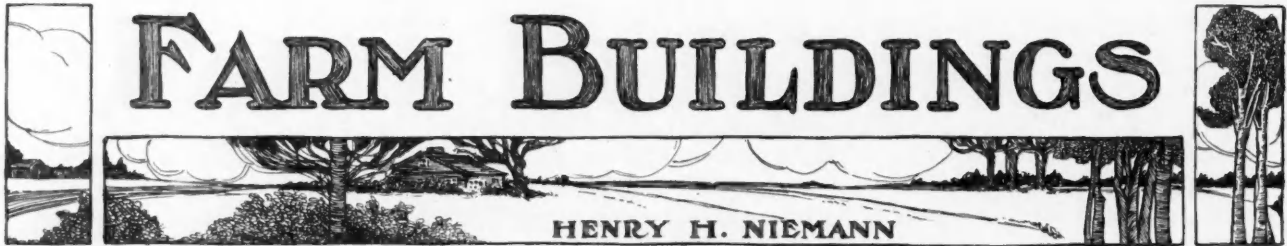
Cement Stucco House

(Continued from page 537)

be disastrous, for right in these first and second coats of the cement stucco is where the strain comes and where the strong cohesion of portland cement is most needed.

Again, the finishing work may be improperly done so as to give a tame dead effect to the appearance of the building. There are a number of other essential items that careful painstaking study and investigation and that experience have placed in my hands which materially affect the success of this valuable style of building construction.

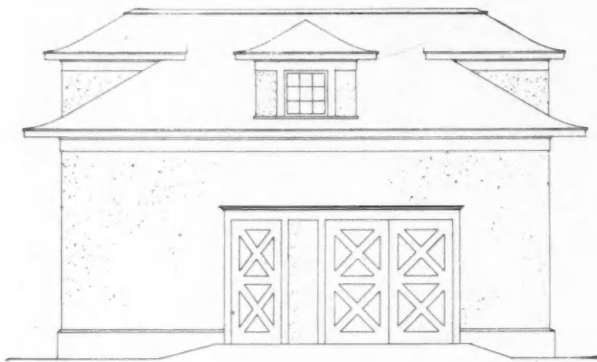
The use of any kind of masonry in buildings requires a good foundation. This is also true of cement plastered buildings. Any settling of a poor foundation would mar the face of the walls with cracks that are very objectionable; in fact, the contractor would not be justified in applying cement stucco on any building with a poor foundation under any circumstances whatever. It is preferable, although it is not absolutely necessary, to have a full basement under a cement stucco building. The cost of a full basement above what it would cost to wall part of the basement and put a good foundation under the balance of the house is small, and the full basement can be finished at any time in the future, if not at once, by plastering the walls and ceiling with cement and by concreting the floor.



Small Suburban Residence Barn

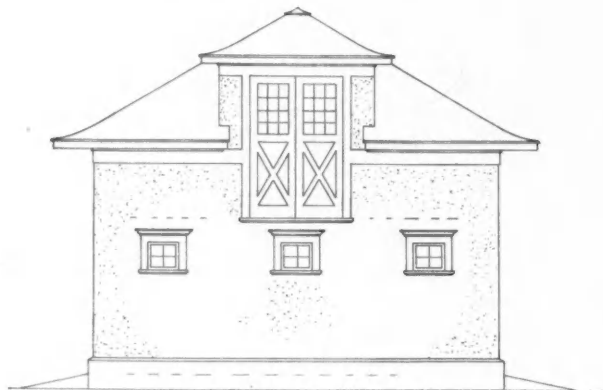
ELEVATIONS AND FLOOR PLANS OF A ROUGH CAST CEMENT PLASTER BARN—CONSTRUCTION FULLY EXPLAINED

WE ARE this month illustrating a small suburban residence barn which is erected at Wheaton, Ill., for the accommodation of two horses and two cows. It is 26 feet wide by 34 feet long and constructed of frame with cement plaster "rough cast" exterior wall and stained shingle roof

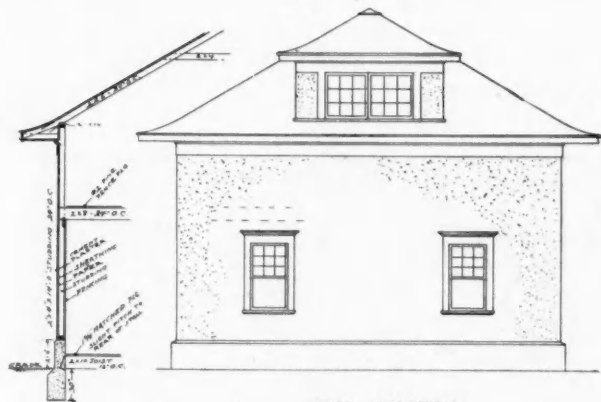


set on a foundation of concrete which runs one foot higher than the ground floor, thus avoiding all dampness from the floor and ground coming into contact with the wood construction, which would otherwise soon decay.

The sill of a barn is always the first member to start decay on account of dampness absorbed from the ground, and if this essential member of the structure is rotted away the balance will soon follow. Any method employed in the construction of a building that will lengthen the life of the sill is the best investment about the building.

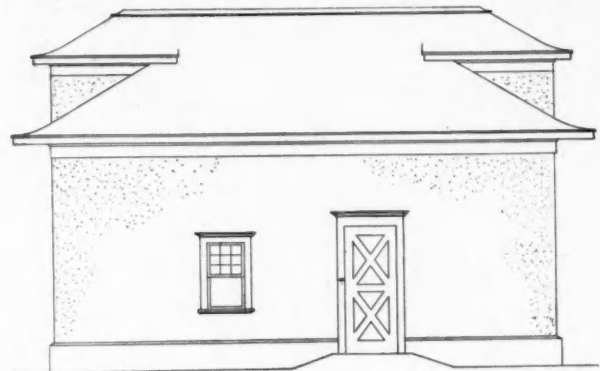


WEST ELEVATION



EAST ELEVATION

The roof of a building is justly considered the most important part; a building can be built without a foundation by setting it on posts or masonry piers, and for a few years perform all its requirements, but the roof can never be omitted; and like the sill, it must be kept in good condition or the building will soon go to ruins. One of the most important parts of the roof is the gutter or cornice which, if made without projection beyond the vertical walls, is of little value, as it will

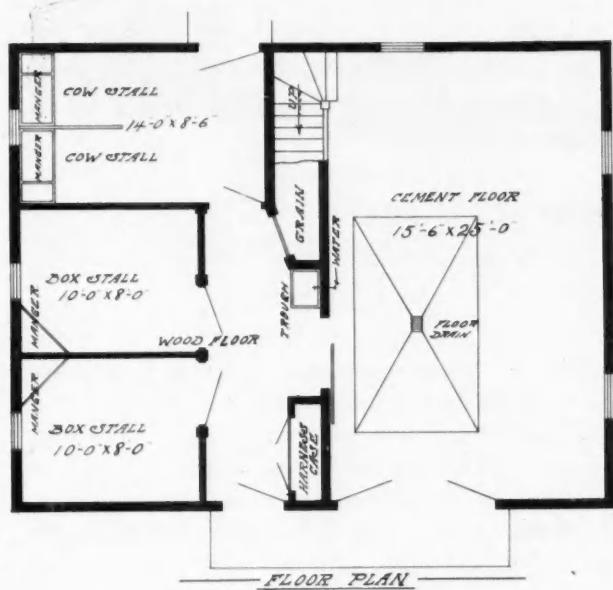


NORTH ELEVATION

allow the rain to run down the sides of the building and soon make the walls look weather worn and streaky from the dust which is washed down the walls with the rain. A well built cornice with a good projection not only avoids this trouble, but also protects the walls from the hot summer sun as well as giving architectural grace to the design.

The outside walls of this building are constructed of 2 inch by 4 inch studding, 16 inches on centers,

sheathed on the outside with matched sheathing, then covered with waterproof building paper; then 1 inch by 2 inch furring strips placed 16 inches on centers (or over each studding); then lathed and cement plas-



tered. This not only makes a very durable wall, but is warm in winter and cool in summer.

The carriage room and cow stalls have cement floors and the box stalls are of plank. There is a large hay room on the second floor, a grain bin under the stairway and a harness case near the horse stalls.

NEWS-ITEMS

At a special meeting of the directors of the Joseph Dixon Crucible Company, held May 31, to take action on the death of Vice President and Treasurer John A. Walker, Geo. T. Smith was elected vice president, Geo. E. Long treasurer, and Harry Dailey was elected director and secretary.

In the latter part of April the Navy Department of the United States Government sent out inquiries for a block machine for government purposes. The award was made in May and the Hayden Automatic, made by the Hayden Automatic Block Machine Co., of Columbus, O., was adopted and the equipment has been shipped.

The National Store Front Company, of Pittsburg, Pa., have just completed the erection of a new electric power plant. Although this company is only eight months old, the National store front construction is installed in every leading city in the United States and handled by all the warehouses of the Pittsburg Plate Glass Company.

The Page-Storms Drop Forge Company, of Springfield, Mass., have placed their order for one 300 H. P. Weber triple cylinder vertical gas engine with twin suction gas producers, which is to operate their new half million dollar plant at Chicopee Falls, Mass. The fuel used in these producers will be buckwheat anthracite coal. The engine and producers will be installed by the Weber Gas Engine Company, Kansas City, Mo.

H. A. McMoore, engineer, formerly with the Harlem Contracting Company, of New York City, has been engaged by the General Fireproofing Company and is at present located at the home office and works in Youngstown, O. Mr. McMoore will be connected with the reinforced concrete department and will be particularly concerned in designing and estimating work in which the General Fireproofing Company's system is to be installed.

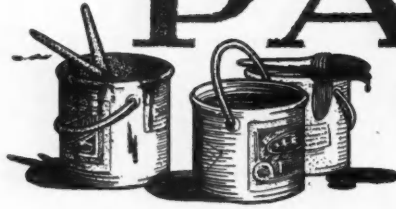
The Simpson Cement Mold Company, of Columbus, O., have just issued another in their series of illustrated sheets showing notable porches made from their molds. It is attracting much attention in the trade and the company reports large returns from it in the form of orders from all over the country. This firm has made a recent shipment of a large outfit of their molds to Honolulu, and their reports from that remote point indicate that the cement proposition is taking strong hold on the builders there. A shipment of the molds made some weeks ago to Sunderland, England, has resulted in many inquiries from interested Englishmen who have seen the work, and the prospects are for a good volume of business in the "tight little isle."

John A. Walker, vice president and treasurer of the Joseph Dixon Crucible Company, died at his home, Jersey City, N. J., on May 23. Mr. Walker was born in the city of New York, September 22, 1837. He received his early education in the schools of Brooklyn, and, although prepared for college in a private school, chose commercial life. After an excellent business training in the city of New York, and after serving his country in the civil war of the south, Mr. Walker in 1867 became connected with the firm of Joseph Dixon & Co., of Jersey City. In 1868, when Joseph Dixon & Co. became incorporated as the Joseph Dixon Crucible Company, he was made secretary of that company and began his life work in making known to the world the many uses of the then but little known form of carbon—graphite—of which the Joseph Dixon Crucible Company have been the best and most widely known exponents.

I am a very busy man, and I give you the credit for it to some extent. Since I subscribed for your paper my business has increased, my mind broadened and extended. We now have a cement plant with the necessary machinery and employ six men, and I used to do my work mostly alone.

N. P. HESS & SONS, San Luis, Col.

PAINTING



Edward Hurst Brown



Painting the New House

CLEANLINESS AND THE PAINTER'S HEALTH — TREATMENT FOR AN OLD SHINGLE ROOF — FIRE RISKS AND OTHER TIMELY TOPICS

EVERY Monday morning, the journeymen painters employed by all the large city shops are required to present themselves at their work with a clean suit of white overalls and jumpers. There is no doubt that this rule helps to create a favorable impression upon the mind of the customer, for it is far pleasanter to see the men in their clean, white overalls than in paint bedaubed clothing. But the rule has a far more important significance. The painter handles some materials of a poisonous character. White lead, the stand-by of the old-time painter, is a deadly poison, so is chrome yellow, and so are all other colors derived from either lead or copper. The painter who allows his clothing to become covered with paint runs a great risk of undermining his health. Lead poisoning is caused by minute particles of lead which are absorbed into the system through the stomach, and manifests itself first by a bluish discoloration of the gums and loosening of the teeth, as well as by severe colic like pains. These finally lead to wrist drop and partial paralysis and terminate in dropsy. These symptoms are due to a disordered condition of the kidneys, caused by the presence of lead in the system. While they may be alleviated in the earlier stages by the sufferer drinking large quantities of skimmed milk, or preferably buttermilk, and living principally upon fruit and avoiding the use of meat, liquor and tobacco; it is much easier to prevent than to cure lead poisoning. The first thing to be observed by the painter is to avoid eating or even taking a chew of tobacco until after he has taken off his overalls and thoroughly washed his hands. Soap, however, unites to a certain extent with lead, and carries the metal into the pores of the skin. It is safer, therefore, to first rinse the hands in clear water to which a few drops of sulphuric acid have been added. This unites with any lead which may be present and changes it into a harmless lead sulphate. The hands may then be washed with soap, using a nail brush or handscrub to thoroughly remove all traces of paint from underneath the nails and in the cracks of the skin. Care must be taken not to use too much acid or it will burn the hands. A special soap is made in Germany for the use of workers in lead, but rinsing the hands in acid water will

answer practically every purpose. Another thing that is necessary is for the painter to refrain from using alcoholic liquor before going to work or while at work, and he should also avoid the use of acid foods such as salads and the like, containing vinegar. The reason of this is that these cause an acid condition of the stomach and the acid breath acts on the lead, forming a lead compound which is breathed or absorbed into the system. If a painter must drink liquor he should wait until after the day's work is done. The required regulation of the weekly clean overalls, together with more careful personal habits among mechanics than formerly, and the fact that men are more temperate in their habits of eating and drinking than they were thirty or forty years ago, has largely done away with the lead poisoning that was at one time the dread of the painting trade. Then again, the painter uses white lead ground in oil, whereas a generation or so ago, the painter bought the dry white lead and ground it himself in a hand mill. The dust from the dry white lead was apt to be absorbed by the system, resulting in lead colic or poisoning. There is no danger from lead poisoning that can arise from the application of lead and oil paint, provided cleanliness is observed. Another thing that contributed to the poor health of painters in those days was the fact that a great many rooms were finished with painted walls, the paint being mixed with turpentine in order to dry flat. To produce a smooth and even tint, it was necessary to keep the windows closed, and the painter was obliged to work in a room that was filled with the fumes of turpentine. As this affects many people very injuriously and has a peculiarly depressing effect upon the nerves, many painters were tempted to resort to stimulants in order to continue at their work, thus rendering themselves peculiarly liable to lead poisoning. The use of wall paper for decorations and the abandonment of painted walls thus seems to have been directly beneficial to the painter's health.

Painters' overalls can be cleaned by boiling them with washing soda or a strongly alkaline washing powder, such as Gold Dust. They should then be thoroughly rinsed with clear, warm water.

Referring to the fact that the smell of the turpentine

from fresh paint is often very disagreeable to persons living in the house, it is said that it can be neutralized to a great extent by leaving bowls of water, or preferably of milk, in the room. The liquid will absorb the turpentine fumes and render them innocuous. It has also been stated that a dish of sauerkraut left in the room will also absorb the smell of fresh paint, but the remedy in this case would seem to be almost as bad as the disease.

Fire Risks in the Paint Shop

Carelessness is no doubt the primary cause of most of the paint shop fires that are reported, and to this may be largely attributed the high rates asked for insurance on paint shops. On looking over the reports of fires in such shops it will often be found that some one was drawing benzine or gasoline or a benzine varnish from a barrel with a candle or open lamp standing near. All this work should be done either by daylight or else an electric incandescent light should be used. On no account should an open lamp, candle or gas flame be allowed in the room in which the oil, varnish or benzine tanks are kept.

Matches lighted and carelessly thrown down before they have been extinguished, and falling into a pile of oily rags, a lot of wall paper trimmings or onto a lot of paint drippings, often cause unexplained fires in paint shops. Or matches carelessly dropped upon the floor and stepped upon afterward, may cause fire. It is better to allow none to be used but safety matches that strike only on the box. A sheet iron barrel or receptacle, with an iron lid, should be provided for all oily rags, waste and the like, and this should be emptied every day and the contents burned. Rags dampened with linseed oil and driers, or with boiled linseed oil, and thrown into a heap, will very frequently ignite by spontaneous combustion. Fires have also been caused by spontaneous combustion in a pile of painters' overalls that have been thrown down in a heap. This is due to the oxidation of the oil in the paint with which they have become smeared.

The paint shop floor should be kept clean. In many shops the floor will be found to be coated, often a half inch or more deep, with old paint or paint skins. These accumulations, being composed largely of oil and other inflammable materials, very greatly increase the fire risk. Ordinary cleanliness will prevent them—the stitch in time that saves nine, for the right way to prevent these accumulations of paint is to have the shop cleaned every day.

Metal troughs or pans should be kept under each barrel or tank where oil, gasoline, benzine, turpentine or varnish is kept. These should be large enough to stand a paint pot or can in, so that any drippings will be caught in the can and not spilled on the floor. An excellent plan is also to cover the floor under such tanks or barrels with sheet zinc.

The following articles that are found in paint shops are explosive or exceedingly inflammable if brought

in contact with or near a flame, and should always be handled with caution: Asphaltum and other benzine varnishes, benzine, gasoline or naphtha (there is very little difference in these three petroleum distillates other than a difference in flash point), cheap rosin varnishes which are almost always thinned with benzine, and practically all of the paint and varnish removers now on the market. While the above are safe enough, when properly handled by daylight, they should never be used in a room with an open light or fire, since the vapor arising from them is inflammable and the flames will often be carried for several feet back to the original container, causing an explosion and often a disastrous fire.

As a precautionary measure, every paint shop should be provided with a double set of fire buckets, one containing a strong salt water solution and the other containing sand. The salt water may be thrown upon a fire starting in paper or rubbish or in a heap of oily rags or overalls, but the sand should be used upon burning oils or paints. Sand will smother the flame in the latter case, whereas water might spread it. It should be a fixed rule in the shop that every Saturday evening or Monday morning, as the case may be, the water pails should be filled—it will not be necessary to empty them, but just to add more water to make up for the loss by evaporation. The pails should be painted red, with the word "Fire" upon them in white letters, and no one permitted to use the pails for any other purpose except in case of a fire.

Too great care cannot be exercised in the use of the gasoline torch for removing old paint, etc., and all the valves and tubes in these lamps must be kept scrupulously clean, otherwise there is always the danger of explosion. In burning off old paint from the side of a house, there is always a danger of the flame finding its way through some crevice between the clapboards into the open space between the studding and causing a fire that will spread with great rapidity unless it is stopped at once. A pail of water ready to dash upon an incipient fire, should always be kept on the scaffold when burning off is being done.

Paint Shop Waste

There is a great deal of unnecessary waste in the average paint shop that eats a big hole out of the profits. A great deal of this is due to the lack of system in using up the returned paint from the jobs. Paint pots that are allowed to remain open to the air soon skin over and their contents become useless. An excellent plan is to have two covered metal paint kegs into which the returned paint can be emptied—the lighter colors into one keg and the darker colors into the other. While this paint cannot well be used as a priming for new work, there is a great deal of rough work on which paint of this character can be used to advantage, such as fences and the like.

Paint pots and brushes should be cleaned at once, and the latter should not be allowed to stand around

and harden and get unfit for use. Brushes are a far more expensive item in the paint shop account than many people realize. In fact, many painters neglect entirely in estimating on work to make any allowance for this item, although it will average not less than ten cents per day for each man employed on the work, provided reasonable care is taken of the brushes, but if they are neglected and allowed to dry hard, they will cost far more than this. A brush can be washed out with benzine or naphtha after using, or a little varnish remover can be used to clean it. These modern, neutral varnish removers may also be employed to clean old, hard brushes and put them in condition for service again. A paint brush may, after being partially cleaned, be washed with water and a strong soap powder; and after washing it as thoroughly as possible, allow the suds to remain in the brush and dry there. The brush should then be laid away on its side on a shelf, after first pressing the bristles into shape. When wanted again, the dried soap can be thoroughly dusted or shaken out of the brush and it will be found to be in good condition.

Small portions of putty should not be allowed to stand around and harden. But if an accumulation of this kind occurs, these lumps of putty may be cut into small chunks and placed in a pail of water and some linseed oil—just enough to cover the old putty, and stood on the stove to simmer for a day or two. The water will soften up the putty, and will gradually boil out, while the oil will become incorporated with the putty and by working it a little, it can be rendered fit for use.

Treatment for an Old Shingle Roof

One of our readers has recently purchased a house which has been built some four or five years, and the shingle roof of which has never been painted. In order to beautify the house, he now desires to stain or paint the roof with some material that will not injuriously affect the quality of the water for drinking purposes.

This is a problem which often is presented to the painter and one that is rather difficult to solve. If the mere question of preserving and beautifying the roof were to be considered, the best treatment would be to give the shingles two coats of creosote shingle stain, of any color that might be selected. Now while creosote is one of the best wood preservatives known, and is an excellent disinfectant, it is poisonous in the same way that carbolic acid is, because of its irritating effect upon the tissues of the body. However, this would be so slight in the case of rain water passing over the roof, that it might be neglected, were it not for the fact that the creosote gives a very disagreeable taste to the water. Any paint containing lead in any form should be avoided because lead is an active poison and minute quantities continually absorbed into the system produce diseases of the kidneys and what is known as lead colic. While no evil results would

probably be noticed, so long as the paint retained its gloss, as soon as the oil had been sufficiently decomposed by the action of the weather, the white lead would begin to powder or chalk and the minute particles of powdered lead carbonate would be carried down by the rain into the cistern, and would be absorbed into the systems of those who used the water for drinking or cooking purposes. Even mixed paints, composed largely of zinc white, would not be so entirely free from this defect as to be absolutely harmless. Moreover, in applying paint to a shingle roof, it is very difficult to avoid getting little dams of paint between the shingles. These retain the water, after a rain, permitting it to get back of the shingles and rot them. For these reasons, we are limited to an oil stain, and must carefully avoid using a stain that is made from any color containing either lead or copper, both of which are poisons.

To make an oil stain, earth or mineral colors only should be used that are ground to the utmost degree of fineness in pure linseed oil. Although the price is higher, the best grade of chemically pure colors should be bought. The colors adapted for the purpose are red and brown iron oxides (Venetian or Indian red and Princes' Mineral brown) burnt and raw umber, burnt and raw Sienna and Vandyke brown. These, mixed in various proportions, will produce a large range of yellow, brown and red stains. For green tones, mixtures of lamp black with ochre or umber may be used, or a little Prussian blue may be added. The colors should be thoroughly broken up with equal parts of boiled linseed oil and liquid driers of the best quality, and thinned to the required consistency with turpentine. The stain should be mixed much thinner than paint, or say about the same consistency as white-wash. Two coats of stain will be necessary. Ordinarily a gloss is not demanded upon a roof, but if it should be, the roof may be given two coats of a good quality of spar varnish, after it has been stained.

Protecting Painted Ceilings and Walls

In those sections of the country where soft coal is burned, a great deal of damage is done to painted decorations upon plaster by the deposit of soot or grime, which accumulates upon their surface. In some of the western cities a very simple method of protecting a painted ceiling or wall that has been done in oil color, has been adopted by many of the leading painters. After the work is completed, it is stippled with a thin coat of clear laundry starch. This forms a transparent coating over the surface of the painted wall or ceiling, which does not sensibly affect its appearance. Whatever grime may be deposited is held by this starch coat. When the wall or ceiling becomes dirty, all that is necessary is to wash off the starch coat with clean water and a sponge, and at the same time take the dirt and grime with it. The surface is left clean and practically as good as new. A fresh coating of starch can then be given and the

painted surface is ready for another season of usefulness.

Saving Sponges

Sponges are a pretty expensive item in the paint shop, because they not only cost quite a little at first but they wear out very soon, and the friction quickly tears them into small pieces. They are chiefly used in washing off old kalsomine or water color paints from walls and ceilings before they are again tinted or decorated. A well known painter in Cambridge, Mass., has hit upon a novel plan for utilizing the small pieces of sponges that would otherwise be wasted, and also for using small sponges that can be bought for a much lower price than the large sponges ordinarily used. He took Turkish toweling and sewed it into bags about six inches square, and filled these, not too tightly, with the pieces of sponge. These sponge bags proved to be just as effective for washing walls and for all other purposes for which sponges are employed in the shop as the large sponges. When the bags became badly worn, they could simply be covered up with another bag, thus prolonging the sponge's life indefinitely. He later found that, for most purposes, burlap or bagging would answer as well as the Turkish toweling and was not quite so expensive. This same idea could, without doubt, be utilized in all places where sponges are used, as in washing carriages and the like.

Tinting a Cement House

It not infrequently happens that in building a concrete house, the cement will dry out in several colors or shades, and it is found desirable to tint the entire surface of a uniform color, that shall not be paint, but practically a part of the house itself. This result may be secured by washing the whole house with cement, but there is a trick in doing this properly that is not always understood. The cement wash is made by mixing two parts of Portland cement and one part of marble dust with enough water to reduce it to about the same consistency of whitewash, and is applied with a whitewash brush. The wall must be thoroughly wet with water for several hours before the wash is applied and kept constantly wet during the application, and for at least a day afterward. The important thing to remember is that the wash must not be applied to a dry wall, as it will not adhere. This work will be worth at least a dollar a square yard, or more, according to the price of labor, but the result will fully justify the cost.

Colors for House Painting

The effect of a house may be improved or marred by the choice of colors for painting it. There is no doubt that the old New England houses, with their white paint and green blinds, presented a very charming appearance, when seen amid the beautiful elms of the quiet village streets, and indeed a white house almost always looks well when surrounded by con-

siderable foliage. On the other hand, a white house becomes very glaring, when it stands out in the open, with the bright sky as a background. This shows at once the necessity for making the colors harmonize or fit in with the surroundings, hence no general rule for color selection can be given. The idea that one color or one class of colors, should be chosen because it is fashionable or the prevailing mode is for this reason rather an absurd one. In general, it may be said that dark colors should be selected only for a large house that stands out in the open, while lighter colors or tints should be chosen for houses that stand among trees or which are not over large. A house looks larger when painted in light colors than when dark colors are used. This is a point that should always be remembered, for most persons experience a keen feeling of disappointment if their house appears small, while if it can be made to look larger than it is they are more than satisfied.

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If You Knew Dad

It is on Decoration Day that my pa swells with pride,
And talks in words of fire of the gallant men who died
A-saving of their country in the dark days of the war—
He seems the bravest mortal that a feller ever saw.
Why, you'd think he'd been a colonel or a general, maybe,
And in the very fore rank of his cheering soldiers he
Had won a hundred battles, perhaps been wounded bad!
But, no, you wouldn't think so, if you knew dad!

Ma says, "Pa's brave enough, I 'low, but he's so mortal slow
That when he'd got his courage up there was no war, you
know."

And pa looks daggers, and remarks, "Matilda, you must own
You begged me not to go because you 'as 'fraid to stay alone.
You know," adds pa, quite proudly, "I'd have enlisted, too,
But you said it was my duty plain to stay and care for you."
Of course I wasn't living then—I only wish I had.
But I have my opinion, for I know dad!

—Edgar Welton Cooley in the *May Woman's Home Companion*.

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Mark Twain on Advertising

Mark Twain says: "When I was editing the *Virginia City Enterprise*, writing copy one day and mining the next, a superstitious subscriber once wrote and said he had found a spider in his paper. Was this good or bad luck? I replied to him in our 'Answers to Correspondents' column as follows:

"Old Subscriber—The finding of a spider in your copy of the *Enterprise* was neither good luck nor bad. The spider was merely looking over our pages to find out what merchant was not advertising, so that it could spin its web across his door, and lead a free and undisturbed existence forever after."

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I think the AMERICAN CARPENTER AND BUILDER is the greatest benefit to a mechanic that he can get, and would not take a great deal for it.

E. D. SMITH, Sugar Grove, Pa.

Decoration in the Colonial Style

PROPER TREATMENT FOR MODERN COLONIAL HOUSES — WHERE IT ORIGINATED — EXAMPLES OF THE SAME

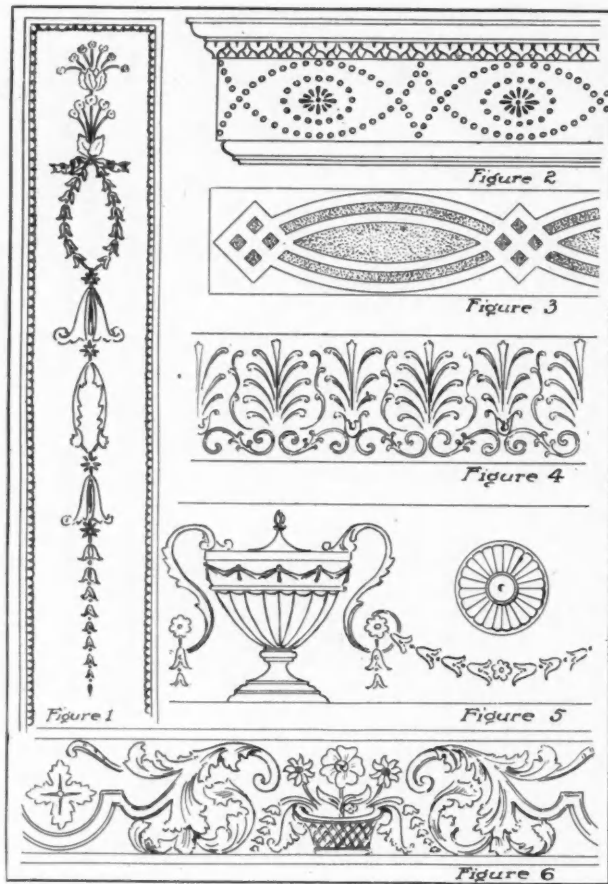
By Sidney Phillips

THE buildings erected in this country prior to the Revolution and within ten or fifteen years afterward were so direct and simple and so admirably adapted to the needs of the climatic and other conditions of the country, that there is small wonder for the popularity of the revival of the Colonial style, which took place shortly after the Centennial

book of details, which they adapted to prevailing conditions in the colonies; and the transplanted style, modified as necessity compelled, became the Colonial architecture of our own country. These styles naturally varied in accordance with the character and nationality of the early settlers in the different colonies. In New York and portions of New Jersey there are marked traces of the Dutch architecture of the early Renaissance period, while in Virginia, Pennsylvania and New England, it is more typically English. Some of the best of the Colonial work was done about the time that Sir Christopher Wren was rebuilding St. Paul's cathedral after the great fire of London, and one or two of the early churches in Philadelphia are said to have been designed by him. In furniture and decorative woodwork the influence of Chippendale, Sheraton and the Brothers Adam is very marked, and doubtless some of the finest early pieces are products of the workshops of these famous designers. We are, therefore, safe in studying, not only the architecture of our own Colonial period for motifs for our modern Colonial designs, but we can likewise take that of the corresponding periods in England, including the time of Queen Anne, and the early Georgian epoch.

If our only knowledge of Colonial architecture were obtained from the examples now existing in New England, we would naturally suppose it to have been very plain and severe and devoid of much elaborate ornament, but that was rather because the early settlers in those colonies were people of the poorer classes and moreover were severely Puritanical in their tastes and mode of living. Not only their houses, but their churches also were devoid of the rich carving and ornament that one finds in such profusion in the old mansions of Pennsylvania, Virginia and Maryland, and in the old churches and civic buildings in these same states. Any one who has ever visited Mount Vernon must have been struck with the elaborate carvings and the ornamental work in that fine old mansion, but it must not be forgotten that Washington was one of the wealthiest men in the country at that time and he could well have afforded to spend a large sum in the decoration of his house, which was by no means unique, but was typical of the many fine mansions that so well befitted the luxurious mode of living common in the more southern colonies, including Pennsylvania. Many of the old houses in and around Philadelphia are particularly fine examples of richly ornamented architecture and excite admiration today for the beauty of their workmanship and the elaboration of their detail.

Some of our architects and decorators have, in some way, obtained the idea that the decorations and wall



Exposition at Philadelphia, and which may have been caused by the greater interest taken in early American history at that time, and since then. Indeed, if it were possible to predict in matters of taste, one might say that there is every likelihood that the Colonial style, modified to adapt it to more modern methods of construction and to present day modes of living, will long continue in favor, both with the architects and the people.

Strictly speaking, there is no Colonial style, as marking an architectural development different from anything in other countries. It is a mere adaptation of the styles prevailing in Europe at the same time, for naturally the carpenters and builders in the early Colonial days had learned their trade in the mother country, and brought with them their knowledge and their

hangings suited to a house in the Colonial style should necessarily be very plain and severe in their character, but this is by no means the case. While there is very little of the old decorative work left, except in the more permanent features, such as wood carving, enough still exists to show that the wealthier people indulged in rich and elaborate decorations, and that provided they are in keeping with the proper period style, the most elaborate decorative treatment will

with. This would make a fine frieze either executed in free hand or plastic relief, or as a stencilled decoration. A public building, the state capitol at Annapolis, Md., has been turned to for the ornament shown in Fig. 5. This also would make a fine frieze. Fig. 6 is a carving taken from the stair well of a house near Yorktown, Va. This will give suggestions for both relief and painted decorations, but could not be executed in stencils.



Fig. 7

comport perfectly with the modern Colonial house, while at the same time, a very simple style is perfectly admissible.

Perhaps the best way to determine what kind of ornament is best adapted to modern Colonial work is to study actual examples, and for this reason we show a page of sketches drawn from old buildings in which the ornament might be termed typical of the style. These examples have all been taken from carved work, although the forms are just as well adapted for ornamental plaster or painted decorations. Fig. 1 is taken from a panel in the trim of a parlor door in an old mansion on Long Island, although in the original it repeats a number of times, extending quite a length down the side of the door. This shows the conventional laurel and other semi-classic forms of the period. As a painted or plaster decoration it could be adapted to the ornamentation of a pilaster or a vertical panel in a dado. Fig. 2 shows a portion of a series of moldings from a very ornate mantel in a fine old stone house in Germantown, Philadelphia. The interlacing bead ornaments could be effectively used in a great many different ways, either in stencilling or relief work. Small plaster beads can be bought by the hundred for wall decorations, and arranged as shown, they would make a very effective frieze. Fig. 3 is a detail from a mantel in an old house in Williamsburg, Va. This decoration is very simple in its lines but would make an effective stencil ornament for a dado cap, a panel border or a frieze. Fig. 4 is one of the members from an elaborate carved architrave over the door in a house in Whitehall, Md. This design is evidently founded on the Greek honeysuckle ornament as a motif, and is perhaps the most strictly classical of any of the old designs shown here-

Turning to the modern Colonial decoration, we show in Fig. 7 a typical frieze design that is intended to be executed in stencil above a plain wall or a small pattern, cloth effect, wall paper. This design shows the

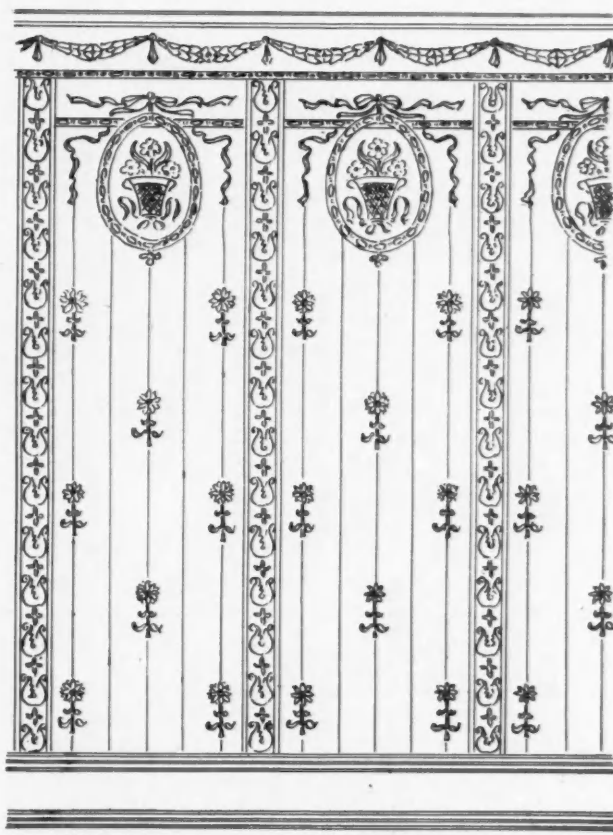


Fig. 8

flambeaux or torches, the garlands of laurel and festoons of laurel leaves and swags of pearls, which are also used in the Empire style, as one of the European

styles contemporaneous with the later Colonial period. In the latter, however, the ornament is treated in a lighter and freer manner than in the Empire. Many cut stencils for friezes of this character can be obtained from the stencil cutters to the trade in New York and Chicago, and by carefully choosing the colors, artistic and highly decorative results can be obtained from their use. For example, the wall might be hung with either yellow, gray green or light green buckram; this design being stencilled just below the ceiling, as a frieze, using either white or ivory white as the stencilling color and separating the frieze from the wall by means of a picture molding which, like all the woodwork, should be finished in white or ivory, either flat or enamel. Or, if the wall be red or a dark green, then the stencil color may be either a darker or lighter shade of the wall color, or may be either in gold or copper bronze. Other combinations of color will readily suggest themselves. For example, the torches might be in gold, the laurel leaves in green and the pearls in white on a red ground. In this case, of course, several stencils are required, a separate one being cut for each color.

The elaboration of ornament which is proper in connection with the Colonial style, is illustrated in Fig. 8, which may be either executed in stencils or in wall paper. The leading wall paper manufacturers are offering many beautiful designs of this character that are suitable for use with Colonial architecture. The soft and delicate, and preferably light colors should, as a rule, be chosen, because they harmonize better with the delicate lines of the moldings of this style.

Here and there we still find examples of some of the beautiful old pictorial wall papers that were in vogue a century ago, and which were imported into this country from France or from China. Of late, a good deal of interest has been taken in these old papers, and a demand has arisen for similar wall decorations. Some of the foreign manufacturers have produced very beautiful examples of this character of decorative wall papers which closely approach the character of the old pictorial papers and enable one to faithfully carry out the style.

Proportion in Decorative Design

Mr. J. R. Mills asks how to arrive at the proportions of frieze, dado, wainscoting, etc., for a given height of ceiling and size of room. There is no rule whatever for this, but it must be determined by the judgment and experience of the decorator and the effect which he desires to produce. Attempts have been made at times to work out some mathematical formula for determining the exact proportions of a room and of the incidental features of the decorations, but all such attempts have been practically valueless. Experience must, after all, be the best and safest guide to follow. As well ask for a rule for writing a poem as to ask for a rule by which one can acquire

that sense of proportion which will invariably yield the best results. It must be born in a man. Yet, nevertheless, by observation and study of good examples, any man of good taste may acquire the happy faculty of proportioning decorations so nearly right that they will give pleasure to the beholder. Certain things must be remembered, however. Vertical stripes increase the apparent height of a room. Where a room is too low and we want to increase its apparent height, run the wall paper or decorations from baseboard to ceiling without a break, using a striped effect if possible. Large figures tend to reduce the size of a room, and should be used only in large apartments, or for upper-thirds over a base made up of a small unobtrusive figure or cloth effect. The division of a room into frieze, wall and dado bring down its apparent height. This can be counteracted in a measure by using a high dado made up of tall and narrow panels. The height of the molding is generally determined by the height of the doors and windows, where a two-thirds treatment is to be used. The picture molding should always be kept at such a height that the pictures may be hung at the eye level or slightly above it. From five to six feet is about the proper height for the bottom of a picture except in the case of a picture gallery. A plain white or light colored ceiling appears higher than it really is. A dark colored or figured ceiling appears to come down. Running the ceiling paper down on the side wall for a few inches lowers the apparent height of the room, but tends to increase its apparent size. The height of the picture molding is often determined by the pattern of the paper or the fabric. This is particularly the case where a large figured pattern is employed and the material is an expensive one. A variation of a few inches, one way or the other, will often save much waste in cutting. These are a few of the principles which serve to determine the proper proportions for the different parts of the wall's decoration. Hence it will be seen that it is impossible to lay down any arbitrary rules.



Some Stove Lore

If you use stoves in the house and they will not be in use this summer do not try to clean them with stove polish, but give them a good coating of black varnish. It is much nicer than polish and will look well all summer. By fall, when fires are needed, the varnish will be so hard and dry that no unpleasant odor will be noticeable when the fires are started. The sides of the kitchen stove or range can be treated in the same manner, but the top must be polished with stove polish.



Don't leave some dimensions to be gotten by adding a lot of other dimensions together or by subtracting them; all figuring should be done in the drafting room.

Manual Training



Ira S. Griffith

Something the Boys Can Make

GIVING COMPLETE ILLUSTRATED DESCRIPTION OF HOW TO MAKE A MORRIS CHAIR — KINDS OF WOOD TO USE AND PROPER FINISH FOR SAME

IN RESPONSE to requests for the plans and description of another Morris chair, the following is submitted. Those who have the back numbers of the AMERICAN CARPENTER AND BUILDER will find a Morris chair described in the May, 1906, number.

The chair shown in the accompanying picture is somewhat easier to make. It is just as roomy, however, and of just as thorough construction.

In a piece of furniture of this size, it is just as well to buy the stock mill-planed to the right thicknesses. The legs may as well be got mill-planed on the four sides to the correct width and thickness. Well seasoned white oak, plain sawed, makes the best chair.

The pieces required are as follows: 4 pieces $2\frac{1}{2}$ inches, by $2\frac{1}{2}$ inches by 25 inches; 4 pieces $\frac{7}{8}$ of an inch, by $5\frac{1}{2}$ inches by $23\frac{3}{4}$ inches; 2 pieces $\frac{7}{8}$ of an inch, by 3 inches by 21 inches; 2 pieces $\frac{7}{8}$ of an inch, by $5\frac{1}{2}$ inches by 40 inches; 4 pieces $\frac{7}{8}$ of an inch, by $1\frac{1}{2}$ inches by 17 inches; 1 piece $\frac{7}{8}$ of an inch, by $1\frac{3}{8}$ inches by 22 inches; 2 pieces $1\frac{1}{8}$ of an inch, by 2 inches by 28 inches; 2 pieces of 1 inch dowel rod $21\frac{3}{4}$ inches long; 5 pieces $\frac{5}{8}$ of an inch, by 2 inches by $22\frac{5}{8}$ inches.

These figures are for the finished pieces, and in ordering allowance must be made for sawing and planing.

The cheapest way to order stock is to order as few pieces as possible, doing your own cutting up. In this case, one might order one board mill-planed on two sides to a thickness of seven-eighths of an inch,

with a width of ten inches and a length of eleven or twelve feet. Out of this board, all of the seven-eighths inch pieces may be cut by properly laying them out.

For the posts, a piece mill-planed to a thickness and width of two and one-half inches, with a length of eight feet and six inches may be ordered.

In the same way, the other pieces may be combined in single pieces of the same thickness by consulting Fig. 1.

The four rails may be made first. Square four pieces of the seven-eighths inch stock to a width of five and one-half inches and a length of twenty-three and three-fourths inches. The broad surfaces, if they are mill-planed, and the lumber well seasoned, need not be planed, except what is necessary to rid them of the mill marks.

Place these four pieces side by side, with the ends made even one with another by holding the beam of the try-square against the face of one of them and the blade across the ends. From one end, Fig. 2, measure one and three-eighths inches and mark

with a knife point. From this point measure twenty-one inches and mark. There should remain one and three-eighths inches. Still holding the four pieces together square knife lines across their edges with the beam of the try-square against one of the surfaces. Now separate the pieces and square knife lines entirely around each end to correspond with the ones made on the edges. Keep the beam of the try-square against either the working-face or the joint-edge. These lines mark the shoulders of the tenons.



Set the gauge to one-quarter of an inch and, keeping the block against the working-faces, gauge upon the ends and on the edges as far as the shoulder marks. Mark the eight ends in this way, then set the gauge to five-eighths of an inch and mark as was just done, keeping the block against the working-face.

Next set the gauge to three-quarters of an inch and gauge on ends and surfaces, the gauge block being held against the joint edge. Again, set the gauge to four and three-quarters inches and gauge from the joint-edge. This lays out tenons three-eighths by four by one and three-eighths inches. With the tenon saw, rip to the gauge lines and then cross-cut to the knife

and thickness and have their surfaces square one with another, all that remains is to remove the mill marks with smooth plane and scraper and square one end of each piece properly. The other ends need not be squared now for they are to be cut to slope after the frame has been put together.

Place the four pieces side by side with the face marks upward and even the squared ends in the usual way. Begin at the squared ends and measure off consecutively and square sharp pencil lines across at one inch, eight inches, four and one-half inches, four inches and then eight and three-quarter inches. Separate the legs, and with the knife and square carry the lines which shall mark the shoulders of the tenon at the end of the legs

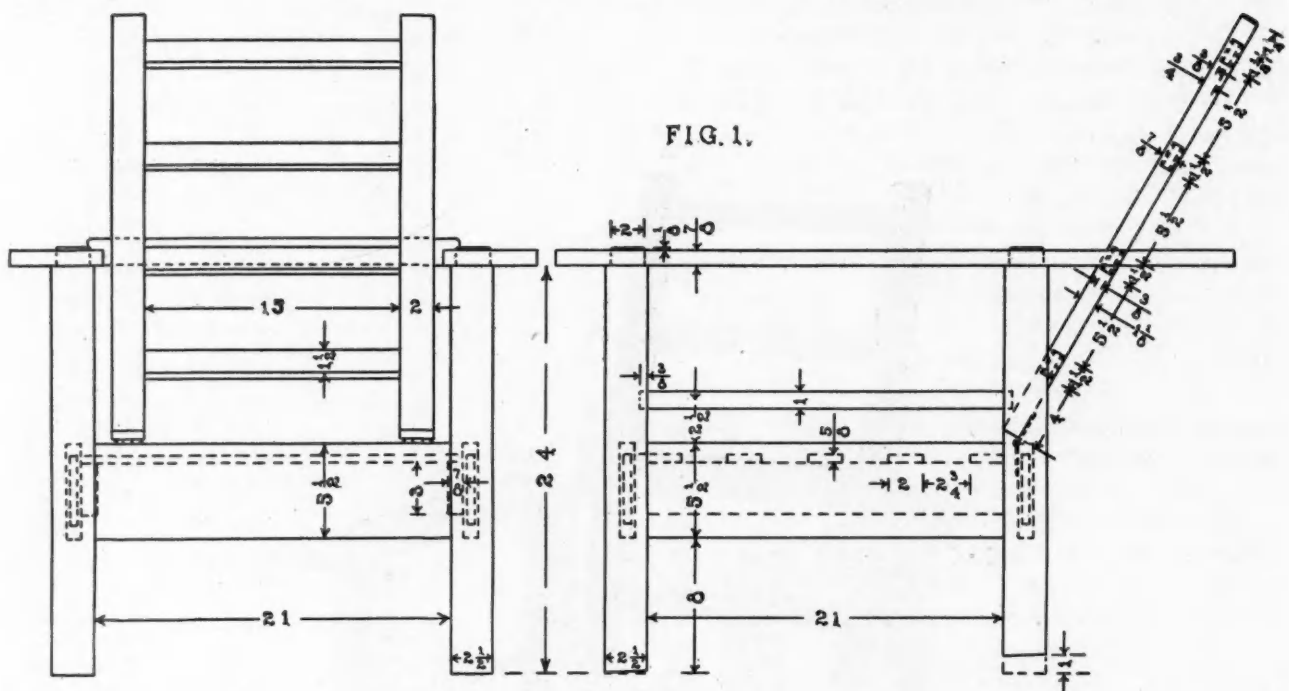


FIG. 1.

lines. Only the most accurate cutting will give satisfactory results, so that it is the better part of wisdom to "make haste slowly."

The ends of these tenons will need to be mitered, as shown in Fig. 2.

While the seven-eighths of an inch board is at hand, the cross pieces for the back may be cut. Four pieces should be surfaced, planed to a width of one and one-half inches and sawed to a length of seventeen inches. Place them side by side and even the ends. From one end, Fig. 3, measure one inch; from this point measure fifteen inches. There should remain one inch. Square knife lines across the edges at these points. Separate the pieces and carry these lines entirely around the pieces. These tenons have but two shoulders, so that the gauging is done from the working-face only. The gauge should be set to one-quarter of an inch and the eight ends marked, then to five-eighths of an inch.

The legs of the chair, Fig. 4, may be cut to length. Four pieces each twenty-five inches long are needed. If these pieces are mill-planed to the correct width

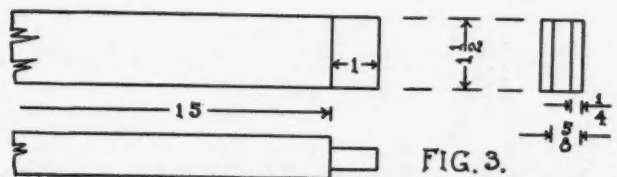
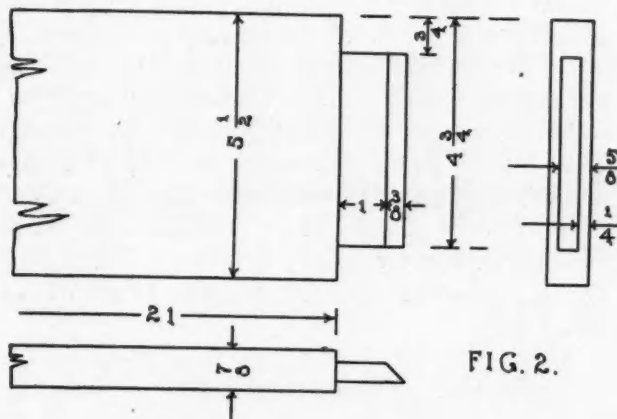
entirely around the pieces. The other lines should be carried across the other face marked X X only and a sharp pencil should be used. To determine upon which face the hole for the dowel is to be bored, it is wise to set up the legs in the positions they are to occupy relative one to another and mark their location in some way. The X X faces are to be turned in in doing this.

The next step is the gauging. For the tenon, set the gauge to one-quarter of an inch and gauge on ends and on the sides as far as the shoulder marks, gauging from the X X sides. After all have been gauged for this setting, reset to two and one-quarter inches and repeat.

For the mortises, set the gauge first to one and one-sixteenth inches and gauge all the mortises from the X X sides; then reset to one and seven-sixteenths inches and repeat.

To locate the center of the holes for the rod, set the gauge to half the thickness of the leg, one and one-quarter inches, and gauge a line across the proper pencil lines.

Rip the tenon, then cross cut the shoulders. Bore the holes in the legs with a one inch bit to a depth of three-eighths of an inch. Cut the mortises with a three-eighths inch chisel to a depth of one and seven-sixteenths inches. It is taken for granted that the



boy who is able to make this chair knows how to bore to a given depth and how to cut a mortise with a chisel of the same width as the mortise.

Fig. 5 shows the manner of laying out the arms. Square the two pieces of seven-eighths inch stock to a width of five and one-half inches and a length of forty inches. Beginning at one end, lay off consecu-

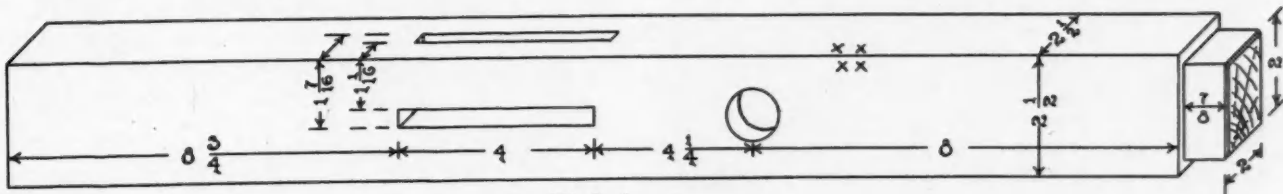
gauge between the same lines. Set the gauge to one-half an inch and mark between the lines which are seven-eighths of an inch apart. These lines locate the two mortises for the ends of the posts and the two gains for the stick which is to support the back.

To save time, these two pieces for the arms should be placed on edge, the ends even and the pencil lines squared across the two edges first. From these lines, the others are squared across the broad faces.

The forward end of the arm has a two inch curve on its outside edge. The curves at the rear are laid off as follows: With the dividers set to one and one-quarter inches, set one prong on a line with the edge of the mortise, Fig. 5, and one and one-quarter inches from the outer edge. Strike a one-quarter circle. With the same radius, set the one prong at the same distance from the edge and one and one-quarter inches from the curve just drawn and strike another quarter circle. The dividers should be used in this measuring instead of the rule, of course. Gauge from the curve last drawn, or three inches from the inside edge—the joint edge. A circle of one and one-quarter inch radius connecting this gauge line and the end of the arm completes the lay out.

Bore the mortises and chisel to the lines, testing by placing the tenons in them as soon as possible. Saw and chisel the gains and cut the curves. Plane off the mill marks and sandpaper the pieces.

Unless there are plenty of clamps it will be well to put together the body of the chair at this stage of the work. Fit the tenons, marking each of them and its corresponding mortise with the same letter or number. When all have been fitted, glue the tenons and put together the sides, using cabinet makers'

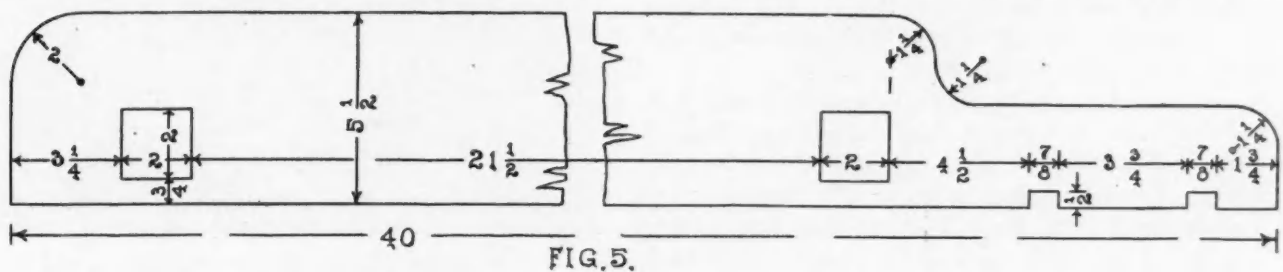


tively points at three and one-quarter inches, two inches, twenty-one and one-half inches, two inches, four and one-half inches, seven-eighths of an inch, three and three-quarters inches and seven-eighths of an inch. Very sharp pencil lines will do and they should be carried no farther across the board than is necessary. Set the gauge for three-fourths of an inch and gauge between the lines which are two inches apart; then set to two and three-fourths inches and

clamps. Test with try-square to see that the sides of the rails make right angles with the faces of the legs. A shifting of the blocks which are used to keep the clamps from marking the legs will usually correct any errors.

Instead of gluing the tenons on the legs a wooden pin may be inserted through the edge of the arm if desired.

If dowel rods of the required diameter cannot be



got, they may easily be made. Rip a piece of the one and one-eighth inch stock and square its four surfaces to a thickness and width of one inch full; set the gauge to one-half the diagonal drawn on the end of the piece and gauge on all sides from every side. Plane the corners off the square prism, planing to these lines so as to make a regular octagonal prism. Then plane off these corners so as to make sixteen equal sides. The solid may now be reduced to a cylinder with scraper and sandpaper.

When the glue has hardened the other rails may be put in place.

The back, Fig. 1, may next be made. The rails and their tenons have been described. For the stiles, square two pieces of one and one-eighth inch stock to a width of two inches and a length of twenty-eight inches. Bevel the top ends slightly. Place the pieces together with the joint-edges up, even the ends and square sharp pencil lines across at the following consecutive points, beginning at the bottom ends: Four, one and one-half, five and one-half, one and one-half, five and one half, and one and one-half inches. Set

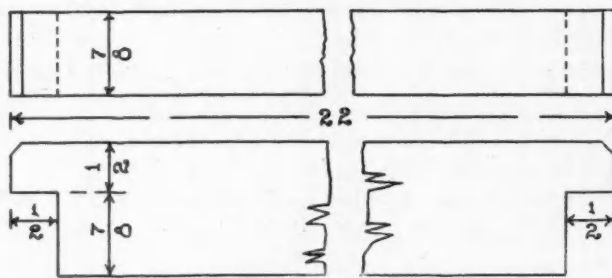


FIG. 6.

the gauge first to three-eighths of an inch and mark between the lines one and one-half inches apart, on each piece; then set to three-quarters of an inch and repeat. Cut these mortises with the three-eighths inch chisel and number and fit the tenons in the usual way. In assembling use a clamp at each rail.

Square up two pieces of seven-eighths inch stock to a width of three inches, fit them between the legs and fasten them with screws to the side rails so that their top edges shall be one and three-eighths inches below those of the rails. If the chair is to have springs, no more woodwork is necessary; but if not, square up five pieces of five-eighths inch stock to a width of two inches and fit them between the rails, fastening their ends with light nails to the pieces just screwed to the side rails, Fig. 1.

The back is fastened with light iron strap hinges. They may be fastened as shown in Fig. 1, or one part may be fastened to the front of the stile and the other to the back of the rail. A little experimenting will show the advantages and limitations.

It is intended that the rear legs shall be shorter than the front ones. Turn the chair on its side, measure off one inch on the back legs and holding a long straight edge across both front and back leg mark the slope, Fig. 1. The try-square and bevel square will

be needed to get the line entirely around the legs. If the legs were not squared to the same length, and time is saved by not doing so, the measurements must be made from the rail down, eight inches on the front leg and seven inches on the rear.

Carefully clean off all surplus glue, for the stain and filler will not stick where it covers the wood.

The stick which supports the back, Fig. 6, is made by squaring a piece of seven-eighths inch stock to a width of one and three-eighths inches and a length of twenty-two inches. Lines are to be squared across one-half an inch from each end. The gauge should be set to seven-eighths of an inch and lines marked from the ends as far as the pencil lines. A slight bevel on the ends will remove the sharpness of the exposed end, Fig. 6.

A coat of brown Flemish water stain, diluted one-half with water, sanded lightly when dry, with a medium dark filler and, when this has hardened, followed with a coat of thin shellac, makes a good finish. Wax may also be applied if desired.

Cushions may be purchased at most any price one wishes to pay, in sizes to fit, from cheap cloth to expensive art leather.



Thought it was Emblem of Mourning

When Opie Read, the author, was editor of the *Arkansas Traveler*, one of the best reporters on the paper died, and his death was greatly mourned by the editorial staff. A visitor to the office, on the day after the funeral, found the editor and his staff talking about their loss disconsolately. "It has been a sad loss, friends," the visitor said, "a sad loss indeed." He sighed and looked about the room. "And I am pleased to see," he went on, "that you commemorate the melancholy event by hanging up crape."

Opie Reed frowned. "Crape!" he said, "Where do you see any crape?"

"Over there," said the visitor, pointing.

"Crape be hanged!" said Read. "That isn't crape. That's the office towel!"



Got Results

Stockson.—One day last week old man Gotrox bought a lot of those 'Do it now' signs and hung 'em around the office.

Bond.—How did the staff take it?

Stockson.—Almost unanimously. The cashier skipped with \$30,000, the head bookkeeper eloped with the private secretary, three clerks asked for an increase of salary, and the office boy lit out to become a highwayman and got as far west as Pittsburg before he was caught and disarmed.—*Judge*.



A close friend is one who refuses to lend you anything.

A Study in American Porticos

VARIOUS KINDS OF PORCHES FOUND THROUGHOUT THE SOUTHWEST — PECULIARITIES IN THEIR CONSTRUCTION

By Felix J. Koch

IT HAD started away down in New Orleans. We had a longing to see the out-door land from outside, as it were, and how could it be done better than from the porticos?

When the planters asked us out to their homes we suggested that as we were from the north, where the cold was intense and the snows were deep, we would really prefer lingering in the sunshine. So they escorted us out on the galleries.

South of Mason and Dixon's line, you know you



Louisiana Plantation Style

never hear mention of porches. With the southern dialect and the final h's and the other terms of the southland, there has come in just the term gallery.

Down in the French quarter every house has its gallery. Galleries here are as in Firnova, Bulgaria, on either floor and of iron all. Those on the second-story are up-held by iron pillars set along the curb, and in the shadows cast by these the shop-keepers who occupy the stores there along the walk, expose



Example of the Bungalow Style

their several wares. It reminds you, of course, of Paris and the Rues in the Quarter-Latin. But then there is a difference in the porticos.

Somehow or other, for example, the iron railings that surround them are more ornamental than those you will find in Paris. Then while the pomegranate rises from its green painted tub and the figs ripen where the Creoles live in these houses, still on the balconies there are many negroes far and away more than you will see in all Paris.

Then, too, on the balconies they have queer wash props, poles set at obtuse angles, and these then drawing taut a rope to which the wash is hung. Before you understand you imagine the gallery dwellers one and all patriotic. Every gallery has its flag-staff, but come wash day in the Crescent City and the disillusionment occurs.

So much for the French quarter. All New Orleans, however, has its galleries. Even in the outskirts where the *nouveau riche* are building homes of frame, you find what we of the middle west would call a



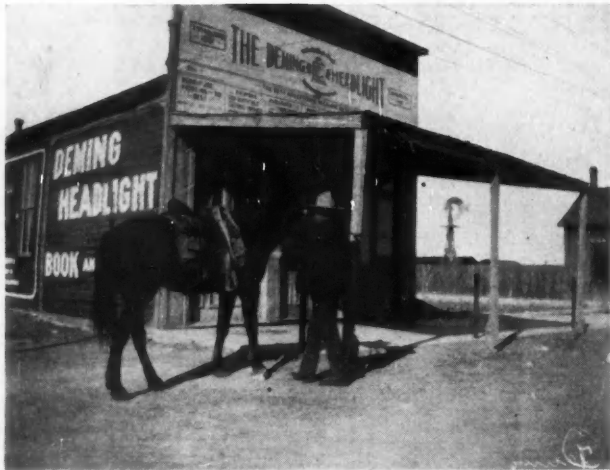
Southern California Ranch

porch. The porches the day through, however, are deserted. It makes you recall Salonica on the Aegean sea, where the hot Levantine sun likewise pours in and makes the porches untenable until sundown. Then, as in New Orleans, porch climbers come out and breathe in the cooling breezes of the long southern twilight.

Out on the old plantations, too, you have these balconies. Sort of reminds you of stories you have read of the south that is gone.

Of course, if you are an architect, you go into specializations and quote figures as to these porches, but really the photos do quite as well.

There is another sort of porch, however, that one comes to appreciate in studying the outdoor architec-



Deming, New Mexico

ture of the southwest, and that is the one at the rear of the observation car of the railway that carries you west of the Pecos. From it one may study the towns and hamlets *en passant*, until the winds off the desert bear in a little too much alkali and sand, or else till the nap that you have been fighting off, makes you succumb.

Then you get into a porchless land, the Texan border country. When people live in adobe such as the one shown here, and with all of the desert for their porch, the desert hard baked, smooth and unbroken, what need of erecting porticos? This the more, when it's remembered that all lumber must be brought from afar.

Only once on the desert is there variant to this, and that is down at Deming. There in the New Mexican sands water is to be had for the boring, and a miniature Holland has arisen. Somehow or other, the houses remind you of an Indiana village on account of their simple mid-western porches. Nothing pretentious, and yet get out on these porches of a clear night when the stars are twinkling, as they do only in southern desert skies, and you are willing to forget the world of graft and remain a porch dweller forever.

Tucson, too, wicked old Tucson, is coming to imi-



The Desert Forms the Porch

tate these porches by building them four sides around its bungalows. But at Tucson you learn that a porch is often nothing more than an awning. There has been quite an invasion of Tucson by tender-feet in the last few decades, and these have brought with them the vernacular of their home-states, so when they meet out under the corrugated iron awning set along



Meat Market

the front of every shop and store, often all the way over the sidewalk against the burning suns of Arizona, they tell you to come on the porch. At first, of course, it was ironical slang, but now the word has stuck.

So, too, at Deming, and elsewhere in New Mexico where just the roof and the supporting poles stand out to recall where a porch might have been, they will use that title for it occasionally.



No Need of a Portico

At the Indian school at Tucson, however, one strikes a genuine porch, a two story affair at that. And at Yuma, the territorial prison gives a good example of old Mexican porches. At Yuma there is an Indian school, and this has gone its neighbor one better in the shape of its porches.

Westward ho, then out into the desert toward Laguna, the porch *per se* disappears. Again all the

fault lies with the desert. When a man has just a but, such as the little affair shown here, to live in, and all the outdoors for his own, why should he bother with porches?

At Imperial, one of the baby cities, out in the valley, however, they have built big verandas. Some day in Imperial, people will look back to this hostelry and wonder why and how, but the sun beats warm at Imperial and even the meat shops raise a porch before them along the little town street. Out on the ranches of the valley, where college ne'er-do-wells are learning to reap real oats in place of wild oats, they have

sown, the young men persist in raising porches, perhaps as reminiscent of those they have left behind. Pretty porches to neat bungalows these are, and often draped with vines.

Then at Indio, in California, but on the desert, where the consumptive cure has been opened, the little homes built by the refugees from the great white plague likewise set out porticos to their homes. On to the north, California's summer land presents an endless array of porches. The style is different when one gets into Riverside. Thence on, however, these form a story in themselves.

Constructing a Mitre Box

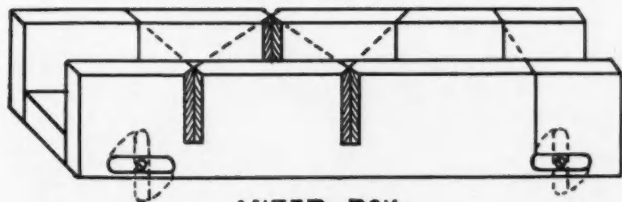
DETAILED DESCRIPTION OF THE SAME WITH THE VARIOUS DIMENSIONS TO USE—HOW TO USE IT AFTER IT IS COMPLETED

By A. O. Stien

OF COURSE, you all know how to make a miter-box. Will show one style, which I think is a little better than the usual way of making them. This applies to the ordinary wooden box, made for a job or two, and for use, while working around on staging. I will not say that my way of making makes box as lasting; the main object in view is getting it quite a little stronger, for making few cuts, the less pieces to split out. Three and one-half inches inside is wide enough for ceiling and ordinary molding; but can be made to suit. By referring to



FIG. 2.



MITER BOX
FIG. 1.

cut, Fig. 2, you will see that each miter and octagon cut is made so that only two three-cornered pieces fall out where cuts cross each other; while in the old way, box must be made longer to get as many cuts made, and yet pieces between would be short. Wooden miter boxes—listed in catalogues—are usually too shallow, giving little steadiness to the saw. Make the sides five inches or wider; they should be straight and of equal width throughout. Seven-eighths thick may do, but one and one-eighth will prove better for sides. Bottom is made of a two by four, lined on one edge to make it three and a half inches wide; and should be perfectly straight and square, which makes it easier to mark for cuts. Saw on same side of marks. Make box two feet long;

or longer, if wider than stated. To cut wainscot of of a length fasten miter box,—the movable clamps in front, against the bench,—toeing a brad at each end of box; then fasten a block on bench, as far from square cut, as the length wanted. Any number can be cut of equal length without measuring more than the first one, simply by moving pieces to be cut off up against the block. We may all be supposed to know that much; depends if we think of it. I have seen wainscot cut up, by using a pattern, and marking each piece. Hard to get all of same length that way, and it takes longer.

A Puzzled Builder

An addition will be built to *The Democrat* home this summer—if the architect can ever figure out just how he can make two and two equal three, which is about the situation now. If there ever was an annoying task it is that of trying to remodel a house after it is once built. It may be necessary to put the bathroom on the roof and have the parlor in the cellar and use a ladder for a back stairway before things are completed. It will be a very costly domicile—when the lumber bill is figured up.—*Manson (Ia.) Democrat.*

I must congratulate you and the whole staff for the continued efforts of making the *AMERICAN CARPENTER AND BUILDER* the leader of all. It is full of the most valuable information, instructions and reading matter, and I wish that every American carpenter would not only keep it, but study it thoroughly, because it will make better mechanics and makes practical work lighter and easier for them, as well as for the architect, builder and contractor.

ANTON H. BACHMANN, State Center, Ia.

Labor is the talisman that has raised man from the savage; that has given us plenty, comfort, elegance, instead of want, misery and barbarism.—*McCulloch.*

Correspondence



Length and Cuts of Valley Jacks

To the Editor: Eickman, N. Dak.
 Will you please illustrate and explain in your next issue how to get the length and cuts of valley jacks, also the same for hips and valleys as per the enclosed sketch?

O. E. SCHULTZ.

Answer: Fig 1 is a reproduction of Mr. S.'s problem. This calls for a 1/2 pitch roof with the exception of a gable

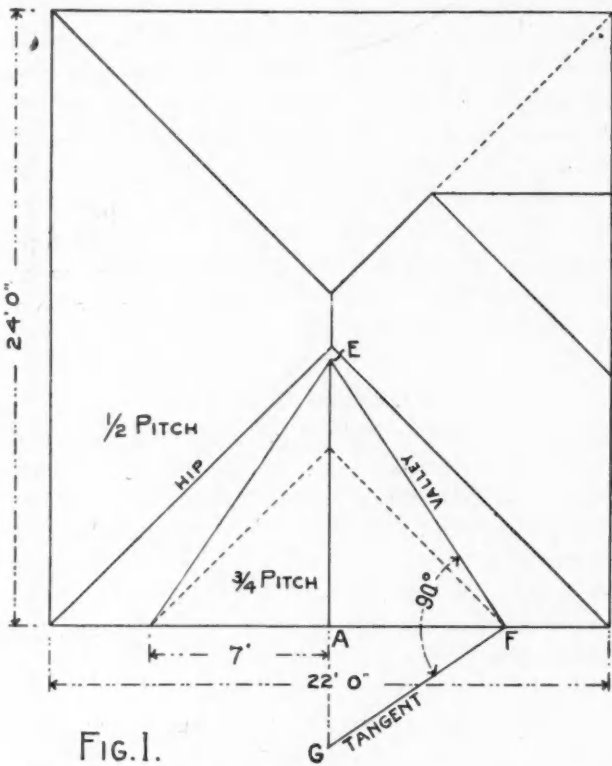


FIG. 1.

that calls for a 3/4 pitch, which somewhat complicates the work; otherwise, it would be a very simple roof to frame, as follows:

Twelve and 12 gives the seat and plumb cuts of the common rafter; 17 and 12 gives the same for the hips. These figures also give the side cut for the jack—the 17 side giving the cut; 17 and 19 1/4 gives the side cut for the unbacked hip or valley—the 19 1/4 side giving the cut.

For the 3/4 pitch, 12 and 18 gives the seat and plumb cuts of the common and jack rafters. Now there is the catch. The gable being of a different pitch from that of the main roof, the run of the valley will not rest at an angle of 45 degrees, as shown by the dotted lines in Fig. 1. The gable being the steeper pitch, will intersect the roof at a point above the dotted 45 degree lines, as shown. On the other hand, if the gable was of a lower pitch then the valley lines would have fallen below the 45 degree. As to the length

of the valley, see Fig. 2. The line from 12 to 12 represents the 1/2 pitch for the main roof and the line from 12 to 18, the 3/4 pitch. Now, as the gable is 14 feet wide, measure back from A seven inches, as at B, which amount will represent the run of the gable and square up to the 3/4 pitch, as at C, and from this line square over to the blade and the figures intersected there will represent the rise of the gable (10 1/2 feet) and where this line intersects the 1/2 pitch, as at D, represents the intersection of the gable ridge with the main roof, and by squaring down to the tongue, as at E, then A E, will represent the length of the gable ridge. A F represents the run of the gable and E F the run of the valley, and this length transferred to F' the line F' D will represent the length of the valley. From these angles, it is an easy matter to obtain the seat and plumb cuts of the valley by the steel square, or bevel. H I represents the rise of the main or 1/2 pitch roof.

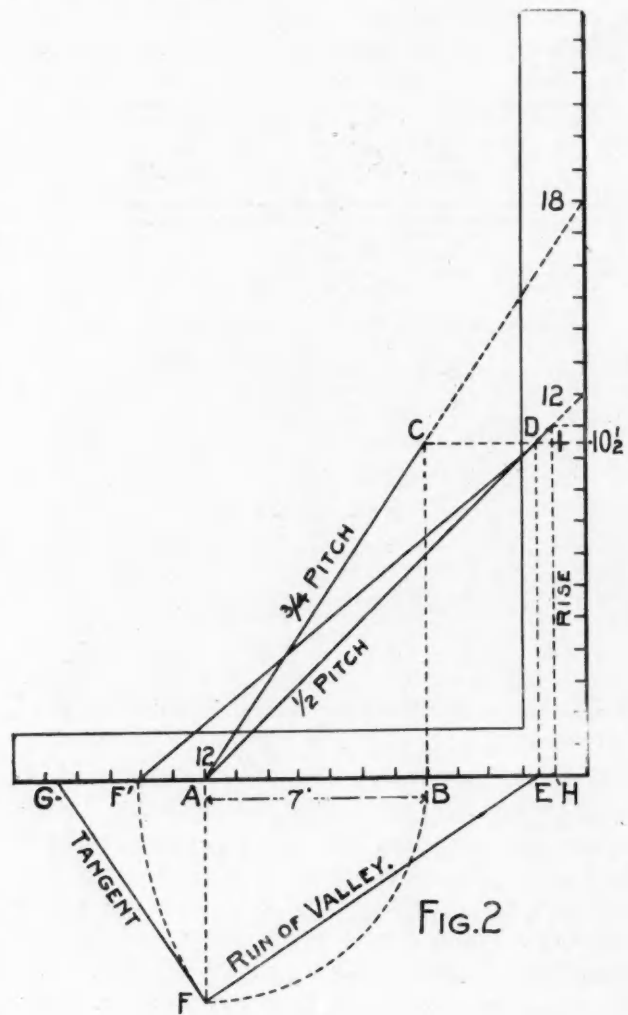


FIG. 2

The side cut of the valley may be found by taking G F (the tangent) on the tongue and F' D (the length of the valley) on the blade, the latter will give the cut. However, it would be better to let one of the valleys run by and intersect the hip of the main roof and let the other rest against its mate. For these cuts, and in fact all of the cuts required in a roof of this kind, is answered by diagram on page 214 of the May 1906 number.

The side cut of the jacks may be found by the steel square by taking A F (the run of the gable) on the tongue and A D (length of common rafter) on the blade. The blade will give the cut for the half pitch jack to fit against the valley. For the side cut for the 3/4 pitch jack, take A E (the length of the gable ridge) on the tongue and A C (the length of the common rafter for the 3/4 pitch) on the blade and the latter will give the cut.

As a rule, roofs of this kind should be avoided, as there is rarely a call for such framing and nothing to be gained from an architectural standpoint in mixed pitches. There is harmony in simplicity of regular roof lines, but when uneven inclines are used, more often produce ill proportions, besides vexatious and unnecessary work.

A. W. WOODS.

Splice for Heavy Timbers

To the Editor:

Garden City, Kan.

Having been a reader of the AMERICAN CARPENTER AND BUILDER from the first number, I always long for the next number. I have read them all and feel very much interested in the correspondence department.

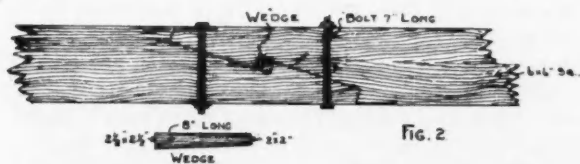


FIG. 2



FIG. 1

I am sending a diagram of how I splice two heavy timbers, as shown in Figs. 1 and 2, which makes a very substantial splice, better than any I have ever used. Would like to hear from other brothers in the trade.

JOHN B. LAGEESE.

Making Buildings Rat Proof

To the Editor:

Equality, Ill.

Having read a number of articles in our journal, and finding none in regard to my particular hobby, i. e., making frame buildings mouse and rat proof, I will again risk the waste basket and give you a little "spiel" on my way of doing this, and reasons therefor.

In houses of all classes and styles of architecture, I find in the majority the studs are set on top of sill or wall plate, and the floor joist spiked to the studs, so that when floor is laid out to studs it leaves an opening the height of joist and width of studding from underneath the building up between siding or sheathing and plaster, thereby allowing rats, mice and cold air free access.

Some carpenters try to remedy this by blocking in between the studs, which, if well done, will answer the purpose of closing the opening, but another objection still remains.

The sills, joists, studs, and other rough lumber, are generally right from the saw, and upon seasoning will shrink from

3/4 to 1 inch to the foot in width, while the shrinkage in length is scarcely perceptible. Then with the joist on top of sill and nailed to studs, and floor laid out to studs and base fitted close to the floor and nailed to the studs.

Well, this looks all right, and would be if it stayed so, but in a few months the joist will shrink and take the floor down with it, leaving the base nailed to the studs and a crack from 1/2 to 3/4 inch under the base.

I find it a much better plan to lay a 2x8 on foundation wall flatwise and size the ends of floor joist on top to receive a 2x6 around the entire building, and set studs on this 2x6 directly over joist. Then when floor is laid it will lap 2 inches on the 2x6 if 2x4 stud is used, or 1 inch if 2x5 stud is used, thereby effectually stopping all openings for drafts or vermin. But this is not all; when the floor joists shrink the studs go down with them, thus keeping base, floors, doors, etc., in their original position relative to each other.

Then in case pillars are used instead of solid wall, it is then necessary to use a sill instead of wall plate, and joist should be gained down level with top of sill.

My experience has been that in about ninety per cent. of the dwellings built the carpenter is the "whole thing," and not more than ten per cent. are built after the plans of a competent architect, and even with the architects sometimes their attention is given mostly to interior arrangement and exterior effect, and little attention given to details of construction.

I always look to the correspondence column the first thing when I get my paper. I expect some others of its many readers do the same, as there we can generally find something that is new to us, and of benefit to the old carpenter as well as the new; but it is strange to me that with all the kind solicitation of our Editor that so few of our many readers write to this column. Come on, boys, and let's get better acquainted, and when you think you have a good thing, pass it along.

J. H. GODFREY.

Rapid Method of Hanging Doors

To the Editor:

Indianapolis, Ind.

I have read the article from Mr. Hicks, as well as some others, written for your valuable paper on hanging doors, and while some good ideas have been advanced, perhaps I can add some things that will be helpful along this line. If there has been anything of the kind I have failed to see it in print and so give it. Like the rest, I am always ready to take the benefit of whatever is best in the line of carpentry, no matter where it comes from. By this I mean that other men are as able to give good ideas as I am and I want to profit by them. So we are benefited by exchange of experiences, and a good paper is the only and best medium. I believe that it is safe to say that in the construction of a piece of work, usually the easiest way is the best way, and also that the best way is the easiest way. In the construction of an ordinary building, for me, the best workmanship pays the best, from start to finish. A bad piece of work in any of its parts, affects more or less all of it. To me it is like a sore or boil on the body, irritating all the time, and seems to stand out where it can be seen or felt all the time. My policy in building is to give the *best* all the way through. It is true that in the quantity of lumber required in a house there may be several pieces that are crooked or imperfect, but they can be cut into short pieces, or work them where they will have to straighten up along with the better. In this way I scarcely ever return any timbers. For the openings in the building I select the even straight studding and see that they are set straight and plumb. All our timbers

are sized. All openings should be made so that the casings will nail into the studding without breaking the plastering from being too far apart and also not too close so that it is necessary to nail near the center or frame edge, which is nearly as bad. To be right, it would be so that the casings can be nailed from the outer edge without danger of splitting.

I have my inside door frames sent knocked down, with the heads cut 1/2 inch long instead of the regular size. The doors are taken and the top squared, if necessary, and the edges planed off with a little bevel. For the hinge edge a bevel square is used to get the hinges in line, and when one pair of hinges is set, it will be easy to get the rest. The head of the frame is cut about 3-16 inch longer than the width of the door. Before nailing the frame together, I clamp the hinge jamb on the work bench. I take a small rod the length of the longest door, and mark the place of the hinges. By this I set the hinges. One half of the hinge is fastened to the jamb on the bench where it is solid and convenient for the workman and the other half on the door.

The frame is then laid on the trestles and nailed together and the door set in. The door will square the frame. A piece is nailed across the bottom part to hold the frame together. Then the plinths and casings are nailed on the door side of the frame. The casings are properly cut for the head pieces and can be nailed to the frame so that the door will fit evenly all around. If the plastering is dry the frame with the door in it is nailed in the wall, which is easily done. If the plastering is not dry, I set door and frames aside until it is. I employ men who are mechanics to do the plastering so that it is even and true. I did not even use grounds during the past season and had no trouble setting doors and frames. I do not know of any rapid process for putting on locks. Have seen the advertisement of a mortiser, but never used one. I did not keep account of speed, but find it very advantageous to do as I have described above in the ordinary dwelling house.

R. H. MYER.

Methods of Shingling

To the Editor: Norwalk, O.
Mr. Streeter, of Gillette, N. J., is wondering at the prevailing idea of laying shingles a little apart, so they may have room to swell without humping up or warping. I have often wondered at it myself. I am of the same opinion as he. We cannot lay shingles too closely, providing the shingles are made from good, sound, straight grained body timber. If on the other hand they are made from curly or sappy culls, then they will swell and curl when wet. In our locality several years ago shingle mills were introduced to make shingles out of native soft wood by steaming the blocks and shaving or cutting the shingles like shaving veneer. This left the side next the knife strained or checked. This strained side must be laid up in order to have them fit the roof and then they must be kept apart so that they might have room to swell, or they would hump up and look like a pan tile roof. I have always supposed this was where our people got the idea of keeping shingles apart.

J. L. F.

Comments by a Member

To the Editor: De Witt, Neb.
It was quite amusing to notice the controversy on how many doors a carpenter could hang in a day, and rather useless, for there are so many different kinds of doors and different places to hang in, and as many different grades of workmen even in the same class of carpenters, so that all of the writers were in the right after all. One thing seems funny, that is the articles on saw filing. It is strange to me why so many workmen will file their saws with the file pointing to the handle, thus putting the cutting edge on the back

of the tooth, and strange that one eminent contributor should say that was the only right way. I think Stoddard's article on same some time ago was fine. Just right and to the point. Your articles on cement blocks are good, as there will be a good deal of that used now that lumber has gone up so high.

T. HOLLINGSWORTH.

A Handy Space Measure

To the Editor: Holley, N. Y.
Take two pieces of common parting brad or check stop 1/2 by 7/8 by 18 inches long. Rip one of the pieces with a fine saw, about 14 inches deep. Now insert the blade of a try-square so as to keep it from closing too tight. Put a lath nail through at end that is ripped and clinch it. Lay this piece down flat on the other and set two 4 penny brads in the saw curf, one about two inches from the end of the ripping and the other not more than five inches from this one. This length is made to take lengths in 22 inch spaces. All there is to do is to place measure in the space wanted and slide the sticks until they touch at either end; they will stand at that adjustment until another is wanted, unless through dropping or otherwise accidentally displacing the measurement.

J. F. HOUCINS.

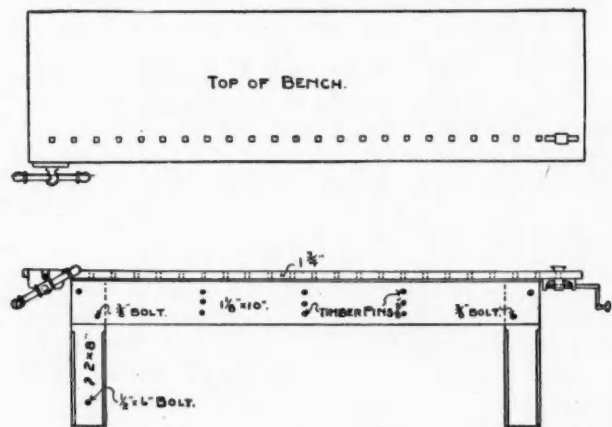
Answer to Problems

To the Editor: Pulaski, Ia.
Replying to the Mr. A. A. Jones, of Toledo, Ia., puzzle that he asked to be printed for the benefit of the young "Know It All" mechanics, in regard to the two vessels leaving port, when the latter vessel overtook the other they were, as near as I could get it on the square, 1135 knots from the port.
In answer to A. H. Kosier, Byron, Ill., that a block of wood 7-10 of an inch square will fit the three holes that he has submitted to the readers. The above are in answer to the puzzles published on page 1439, in March, 1907, number.

ALVA HUNT.

A Desirable Work Bench

To the Editor: Ripley, Tenn.
I am sending herewith a sketch of a work bench, which is 11 feet long, 2 feet 11 inches wide and 3 feet high, and is the best carpenter's bench that I have ever used or seen. The top of the bench extends over the edge of the frame 2 inches, which allows room for the bench dog to pass down



by the side of the frame through the holes that are in the top of the bench. The holes should be about 5 inches from center to center, all the way the length of the bench and with the tail screw placed at the back end, or rather the tail of the bench has a movement of 6 inches, which enables the operator

to place anything in the way of casing, either long or short, and hold it at any position.

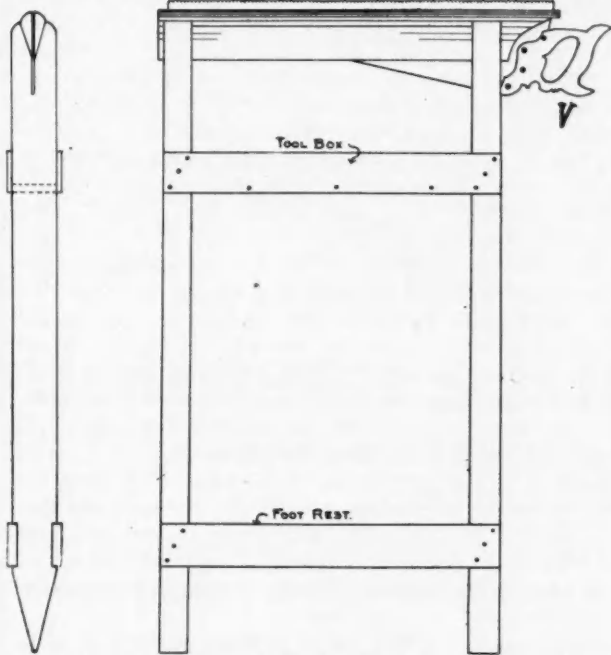
The vise is Toles patent, I having been using it for three years. This one is No. 65. It has a lug that is adjustable up and down, so that it makes a good bench stop within itself, which is handy for dressing column bases to fit to the slope of the floor, by simply turning a set screw and up hops the lugs and there is a fine place to hold the base till the work is done. Many things come up in the run of the day that will call for this vise, which is always ready. The legs are bolted together and the sides are bolted on, which makes the bench very rigid.

N. G. HILL.

A Handy Saw Clamp

To the Editor: Holley, N. Y.

I enclose herewith a sketch of a handy saw clamp with bill of materials: 2 pieces 2 by 4 inches (dressed) 44 inches long; 2 pieces 1 1/8 by 3 1/2 inches (jaws), 28 inches long; 2 pieces



3/8 by 3 inches (foot rests), 24 inches long; 2 pieces 7/8 by 3 inches (tool box), 24 inches long; 1 piece 7/8 by 4 inches (tool box), 20 inches long; 3 dozen common 6 d. nails. This clamp requires about one hour's work and may be made of odds and ends. It is a very handy clamp as it holds the saw the entire length and when through filing one side, turn clamp around without moving the saw. The foot rest should be about 9 inches from the ground and the tool box about 30 inches.

J. F. HOUCHINS.

Framing Heavy Timbers

To the Editor:

Oroville, Wash.

In your May number of AMERICAN CARPENTER AND BUILDER, Mr. Stoddard gives a very good and practical article on heavy framing, but I have never yet seen an article in your valuable paper on framing round timbers. Some time ago I was called upon to frame a lot of station timbers for a gold mine. While I can frame almost anything in the line of timber, yet I was for a time puzzled how to go about this round, unsawed timber so as to make all joints fit, as all joints in mining timbers must be a perfect fit on account of the tremendous pressure on them. I would have used two squares, as Mr. Stoddard suggests in framing his crane, but I did not have two; I made two parallel straight edges, but it seemed too slow a method to suit me, so I took a level, leveled across the ends of the timber at the depth I wanted to cut my shoulders, then used chalk and line and lined both sides of timber from level mark to level mark. It was a new idea of framing to me, but I have been told by mine managers that it is the quickest method of laying out round timbers they have ever seen. This article may be of use to some young carpenter who may have to frame round timber a hundred miles away from any mill. The time spent in taking your timber out of wind, or twist, with two squares, a method I used for years, I find in actual practice is altogether too slow for this age of hurry and bustle. I can lay out or unwind one-third more, either square or round timbers, with a level than with two squares, and I always have a small level for the purpose. I have been buying building magazines for the last thirty-five years, but I must say that yours is the most practical and up-to-date of any on earth today.

E. McCAMMON.

There was a man who never lied
 For pleasure nor for gold.
 He had a reputation
 For veracity, I'm told.
 He never used a bit of slang,
 Of course, he never swore.
 Joe Bing's his name, behind the stove
 At Luscomb's grocery store.

Joe Bing, he chewed a pound of plug
 And never turned a hair;
 He chewed it all and called it good,
 And never left his chair.
 When he had all the first pound chewed,
 He gravely called for more,
 One day behind the same old stove,
 In Luscomb's grocery store.

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Practical Trade Appliances

Perfect Art Metal Work

Artistic design in the metal work of a building nowadays is an item the importance of which should not be underestimated by the builder. Naturally, this part of the building is always before the critical eye of others, and consequently, if it be faulty or not appropriate in design, the building loses a great deal of its beauty, and as a usual thing it is judged largely by its appearance.



While laying no claim to be the largest factory in the United States devoted to the manufacture of metal work, the James H. Watson Co., Inc., of Bradley,

Ill., do claim that their product is the equal of any other factory and the superior of many. Their great success during the past few years has proven this conclusively. Very recently they moved to their new location in Bradley, and their present plant is replete with every late invention and contrivance for the manufacture of metal work in all its branches.

This company, owing to its perfect facilities for manufacture, is in a position to guarantee immediate shipment of any and all orders, for if they have not in stock just exactly what is required, their complete equipment insures the buyer the least possible delay.

If you have a building, either in contemplation or in the course of construction, just send this company a plan, with measurements marked, of the room or rooms you desire to decorate with metal work and they will gladly furnish you a design drawing showing very appropriate and attractive patterns, free of any expense to you whatever, and with the copy



of this drawing they will quote you the lowest net lump price for the material delivered F. O. B. cars your station.

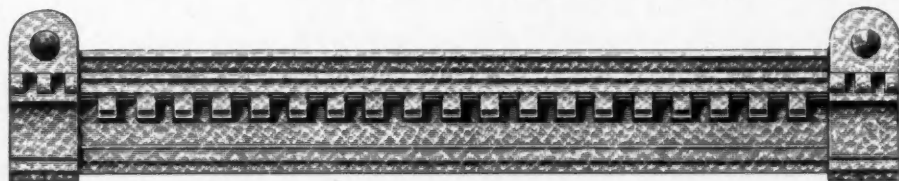
Being experts in this line of work it would be a wise plan for any builder to consult them regarding the different styles, for such advice would be of material benefit to you either

for the work on hand or for subsequent work. Designs in metal work are, however, a great deal like designs in other lines—they are subject to change—and it is up to the modern contractor to keep abreast of the times, for designs that were considered good years ago are not going to meet the need of the man who builds a home or business place in this day and age.

Metal ceilings are only a very small part of the output of this factory. Should you desire anything at all in the line of metal work you have but to write them what you want and they will be pleased to forward you catalogue covering your especial needs. Galvanized cornices, weather vanes, finials, cresting, conductor pipe, eaves trough, wire hangers, steel tanks and skylights of all kinds and description are other lines in which this company excels. A few illustrations of their products are shown on this page.

The sheet metal worker of today who wishes to succeed must know far more than was necessary years ago. There are a great many good practical metal workers in the trade who are handicapped because they are unable to lay out patterns that arise in their daily work. Notwithstanding the introduction of labor saving machinery the demand for good workmen is steadily on the rise. The James H. Watson Co. have surrounded themselves with a class of good practical metal workers and at the head of the firm are men who have grown up in the business, consequently with their labor saving machinery and experienced help they are in a position to assume leadership in their work.

Just drop them a card if you are interested, mentioning the



AMERICAN CARPENTER AND BUILDER, and they will send you a handsomely illustrated catalogue of their product, and should you be interested in paint for your metal work their "Perfect Art" paint will meet your every need. Write them for color card.

Surfacing Floors by Machinery

For many years a problem that has confronted and perplexed architects, builders and owners has been that of the proper and satisfactory method of surfacing floors; the old method of hand scraping was not only slow but expensive, but twentieth century demands have been met by twentieth century methods by the American Floor Surfacing Machine Company with its Floor Surfacing Machine, which is no longer an experiment, but has been thoroughly tested by leading contractors in the principal cities of the United States and abroad. The machine was designed to meet any contingency arising from the surfacing and polishing of floors of every description—new or old, hard or soft, big or little, and may be briefly described



Cut Out Coupon And Get Can of Johnson's Kleen - Floor **FREE**

We want every painter and wood-
finisher in this country to try at our expense
Johnson's Kleen-Floor—a liquid preparation for cleaning floors, woodwork
and furniture. That's the best way to prove to you that it is the best
preparation of its kind in existence, although this free distribution costs us
a lot of money. Remember, please, you don't send us one cent—simply
fill out coupon in lower right hand corner of this advertisement and mail
to us and we will send you **FREE** prepaid one can of



Johnson's Kleen-Floor

A Cleaner For All Finished Surfaces—Woodwork,
Furniture and Floors

**It will put all old finish, such as varnish, shellac, etc., in perfect condition
to receive new coat of wax or other finish.**

Applied with a cloth to wood it will remove all spots and stains in and above the
finish. It removes all dirt, soot, mortar spots, etc., that have been ground into the grain
of the wood. It prepares the wood for the new finish. Johnson's Kleen-Floor does not
injure the hands, clothes, wood or have an objectionable odor. **It is sold by most
dealers in paint.** Pint cans, 40 cts.; quarts, 75 cts.; gallons, \$2.50.

Our new illustrated 40-page book, "The Proper Treatment for Floors,
Woodwork and Furniture," which we send **FREE** with Kleen-Floor, will
interest you. **Send coupon today with your paint dealer's name**
—not necessary to write letter.

S. C. Johnson & Son,
Racine, Wis.

*"The Wood-Finishing
Authorities."*

ACB7
S. C.
Johnson &
Son,
Racine, Wis.

My paint dealer's name is

His address is

for which please send me can of Johnson's
Kleen-Floor and your 40-page 25 cent book,
both **FREE** prepaid.

My name is.....

My address is.....



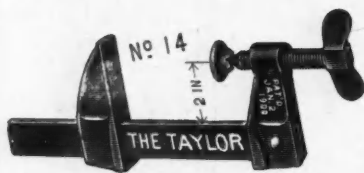
as follows: A movable mechanism propelled and operated by a four horsepower motor, to which electricity is transmitted by a local current or from a power wagon constructed for the purpose. At each end of the machine is a drum covered with sand paper, the drums revolving in opposite directions at the rate of 600 revolutions per minute. There is a patent dust catching device attached to the machine which makes it possible to use it on a floor where people may be working, or in a store without subjecting them to the inconvenience of dust. The machine will do the work of fifteen to twenty men, and better than it is possible to do by the old method, and so simple in operation that any person of ordinary intelligence can quickly learn how to successfully handle it.

Leading contractors have been quick to recognize its value as an adjunct to their equipment.

Our readers may obtain further information by getting illustrated booklet and details from the American Floor Surfacing Machine Company, Toledo, O.

Four New Clamps

To meet the practical requirements of mechanics, in the varied industries where clamps are used, is the aim of the James L. Taylor Manufacturing Company, of Bloomfield, N. J. They have recently placed on the market four new designs of clamps which are successfully meeting demands which have heretofore gone unsupplied.



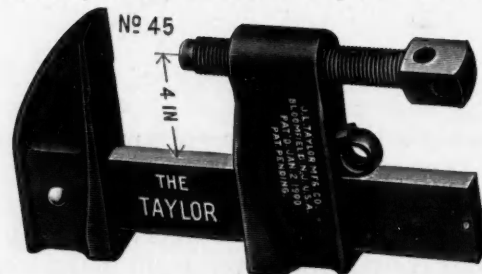
The No. 14 (Cut A) is a light clamp; same dimensions as their No. 15, which has become so popular, only in this model, the station-

ary instead of the sliding head carries the screw. For some work this is more convenient.

The No. 40 (Cut B) is capable of standing a greater strain than any other clamp of its weight that has ever been made. It has been tested to a safe clamping strain of over 8,000 pounds. Has a 2 inch by 5/8 inch high grade steel bar (double the strength of Bessemer, ordinarily used); 7/8 inch by 1 inch

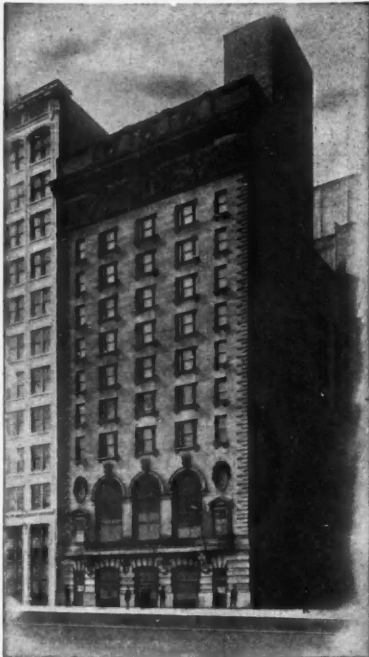


tool steel screw with cupped hardened point, or if desired this can be furnished with pivoted button, when so ordered. This clamp will be found particularly useful in foundries for clamping heavy flasks; in machine shops, when erecting ma-



chinery, to clamp parts in position while laying off; for clamping angle plate to drill table, and work to angle plate; also for flange work, cylinder heads, etc.

In certain classes of extremely heavy work, heretofore,



The Finest Athletic Club

building in the West—The Illinois Athletic Club of Chicago—is equipped with ten 30-inch, glass top Burt Ventilators. Every detail of this building was selected with the utmost care and in competition with prominent makes on the market

Burt Ventilators

were chosen because of their unusual excellence in material, construction and workmanship.

Burt Ventilators have extraordinary ventilating capacity, and are provided with metal or sky light glass tops as desired. The patented sliding sleeve dampers used on Burt Ventilators **only**, are storm and dust proof, open or closed. They are easily adjusted and operated without showering an accumulation of dust down into the building. Ventilator can be closed without shutting out the



light. Made in all sizes for any kind of a building.

Send for our new 80-page catalogue, giving fine illustrations of mills, shops, foundries and residences where Burt Ventilators are in successful use.

The Burt Mfg. Co., 500 Main St., Akron, O.

Largest Manufacturers of Oil Filters and Exhaust Heads in the world.

Notice Sliding Sleeve Damper. Patented.

ANDREWS HOT-WATER HEATING

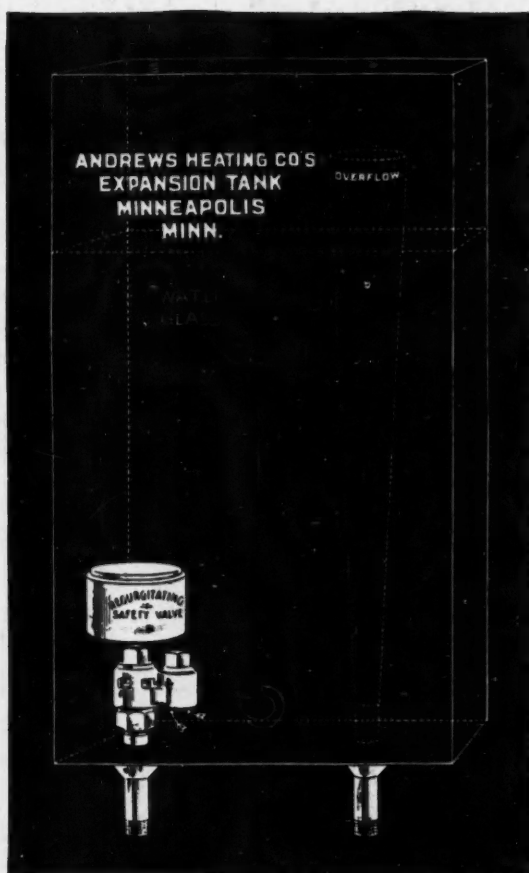
The Andrews Regurgitating Safety Valve.

Our own patented system which increases the efficiency of Radiation more than 50 per cent in cold weather.

The Andrews System embraces a number of distinctive and exclusive features. One of these is the Andrews Steel Boiler. This was discussed in our advertisement in the February issue of MODERN CONSTRUCTION; and the whole matter is fully covered in our book "Home Heating." In this issue we want to talk about the Andrews Regurgitating Safety Valve feature of the Andrews System of Hot Water Heating.

In the heating of homes, universal experience shows the desirability of the low pressure system. It does the work easily and it is always safe—two essential elements in a heating plant. Of course there are some advantages in the high pressure system—the principal one of these is quick action.

We get all these advantages in a high degree in the Andrews System. It is described as a "Low Pressure Closed System with an Open Tank," and its chief feature is clearly explained in the following:



WHY AND HOW 100 IS EQUAL TO 150.

The Andrews Regurgitating Safety Valve is a device, submerged in the expansion tank, for maintaining a pressure on the water in a hot water heating system of not to exceed 10 pounds to the square inch, this in addition to that normally due to the height of the column of water in the pipes. The purpose of this increased pressure is to get a higher temperature into the water in the radiators. This is made possible only by increasing the pressure on the water (or, more strictly speaking, preventing its changing to steam.) It should be borne in mind that it is the accumulated heat within the radiator which determines the amount of heat that is thrown off by the radiator. More hot-water pressure intensifies, and thus adds to the heating power of the system.

The efficiency in the transmission of heat secured by the greater pressure is increased in two ways: first, the hotter the water the more heat it conveys; and, second, the hotter the water the more rapidly it circulates, thus doubling the quantity of heat conveyed.

By the use of the Regurgitating Safety Valve the pressure may be increased 10 pounds to the square inch, which makes it possible to heat the water to a temperature of 240 degrees Fahrenheit, at which temperature 100 square feet of radiation will give off as much heat as 150 square feet would give at 180 degrees, the temperature of an ordinary heating plant.

In short, the Regurgitating Safety Valve increases by 50 per cent the efficiency of an ordinary heating plant. The valve resists the pressure up to 10 pounds; and when the pressure is withdrawn (as when the water cools in the pipes, and so contracts in volume) the valve aperture opens so as to permit the water which has escaped into the expansion tank to return to the heating pipes.

One chief merit of the Andrews Heating System consists in the fact that it retains the safety and other advantages of a low pressure system, while, in case of extreme cold weather, it is possible to raise the temperature of the radiators up to practically that of a steam plant, thus producing by far the cheapest, most sensitive and most efficient heating plant to be bought; and, in warm weather it can be run at a low temperature with moderate fire.

The use of this valve prevents the water from boiling over into the expansion tank, a nuisance common to other open tank systems. It will be remembered also that by increasing the efficiency of the plant, as effected by thus increasing the pressure of the water, it is practicable to make a smaller plant do the work of a larger one, thus saving materially in the first cost of the heating plant.

FACTS THAT COUNT.

1. We are large manufacturers and sell direct from factory to user. Heating plants all ready to erect, pipes cut to fit, saving you the middleman's profits—you buy a better plant for less money—as many customers tell us, saving from 50 to 100 per cent.
2. We give a 360 Days Free Trial Guaranty Bond, which means that you can try the plant for 360 Days and if you want to return it at that time, you can do so and get back every cent paid us. It is up to you alone.
3. This is no experiment. We do a large business and must do it satisfactorily—In fact—

**We Do It Right In 44 States,
Canada and Alaska.**



**ALL THIS AND MUCH MORE REAL
INFORMATION ON HEATING IS IN
OUR BOOK**

"HOME HEATING"

We will send this book to you if you will ask for it and give us at the same time the names of two or more persons who are likely to be interested in the purchase of a Heating Plant.

644 Heating Bldg.
MINNEAPOLIS

ANDREWS HEATING Co.

586 LaSalle Bldg.
CHICAGO

firms needing clamps have been compelled to make them, as there was not a clamp on the market that would stand the strain. The No. 45 (Cut C) now fills this vacancy. It is provided with the latest gripping device—the sliding jaw may be moved easily, but when left where desired is there to stay. It carries a tool steel screw 9 inches by $1\frac{1}{4}$ inches, made with cupped hardened point, and $1\frac{1}{2}$ inch square head, adaptable for use with either wrench or bar. A special high grade 3 inches by $\frac{7}{8}$ inch steel bar is used. This tool is designed for the heaviest kind of bridge and boiler work, and has been tested to a safe clamping strain of 26,400 pounds.

The No. 60 (Dock Clamp) is much larger in construction

carpenters are putting them into buildings old and buildings new. Prevent rattling and permit the windows to be moved up and down with ease. Hold it safely at any point desired. Ask your dealer, or write to the company direct.

Construction for Store Fronts

In looking over the catalogue of the Coulson Patent Store Front Construction, our attention was particularly attracted by the illustrations, showing a number of modern store fronts, one of which we reproduce here.

Our readers can not fail to note that this attractive store front resulted from the use of their construction. This con-



than the No. 45, takes about the same strain, but has heavier bar, screw and jaws, which latter take an 8 inch engagement.

Automatic Sash Holder

The "Automatic" Sash Holder, manufactured by the Automatic Sash Holder Company, of 277 Broadway, New York City, is the new, modern, up-to-date device that dispenses with cumbersome sash weights, kinking cords or ribbons, useless weight pockets, misfit pulleys and reluctant balances, and saves all the time, labor and expense of fitting them in place. Architects are specifying them, contractors and builders are buying them, sash and planing mills are providing for them,

struction was the first of its kind upon the market, and for beauty, strength, practicability and durability, it has never been surpassed.

Any one interested in the planning or building of store fronts should have one of their illustrated catalogues, which will be sent upon request by J. W. Coulson & Co., Columbus, O.

An Unusually Handsome Catalogue

One of the handsomest and most complete catalogues that has reached our desk for some time is "Catalogue G," just issued by the Forest City Bit & Tool Works, of Rockford,

Barrett Specification Roofs

For High-Grade Buildings

THE almost universal use of Coal Tar Pitch and Felt Roofs laid along the lines of the Barrett Specifications, for manufacturing plants, is an index of their ideal suitability for the purpose.

Many roof materials fail when exposed to the corrosive fumes which are always present in coal smoke or around blast furnaces, forges, etc., but the Coal Tar Pitch and Tarred Felt which comprise a Barrett Specification Roof are immune.

Moreover, manufacturing plants are usually of large area and permanent in construction. Both first cost and maintenance cost are important considerations in deciding the kind of roof to be used, and experience has demonstrated that a Barrett Specification Roof *costs less than any other kind* owing to its remarkable durability.

For skyscrapers—expensive structures that could afford whatever kind of roof is most desirable, regardless of cost—for them Barrett Specification Roofs are likewise almost universally adopted. Practically every building, for instance, which is prominent enough to impinge on the serrated "skylines"

of New York and Chicago is roofed or waterproofed (or both) along the lines of one or the other of the Barrett Specifications. That is because such roofs require no care, and conform to the requisite standards of fireproof construction, taking the base rate of insurance.

Modern reinforced concrete structures where fireproof material is required are best covered with Barrett Specification Roofs. The great new Ketterlinus Building, the first reinforced concrete skyscraper in Philadelphia, illustrated herewith, is a typical instance.

The best practice of the day is making the use of Barrett Specification Roofs for all large buildings and manufacturing plants as standard as the use of Portland Cement.

To any one interested, we shall be pleased to send a booklet covering the subject in detail, or to give any information desired. BARRETT MANUFACTURING COMPANY, New York, Chicago, Philadelphia, St. Louis, Cleveland, Cincinnati, Allegheny, Minneapolis, Kansas City, New Orleans, Boston, London, Eng.



KETTERLINUS BUILDING
FIRST CONCRETE SKYSCRAPER TO BE ERECTED IN PHILADELPHIA

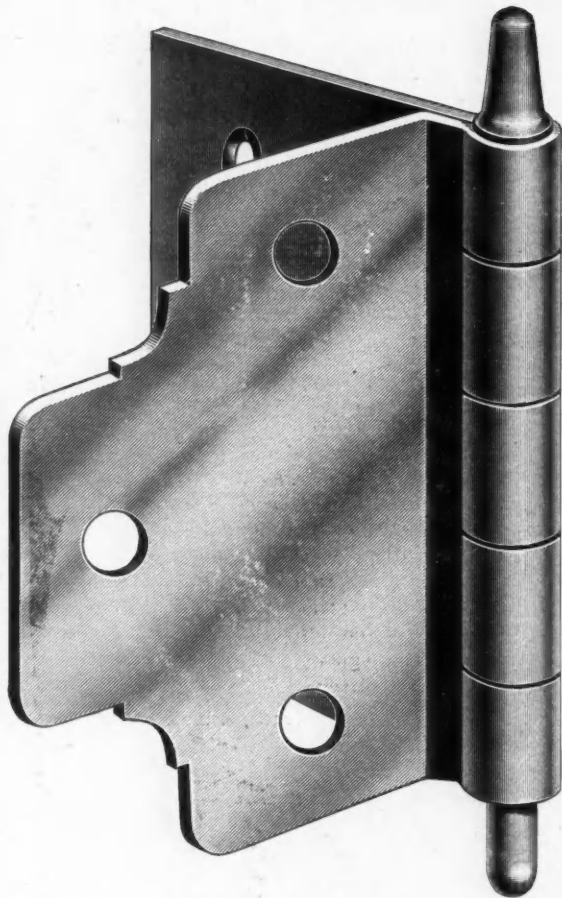
WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

Ill., whose advertisement appears on another page. To those of our readers interested in the purchase of good bits and other boring tools, this catalogue will be found valuable, since it not only contains prices and other descriptive information, but each article is "illustrated from life" so that ordering by mail is as safe as buying over the counter.

"Ornamental Ideas"

Under the above heading the National Manufacturing Company issue a most attractive little booklet illustrating their No. 350 Ornamental Butt. In a brief preface they tell how they came to manufacture this particular hinge. They say:

In compiling this booklet we have endeavored to give as clear a conception as possible, through this medium, of the value and uses of the Ornamental Butts and Hinges. Several years ago we conceived the idea of manufacturing a half-surface Door Butt. We proceeded to develop the idea,



and after considerable time spent in experimenting and designing, decided to place on the market the butt known as our No. 350 style. We realized that this style butt was an innovation and consequently we were rather unprepared for the quick favor with which they met. We firmly believed they were a great improvement over the old-style butts but hardly expected the public to grasp and appreciate their good features in such a decisive manner. Orders began pouring in for them and the volume of business has continued to increase until the capacity of our butt department is taxed to the utmost. Since that time we have added another design, the No. 400, which is meeting with equal favor. Neither time nor expense has been spared in making these butts the standard of perfection in butt construction, and we feel confident that the careful consideration of the following pages will thoroughly convince the thoughtful reader of their practicability, time and labor-saving features and artistic merit.

We give a very good illustration on this page of their No.



¶ There is no haphazard guess-work about the building of railroads, or the bridging of yawning chasms; every detail of construction, every little problem has been solved. Every move has been carefully planned before a stroke of work is done. There is a reason for every spike, every switch, every twist and turn of the track. The safety of human life depends upon the accuracy with which every inch of rail is laid.

¶ **Your success in life depends upon the careful thought with which you have planned your career.**

Will you be holding a better position five years hence, earning more money, **because you are planning** step by step to reach such a position, or are you merely hoping and wishing that something will "turn up" to help you? Are you holding your **present** position by accident or by choice? You cannot succeed unless you give at least as much **careful thought to planning** your journey through life as you would a fifty mile pleasure jaunt.

¶ **If you are a young man** without a profession or trade, **an older man** dissatisfied with poorly paid, uncongenial work, **you can better yourself** by studying in your spare hours. Send for our **FREE** hand-book to-day, describing over sixty Engineering and Technical Courses. Mark the subject on the coupon and **let us help you to plan** a paying career.

¶ **We Employ No Agents** to bother you with repeated calls at your home or place of business. We talk to you only by mail. The money you pay us is not used to maintain an expensive organization of high-priced agents, but is used to give you **better instruction at a lower cost.**

— COUPON—Cut out and mail to-day —

Please send me 200-page hand-book. I am interested in the course marked "X." *Am. Carp. & Bldr., July, 1907.*

- | | |
|------------------------------------|---|
| —Carpenter's Course | —Structural Engineering |
| —Contractors' and Builders' Course | —Mechanical Engineering |
| —Complete Architecture | —Tool Maker's Course |
| —Architectural Engineering | —Civil Engineering |
| —Architectural Drawing | —Electrical Engineering |
| —Heating, Ventilating and Plumbing | —College Preparatory Course (fitting for entrance to engineering schools) |
| —Metal Roofing | |
| —Cornice Work | |
| —Tin-smithing | |

Name

Address

AMERICAN SCHOOL of CORRESPONDENCE

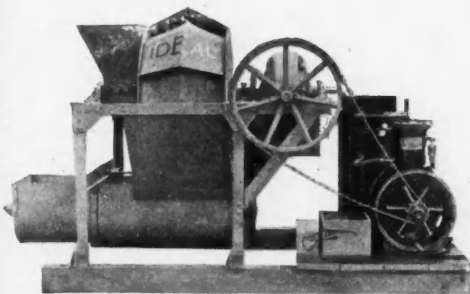
Chicago



Model A
Ideal Concrete Block Machine

IDEAL CONCRETE MACHINERY CO.

Manufacturers of
"Ideal" Concrete Machinery



Ideal Concrete Mixer

Block Machines, 16 to 24 inch Lengths
(Interchangeable)

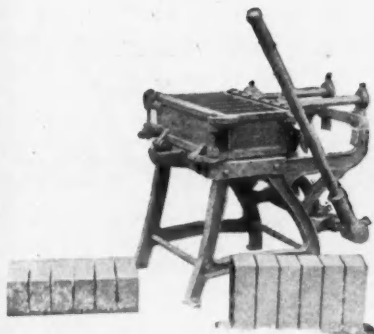
Brick Machines

Sill and Lintel Machines Mixers

Pier Molds Column Molds

Step, Sidewalk and Sill Molds

Ornamental Molds for
Shafts, Capitals, Vases, Etc.



Ideal Concrete Brick Machine



Ideal Cement Sill Mold



Ideal Special Sill and Lintel Machine

Largest exclusive manufacturers of Concrete Machinery in the world. Originators of the "down face" horizontal core concrete Block Machine. Model "A," 16 inch; Model "E," 24 inch. Machines are interchangeable to 8, 10 or 12 inch widths, and produce whole or solid blocks in full or fractional sizes, within capacity.

Manufacturers of the IDEAL Sill and Lintel Machine, IDEAL Continuous Batch Mixer, IDEAL Cement Brick Machine, IDEAL Sill and Cap Molds, IDEAL Cement Step Molds, IDEAL Sidewalk Molds, IDEAL Ornamental Column Molds with Ionic or Doric Capitals, IDEAL Ornamental Spindle Molds, Porch Column Block Molds, Concrete Lawn Vases, Fancy Belt Courses, Ornamental Caps, Ornamental Ball Molds, and everything in regular and special designs.

More than *two thousand* of our block machines alone are being successfully operated in the United States. Exclusively used by all up-to-date manufacturing plants. Importing houses of reputation and reliability are "IDEAL" agents in every country on earth. Largest exporters of concrete block machinery in the United States.

Write for catalogue. Magnificently illustrated. Shows gross and net weights of all machinery and supplies; gives weights and cubic measurements of materials. Tells how to make exact calculations of cost of manufacture of Ideal Concrete Blocks in any locality. The most comprehensive encyclopedia on concrete machinery and its allied interests ever published. Sent free on application.

IDEAL CONCRETE MACHINERY CO.

Dept. I.

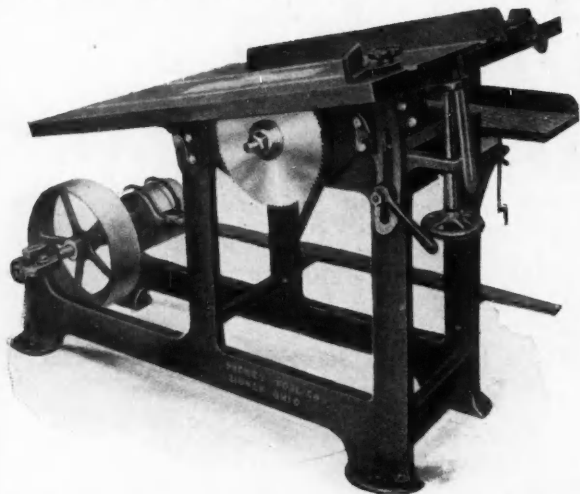
South Bend, Indiana, U. S. A.

350 Ornamental Butt and suggest that our readers write for their little book, which not only gives a full description of the hinge, but some very fine illustrations showing how it can be used to its best advantages.

Address the National Mfg. Co., of Sterling, Ill.

A Combination Rip and Cut-Off Saw

The Sidney Tool Co., of Sidney, O., illustrate herewith their Defiance Combination Rip and Cut-Off Saw, which



is particularly adapted for all-around use in the carpenter shop and planing mill, as it can be used as a rip, cross-cut, grooving, bevel cutting or dado machine. The table, like the frame, is cast in one solid piece, is heavily ribbed and planed perfectly true, and has both the side tilt and up and down adjustment, enabling the user to do all

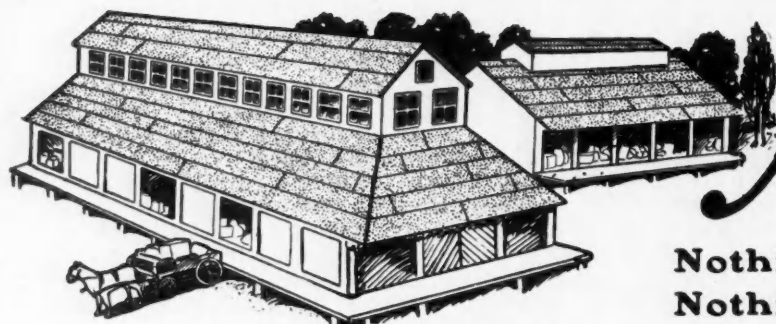
kinds of bevel cutting and dadoing, the arbor being extended for dado head. The table is constructed with an opening around the saw into which a wooden detachable throat piece is accurately fitted, which when taken out gives ample room for changing saws or using dado or grooving head, is equipped with two adjustable cut-off gauges and one ripping gauge. It is also provided with two parallel ways or slots for the reception of the cross-cut gauges, one on either side of the saw. The cut-off gauges can be set at any angle for angle or miter sawing.

This is only one of the machines manufactured by this company. They have the best of everything for the carpenter machine shop or planing mill. Write them for prices and particulars, naming the machines in which you would be interested.

The Latest Furnace Improvement

Improvement is the order of the day in every other line, why should not the smoky fuel heater which has been used so many years be set aside? The Green Foundry & Furnace Works, of Des Moines, Ia., has recently placed upon the market a new furnace known as their "Colonial," and which is illustrated on page 587 of this issue. This furnace is provided with a slotted fire bowl and the air which passes through these slots becomes heated and immediately enters the fuel and mixes with the gas and smoke, burns the carbon which in the past has always been allowed to pass off with the smoke up the chimney, and produces a large amount of additional heat. Thus the black smoke is converted into white smoke, the dirt is removed, and the saving in coal bills will make this one of the cheapest furnaces on the market.

They have also provided the furnace with an attachment through which the heat can be forced into the coldest north-



Amatite

ROOFING

**Nothing for Necessities—
Nothing for Repairs**

When you buy Amatite everything is included in the **FIRST COST**.

There is no cost for **EXTRAS**, because nails and cement for laps are furnished free with every roll.

There is no **MAINTENANCE** cost, because its mineral surface makes painting and coating absolutely unnecessary.

There is no **REPAIR COST**, because Amatite is so constructed that it needs no attention after it is once laid on the roof.

There is no **LABOR** cost, because Amatite is so easy to lay that you can do the work yourself.

The first cost is the only cost—**THE FINAL COST**.

Amatite is the only Ready Roofing embodying every good point that a roof should possess.

Heat and cold, rain and snow, acids and chemicals do not affect it, and in addition to this its mineral surface makes it one of the best fire-retardents known. It is roofing at its best.

Free Sample A Booklet telling more about it and a Free Sample will be sent upon request. Send at once and see for yourself how much better Amatite is than the "paint me every two years or leak" roofings.

Barrett Manufacturing Company

NEW YORK

CHICAGO

CLEVELAND

ALLEGHENY

KANSAS CITY

ST. LOUIS

BOSTON

MINNEAPOLIS

PHILADELPHIA

NEW ORLEANS

CINCINNATI

LONDON, ENG.



The KEYSTONE OF SUCCESS

No
Advance
Payment

COUPON
Cut on Dotted Line.

American School of Correspondence
CHICAGO, ILL.

Please send set Cyclopaedia Architecture, Carpentry and Building for week's free examination. I will send \$2 within a week and \$2 a month until \$19.80 is paid; otherwise I will notify you to send for the books.

Name

Address

Am. Carp. and Build., 7-'07.

Free
For
Examination

In order to advertise the superior methods of instruction of the American School of Correspondence, 1,000 sets of Architecture, Carpentry and Building will be sold at one-third regular price, \$19.80 instead of \$60.00. It is compiled from representative instruction papers of the American School of Correspondence. The method adopted in the preparation of the work is that which the *School* has developed and employed so successfully for many years. *It is not an experiment*—it has stood the severest of all tests—that of practical use—which has demonstrated it to be the best method yet developed for the education of the busy workman. *We employ no agents*, believing our books offer the best method of acquainting the public with the superiority of our *regular* courses of instruction. We feel sure that every purchaser will later become a student in some *regular* course. The work *itself* is a masterpiece of complete, concise, practical, "ready-to-use" information. There is not one iota of theory in its 4,000 pages. Every demonstration is derived from the *practical* experience of the greatest experts in the building industries of the world.

This is an unusual opportunity for ambitious young men to get a working knowledge of a well-paid trade. If you are a House-Owner or *planning to build*, this set of books will save you many times its cost. If you are a Carpenter, Contractor, Builder, Architect, Draftsman or Mechanic it offers you an exceptional chance to *advance* in your *present* occupation. Unless you are advancing and earning *more and more* money as you grow older, there must come a time when younger and more ambitious men will crowd you out.

CYCLOPEDIA OF Architecture, Carpentry and Building

TEN MASSIVE VOLUMES, each nearly one foot high. Handsomely bound in red half morocco. Over 4,000 pages; 3,000 illustrations, full page plates, plans, sections, etc. Printed on highest grade paper; entirely new type—DELUXE books in every particular.
Sent prepaid by express. Pay \$2 within one week, and \$2 a month if satisfactory; otherwise notify us to send for them.



No Orders Accepted at this Price if
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American School of Correspondence
CHICAGO

west room, and it can be as easily heated as any of the rooms with short pipes. The furnace has double feed doors which are a great convenience when burning big lumps of coal. It has a deep ash pit to avoid the burning out of grates. Each bar operates independent of the others and in mild weather the outside bars can be turned and no fuel is lost, as the fire in the center is not interfered with.

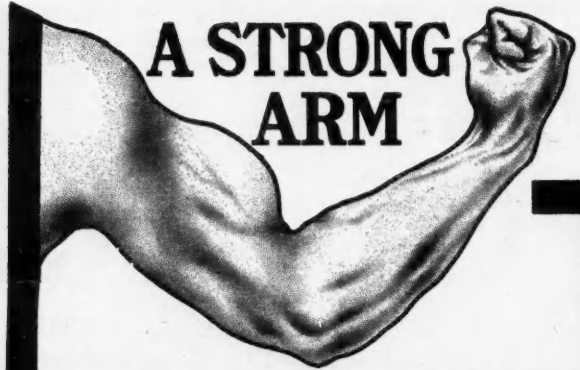
Write the Green Foundry & Furnace Works, Second and Vine streets, Des Moines, Ia., and they will send you a circular fully illustrating and describing this furnace. Kinly mention the AMERICAN CARPENTER AND BUILDER.

Ornamental Iron Stairway

The illustrations in this article are of the grand stairway in the Somerset court house, at Somerset, Pa. This handsome ornamental iron work was recently executed by the Caldwell & Drake Iron Works, Columbus, Ind., manufacturers of structural and ornamental iron and steel. Since the organization



of the company in 1902 they have made a specialty of high grade ornamental iron work in wrought and cast. Their plant consists of large and well-equipped pattern buildings, foundry, ornamental and structural erection rooms, electro plating rooms, smith shop, machine rooms, yard derricks, and their own private switches connecting with the Big Four and Pennsylvania Railroads. The company has enjoyed a liberal share of the work in their line, and are continually adding new buildings and machinery. They point with pride to the fact that the class of work executed by them has resulted in the retaining of all old friends, and the making of many new ones. The structural department of the Caldwell & Drake Iron Works is fully equipped to handle heavy work for buildings, and among the orders in this line recently executed by them are the following: Southern Trust building and Marion hotel, Little Rock, Ark.; Jefferson County Armory and Mary Anderson theater, Louisville, Ky.; Colonial hotel, Springfield, Mo.; Meridian Street M. E. church, Indianapolis, Ind.; and court houses at Bloomington, Hammond



DOES NOT MEAN A HIGH SALARY

It's **brain** not **brawn** that commands the best paying positions. The man who can wield the heaviest hammer or lift the heaviest weight does not get as much salary as the man who tells him when and where to apply his strength. In other words, a man who can plan and direct the work of others is worth many times as much as the man who can only do the work that others plan.

The way to advance to a better position and increased earnings is not to increase the strength of your arm but to increase the strength of your brain—to secure the knowledge that will qualify you to hold a position as foreman, superintendent, or manager, and to double and triple your earnings.

This you can do in a remarkably quick and easy manner, as thousands of others have done before you, through the I. C. S. Courses of home training. It puts you under no obligation to ask how we can raise **your** salary in the simplest and surest way in the world. Simply mark and mail the coupon. **Will you let a postage stamp stand between you and a better position?**

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Please explain, without further obligation on my part, how I can qualify for a larger salary and advancement to the position before which I have marked X.

Architect	Estimating Clerk	Foreman Mach'tst
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Plum. & Heat. Con.	Stationary Eng.	Ad Writer
Supt. of Plumbing	Electrical Engineer	Window Trimmer
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Plumbing Inspect'r	Elec.-Light. Supt.	Civ. Ser. Exams.
Heat. & Vent. Eng.	Elec.-Ry. Supt.	Chemist

Name _____
Street and No. _____
City _____ State _____

A Roof that was laid in 1872 with
**“TARGET &
 ARROW
 OLD STYLE” TIN**
 Still in perfect condition.



THIS building, the residence of Mr. Otis Hower, of the Akron-Selle Co., Akron, Ohio, was covered with our “Target-and-Arrow Old Style” Tin in 1872. After 35 years’ exposure to the elements, it is in as perfect condition to-

day as when first laid and gives every indication of lasting many years longer.

The residence of H. W. Heath, of Lynn, Mass., was roofed with “Target-and-Arrow Old Style” Tin in 1876. From the day it was laid it has never leaked or required any repairs. It is as sound to-day as when laid.

“Target-and-Arrow Old Style” Tin still offers this same durability and satisfaction. Before you decide on roofing material you should read our booklet, “A Guide to Good Roofs,” which we shall be glad to mail free.



This trade-mark stamped on each sheet of the genuine original “old style” tin

N. & G. TAYLOR COMPANY, PHILADELPHIA
 Established 1810

and Greencastle, Ind.; Somerset, Pa., and Perryville, Mo. They also supplied the ornamental iron for these buildings. Their work, however, is not confined to the class of work

just mentioned, as they solicit orders for material for use in smaller work, such as beams, lintels, girders, cast iron columns, sidewalk lights, grates, etc., and with their well-equipped shop and large stock of structural shapes they are in position to fill such orders promptly.



Lightning Cement Brick Machines

Cement bricks, when properly made, are destined to become one of the leading factors in the construction world. Their durability and economy of manufacture are responsible for the rapidity with which they have come into such general use. The great problem which manufacturers of cement brick had to deal with up to a comparatively recent date was how to prevent the bricks from breaking while drying. In many cases it was found that from one-fourth to a third of all cement bricks made would be broken the morning after they were made because of warped pallets.

Among the pioneer and progressive manufacturers of cement brick machines, who spent much time and money solving the problem, were Wettlaufer Bros., of Buffalo, N. Y., who discovered that by using certain governing principles; a machine that would manufacture the brick on their flat would overcome entirely the breaking of the bricks while drying. They set to work and the result is the now justly celebrated "Lightning" Cement Brick Machine, which takes its name from the rapidity with which it can be operated, either by hand or power. This machine is made in three sizes, for making either six, sixteen or twenty-four brick at one operation. It is the only machine that manufactures the brick on their flat.

Previous to inventing their "Lightning" Cement Brick Machine, Wettlaufer Bros. had sold a great number of their old style machines which, like all other machines then on the market, produced bricks made on edge or face, and resulted in a large percentage of broken brick. When they had their

prices in wheat and locally there for hard winter at the seaboard 1 1/2% to 2% but 1 1/2% and 2% July, and 2 1/2% annual figures being and 2 1/2% for

Losses. ed largely by the t. declines being lent stiffening all operatively light, resulting from the high several cash supporting the) The final quo- of 1/2% for May, September. is there more fa- se predictions of atr up ginger in pts were 242 cars, g 446 cars. Sea- 100 bu. The vis- age of 972,000 bu, 90 bu a year ago, k were 3,808,000 year, supplies on increase of 406,000 condition 71, cent last an

Firmer. e start the more p strength, close July and 1/2% under pressure of e day, wound up as of 1/2%. Prices ready to a little ee or four days ntract oats have he warehouses. 30 cars less than today being 471 were insignifi- an increase y a decrease of last year. Min- n as 7 1/2, with the crease of 3 per t was prompted wheat and the

Seven, Eight, Nine Room STRICTLY MODERN Hot Water Heated Homes

A poorly built house is almost certain to prove a lasting disappointment; you can well afford to pay a few hundred dollars more in the start, because it will be a distinct saving in the long run. These are homes that are built as they should be; every inch represents the highest standard of modern construction. Convincing proof can be shown that they can not be replaced now for \$500 above prices asked.

HOW BUILT AND WHAT THEY CONTAIN,

Spence hot water heating system	Plastered dust-proof laundry room,
Handsome combination fixtures,	Spacious closets and butler's pantry
Hardwood finish practically throughout,	Laundry stove and hot water heater.
Eighteen-inch stone foundation.	Large stationary refrigerator.
Eight to nine foot plastered ceiling	Spacious front and rear porches.
basements,	Beautifully decorated in Watton & bus

511 Devon Ave., 30x155
 3792 N. Hermitage Ave., 37 1/2 x 162...
 3796 " " " 37 1/2 x 162...
 3815 " " " 37 1/2 x 162...
 3827 " " " 37 1/2 x 162...

The Selling Points of a Well Built House are Easily Recognized

Spence Hot Water Heating systems make comfortable homes, and valuable property—remember this when building yourself, or recommending the best methods for a client.

Ask us for information regarding Klymax Boilers and Kewanee Radiation. They will meet your requirements.

Kellogg Mackay-Cameron Co.

CHICAGO Minneapolis
 Kansas City Seattle

Celebrated Furman Boilers

ESTABLISHED 1868

40 Years of Successful Manufacturing

**Hot Water and Low-Pressure Steam Heating
for Homes, Churches, Schools,
Stores and Greenhouses**

Furman Boilers have an unusually large and intensely effective surface. Over four-fifths of the Boiler is absolutely exposed to the direct action of the fire

Many Styles

Furman Boilers are designed in upwards of two hundred different styles and sizes; from small Tank Heaters for warming water for domestic purposes to large Sectional or Brick Set Boilers for heating all classes of large buildings.

Economical in Fuel

The well-known economy of fuel and ease of management of Furman Boilers are largely due to four principles of construction:

- 1st. All fire strikes directly against the large water heating surfaces at right angles
- 2nd. The water in Furman Boilers is divided into small units, thereby absorbing heat quickly.
- 3d. The vertical movement of water through Furman Boilers insures rapid and powerful circulation.
- 4th. Furman Boilers have large fuel capacity, thereby requiring minimum of attention.

They will return large dividends in improved health, increased comfort, and fuel saved.

We quote from letter recently received:

"My residence containing eight rooms and bath is heated by a Furman Round Sectional Boiler. Fire was started October 14th last. It will not require over five tons of coal this winter. This does not seem reasonable, but we have maintained a temperature of 70 to 74 degrees all the time.

"My neighbor, who is using a _____ Boiler, carrying the same amount of radiation, will use nine or ten tons. The Furman is the best Boiler on the market for heating and saving fuel."

Built on Merit

The success of Furman Boilers is eminently attested by the valued endorsement of Heating Engineers and Contractors, Architects and House-Owners, and the many Medals and Awards of Merits that we have received at various Conventions. This has given Furman Boilers their unequalled reputation.

Samuel A. Esswein, the noted Heating Contractor of Columbus, Ohio, wrote us in January as follows:

"While this testimonial is unsolicited, I feel it my duty to recommend anything I buy that gives satisfaction. I have used almost every cast iron boiler that is made, in executing my contracts for steam and hot water installations over the country, and I say without fear of contradiction that in my installation of some 300 Furman Sectional Boilers within the last three and one-half years I have not had one complaint.

"The Furman Sectional Boiler is easily and quickly erected (which means something to the Contractor), and from practical demonstrations, I find that it will make steam quicker and circulate water quicker, with less fuel than any Boiler I have used."

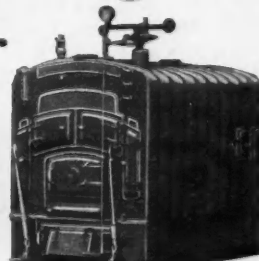
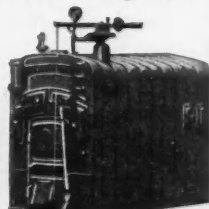
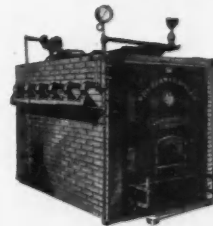
Profitable Investment

The purchase of a Furman heating apparatus is one of the best investments a thrifty man can make.

It will very largely increase the value of his property either for selling or renting.

It will mean a large saving in fuel over other methods of heating, and will give a uniformly heated building at a minimum expense for fuel.

The many advantages and desirable features of a Furman Steam or Hot Water system are fully described in our illustrated catalogue. A copy will be mailed FREE on application. A dress



Herendeen Manufacturing Co.
6 Monroe St., Geneva, N.Y.

improved machine ready they immediately took back all their old machines and supplied the new machine in place. This broad-gauge business policy has gained them high reputation and many friends. Their new machine will produce *all perfect* cement brick at a cost of \$3.54 per thousand. In purchasing a "Lightning" Cement Brick Machine you receive a good guarantee as to all claims made for it and full and explicit directions for its operation to best advantage. You will find an ad. showing cut of machine elsewhere in this issue. For complete information and illustrated booklet address Wettlaufer Bros., 497 Ellicott street, Buffalo, N. Y.

The True Cost of a Roof

The Genuine Bangor Slate Co., have issued a very practical little book entitled "The True Cost of Things," or "Your Money's Worth," in which some roofing and building arguments are presented in a novel manner. The following is a part of their argument:

We cannot give specific figures in this general statement; for we furnish only the roofing material, and not the labor. This item, as well as freight, cartage, and the variations of roof plans and building conditions—all controlled by local factors—vary so widely and change so often, that it would be futile to put any definite figures on record here.

But, the only true way of sifting the difference between a Genuine Bangor Slate roof and any other kind of roofing, is found by the two following questions:

First.—What will any other kind of a roof cost you, per year, for the entire life of the building?

In this figure must be included the cost of your roofing material; the labor of putting it on; the cost of all painting, coating, patching, etc., the cost of renewing the roofing; the cost of damages incurred from defective roofs (or while roof repairs were in progress).

The latter may be a very large item, running into many

variations. It may mean repair bills for cracked walls, crumbling ceilings, spotted wall paper, ruined furniture, spoiled clothes, etc. It may even mean doctor bills; for ill health may be the result of leaky roofs or open house tops, while repairs are going on (and storms sweep through the home).

Second.—What is the cost of a Genuine Bangor Slate roof, per year, for the entire life of your building?

The only cost will be that of material and the labor of putting it on. It will then last longer than the building; for Genuine Bangor Roofing Slate is practically imperishable (within human calculations). Therefore, at the end of 100 years, for example, if the building is torn down, the slate is still available for another structure. (The slate roof of the Saxon Chapel, Bradford-on-Avon; England, is 1,000 years old. This structure was built in the eighth century).

In other words, a Genuine Bangor Slate roof, lasting more than ten times as long as any other roofing, would still be cheaper even at ten times the first cost of other roofings. This, of course, is much higher, very much higher, than what it really costs in purchase price. When the paint and repair bills are added to the cost of the other roofings, the comparison grows every year in favor of the Genuine Bangor Slate roof.

The above covers only the matter of durability, the chief virtue of a roof. You pay nothing extra for the many other advantages of a Genuine Bangor Slate roof, not found in other roofings.

Nobody disputes the beauty of a Genuine Bangor Slate roof, the dignity and character it imparts to the appearance of a house. The rich, deep blue-black of the slate harmonizes well with any architectural or landscape scheme, with any artificial or natural light effects.

There is the fire protection of a stone roof. This quality is a good deal like accident insurance. You may need it

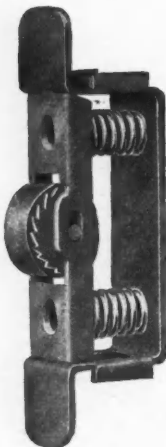
Don't Put Sash Weights in Your Windows!

They are Out-of-Date

THE "AUTOMATIC" SASH HOLDER

IS BETTER AND CHEAPER

**More Convenient, Less Perplexing, Easier To Put In,
More Reliable, More Durable, More Satisfactory.**



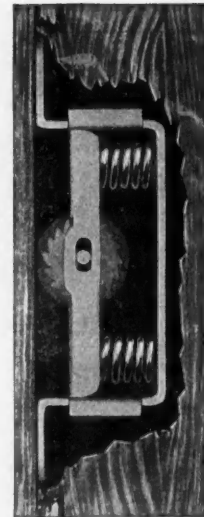
The "Automatic" Sash Holder is the new, modern, up-to-date device that dispenses with cumbersome sash weights, kinking cords or ribbons, useless weight pockets, misfit pulleys and reluctant balances, and saves all the time, labor and expense of fitting them in place.

Architects are specifying them, Contractors and Builders are buying them. Sash and Planing Mills are providing for them, Carpenters are putting them into buildings old and buildings new.

Prevent rattling and permit the window to be moved up and down with ease. Hold it safely at any point desired.

A sample set of four sent postpaid for \$1.20.

Ask your dealer, or write to us direct.



Automatic Sash Holder Co.

277 Broadway

New York City



PETZ CORNER POST

PETZ PATENT

STORE FRONT CONSTRUCTION


Endorsed by leading architects and Plate Glass Insurance Companies; welcomed by the progressive merchant because it gives every inch for display, lets in every ray of light, and is the simplest, strongest, safest and most durable Store Front Construction made.

Our booklet, "A Profitable Corner" and handsome book on Metal Store Front Construction, sent free of charge to all interested. If you write now, you will get them by return mail.



PETZ TRANSOM BAR

Detroit Show Case Company,
491 West Fort St., Detroit, Mich.



HEAT YOUR HOUSE

With one of our new Smoke Consumers. The air which becomes heated by passing through the slots in the fire bowl, converts the smoke and gases into heat, instead of allowing them to escape up the chimney, and the saving in the coal bills will make your furnace cheaper than the cheapest. No more black smoke. We place a five year guarantee on this fire bowl.

By a special device we can now heat the room farthest from the furnace as easily as the room having the shortest pipe.

Double feed doors which admit large chunks of coal.

Special grate bars with no loss of fuel in mild weather, as each bar operates independent of the others.

Deep ash pit. Heavy substantial castings.

GREEN'S NEW COLONIAL FURNACE

costs no more than any other good furnace, but the saving in fuel will make it the cheapest furnace.

Plans and estimates furnished in towns where we are not represented.

We will send you our catalogue showing our complete line for all kinds of fuel if you will send us the name of your local furnace man.

Green Foundry & Furnace Works

SECOND and VINE STREETS, DES MOINES, IOWA



Universal Store Front Construction

ALL METAL BAR

The first bar made to set glass from the outside! Others follow.

All corners and angles look alike. Bar comes fitted ready to screw to building.

Our Universal Sash Bar Meets Every Condition of Store Front Construction

ALWAYS A SURE FITTER. Used for Corners, Divisions, Transoms, Mullions, Sills, Jams, Circles, Domes and ANY AND ALL ANGLES. Send us your blue prints for estimates. We deliver the goods.

VOLTZ MANUFACTURING COMPANY, St. Joseph, Mo.
1101 and 1103 S. Eighth Street : Two Blocks East of Union Station

tonight. You may not need it at all. But, when you do need it, you need it very badly. When the neighborhood is all astir with excitement from fire; with engines puffing, people running, neighbors worried; smoke, sparks and burning embers raining down upon your roof from the fire-nest—you will be more than glad that you paid the trifle more for a genuine Bangor Slate. No other roofing will give you such fire protection. Shingles and "ready" or composition roofings are easily set afire from sparks. Even metallic roofings will not protect your property; for they warp and curl up from the heat, exposing the sheathing underneath. If the fire gets much closer, the tin coating and the solder will melt, a sure source of damage and danger.

All things considered, a Genuine Bangor Slate roof is certainly the most economical you can get. Remember, please, building is a once-a-life-time affair. You pay for only one foundation, one set of walls. Why buy half a dozen perishable roofs during the life of your house?

If you must re-roof, that is the best reason why you should put on a Genuine Bangor Slate roof. It avoids the expense and annoyance of re-roofing; for it outlives the building without paint or repairs. Can you ask more?

Further information cheerfully furnished by Genuine Bangor Slate Co., Acorn building, Easton, Pa. Write and ask them for this little book, "The True Cost of Things." It is free for the asking.

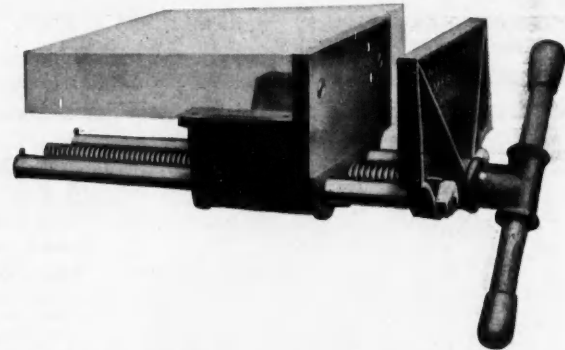
Barnard's Foot Rest

Those whose occupation requires them to work standing are very often troubled a great deal with tired, ill-smelling feet, which are often the source of considerable annoyance and embarrassment. A remedy invaluable to such people is manufactured by Geo. S. Barnard, pharmaceutical graduate, of Benton Harbor, Mich., who spent several years experimenting before he found his present formula. He has built

up an enormous local sale, but is now in a position to supply anyone in the whole country. Barnard's Foot Rest, which is the name of the remedy, is a preparation for the relief of ill-smelling and perspiring feet, and Mr. Barnard is so sure of its beneficial qualities that he will guarantee it to do all he claims, or will refund the price, which is twenty-five cents. Mention the AMERICAN CARPENTER AND BUILDER in writing him.

Wilcox Rapid Acting Vise

The Wilcox Rapid Acting Vise for woodworkers is instantaneous in adjustment and continuous in action. A phosphor bronze nut engages the entire circumference of the screw and



operates its entire length. There are no pawls, racks or triggers to break or wear. The nut is released and completely disengaged when the pressure on the work is removed by a slight reverse movement of handle, so that there is no stripping or cutting of threads. Unlike others, when pressure is applied it causes the nut to engage and lock the screw more firmly and it is not held in position by any external mechanism. The screw is cut with a single thread, four to one inch,

The Only Practical Floor Scaper



It Looks like a floor scaper, don't it?

It is stronger in construction, lighter in weight and is guaranteed to do more and better work than any other machine of the kind on the market.

The difference between the Fox Floor Scaper and other floor scrapers is the difference between a practical and impractical machine.

What Are These Men Doing?



Just What This Man Will Do In The SAME TIME WITH A FOX FLOOR SCRAPER

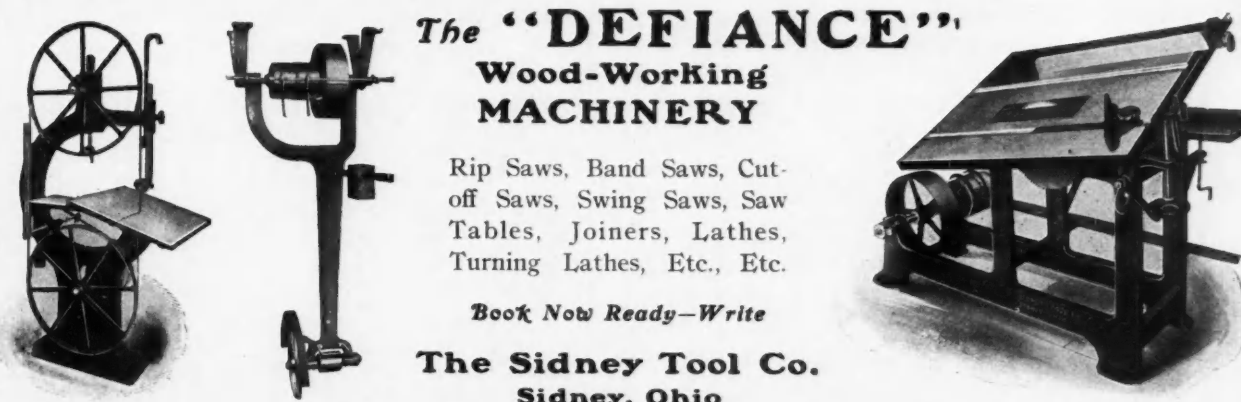
Come to think of it, isn't it foolish to break your back and waste your money.

Buy a Fox Floor Scaper. It will pay for itself in a couple of days' work and last a life time.



FOX MFG. CO.

187 Second St. Milwaukee, Wis.



The "DEFIANCE"
**Wood-Working
 MACHINERY**

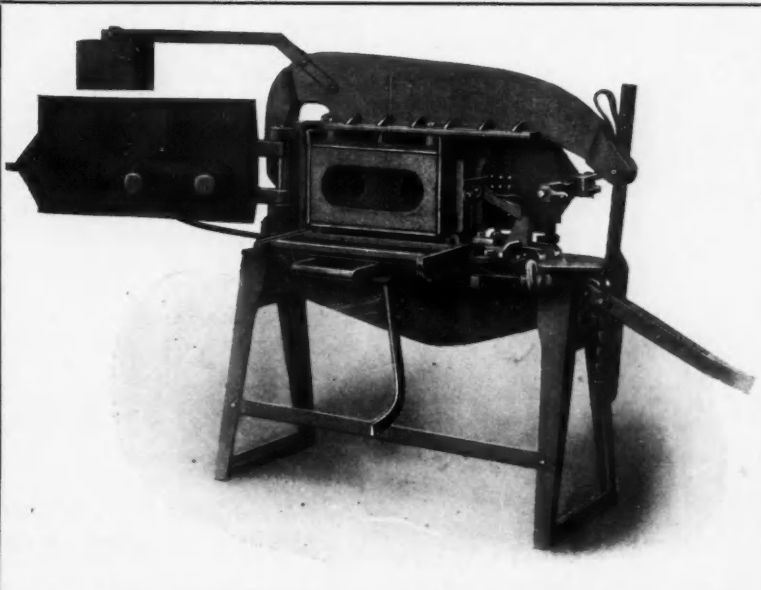
Rip Saws, Band Saws, Cut-off Saws, Swing Saws, Saw Tables, Joiners, Lathes, Turning Lathes, Etc., Etc.

Book Now Ready—Write

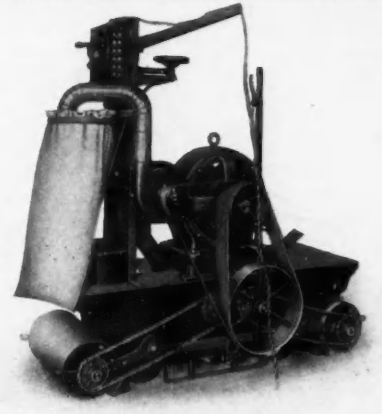
The Sidney Tool Co.
 Sidney, Ohio

**FASTEST
 In the Field**

The Stanford up or down Faced, Veneer, hollow block and brick press machine. Has every up-to-date feature. Makes any style block desired. Price very moderate. Write for catalogue. Inquiries promptly answered.



Sanford & Painter Co.
 JOS. I. COX, General Manager.
 Suite No. 937 Nicholas Building,
 TOLEDO, O.



The American Floor Surfacing Machine

Has solved the perplexing problem that has confronted Architects, Builders and Owners for years, "AN EVENLY AND PROPERLY SURFACED FLOOR." In the past there has been but one method, the unsatisfactory, tedious and expensive one of hand labor.

It is now no longer necessary to employ a small army of men to surface a floor.-- THE AMERICAN FLOOR SURFACING MACHINE will do the work of from FIFTEEN to TWENTY men, depending upon the size and condition of the floor, and do it **QUICKER, CHEAPER, BETTER**, whether of a dwelling, school house, skating rink, dancing hall, office building, decks of steamers, hotels, bowling alleys or store buildings.

The American Floor Surfacing machine does the work with ABSOLUTE EVENNESS and at a small fraction of the cost of hand labor. It is at once efficient, reliable and consequently has met with unqualified success wherever it has been operated. The machine is built on correct mechanical principles, is SELF-PROPELLING and the epitome of simplicity. It is MODERN METHODS SUPPLYING MODERN DEMANDS, and a MONEY SAVER, and so simple in operation that any person of ordinary intelligence can quickly learn how to successfully handle it.

Illustrated Booklet and Details upon Request
AMERICAN FLOOR SURFACING MACHINE CO.
 TOLEDO, OHIO

BARNARD'S FOOT REST
 A BOON TO THOSE WHO WORK STANDING
 INVALUABLE FOR TIRED, ILL-SMELLING, PERSPIRING FEET

Ask your dealer; if he does not carry it, send direct to

GEORGE S. BARNARD, Ph. G. - Benton Harbor, Michigan **25c** STAMPS OR MONEY

with sharp pitch; hence it has double the power or pressure of vises whose screw is cut with double thread. The guides are of cold rolled steel and the jaws are of best grey iron with working surfaces ground and finished. The special design of ribs on the jaws secures minimum deflection or spring under pressure, as well as minimum weight. Write for sample and prices to the Wilcox Manufacturing Co., Aurora, Ill.

Electric Elevators

A very handsomely illustrated catalogue has just been issued by Eaton & Prince Company, Chicago, giving a complete description of their passenger and freight elevators. The idea back of Eaton and Prince electric elevators is to give the fullest sense of safety and comfort with the least sense of mechanism and apparatus, the most satisfying results at the least expense of fuel and labor, with freedom from repairs and a durability equal to the life of the buildings in which the elevators are installed.

The illustrations, which were made by the Commercial Art Engraving Company, Chicago, show the construction of the mechanism of all parts of the elevator. This catalogue may be had by writing to Eaton & Prince Company, Chicago, and mentioning the AMERICAN CARPENTER AND BUILDER.

The Only Self-Setting Plane

The Gage Tool Co., of Vineland, N. J., manufacture the only self-setting plane, and they are so sure of its giving entire satisfaction that they offer it on trial with the privilege of returning at their expense. If it is not in every way satisfactory, after using it for thirty days, you may return it and receive your money back. This is a thoroughly reliable company and can be depended upon to do just as they say.

As an example of the way their planes are received, they publish the following letter:

San Francisco, Cal., June 4, 1907.

Gage Tool Co., Vineland, N. J.

Dear Sirs: Some time ago I bought of you a Gage smoothing plane. I have never used a tool that gave such satisfaction as the Gage Self-Setting Plane. It is as near perfection as a plane can be made. If you know of any firm in San Francisco handling your planes please let me know, as I want to get a set of them, and if I can not get them here I will send to you for them.

Yours truly,

F. A. BENTZ.

The Gage Self-Setting Plane is handled by dealers everywhere, but if it is not sold in your town then write direct to the manufacturers. Address Gage Tool Co., Box B, Vineland, N. J.

A Hercules Operator in Porto Rico

A Hercules operator in Porto Rico has met with tremendous success. Read what he has done in a little over a year:

Built, with the aid of the Hercules machine, the first concrete block building ever erected in Porto Rico; thus first introducing the concrete block.

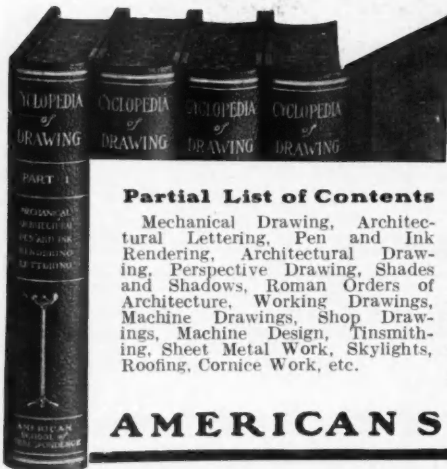
Succeeded in getting the board of education to adopt the Hercules Concrete Block for all school buildings.

Erected enormous warehouses for the Porto Rican American Tobacco Company, the largest company of its kind in Porto Rico.

Has erected during the past year warehouses and cottages costing over \$80,000.

Has introduced the concrete block industry in Porto Rico to stay and placed the Hercules machine ahead of all others.

Has been highly complimented by well-known builders from



CYCLOPEDIA of DRAWING

4 Large Volumes—Each nearly one foot high—2,000 Pages—Bound in red morocco—Type is large, new, easy-to-read—Fully indexed.

LARGEST—NEWEST—HANDSOMEST

The best drawing work published for carpenters and contractors. Written by men who have had many years of PRACTICAL experience. Thoroughly and quickly teaches all branches of drawing—nothing omitted. A short cut to more money and a better position. Why let a few hours study stand in the way of success?

SPECIAL HALF-PRICE SALE.

Special Price, \$12.

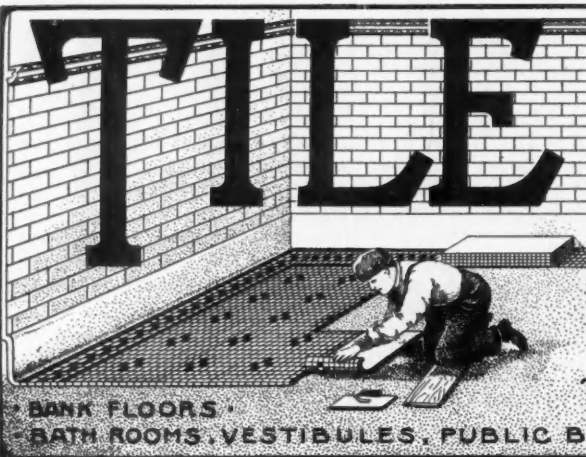
Regular Price, \$24.

The material in the books was compiled from representative instruction papers of the American School of Correspondence. We wish to acquaint the public with the high grade character of the instruction of our school and for this reason we are willing to make such a great offer. Thousands of sets have been sold—every set absolutely on approval—and yet we have not had even one per cent of the books returned.

The books will be sent FREE, express prepaid, for one week's examination. Pay \$2 cash and \$2 a month for five months if you keep the books. We send for them at our expense if they do not meet your needs.

A 200-PAGE HANDBOOK DESCRIBING OUR CORRESPONDENCE COURSES SENT FREE ON REQUEST IF YOU MENTION AMERICAN CARPENTER AND BUILDER, JULY '07.

AMERICAN SCHOOL OF CORRESPONDENCE, CHICAGO



SEND US PLAN OF SPACE TO BE TILED, WE WILL QUOTE LOWEST PRICE DELIVERED AT YOUR STATION ~ CERAMIC - MOSAIC - & ENCAUSTIC TILE for FLOORS in WHITE AND COLORS ~ DESIGNS SUBMITTED ~

WORK EXECUTED IN ANY PART of the COUNTRY
MANTELS - GRATES - FIRE - PLACE - GOODS

WISCONSIN MANTEL & TILE CO.

TILE LAST FOREVER • 420 MILWAUKEE ST. MILWAUKEE, WIS.

BANK FLOORS • BATH ROOMS, VESTIBULES, PUBLIC BUILDINGS •

ALWAYS SAFE AND RELIABLE :: ASK YOUR FRIENDS

The danger of fire in your plant is reduced to the very minimum by the

CALDWELL TANK and TOWER



which, in connection with automatic sprinklers, pours a deluge of water upon any blaze appearing and stamps it out before it has a chance to develop into a serious fire.

Every feature of material, design and construction, assuring tank durability and tower stability, the essentials of high-class tank and tower service, are incorporated into the Caldwell outfit.

A tank that always holds water to its brim without leaking, and a tower that stands solid as a rock against every outburst of nature is what you get with the Caldwell outfit. It is the best you can get, and you should have the best in your water supply service. Ask for illustrated catalogue.

W. E. CALDWELL CO.,

Tanks STEEL - WOOD **Towers**
GALVANIZED

WINDMILLS--GAS ENGINES--PUMPS

LOUISVILLE :: :: KENTUCKY

PLASTER=====PLASTER
IOWA HARD PLASTER CO.

HARD BY NAME
HARD BY NATURE
HARD TO BEAT
NOT HARD TO GET

If your Dealer doesn't handle it, send us his name and we'll see that he is supplied

Costs No More Than Inferior Brands

IOWA HARD PLASTER CO.

Room 1 Mason Block

FT. DODGE, : : IOWA



Patented Jan. 29, 1907

A MONEY-MAKING SPRING HINGE
BECAUSE

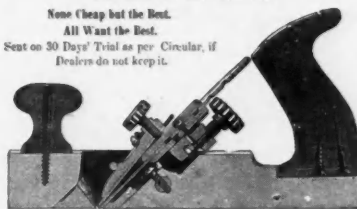
It is new.
It has no loose parts.
It's all-steel from tip to tip.
Spring is covered and protected from the weather.
It's extremely simple—just five parts in all; Two tips two leaves, one spring.
Two tips—wrought steel, turned by automatic machinery—used as rivets—hold the two flanges firmly in position and allow the hinge to work freely.
Two flanges—wrought steel—formed by presses—symmetrical—edges drawn down, leaving no rough parts to be torn or bent—broad giving firm hold on the casing of door, prevents sagging or warping.
One spring—triple coiled—snappy acting—covered—made of No. 8 oil-tempered wire—hold-back at 140 degrees—fastened at both ends securely—cannot slip or spring out of place.
Their shipping weight is just two-thirds of that of cast iron—saves money in freight.
Heavy smooth coat of glossy black enamel is carefully applied and properly baked.
Not cheap—but sell at a good profit.
If you are one of our customers, you know the high quality of our products. If you are not, 'twill pay you to learn it. Either way write for the "Book of Reasons," you will be interested in it. We send it free. Also our Catalog No. 12.
The COLUMBIAN HARDWARE CO., Cleveland, Ohio

SELF-SETTING PLANE

ONLY SELF-SETTING PLANE MADE.
HAS AN ADJUSTABLE IRON THROAT.
Sets Instantly with Minute Accuracy.
EVERY BIT WARRANTED TO STAND TO USER'S SATISFACTION.

THE BEST IS THE CHEAPEST.

None Cheap but the Best.
All Want the Best.
Sent on 30 Days' Trial as per Circular, if Dealers do not keep it.



SECTIONAL VIEW—showing ADJUSTABLE IRON THROAT.

LARGER VIEWS IN BACK NUMBERS

This paper, **The American Carpenter and Builder**, guarantees we will do as our advertisements say, so if our planes are not sold in your town, send us \$3.00 and if within a month you want your money back, return the plane within 30 days of receipt as sent at our expense, and we will return your money at once.

Look Here! Get your back numbers of **The American Carpenter and Builder**, and read what is said in last January number on pages 1202 and 1211; February, pages 1255 and 1340; March, page 1464; then send for a Self-Setting Plane as above.

If you prefer to write we will be glad to answer any questions, but the best way is to try a Plane on your own bench in your own way, then send it back if you want to. In writing us, say saw "ad" in A. C. and B.

See page 493 for testimonial.

Yours, for the Only Self-Setting Plane Made.

GAGE TOOL COMPANY
Vineland, N. J.

Trial Costs Nothing
if returned at **Our Expense**

We deliver it to you all express paid.

the United States as putting out the finest and best concrete stone they had ever seen.

The Hercules machine is manufactured by the Century Cement Machine Company, Rochester, N. Y.

A Great Money Saver

The Fox Floor Scraper is built on scientific principles, yet simple in construction. Simplicity is the most important factor to be considered in building a machine. In this respect, as in all others, the Fox Scraper excels. A glance will convince a practical man that it must, of necessity, do the work. It consists of very few parts, yet is complete in every detail.

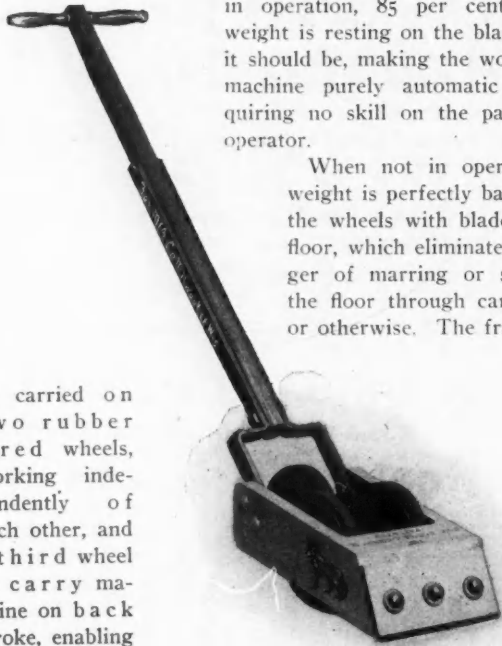
The machine is so constructed and so perfectly balanced that the weight is exactly where it should be at all times. When in operation, 85 per cent of this weight is resting on the blade, where it should be, making the work of the machine purely automatic and requiring no skill on the part of the operator.

When not in operation the weight is perfectly balanced on the wheels with blade clear of floor, which eliminates all danger of marring or scratching the floor through carelessness, or otherwise. The frame work

is carried on two rubber tired wheels, working independently of each other, and a third wheel to carry machine on back stroke, enabling the operator to turn the machine in any direction with ease and do perfect work in any position.

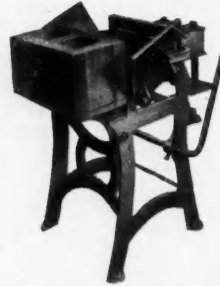
Before this machine was placed on the market it was thoroughly tested under the most difficult and trying conditions, and has been improved and developed until brought to its present state of perfection. It is complete and perfect down to the finest detail and is guaranteed by the manufacturer to do rapid and perfect work under all ordinary conditions.

Any man who can use a hand scraper can operate the Fox Floor Scraper and do good work. Bear this fact in mind, that you do not have to keep a trained man or expert in your



PREVENTS DRAFTS, DUST AND WINDOW RATTLING.
IVES' PATENT Window Stop Adjuster.
 HEAVY BED
 PATENTED.
 The only Stop Adjuster made from one piece of metal with solid ribs and heavy bed that will not cup, turn or bend in tightening the screw. Manufactured only by **The H. B. IVES CO., New Haven, Conn., U. S. A.** (Fifty-page Catalogue Mailed Free.)

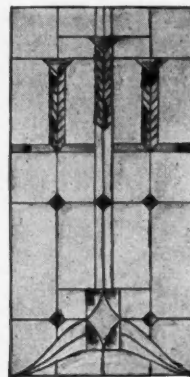
Thunder and Lightning



Get out of the rain and buy Lightning Block Machine that defies all competition. Has wonderful capacity.

Write and Do It Now

D. F. DETRICK
 No. 8 S. Canal St.
 DAYTON, OHIO



Art Leaded Glass

Makers of Memorial Figures and plain Decorative Windows, also residence work in L'Art Nouveau styles and beveled plate in metal copper finish. Designs submitted on application. *Grand Prize Louisiana Exposition.* Correspondence solicited. Established in 1883.

The FLANAGAN & BIEDENWEG COMPANY
 57 to 63 Illinois St. CHICAGO, ILL.
 (Near Franklin)
 Telephone North 218.

Always at the front with the very best

READING BRICK MACHINERY CO., manufacturers of high grade cement brick machines and concrete mixers, paving block molds, and molds for ornamental trimming. Our brick machines make the brick flat—the only way to make a good brick. We guarantee every machine to produce perfect work or refund the money. Send for catalogue No. 3. This will show you at a glance what the machine will make. It makes a greater variety of work than any other machine on the market. We are open for investigation.

Reading Brick Machinery Co., Reading, Pa.

PUMPS, DOOR-HANGERS, STORE LADDERS
 The Pump That Pumps SPRAY PUMPS Double-acting, Lift, Tank and Spray
MYERS' PUMPS Store Ladders, Etc.
MYERS' HAY TOOLS of all kinds. Write for Circulars and Prices.
Myers Stayon Flexible Door Hangers with steel roller bearings, easy to push and to pull, cannot be thrown off the track—hence its name—“Stayon.” Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.
F. E. MYERS & BRO., Ashland, Ohio



2648

Carpenters and Builders are selling Stewart's Iron Fence, and are making good profits.

¶When they make money out of it, isn't it worth your while to investigate our offer, and see how you can make more money out of each job, with less work, and at a less cost to you?

¶Write today and let us tell you about it.

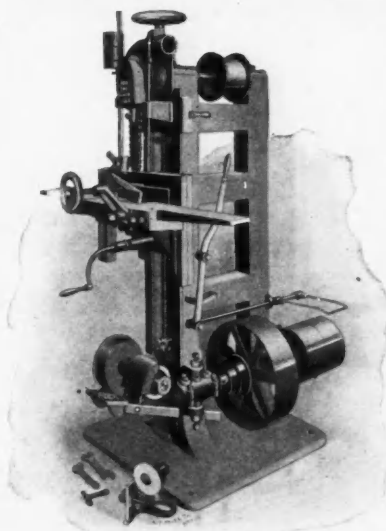
¶Say, "Send me Catalog No. 120-C and all particulars."

The Stewart Iron Works Co.

CINCINNATI, OHIO

"The World's Greatest Iron Fence Works"

10 Hours Mortising Done in 2 Hours



That's a conservative record with a Chain Saw Mortiser on all woods, and the work is true and straight.

There is no boring; no core cleaning; no splitting of wood. In a single operation it does what chisel machines do in three, and there's no shock or jar.

Think of the time, and money you are wasting by using old style mortisers!

Write us for Catalog No. 160.

The New Britain Machine Co.

100 Chesnut Street, New Britain, Conn.

"STANDARD" Brick Machines
Batch Mixers
Gasoline Engines



"Standard" No. 20

Most rapid and practical hand-power cement brick machine on the market. Brick made on the pallet, absolutely uniform, with sharp corners and edges. Four sizes—5, 10, 20 and 40.

Batch mixer with distinctive features. Well built, low priced, highly efficient. Hand and power sizes. Furnished with or without power, on skids or truck.

Vertical, four-cycle, water-cooled type gas and gasoline engine. Extremely simple, economical, safe and reliable.

Illustrated descriptive catalog and prices furnished on application.

SOUTH BEND MACHINE MFG. CO.

1803 S. Franklin St., SOUTH BEND, IND.

**HERCULES SPECIAL
Concrete Block Machine**

COMPLETE OUTFIT FOR ONLY \$120.00

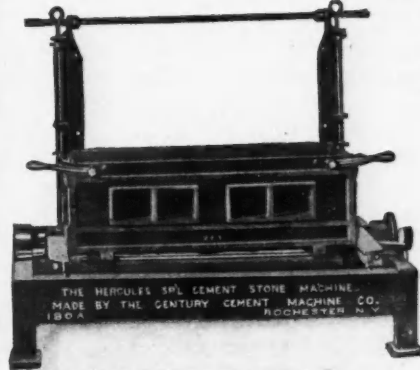
THE HERCULES SPECIAL is now offered to the trade. It is built exactly like the famous Hercules, but is smaller in size. The Hercules Special will make blocks from 3 inches to 32 inches in length, and these blocks will be equally as high grade as those made on the regular Hercules.

To those with limited capital who wish to engage in the concrete block business, or for people wishing to do their own building the Hercules Special is without doubt the best machine to buy.

You get a complete outfit that will start you in the business for only \$120.00, Net F. O. B., Rochester.

With this outfit you can make blocks 8x8x16, or if you desire parts for making stone 8x8x20 will be substituted.

We also allow you choice of any width, either 8 inches, 10 inches or 12 inches.



The Hercules Special is an adjustable machine. If at any time you want to make blocks of a different size than your outfit calls for, all you have to do is to purchase a few extra plates; you do not have to buy a new machine.

We will be glad to send you full particulars about the Hercules Special upon request.

ADDRESS

Century Cement Machine Co.

273 West Main Street, - Rochester, N. Y.

employ to operate this machine. Simply draw the machine toward you and it will do the work. Any boy of sixteen years can operate it and do rapid and perfect work.

It will pay for itself in two days' work. One man with a Fox Floor Scraper can scrape on an average of one thousand to twelve hundred square feet of any kind of hardwood flooring in a day of eight hours.

What will it cost you to scrape twelve hundred feet of flooring by hand? Figure it out, Mr. Contractor. No builder, no matter how small his business may be, can afford to be without this time and money saving machine.

For further particulars, address the Fox Manufacturing Co., 187 Second street, Milwaukee, Wis.

A Block With a Perfect Air Space

In putting a concrete building block and concrete machinery on the market, the Flour City Concrete Block and Machine Company realized that they must have something superior to anything being offered. The material in all kinds of concrete blocks should be the same under the same conditions, so that no machine manufacturer has an advantage as far as material is concerned, but a glance at the special features named below is sufficient to convince that their block has several not to be found in any other. One of the most important of these is the perfect air space. By this is not meant a hole in the wall running from bottom to top, but a complete air space in every direction, making the wall positively frost and moisture proof. It has been demonstrated that any building where the outer and inner walls are connected with a concrete material that the walls are not moisture and frost proof. The blocks made on this machine are tied together with a wood binder, perfectly dry and treated with a preparation of their own, which makes it fire and moisture proof. Some of the more important features of the machine manufactured by this company are the following:

It does not have to be taken down and built up again, like a child's blocks, for every building block made.

It stands at just the right height to put the material into it without any extra exertion.

One motion of the lever, and the machine is opened to remove the block. Returning the lever to its original place closes and automatically locks the machine for the next block. There are no cores to be knocked loose and removed.

The core plates collapse when the block is removed, doing away with all jarring of the block, which has a tendency to break the first set of the cement and injure the block for all time.

There are no cores to tamp around, hence it is easier to make a solid block.

An illustrated descriptive circular and prices of this machine will be furnished by the Flour City Concrete Block and Machine Company, Sykes block, Minneapolis, Minn.

A Superior Hard Plaster

In another column of this issue appears the advertisement of the Iowa Hard Plaster Co., whose "White Rock" Gypsum products are meeting with great favor among the dealers, plasterers and builders. These products merit much favor because the deposit of the crude gypsum is the purest to be found in the United States; their mill is modern and equipped

with the best appliances known for the scientific manufacture of their commodities; while their mill force contains only men experienced in the manufacture of plaster.

It seems reasonable, therefore, for them, in view of these facts, to claim that "White Rock" Gypsum products are just a little better than other brands of plaster.

Concrete Machinery

W. J. Johnson, One Madison avenue, New York City, carries a line of high grade concrete machinery worth investigating by all intending purchasers. Among their line are the Eureka Mixers, Runyan Block Machines and the Helm and Buckeye Brick Presses.

Classified Advertisements.

Advertisements under this heading will be inserted at the following rates:
 One month \$0.45 per line
 Three months 1.25 per line
 Six months 2.25 per line
 One year 4.25 per line
 Count 10 words to the line. Situations wanted one-half above rates. Replies may be addressed in our care and will be promptly forwarded.

Help Wanted.

WANTED—Carpenters to read our ads. on pages 493, 589. Gage Tool Co.

WANTED—A mill man, competent to handle a mill room getting out carriage and automobile stock. Address, Box E., Auburn, Ind.

Furnaces

\$100 FURNACE \$59. Contractors' Favorite. America's Highest Grade Mall Order Heater. Book free. Century Furnace Co., Box E., Youngstown, O.

Wood Working Machinery.

WOOD WORKING MACHINERY—Band Saws, Jig Saws, Planers, Molders, Shapers, Wood Lathes, Rip and Cut-Off Saws, Engines, Boilers, Gas Engines. Above in both New and Second-Hand Rebuilt Machines. Send for Stock Sheet and Catalog. Hanna-Brackenridge Company, Box 463, Fort Wayne, Ind.

Patents.

C. L. PARKER, Solicitor of Patents, 20 Dietz Bldg., Washington, D. C. Handbook for Inventors send free upon request.



10 DAYS FREE TRIAL

We ship on approval, without a cent deposit, freight prepaid. DON'T PAY A CENT if you are not satisfied after using the bicycle 10 days.

DO NOT BUY a bicycle or a pair of tires from anyone at any price until you receive our latest art catalogs illustrating every kind of bicycle, and have learned our unheard of prices and marvelous new offers.

ONE CENT is all it will cost you to write a postal and everything will be sent you free postpaid by return mail. You will get much valuable information. Do not wait, write it now.

TIRES, Coaster-Brakes, Built-up-Wheels and all sundries at half usual prices. MEAD CYCLE CO. Dept. P-122 CHICAGO

VICTOR HAND-FORGED AUTOMOBILE



Water cooled; 2 cycle engine 4x4 cylinder; wheels 37 inches; 1 1/2 inch Goodyear cushion tires; runs from 1 to 25 miles per hour. No country too rough or hilly for the Hand-Forged Victor. Price \$450, including leather top, fenders, lamps, horn, tools, etc. Write for Catalogue and full particulars.

VICTOR AUTOMOBILE MFG. CO.

111 Carroll Street

St. Louis, Mo.

WHO WANTS SLATE?

Roofing Slate for Houses, Barns, etc. Always clean, beautiful and fireproof. Blackboards for Schools, Colleges, etc. Needs no commendation; universally used all over this and other countries.

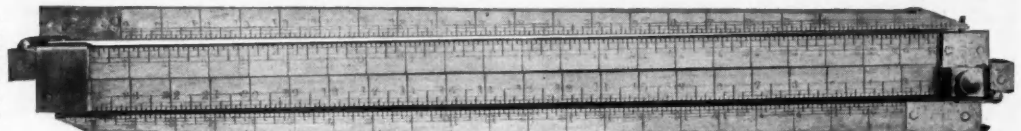
Structural Salts. Electrical Stock, Sinks, Troughs, Washtubs, etc. Superior to all stone for such purposes.

Slaters' Supplies. Handmade Slating Tools, Felt, Cement, Nails, Snow-guards, Punching Machines, etc.

Write for prices and I will tell you all about Slate. DAVID MCKENNA, Slatington, Pa., U. S. A.

Do You Want To Get Measurements Quick? The Bender Slide and Folding Rule

Is the most practical and up-to-date rule in the world for carpenters and builders. For quickly and accurately measuring between two points, any mechanic will readily see that the rule extending from two to eight feet, brings it within nearly all doors, windows, hallways, closets and all kinds of small rooms, headers, trimmers, braces, frame and finish work.



Write for descriptive circular.

J. BENDER, Marion, Kansas



One Brand Only

“CHICAGO AA”==The Best

THE LEADING SIDEWALK CEMENT

Uniform Color Uniform Tensile Strength
Uniform Fineness Uniform Setting Qualities

COMBINED WITH LARGE SAND CARRYING CAPACITY, MAKES

“CHICAGO AA”

THE IDEAL CEMENT FOR LAYING SIDEWALKS, CURBS AND GUTTERS;
ALSO FOR ALL OTHER CONCRETE WORK REQUIRING
HIGHEST GRADE OF PORTLAND CEMENT

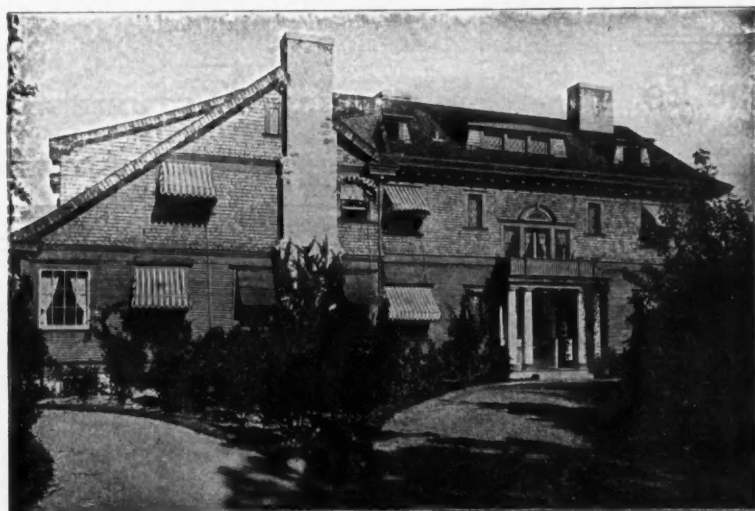
Chicago Portland Cement Co.

Manufacturer of “CHICAGO AA” Portland Cement
Stock Exchange Bldg. - - Chicago, Ill.









AS A RULE, too little attention is paid to the Shingles of a house, when, in fact, they should be first considered. Preserving and beautifying the shingles is as essential as any part of the building. These stains are made with permanent German colors ground very fine with Creosote and drying oils, the colors being thoroughly incorporated with liquids. The stain penetrates the wood, and there is no hard surface to peel and crack as with paint, and it will prolong the life of the shingles many years, protect them from dry rot and boring of insects, and keep them from warping. It brings out the beautiful shading of the grain of the wood, which cannot be obtained with paint, giving

a remarkably artistic coloring effect, quite different from a painted surface. The cost of these stains is about one-half, when compared with paint. If interested, send for samples on wood of twenty-one different tints and colors.

MANUFACTURED BY
Vilas Bros., Chicago, Illinois
 Quincy and Fifth Avenue



**CORTRIGHT METAL SHINGLES
ARE LIGHTNING PROOF**

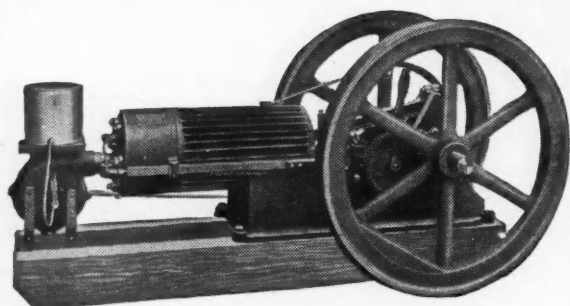
That's another reason they are supplanting the wood shingle,—it's a good thing for you carpenters, because you can make more money laying them. Send for 56-page booklet—"Rightly Roofed Buildings."

Cortright Metal Roofing Co.
Philadelphia and Chicago.

The WATERLOO

Vapor Cooled Gasoline Engine

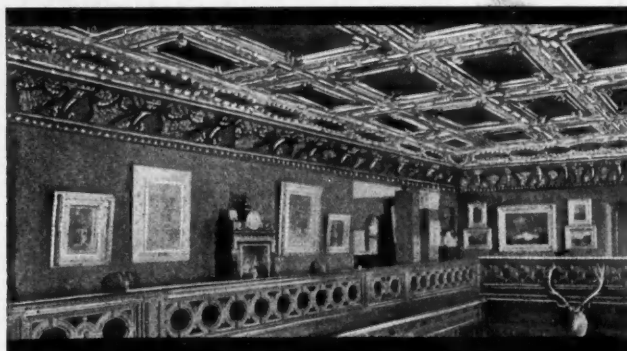
THE ONLY HORIZONTAL VAPOR COOLED GASOLINE ENGINE IN THE WORLD



Patented May 15, 1906.

ABSOLUTELY FROST PROOF AND CANNOT FREEZE. REMEMBER! NOT AN AIR COOLED, BUT A VAPOR COOLED ENGINE. OUR FREE ILLUSTRATED CATALOGUE WILL TELL YOU ALL

Waterloo Gasoline Engine Co.
175 Third Avenue West, - Waterloo, Iowa



THE NEW CEILING AND SIDE WALL ON THAT ROOM

What shall it be? Steel, of course—because it is the most modern, sanitary and inexpensive, practically lasts forever.

Write to-day, giving dimensions and particulars. We will go into the matter with you thoroughly.



"When it has the Eller trade-mark, it's the best in steel."

ELLER MANUFACTURING CO.
Canton, Ohio

Practical Art Metal Ceilings



Quickly and easily applied. We are the only manufacturers who cut the beads in the dies after casting. RESULT—Square and accurate plates—which will save you time and labor in cost of erection.

Send for Catalogue No. 2, which shows 200 new and original designs.

MANUFACTURED BY
Wm. Foster & Sons Co., Inc.
Springfield, Illinois

Also manufacturers of Radiator Shields, Fire Proof Window Frames and Sash, Gal. Iron Fronts, Hip Shingles, Cornice, Skylights.

PATTERNS MAKERS
FOUNDERS & MACHINISTS

BEAMS, IRON COLUMNS, SIDEWALK LIGHTS, CAST CONDUCTOR CONNECTIONS, BOOTS & GUTTER BOXES, FLUSH HINGE DOORS, COAL HOLE COVERS & GRATINGS.

ALL KINDS OF CONTRACTORS IRON WORK TO ORDER

THE **CANTON FOUNDRY AND MACHINE COMPANY**
CANTON, OHIO, U.S.A.

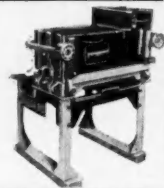
603 E. 8th St.



HERCULES CEMENT BLOCK HOUSES

with their artistic face designs and superior finish, show to great advantage alongside all others. Contractors are welcoming the machine that gives their houses a "distinctive appearance". The Success Machine supplies great variety in faces and shapes, blocks 16 in., 24 in. and 5 ft. in length. See our Scientific air space, latest out Double Vertical, Double Lateral ventilation, all blocks made face down. Write for catalog and circulars.

HERCULES MFG. CO., Dept. A-216. Centerville, Iowa.



BURLINGTON



Venetian Blind for inside window and outdoor veranda. Any wood; any finish to match trim.

Venetian and Sliding BLINDS Screens and Screen Doors

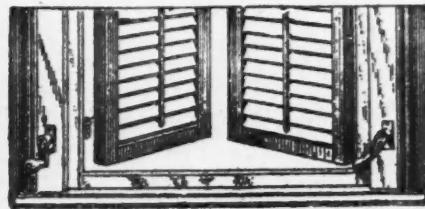
Equal 500 miles northward. Perfect privacy with doors and windows open. Darkness and breezes in sleeping rooms. Write for our catalogue, price list and proposition to you.



Sliding Blinds for inside use. Require no pockets. Any wood; any finish.

BURLINGTON VENETIAN BLIND COMPANY
950 Lake Street, Burlington, Vermont

MALLORY'S



Standard Shutter Worker

New and improved patterns and designs.

Opens and closes the blinds without raising the window. Automatically locks the blinds in any position desired. Made of gray and malleable iron. The best and most durable blind hinge. Incomparable for strength, durability and power. Can be applied to old or new houses of brick, stone or frame. **Send for Illustrated Circular.** If your hardware dealer does not keep them, send direct to **FLEMINGTON, NEW JERSEY.**

SHELTER is one of the elemental needs of our race.

From the rude shelters of the cave man, we have evolved, through ages, the modern dwelling. We first guarded against deadly cold, then we required privacy. The modern dwelling must shelter us from heat as well as cold, and from distracting noises. Brick and stone keep out the wind and rain, and some of the heat, and some of the noise.

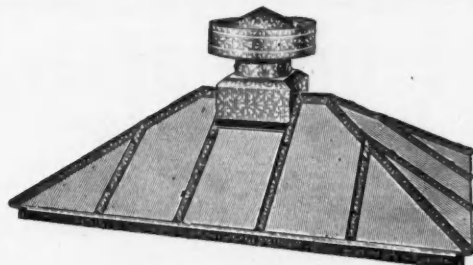
But the only material which keeps them out entirely is LINOFEELT.

LINOFEELT is a scientific non-conductor of heat, cold and sound, a blanket of flax fibres (unbleached linen threads) applied inside or outside the building.

We have in use today over half a billion square feet—we can not make it fast enough.

Every builder can learn about it from our booklet, sent on request, and he needs to learn, for he may have to put it up any day.

UNION FIBRE COMPANY,
Dept G
WINONA, MINNESOTA.



SKYLIGHTS

DO YOU WANT PERFECT LIGHT COMBINED WITH PERFECT VENTILATION?

If so, investigate the WILLIS Ventilators and Skylights. Our Skylights are made in seven different styles, and can be set up by any person of ordinary ability without the use of tools or solder and have a perfectly water-tight job.

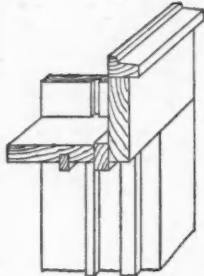
Send for Catalogue No. 5 of Skylights, Cornices, Crestings, Finials, etc.

WILLIS MFG. CO.
GALESBURG, ILL.

Original makers of the Willis Hip Shingle.

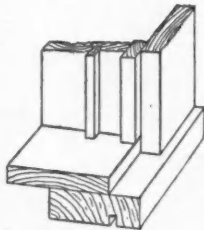
WINDOW 5,000 FRAMES

Right now we are booking 5,000 window frames to be shipped during this month.



That indicates we are giving satisfactory quality and service.

Send us rough sketch of frame you are using, and we will quote you price by return mail.



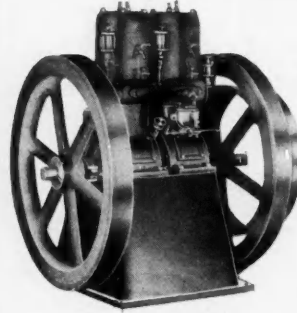
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Quality and Service

are bound to increase our list of customers. Will YOU allow us to enroll your name on this list by sending us a sample order for frames by first mail?

The Malta Manufacturing Co.
MALTA, OHIO

POWER THAT PAYS!



**WE MAKE IT!
DO YOU WANT IT?**

Gasoline Engines
FROM
3 to 50 H. P.

Few Parts. Well made and guaranteed free from defects and breakage for one year

In the working parts of a Goshen Engine there are no valves, cams, gears or springs. As the pistons pass up and down in the cylinder they open and close the torts of the engine, thus exhausting the burnt gases and admitting the new charge. We make special piston rings that we guarantee for three years. An honest, reliable engine for any purpose.

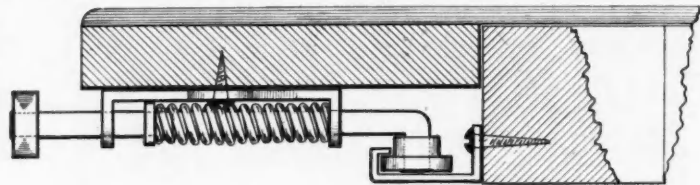
Marine Engines from 3 to 50 H. P. which are really all engine and one that will please you

WRITE TODAY FOR CATALOGUE

Goshen Motor Works,
GOSHEN, INDIANA

THE EUREKA T-SQUARE AND Drawing Board Attachment

A TIME-SAVING DEVICE FOR EVERY DRAFTSMAN



YOU NEED IT BECAUSE

It holds the T-Square where desired upon the Board, insures accuracy, affords you the use of both hands to do your work; you can do more work accurately; it can be attached to the Board and T-Square you are now using, and because your outfit is not complete without it.

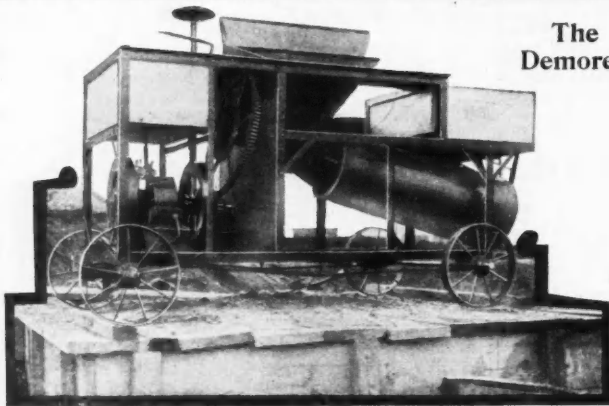
Set consisting of one spring attachment and 24 inches of track, screws, etc., sent complete, postpaid, to any address in U. S. on receipt of \$2.00. Additional length of track furnished at 25 cents for each 6 inches.

In ordering state length of your T-Square that the proper spring may be supplied, also width of your Board, for the proper length of track. **Agents Wanted.** Descriptive Booklet sent on request. Address

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The Demorest

Little Giant Mixer

automatically proportions—mixes dry, then wets. Product approved by engineers. Capacity greater than any Mixer costing twice its price. Easily portable. One customer claims \$15.00 per day saving over one of the best known Batch Mixers.

Send for Booklet "a"

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50 High Street : : BELDING, MICH.

"LIGHTNING" CEMENT BRICK MACHINES and Improved All-Steel Cement Mixers



Write for our Special Offer covering complete Portable Outfit consisting of an improved All-Steel Mixer and a 2½ H.P. Gasoline Engine both mounted on Strong Wagon ready for business

THIS BRICK MACHINE Excels All Others, BECAUSE it manufactures the brick ON THEIR FLAT—the only way to prevent having broken brick—from a quarter to a half of all brick made on edge or face are broken the next morning because of warped pallets.

"Lightning" Cement Brick Machines are made in three sizes for making 6, 16 or 24 brick at an operation. We warrant them to be the simplest, the fastest, and the ONLY REAL PRACTICAL Cement brick machine made to-day. Day by day and week by week they will turn out DOUBLE the amount of PERFECT BRICK of any machine in the world.

OUR ALL-STEEL CEMENT MIXERS

Our latest improved cone-shaped, all-steel Concrete Mixer is the most complete, durable, and fastest working batch or continuous mixer on the market. We absolutely guarantee it to do better and more thorough work than has ever been accomplished before by any mixer costing double the price. It is operated by hand or power and is built inside and out on the structural steel principle. Write for particulars at once to

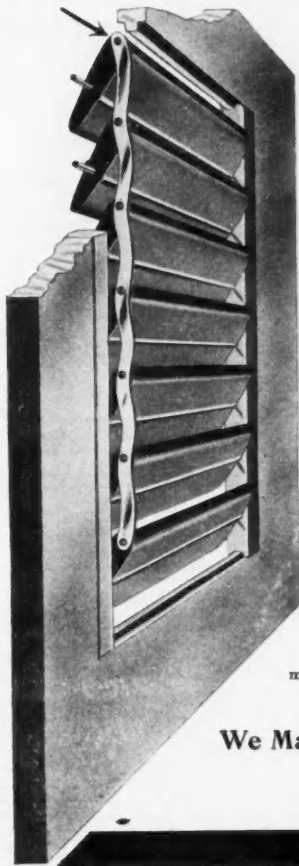
Wettlaufer Bros

HEADQUARTERS: 497 Ellcott Street
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Operates Hand or Power

Corrugated Steel Slat Rod (See Arrow)



Neat,
Effective,
Easily Operated,
No Lost Motion.

PHOENIX INSIDE SLIDING BLINDS

The PHOENIX Inside Sliding Blinds are a success and fully appreciated by architects, builders and house owners wherever sold. They are far superior to the old style of Folding Blinds—either outside or inside.

The lately improved springs and corrugated steel rods put the "PHOENIX" far in the lead of less improved styles.

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This rod is one piece (not short pieces), consequently there is no lost motion, as all slats move perfectly and positively. Our slats have steel tenons that act smoothly and cannot break. All other makers must use the old wooden tenons. The Phoenix is a flat and strong corrugated steel rod, placed on the end of slats, "out of sight."

Our Counter Balancing Springs

With the PHOENIX Counter Balancing Springs, the block in center is of hard wood, supported at either end with steel springs attached to the solid wood of the stile of blind, and not to a piece glued in. To increase the tension on the friction block, the groove where end of spring is attached can be cut deeper. The friction block is attached to the springs by metal pins passing through slots in springs; this allows block to adjust itself to any inequality of surface.

TESTIMONIALS

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The Phoenix Sliding Blind Co.:
I consider your blinds the best fixture I have in my house.
A. TEMPLETON.

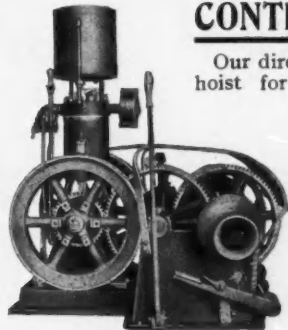
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I enclose check for \$68.41 for blinds as per contract. They fit all right and are satisfactory to the owner.
JOSHUA D. COOPER.

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We Make Highest Grade Hardwood
Veneered Doors

Phoenix Sliding Blind Company
Bridge and Canal Sts., PHOENIX, N. Y.

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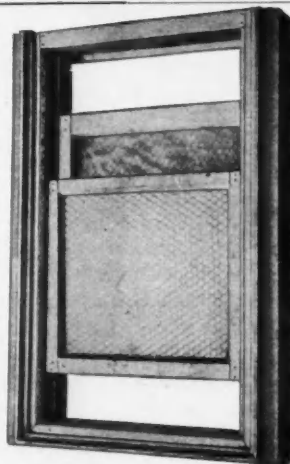


Our direct connected, self contained hoist for double platform elevator work can't be beaten.

Equipped with our Standard Gasoline Engine it certainly is the most economical method of elevating building material known.

Write for our Bulletin No. 5, and let us name you price. We also make a full line of Gas and Gasoline Engines, from 1½ to 25 H.P.

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Fireproof Windows,
Metal Ceilings,
Cornices, Skylights, etc.

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Structural and Ornamental Iron.
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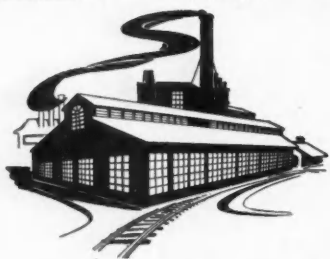
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Success to Concrete Block and Brick Makers

If you contemplate the making of Concrete Blocks and Brick. I can show you how to save money—at least \$1.50 per hundred blocks and \$1.25 per thousand brick. Blue Print Drawings, scale $\frac{1}{4}$ inch to the foot, with a complete itemized bill to construct a Money Saving Plant, for the sum of \$1.00. (Money order or bill.) For references as to my experience and success, address The Old Second National Bank of Bay City.

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There
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for Hardware Dealers,
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We now carry them *in stock*.

Center-lift hand-power freight elevators in various convenient sizes are thus *immediately available*—from us to you upon receipt of *accepted specifications*.

Prices as *satisfactory* as our product.



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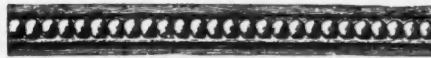
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in Mission,
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Everything from
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Fireplace hardware
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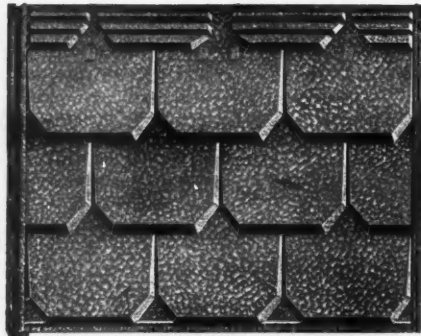
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For roofing all buildings with one-quarter pitch or more.

NEVER LEAK

They reduce the fire risk, and cost of insurance. Superior and cheaper than wood shingles. Any good carpenter or mechanic can lay our shingles.

Tools Required—Hammer and Shears.

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Manufacturers of all kinds of roof trimmings.

DETROIT, MICH.

The roofing with a reputation has been used for more than 20 years, and still in good condition. Will last a life time.

Write for Catalogue and Prices.

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Is the vital problem that confronts every builder. His success depends upon his ability to estimate the cost safely and accurately. The Lightning Estimator (fourth edition) prepared by a successful contractor, teaches the builder to estimate the cost in an easy, simple, safe, reliable, accurate and concise manner. A point much appreciated by builders is the great rapidity of this method over all others. Many builders using our methods have written us that they are estimating the cost of an ordinary building in 30 to 60 minutes.

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Gives the actual cost of labor and material for each separate part of the work, so that it may be easily adjusted to any locality. Guards against errors and omissions. Brief and handy. Each subject can be found at a glance. No unnecessary lingo, but clean-cut data enabling the builder to accomplish his end at once. This is the new edition amply illustrated and bound in waterproof covers. Price \$1.00 (money order).

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NOTE.—This book is for estimating wood and veneered buildings and covers residence work from start to finish with the exception of plumbing and heating.

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are the graceful, artistic and high-grade product of a house, expert in its line, using perfected, up-to-date machinery, located in the hardwood belt and favored by excellent labor conditions.

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don't you think it is worth while to investigate our claim that KING MANTELS are the best high-grade dependable mantels for the money in the country? FREE: our 64-page proof book called "Evidence." Shows 37 leaders in KING MANTELS and tells what others say.

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NO WASTE FROM ROUGH PLACES,
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to give long service and complete satisfaction, must be capable of rapid expansion and contraction. Without these two qualities it will soon be rendered practically worthless because of breaks and buckling.

In the making of



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we carefully figure both these factors, and the result is a Terne Plate that offers the greatest protection. These qualities, in conjunction with its well known pliability and perfect coating, have made MF Ternes the plates they are and the ones you need if you want the best to be had. Send for our booklet "From Underfoot to Overhead" if you would like to know how real Roofing Tin is made. It is free.

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If Gossett Hinges pleased their customers, won't they please yours? Send for free sample pair for actual test—there's nothing so convincing. Sold by hardware dealers. Price per dozen pairs, \$1.20, express prepaid.

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Has an Octagon Rule for Framing Octagon Roofs. It is found on back of body of square, and on face of body of square is our COMMON FRAMING RULE. Have you seen one? If not you ought to. Go to your hardware dealer and ask him to show you one, and if he hasn't one write us and we will send particulars.

NICHOLLS MANUFACTURING CO. :: Ottumwa, Iowa

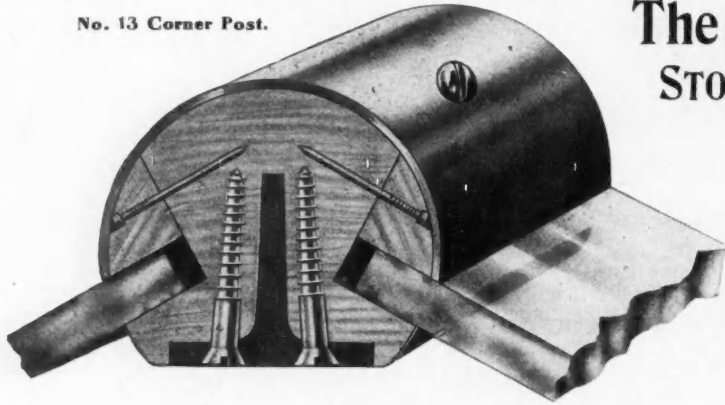


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Standard Mineral Wool makes buildings fire, sound and vermin proof. Send for circulars and samples--free

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The COULSON PATENT STORE FRONT CONSTRUCTION

is the most practical and complete, and is far superior to any other device used for the setting of glass. With it all glass is set in position from the outside, which not only saves time and expense, but should a light of glass be broken it is not necessary to remove any of the window fixtures or displays to replace it. This feature recommends it to the Plate Glass Insurance Companies, and they charge no extra rate as they do on glass set in other patent devices, but instead recommend its use.

The posts and bars which make up this construction are arranged so that the glass does not come in contact with the metal, which gives it the advantages of all wood setting, and at the same time the strength of the steel tees which are incased in the wood. The outer exposed surface is covered with metal covering, held in place by screws, finished to match the metal finish used. The metal covering can be had in eighteen gauge brass, finished in polished brass, nickel plated, oxidized copper plated or gun metal, or copper metal polished or unpolished, or polished aluminum, as desired.

This construction is easily erected, as it is gotten out cut to the required lengths. The wood encased steel tees of the corner posts and division bars are provided with lugs at either end. The transom bars are provided with lugs, and where they intersect with either the corner posts or division bars they are framed into them at the factory.

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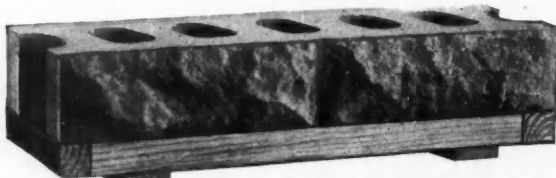
Are you looking for a Cement Block Machine

which makes the best block in the shortest time, the greatest variety of styles as well as of sizes, a full line of veneer work as well as of regular heavy blocks, etc., then buy

The U. S. STANDARD MACHINE

Manufactured by
The Ashland Steel Range & Mfg. Co.
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4" X 8" X 24" ROCK FACE IN 12" & 12" SECTIONS

Latest Model with
Veneer Attachment



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Also that we ship them complete direct from our factory to you or your customer at your request.

We save you and your customer 50 per cent by these direct shipments.

We make no shoddy goods, but guarantee our goods to please you and your customer before paying.

We have the only grate that is guaranteed to heat from three to four good-size rooms on either floor in **zero weather**.

We pay the freight to your city on our shipments.

We issue three catalogs. Ask for one and the agency.

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Mention American Carpenter and Builder.

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\$.42

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NO. 3 STEEL TRAY BARROW
2.30 EACH

NO. 4 TAMPER
6 X 6 IN.
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ADJUSTABLE NAME PLATES
ANY SIZE ANY SHAPE

ASK FOR PRICES

EVERYTHING IN CEMENT MACHINERY

MIRACLE ONE-MAN BRICK MACHINE

In selecting a Brick Machine one wants the very best. He wants one that will stand hard usage and lots of it. He wants one that will not be constantly calling for expensive repairs. The Miracle Machine answers these requirements. It is strong in every part. From the heavy iron standard to the delicate mechanism of its molding parts, it is a most durable machine. It is made for a capacity of 3,000 to 4,000 brick every day for many years to come and must be of the very best quality or it would not stand the wear. The man who buys a brick machine expects to use it for all there is in it and he cannot therefore afford to buy anything else but the very best and strongest machine made. Better to pay a little more, if necessary, at the start and buy a good machine that will last for years without repairs than to save a few dollars at the start and be squandering money for repairs for a year or two and then be obliged to buy another machine. Price \$150, F. O. B. Minneapolis.

Read the following letter from a well pleased customer:
Roswell, New Mexico, June 29, 1906.
Miracle Pressed Stone Company, Minneapolis, Minn.
Gentlemen:—We want to express the utmost satisfaction we have experienced with your \$150.00 Brick Machine. Your claims as to capacity are none too large, and it is a business proposition that is certainly a good one.
When we need any more brick machines, we are going to buy a Miracle.
Very truly yours, Hondo Stone Mfg. Co.

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Making Cement Pipe and Tile is the most profitable branch of the whole concrete industry. For \$44.50 we furnish you a complete outfit for making 18-inch Bell-End Pipe. When you have sold fifty pieces of 18-inch pipe (100 feet), you have paid for your outfit and have a nice profit besides. For \$57.50 we equip you with complete outfit for making 24-inch 2-foot Bell-End Pipe. The sale of fifty pieces of this size pipe will bring back your total investment and a profit besides.

The following is a letter from one of our Tile manufacturers.
Clarinda, Iowa, Dec. 17, 1906.
Miracle Pressed Stone Co., Minneapolis, Minn.
Gents:—The tile molds I find to be just the thing. We had a good sale of the tile, it was late in the year to buy these tile molds, but we have had a good trade. We made about 3,000 feet of a 12-inch tile; 2,500 feet of 15-inch tile; and about 1,500 feet of 24-inch tile. I think they are better than clay tile. They will stand frost better, and the older they get the better they are. A clay tile is no better than the day it is put in the ground—cement gets better the longer it is in the ground. I know this to be true; I have made clay tile for sixteen years and am still making them.
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The Miracle Double Staggered Air Space Block, always at the front, is advertised in the leading magazines so that people demand it. Price of complete equipment making 69 different sizes and styles of blocks, \$250. Has wider range and greater capacity than any other machine made at anywhere near the price.

PNEUMATIC TAMPING EQUIPMENT
We are headquarters for pneumatic tamping tools and equipment, and Gas or Gasoline Engines for operating same. Our tools are adjusted for tamping concrete blocks, brick and sewer pipe. Ask for prices and complete description.

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We publish a large book on concrete—pages 9x12, with over 500 illustrations. It thoroughly covers the concrete industry, shows numerous buildings with size and cost, over 100 designs of blocks and the process of manufacturing; the proper mixing, curing, laying or coloring of the concrete, the proper principles of concrete construction, air spaces, etc.; full details on the manufacture, sale, use and the best machines for making Double Staggered Air Space Building Block, Cement Sewer Pipe and Drain Tile, Ornamental Stone, etc.; listing also everything in tools and appliances from a sidewalk jointer to an air tamper, and hand and power concrete mixers, including also several low-priced single air space machines. Regular price, 25 cents. Sent free, provided you say in which line you are interested, and ask for catalog "K."

Miracle Pressed Stone Co.
LARGEST MANUFACTURERS OF CEMENT MACHINERY IN THE WORLD
MINNEAPOLIS, U.S.A.

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\$.40

PLASTERING TROWEL
ALL SIZES
10 1/2 IN. \$ 1.15

LACED SAND SCREEN
\$ 2.50

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\$ 8.40

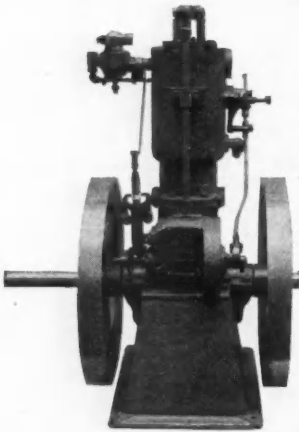
NO. X016 DRIVE WAY ROLLER
\$ 7.00

ROLLING JOINTER
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POINTING TROWEL
\$.25

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FROM 2-50 HORSE POWER—PORTABLE OR STATIONARY

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An Absolute and Simple Governor. Either Make and Break or Jump Spark Ignition. A Certain and Reliable Cooling System. Best Workmanship and Materials.

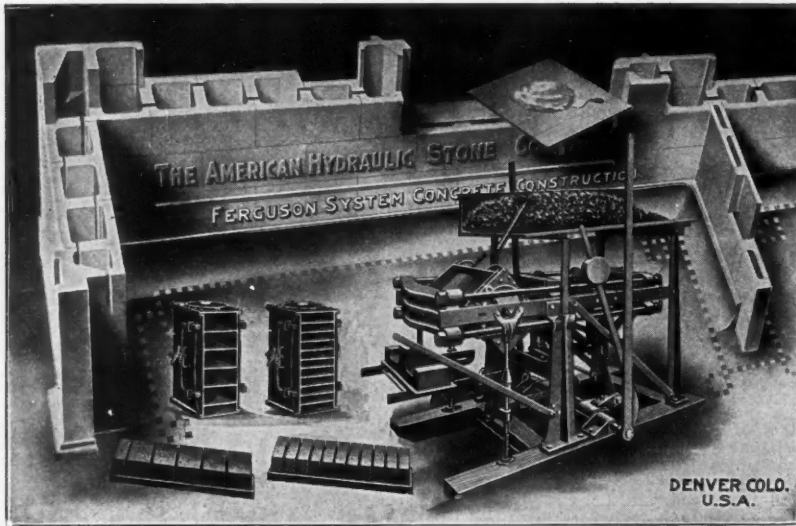
RELIABILITY

An ABSOLUTE GUARANTEE goes with every Engine. We can refer you to any number of satisfied contractors who are using our engines.

Write for Illustrated Catalogue No. 204-C, stating the horse power needed.

THE MECKLENBERG GAS AND GASOLINE ENGINE CO.

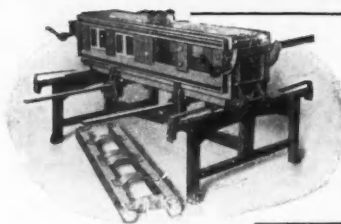
SOUTH BEND, IND., U. S. A.



TWO-Piece Hollow Concrete Wall and Partition, containing Header Bond and Continuous Horizontal Air Space. Impervious to Heat, Cold, Moisture and Sound. Fire and Vermin-Proof. Walls of all widths; blocks of all shapes and sizes. New Hand Press enables three men (mixture supplied) to

make 1200 blocks, 10000 brick or 5000 paving blocks in 10 hours. THE WALLS OF A COTTAGE ARE THE WORK OF A SINGLE DAY. 80 page catalog, fully illustrated, mailed upon request.

The American Hydraulic Stone Co. Century Building
Denver, Colo.



THE FRANCISCO BLOCK MACHINE IS A WONDER

NOTE WHAT IT MAKES. Two 24-inch blocks at one operation, or one 32-inch and one 16-inch, or two 20-inch and one 8-inch, or three 16-inch, all made on one pallets and off-bearer at once. By placing in extension, makes caps, sills, lintels and watertable, any length up to 5 feet 6 inches long, 8, 9, 10 and 12-inch blocks for width of wall. All made from the adjustments on the machine. No additional parts required, which means a big saving in the cost of your equipment. Also makes circles, octagons, angles, chimney blocks, porch columns, veneered slabs, sidewalk block, and sectional blocks. Is a face-down machine, using crushed stone, gravel or sand, wet process and wood pallets. **Machine on Ten Days' Trial.** Send for Catalogue "G" showing six different sizes of machines, prices ranging from \$25.00 up. Also Fence Post Machine. Agents wanted. Don't delay.

FRANCISCO BLOCK MACHINE CO., 338 No. High St., Columbus, Ohio

KNOCKED DOWN SKYLIGHTS

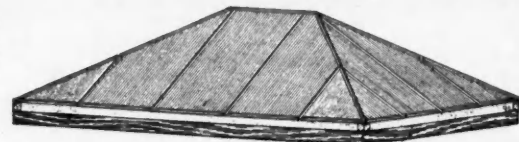
Can be shipped anywhere safely at a low freight rate. Can be set up by any handy man, no soldering, no putty and no leaks.

CATALOG FOR THE ASKING.

GALESBURG CORNICE WORKS,

140 E. Ferris Street,

GALESBURG, ILL.





The Noble Cement Mill

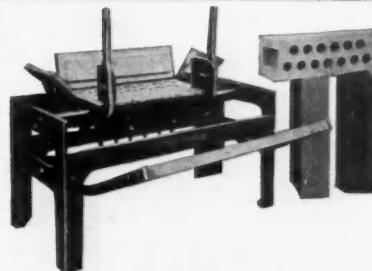
Is the Cement User's Friend

It puts new life into old cement, and makes lumpy cement smooth and fluffy as the freshest.

No mote riddling; no more waste.

The mill is built on scientific principles, milled steel rolls, differential gear, large hopper and bin, with a drawer ample for 1-4 bbl.

Capacity, one bbl. in 8 minutes. Price so low you cannot afford to be without it.



The Noble Cement Block Machine

makes rough hewn stone all day and never repeats a design, and our wall looks just what it is—rough hewn stone. No two blocks alike. No other machine has this feature.

NOBLE CONCRETE MACHINERY CO. - - - Fostoria, Ohio

THE CELEBRATED

"National" Block Machine

IS A WONDER

- DO YOU WANT the greatest value for your money?
 - DO YOU WANT the block machine that will give you a pride in your work—and bring you more work?
 - DO YOU WANT the simplest face down block machine on Earth made on scientific principles?
 - DO YOU WANT the block machine with the fewest parts with nothing that can get out of order?
 - DO YOU WANT the block machine that can make all sizes of blocks on the one pallet board?
 - DO YOU WANT a completed block machine that will make blocks of all angles and all sizes without having to buy extras?
 - DO YOU WANT the block machine that produces the best work that is a constant advertisement for your business?
 - DO YOU WANT the block machine that is easiest in operation and of greatest capacity?
 - DO YOU WANT the block machine that will last a life time?
 - DO YOU WANT the only block machine that, judged by its product, is the best?
- If you want all these you must have a 'NATIONAL.'

National Cement Machine Company,
BAY CITY, MICHIGAN

Woodruff Bros., Old Forge, N. Y., Agents for New York State.

Pier, Column and Chimney Molds

Absolutely the Best Designs in Rock Face, etc.

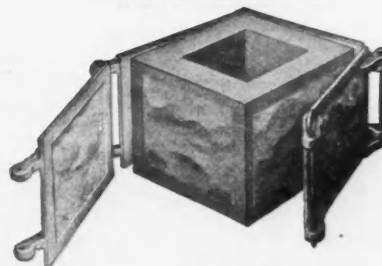
NOTE PRICES

16x16 in.

\$5.00

14x14 in.

\$4.50



12x12 in.

\$4.00

10x10 in.

\$3.50

Write for Circular

W. E. DUNN & CO. 339 GRAND AVENUE
CHICAGO, ILL.

Simpson Cement Molds

for porch and other ornamental work have become standard. They are in use in every one of the United States and territories, in Canada, England, Porto Rico, Cuba, Buenos Aires, and Sandwich Islands. They are giving complete satisfaction to all block makers and contractors making their own blocks.

PORCH PHOTOGRAPHS FREE

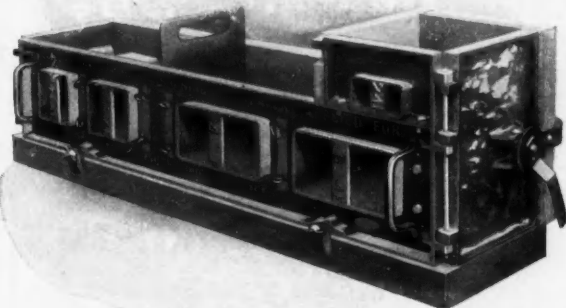
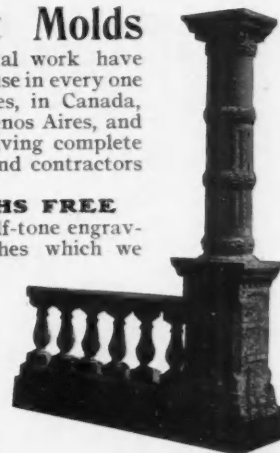
We have a large number of half-tone engravings from photographs of porches which we send with information as to details, upon request.

Simpson Cement Mold Co.

496 N. High St.
Department S. - COLUMBUS, O.

W. E. DISBROW, Eastern Sales Agt.
47 Lispenard St. - New York City.

GEO. B. THOMAS, Pacific Coast Sales
Agt. 340 College St. - Portland, Ore.



THE TANDEM INVINCIBLE BLOCK MACHINE
Set up for making one 24 in. L corner and one 16 in. stretcher at one operation.

The Pettyjohn Tandem Invincible

(FACE DOWN TYPE, 40 inches long)

The Greatest of Stone-Making-Money-Making Machines

MAKES TWO 20-INCH STONES AT ONE OPERATION, or one 24 and one 16, or any other fractional combination from 4 to 40 inches, thus economizing the labor of off-bearing.

THE WET PROCESS. A wetter mixture may be used on the Invincible than any other machine. Cores withdrawn perpendicularly.

ADJUSTMENTS. Extremely versatile. Face plates may be used in any part of the face plate holder, and be placed horizontally, vertically or perpendicularly.

The Tandem Invincible has been pronounced by every contractor who has seen it to be the greatest block producer and biggest money maker in the field. Our "Square Deal" Guarantee The Invincible, like all of the Pettyjohn machines, is guaranteed to give satisfaction or money refunded, and will be shipped on 15 days trial subject to approval. Price, 40 in. length, \$65.00, \$150.00, \$215.00, according to equipment. Also 8x16x8 Invincible for only \$35.00, or \$33.25 if cash accompanies the order. Send for catalog.

THE PETTYJOHN CO., 634 N. 6th St., Terre Haute, Ind.



"The Miles" Face Down One Size Pallet

Makes all styles and sizes of blocks
Get Our Price Book and Catalog D

P. B. Miles Manufacturing Company
Jackson, Michigan
 109 W. Cortland St.

THE HAYDEN AUTOMATIC BLOCK MACHINE CO.

Manufacturers of High Grade

112 W. Broad St., Columbus, Ohio

CONCRETE BLOCK MACHINES, MIXERS, STONE CRUSHERS, ETC.

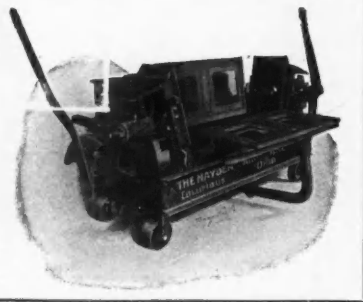
The Most Simple and Effective Mechanical Principles
 Embodied in this Mixer

**POINTS OF SUPERIORITY IN THE
 HAYDEN MACHINE**

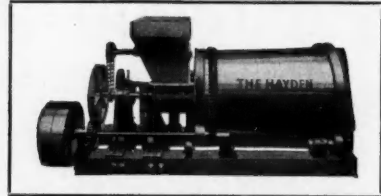
Great Strength ... Limitless Range ... Rapidity
 Ease of Operation ... Simplicity of Construction
 The only Block Machine on the market strong enough
 to withstand the heavy strain of pneumatic tamping

BUY A HAYDEN FOR RESULTS

Send for Catalogue M Today



The Hayden Down Face Machine.



The Hayden Improved Mixer.
 Eastern and Foreign Sales Agent
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DUNN'S MASONS' and BUILDERS' BLOCK MACHINE

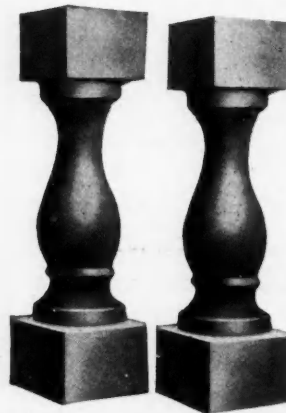
In use in all parts of the world. Satisfaction universal.

Blocks made face down and side face. Every block perfect with true sharp corners.

PRICE \$40.00

Makes blocks in widths of 8, 10 and 12 inches, and in lengths up to 20 inches, and in a variety of designs. No expensive iron pallets required. A practical, rapid and economical machine. No machine at any price will give you better satisfaction. Write for catalog today.

W. E. DUNN & CO., 339 Grand Avenue, CHICAGO, ILL.



USE THE

Halteman Twin Molds

in your porch work. They will save you time, add to your profits, and will suit varieties of decorations. If you are thinking of anything special and you want to know more about it, write us.

Send for Circular

The Halteman Mold Co.
 10-12 Michigan Avenue
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Cement Machinery Mfg. Co.

COLUMBUS, OHIO



Manufacturers under the original and fundamental patents of H. S. Palmer, Winget, Sanderson, McDowell and a number of others.

The best of everything in the Cement Moulding and Mixing Machinery and Tools.

WE HAVE THE LARGEST WAREROOMS AND DEMONSTRATING PLANT IN THE WORLD. We have 40 different kinds of Cement Working Machines ready to show in practical operation.

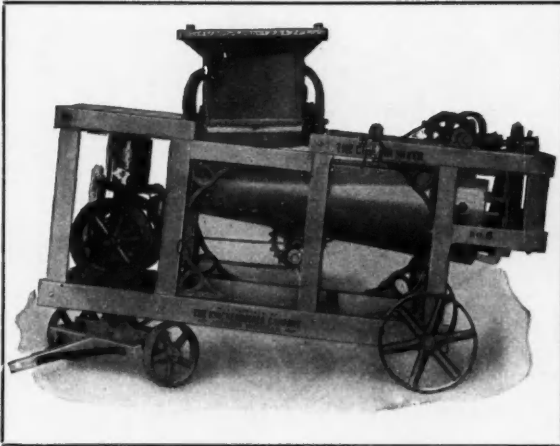
In our large assortment we have the best Block Machines in both Face-down and Side-face that can be bought. Our Continuous Mixers and Batch Mixers cannot be equaled in results and price. **OUR OFFER**—We pay railroad fares that you may see any or all of these machines in operation before deciding what you want. If we cannot satisfy you we have the best, we still pay your fares.

DO NOT FAIL TO SEND FOR OUR DESCRIPTIVE CATALOG.

Front and Maple Streets

COLUMBUS, OHIO, U. S. A.

"It Takes Too Much Gravel"



Springfield, Ohio, May 20, 1907.

THE KNICKERBOCKER CO., Jackson, Mich.

Gentlemen:—Enclosed please find balance of settlement as per contract. I asked one of the colored men that was feeding the Mixer how he liked the machine. His answer was, "It takes too much gravel."

Well, to tell it all in a few words, "You have the best of them all." If I had to buy a dozen they would all be Coltrins. Your salesmen cannot lie about the Coltrin, and the rotary pump is all O. K.

I have been rather lengthy, but not for your benefit; but for the benefit of the contractors I will say that if they want more than value received, and more than satisfaction, buy a Coltrin.

Respectfully yours, C. OHMART & SON.

Contractors' Friend

THIS MACHINE IS SEVERAL IN ONE



It makes over 300 different kinds of blocks in all styles and sizes from 8x8x24 inch to brick sizes. The 4x5x12 and the 4x4x12 are the recognized sizes for building nice residences and cottages.

This machine makes two blocks at a time on one pallet, 800-1000 blocks per day.

ONE MAN CAN WORK IT. It is a Down Face Machine for every style of block. Two sizes of pallets will make every kind of block. Pallets made of wood.

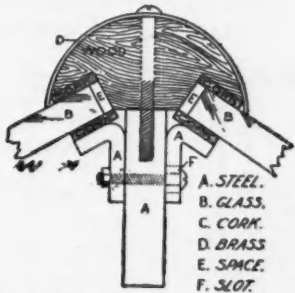
The only machine that will make WATER-PROOF CEMENT BLOCKS and BRICK. Strong statements, aren't they? Write us and find out why they are so.

The price of this Machine for all Face Plates and Fractions, and for all Styles of Blocks is ONE HUNDRED DOLLARS, F. O. B. cars at Mansfield, Ohio.

Without the Attachment for Hollow, 8x8x24 inch Blocks SEVENTY-FIVE DOLLARS.

Our Guarantee: If not exactly as represented, return the machine and receive your money back. Good Bank References.

Address L. L. PARRY, Mansfield, Ohio.



All Steel Cork Bedded Corner Post

SHULTZ'S

Patent All Steel, Cork Bedded Corner Posts, Mullions and Transom Bars.

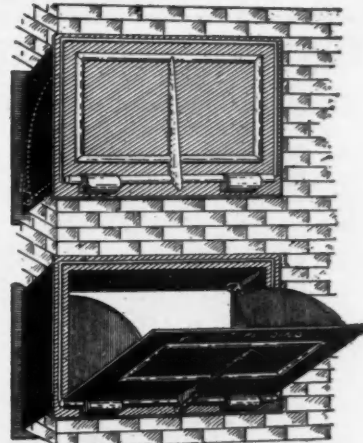
Also my new Acme Steel Post and Bars, in which the Glass is Bedded Between Wood.

They are the handsomest and strongest bars made. The glass is bedded on both sides, either between Spanish cork or wood, preventing any cracking or crushing of glass. No putty. Are absolutely water and dust proof.

BURGLAR PROOF COAL CHUTE. Locks itself automatically when closed up. Can only be opened from inside. Face of Chute flush with wall. Write

C. H. SHULTZ, Patentee and Manufacturer, St. Joseph, Mo.

For Cut and Prices on Corner Posts and Coal Chutes.



Coal or Wood Chute

1907-OUR GUARANTEE-1932

WE WILL REPLACE WITHOUT CHARGE

ANY OF OUR ALUMINUM COATED

Conductor Pipe--Eaves Trough--Roof and Box Gutters--Ridge Roll--Mitres--Elbows and Shoes

That Rust Out Within 25 Years!

Write for Sample and Prices

THE REEVES MANUFACTURING COMPANY

BOX 963

SOLE MAKERS

CANAL DOVER, OHIO

Waterloo Concrete Brick & Block Mach. Co.

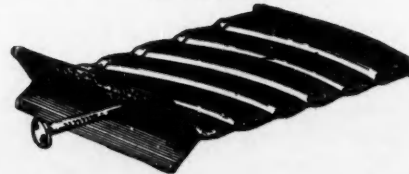


ONE movement of the lever operates the ENTIRE machine, consuming the least time for operation of any machine. Two men will make 250 blocks per day. Our block is patented. Has double, a vertical and horizontal air space. The brick attachment makes 18 brick as easily as a block. No gears or chains to clog or break. Write for catalogue "B."

O. H. SWEENEY, Secretary
101 E. 4th St., Waterloo, Iowa

CONCRETE CONSTRUCTION IS INCOMPLETE

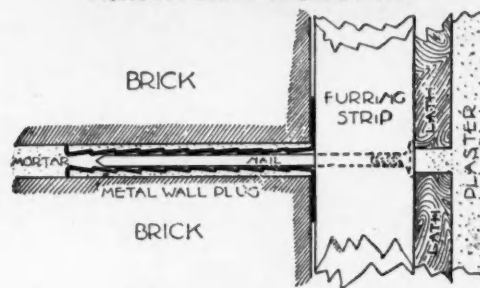
WITHOUT OUR



RUTTY METAL WALL PLUGS

They are laid instantly, are indestructible, yet cost less than any other method. Previous difficulties of securing interior finish are entirely overcome by the use of the Ruddy Plug.

WE MAKE ALSO MORSE STEEL WALL TIES AND PRESCOTT STEEL CORNER BEADS



Furring out on Brick or Concrete

SEND FOR SAMPLES AND CATALOG

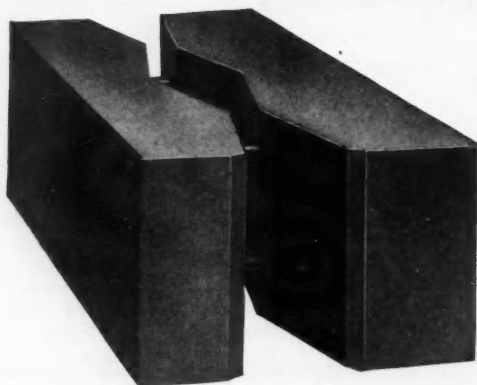
J. B. PRESCOTT & SON

Foundry Ave.

Webster, Mass.

ANCHOR CONCRETE STONE MACHINES

Make This Continuous Air-Space Block



TWO SLABS OF CONCRETE TIED TOGETHER with four one-quarter inch galvanized iron rods firmly imbedded in the block in its construction. Blocks lay in the wall 8 in. high, 24 in. long, 8 to 16 in. wide.

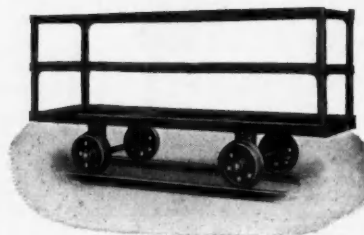
Easy to Make Easy to Lay Look Fine
Very Strong Frost Proof Moisture Proof

Capacity of Machine:
300 PERFECT BLOCKS PER DAY

Write for Special Low Prices and Catalog of Machines

ANCHOR CONCRETE STONE COMPANY
ROCK RAPIDS : : : : IOWA

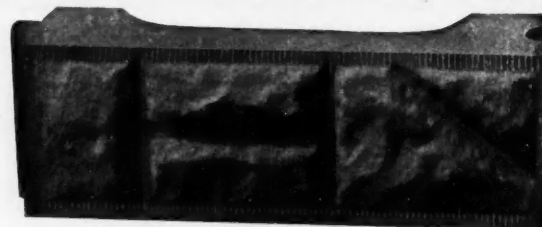
Chase Roller Bearing Cars



For Concrete Block and Brick. Transfer Cars and Trucks of all kinds. Write us for Catalog.

FIG. 202 DRYING CAR

Chase Foundry & Mfg. Co.
COLUMBUS : : : OHIO



The Beavers Fast Building Machine

The outfit includes twenty-four different molds, each ranging in length from 10 to 24 inches and 8 inches wide. We have 30 other molds in stock. We have the facilities for casting any design you desire. Write us your wants. We will gladly give you any information about our machine or the concrete business in general. This machine has a capacity of 900 blocks per day.

Olson & Richardson
Stoughton Wis., U. S. A.

The Peerless

(ONE-MAN)

Cement Brick Machine



Write
for
Our 1907
Catalogue

This popular one-man machine is now in general use all over the United States, and giving universal satisfaction in large as well as small plants. While simple in operation, it is a wonder for fast and perfect work. Capacity, 3,000 to 4,000 per day.

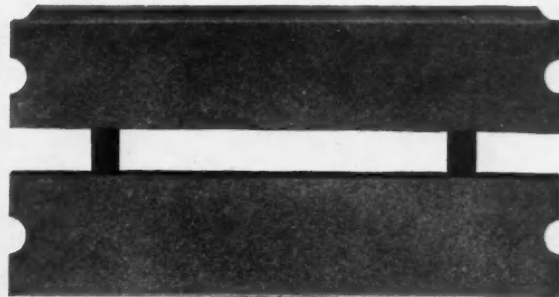
Price is right. Manufactured by the

Peerless Brick Machine Co.

No. 7 Sixth Street North

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CONTINUOUS AIR SPACE BLOCKS



MOISTURE PROOF FROST PROOF

They don't crack in the making

Price of machine complete, \$150.00

Installed by us, \$175.00

WRITE US

FLOUR CITY CEMENT BLOCK & MACHINE CO.

Sykes Block MINNEAPOLIS, MINN.

Concrete Machinery

WE CARRY READY FOR SHIPMENT

The Best Mixers

Hand and Power Brick Machines

Hand and Power Block Machines

Gasoline Engines

Ornamental Molds

Automatic Tampers

Write for particulars

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DISTANCE
TELEPHONE
3974 GRAMERCY

W. V. Johnson & Co.

1 Madison Avenue
NEW YORK

Concrete Blocks

WE HAVE a very Beautiful Album containing over Sixty views of Houses, Churches, Factories, Plants, etc., taken from different parts of the country. These are printed on heavy enameled paper with original halftones, and these halftones are made from original photographs—not wash drawings. Size 9 x 12 inches.

PRICE, ONE DOLLAR

If unsatisfactory, money promptly and cheerfully refunded. Write for Machine Catalogue—FREE.

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Our Guaranteed Dry Wall Block Appeals to the Builder because moisture cannot penetrate it. No furring and lathing, waterproofing or expensive facing required. It means a cheaper and better wall. Booklet E-6 gives full particulars about this low price, guaranteed outfit.

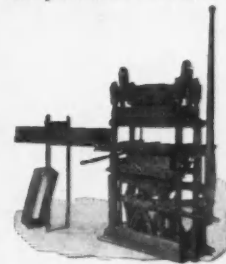
The Products of the Helm Press Get the Contracts

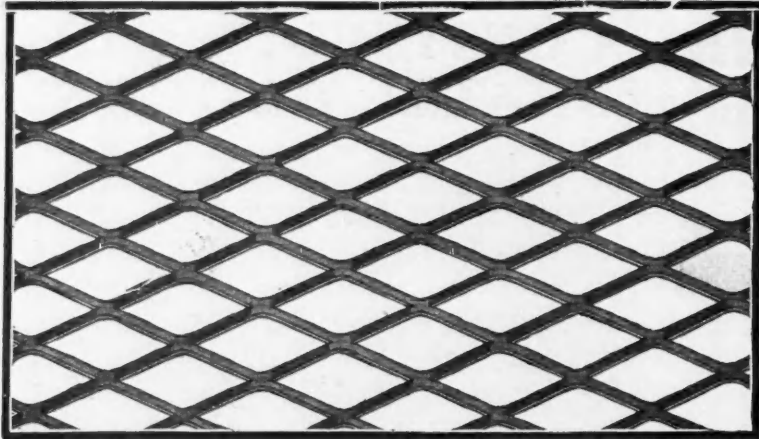
because the highest quality is secured with lowest labor and material cost. Plain, faced, colored and ornamental brick, veneer blocks, two-piece blocks and sidewalk tile. Booklets A-6.

Mixers and Ornamental Moulds

bring additional profits. Mixers \$100 and up. Moulds \$7.50 and up. Ask for booklets. Use full address.

Queen City Brick Machine Co., Bank Bldg., Traverse City, Mich.





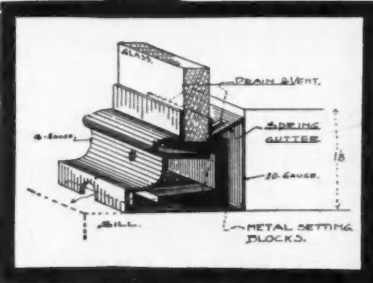
Northwestern Expanded
Metal Company
D. D.
EXPANDED STEEL
PLASTERING LATH

No. 27 Gauge, Weight per Square Yard 2 1/2 Lbs.
No. 26 " " " " " 2 1/4
No. 24 " " " " " 3 Lbs. 6 Oz.

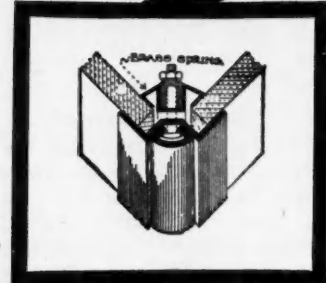
Sheets—18 Inches by 97 Inches—9 Sheets to Bdl.

Telephone Harrison 799
945 Old Colony Building :: CHICAGO

"KAWNEER" PATENTED STORE FRONTS



Are right in conception, durable as the building, and architecturally introduce new construction, new methods and new results. A complete all-metal front that is **FIREPROOF, RAINPROOF, FROSTPROOF, ROTPROOF, and RUSTPROOF.**



Offices—New York, Townsend Bldg. Chicago, Unity Bldg.
Kansas City, Long Bldg. Toledo, Spitzer Bldg.

KAWNEER MFG. CO. MAIN OFFICE AND FACTORY NILES, MICHIGAN

SYKES TWO BEST LATHS IN THE WORLD
METAL LATH & ROOFING CO. NILES, OHIO. U. S. A.

SHINGLES THAT LAST
The National Sheet Metal Roofing Co.
JERSEY CITY N.J. WALTER'S
Rain proof durable SHINGLES Write for Catalogue, Samples and Prices Rust proof Ornamental TILES

Wood Bar Clamp Fixtures Per Set 50c

OVER 12,000 OF OUR STEEL RACK VISES IN USE
25 doz. Clamp Fixtures bought by one mill last year. We ship on approval to rated firms, and guarantee our goods unconditionally. Write for list of Steel Bar Clamps, Vises, Bench Stops, etc.

Price \$2.80 to \$4.00

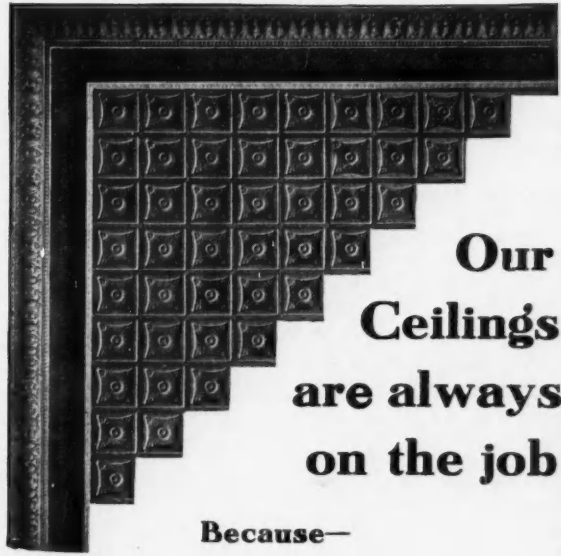
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281 Madison St., - - CHICAGO
RAPID-ACTING WOODWORKER'S VISE No. 3

CONVERTORS OF IRON AND STEEL INTO BOLTS, EXPANSION BOLTS, and NUTS.

ESTABLISHED 1872
BOSTON BOLT COMPANY
INCORPORATED 1906

Manufacturers and Selling Agents of Kingston's Money and Labor Saving Devices for Carpenters, Builders, Masons and Painters.

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**Our
Ceilings
are always
on the job**

Because—

They have the style and quality, and best of all, they will fit, and fit perfectly.
They are the lowest in cost and cheapest to erect.
They save time and money and get you the most business and at the best profit.
They are guaranteed to give satisfaction.
The price is right.
We make prompt shipments.
The secret of our success is the customer's preference.
Send us plans with all measurements and we will prepare drawings of appropriate ceiling, without charge, and name you lump price on all material, F. O. B. your station. Get our catalogue right away.

The Tiffin Art Metal Co., Tiffin, Ohio



To put up a ceiling easily, to put it up in the least possible time and at the lowest possible expense, the ceiling plates must fit perfectly. This is one of the strong features of the

**I. S. R. & C. CO.'S
Metal Ceilings**

Designed and modeled, as they are, by an expert, manufactured under the direction of men who have the mechanical sense and skill to know what constitutes and how to produce a perfect ceiling, and handled from the sheet to the finished product by careful, painstaking employees of experience in this particular work, the I. S. R. & C. Co.'s Metal Ceilings, in points of artistic beauty, close fitting qualities, and all else that go to make a perfect ceiling, are as perfect as human skill can produce.

Let us send you our catalogue "Metal Ceilings."

Indianapolis Steel Roofing & Corrugating Co.
Dept. G. Indianapolis, Ind.



TRY OUR

Crystal-Rock Finish

BEST INTERIOR AND EXTERIOR VARNISHES ON THE MARKET TO-DAY

Recommended by First-Class Architects.

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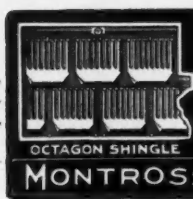
Buckeye Paint & Varnish Co.,
TOLEDO, OHIO.

Birn Concrete Block and Tile Company

Manufacturers of Birn Concrete Building Block, Birn Metallic Enameled Roofing Tile, Birn Interlocking Partition Tile, Birn Sewer, Tunnel and Culvert Construction, etc.

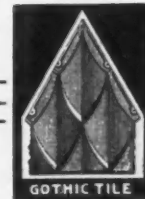
Samples and Estimates on Request

Factories and Yards at DOWNER'S GROVE and NAPERVILLE, ILL. Office: Suite 550, 125 La Salle St., CHICAGO



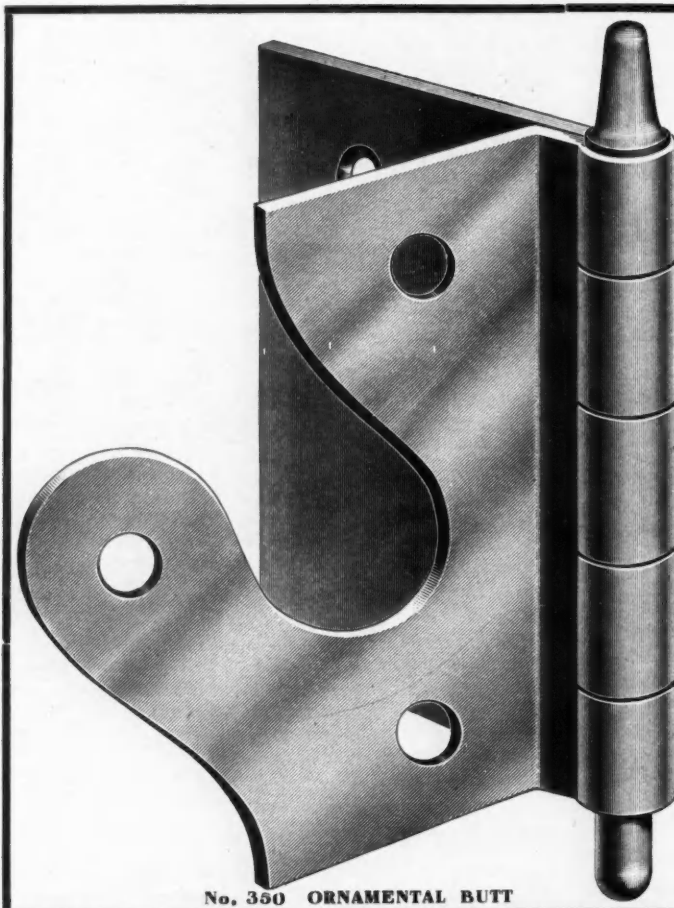
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Will add to the success of the builder who recommends their use. Galvanized AFTER embossing, they never crack or scale. Last a life-time without painting or any other attention. Fire-proof, storm-proof, INEXPENSIVE, and very attractive in appearance. Send for catalog.



MONTROSS METAL SHINGLE CO. CAMDEN, N. J.

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER



No. 350 ORNAMENTAL BUTT

Mr. Contractor

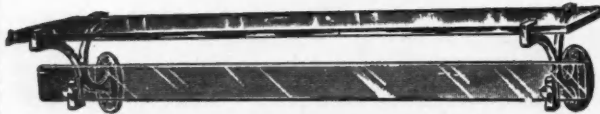
If you could save one-half the time required to hang doors, figuring on the basis of wages paid carpenters nowadays, don't you think it would pay you to adopt an article that would produce such a result? Our line of Ornamental Butts will do the business. It will pay you to investigate. Send for booklet "Ornamental Ideas" and give your dealer's name.

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MANUFACTURING
CO.**

STERLING, ILL.

ADJUSTABLE PLATE GLASS TOWEL SHELF

WITH PLATE GLASS
TOWEL BAR COMBINED



Nickel Plated Bronze Brackets and Screws
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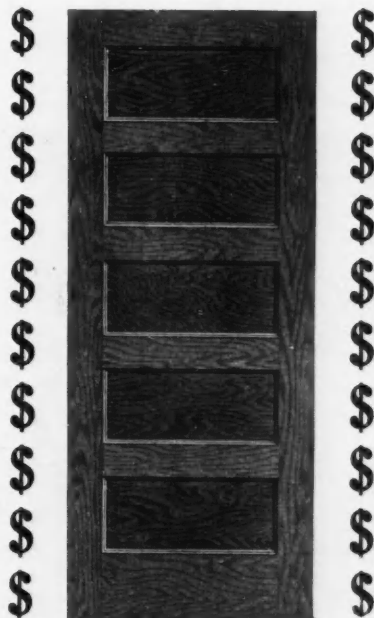
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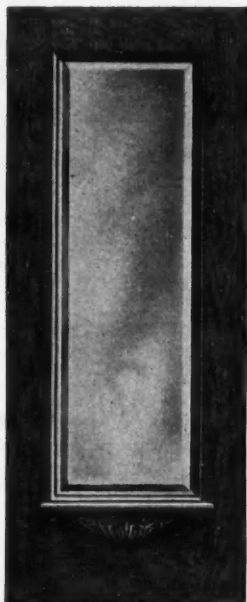
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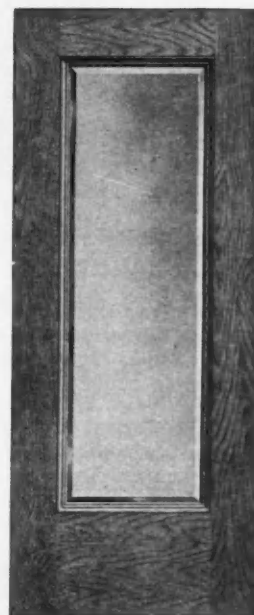
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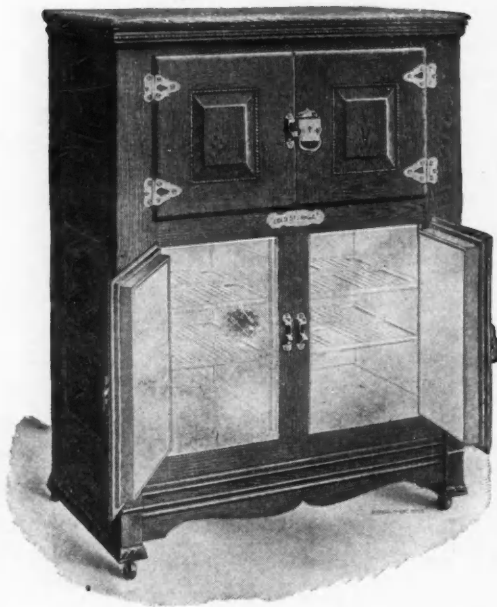
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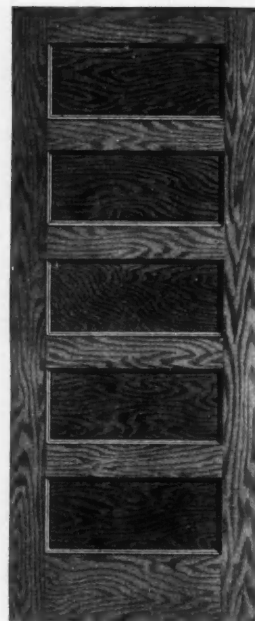
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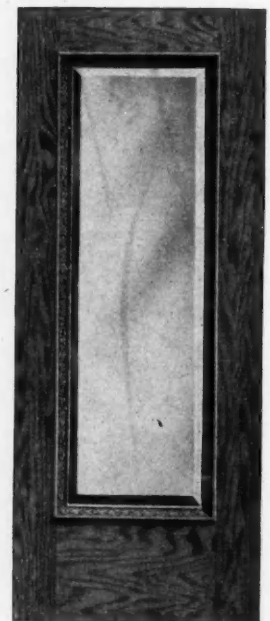
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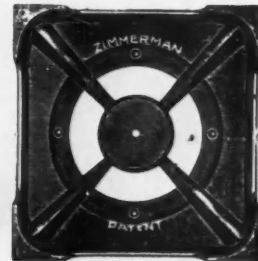
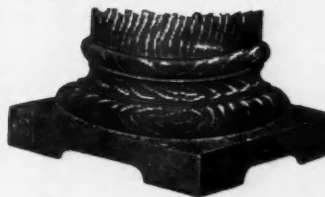
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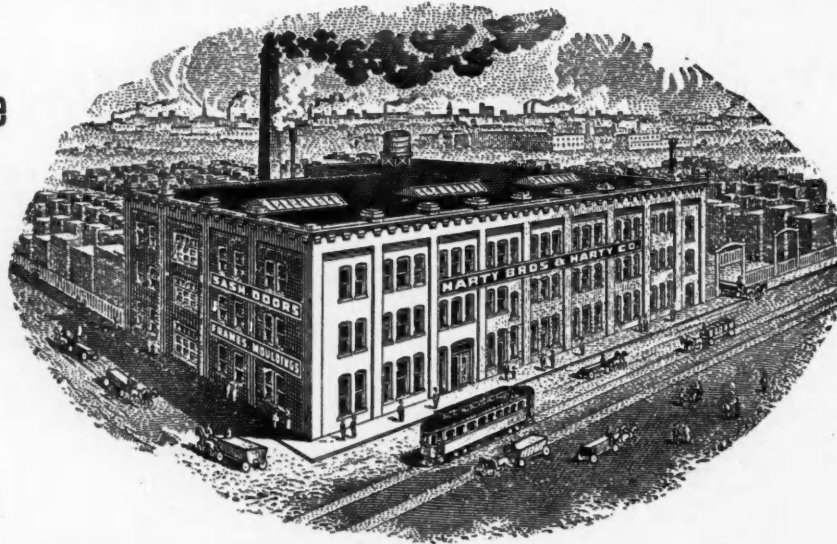
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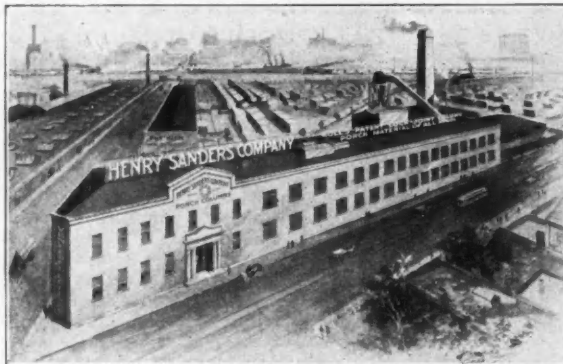
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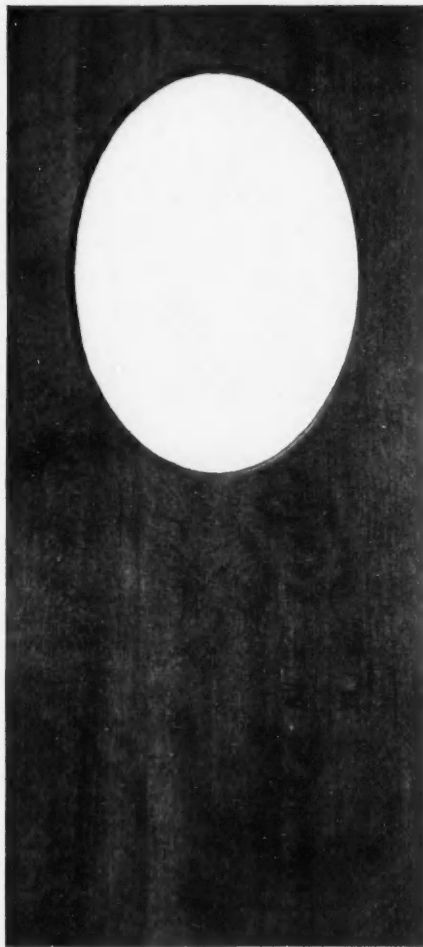
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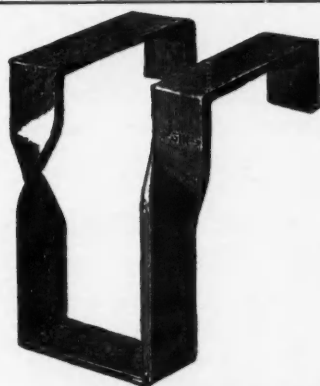
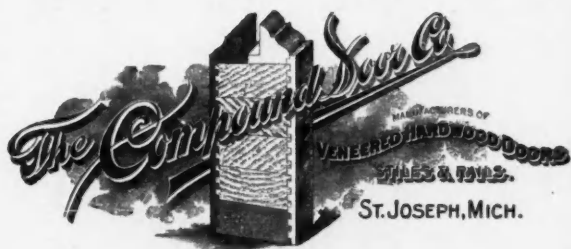
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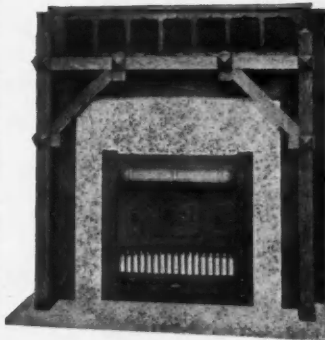
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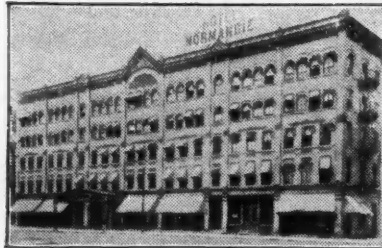
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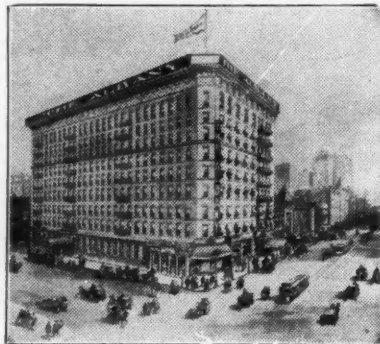
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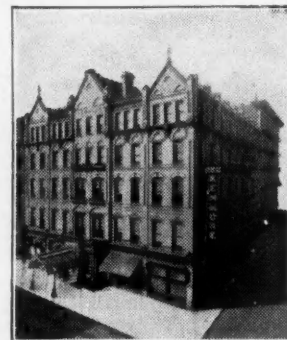
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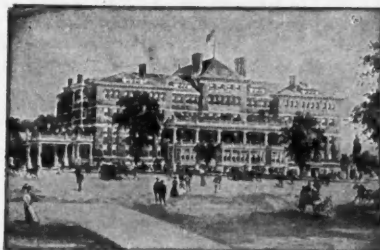
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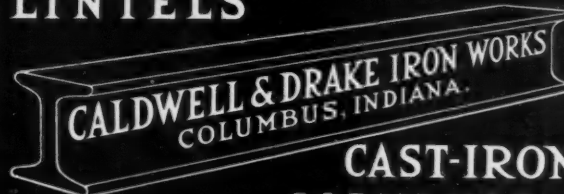
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 Waterloo Gasoline Engine Co.
 Weber Gas Engine Co.

Glass
 Am. 3-Way Prism Co.
 Anderson & Co., George H.
 Flanagan & Bledenweg Co.
 Qualle, Wm. B.
 Suess Ornamental Glass Co.

Grilles
 Bertelsen Adjustable Grille Co.
 Northwestern Grille Works.

Heaters
 Andrews Heating Co.
 Galusha Stove Co.

Green Foundry & Furnace Works.
 Herendeen Mfg. Co.
 Hess Warming & Ventilating Co.
 Kellogg-Mackay-Cameron Co.

Hoists
 Bates & Edmonds Motor Co.

Hotels
 Commonwealth Hotel, Boston, Mass.
 Hotel Joyce, Baltimore, Md.
 Hotel Normandie, Detroit, Mich.
 Hotel Schenley, Pittsburg, Pa.
 Hotel Touraine, Buffalo, N. Y.
 The Albany, New York City.
 The Kenmore, Albany, N. Y.
 The Niagara Hotel, Buffalo, N. Y.

Iron Work
 Berry Foundry & Mfg. Co.
 Caldwell & Drake Iron Works.
 Canton Foundry & Machine Co.
 Davenport Foundry & Machine Co.
 Dow Wire & Iron Works.
 Stewart Iron Works Co.

Linoleum
 Union Fibre Co.

Mantels
 Burritt Co., A. W.
 Calhoun Mantel & Tile Co.
 Clark Co., Geo. W.
 Heitland Grate & Mantel Co.
 King Mantel Co.
 Lorenzen & Co., Chas F.
 White Mantel & Tile Co.
 Wisconsin Mantel & Tile Co.

Metal Ceilings
 Canton Art Metal Co.
 Eller Mfg. Co.
 Foster & Sons Co., Wm.
 Indianapolis Steel Roofing & Corrugating Co.
 Tiffin Art-Metal Co.

Metal Cornice & Slate Co.
 Watson Co., James H.

Metal Shingles
 Burton Co., W. J.
 Cortright Metal Roofing Co.
 Edwards Mfg. Co.
 Kanneberg Roofing & Ceiling Co.
 Montross Metal Shingle Co.
 Natl. Sheet Metal Roofing Co.

Metal Work
 Am. Rolling Mill Co.
 Burt Mfg. Co.
 Mullins Co., W. H.
 Northwestern Expanded Metal Co.
 Reeves Mfg. Co.
 Sykes Metal Lath & Roofing Co.
 Valley Cornice & Slate Co.

Millwork
 Chicago Embossed Moulding Co.
 Chicago Millwork Supply Co.
 Compound Door Co.
 Foster-Munger Co.
 Gordon, Van Tine Co.
 Harty Bros. & Harty Co.
 Madisonville Lumber Co.
 Malta Mfg. Co.
 Schaller-Hoerr Co.

Mineral Wool
 Columbia Mineral Wool Co.

Paints, Varnishes, Etc.
 Antihydrine Co.
 Buckeye Paint & Varnish Co.
 Century Cement Fluid Co.
 Johnson & Son, S. C.
 Vilas Bros.

Plaster
 Iowa Hard Plaster Co.

Plumbers Supplies
 Karol, B. B.

Pumps, Tanks, Etc.
 Caldwell Co., W. E.
 Myers & Bro., F. E.

Roofing Materials
 Am. Sheet & Tin Plate Co.
 Barrett Mfg. Co.
 Taylor Co., N. & G.
 Valley Cornice & Slate Co.

Skylights
 Galesburg Cornice Works.
 Valley Cornice & Slate Co.
 Willis Mfg. Co.

Slate Roofing, Etc.
 Hower, J. K.
 McKenna, David.

Store Front Construction
 Coulson & Co., J. W.
 Detroit Show Case Co.
 Kawneer Mfg. Co.
 Shultz, C. H.
 Voltz Mfg. Co.

Tools
 Am. Combined Level & Grade Finder.
 Bender, J.
 Braunsdorf-Mueller Co.
 Davis & Cook.
 Dixon Crucible Co.
 Doby & Shinn Mfg. Co.
 Forest City Bit & Tool Co.
 Gage Tool Co.
 Goodell Mfg. Co.
 Hight, A. W.
 Laramy Howlett Co.
 Lufkin Rule Co.
 Marsh, H. C.
 Marshalltown Trowel Co.
 Mayhew Co., H. H.
 Miller Mfg. Co., A. W.
 Millers Falls Co.
 Morrill, Chas.
 Nicholls Mfg. Co.
 North Bros. Mfg. Co.
 Ohio Tool Co.
 Palmer & Son, Albert E.
 Parker Co., Chas.
 Prentiss Vise Co.
 Progressive Mfg. Co.
 Sargent & Co.
 Seymour & Whitlock.
 Sheldon & Co., E. H.
 Smith & Hemenway Co.
 Stanley Rule & Level Co.
 Starrett, L. S.
 Taylor Mfg. Co., James L.
 Topp & Co., G. A.
 Tower & Lyon Co.
 Walters Sons, Wm. R.

Woodworking Machinery
 Barnes Co., W. F. & Jno.
 Crescent Machine Co.
 Grammes & Sons, L. F.
 Kidder, R. E.
 Kline, Lewis T.
 Marston Co., J. M.
 New Britain Machine Co.
 Seneca Falls Mfg. Co.
 Sidney Tool Co.
 Smith Machine Co., H. B.

The Emery Cement Brick Machine

Is the only outfit that tamps all the brick at one operation, uniformly in corners and on edges as in centers, thereby making a perfect brick. ¶ It is also the only machine on which a lazy or careless operator can not slight the work. If they make brick at all they must make a perfect and universal brick, as the molds hold just enough loose material to make four perfect bricks, and the operator must tamp bar down until the upright lever drops under the cross bar, otherwise you cannot get brick out of molds. When the lever locks under the cross bar it holds the tamps firmly down on the brick while the molds are raised by use of crank, thereby eliminating any danger of damaging the brick when molds are removed, as is the case with all other machines. ¶ After 20 minutes' practice an operator can easily make 12 to 16 perfect brick per minute. This little machine will surprise you and make some of the big \$5,000 to \$10,000 machines look like jokes. ¶ We furnish two sets of dies—one for plain and one for rock-faced brick—with each machine and guarantee it to do all we claim; also for one year against breakage from faulty material or workmanship.

Send for Catalogue. EMERY & MCKERLIE, 301 E. Jane Street, Bay City, Mich.

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NOTICE TO ADVERTISERS.

New copy, changes and corrections for advertisements must reach office of American Carpenter and Builder, 185 Jackson Boulevard, Chicago, not later than July 20 in order to insure insertion in the August number.

Century Cement Fluid

Century Cement Fluid is a liquid preparation that is Elastic, Weather, Water and Fireproof, and will not Crack, Crumble or Peel off.

It will stop leaks on Tin and Iron Roofs, around Flashings, Chimneys, Brick Walls, Etc.

It is also the best Weather-proof Material for Wood Buildings, Shingles, Posts and Fencing, and an Excellent Primer and the only material of its kind on the market.

It is easily applied, requiring no skilled labor.

Century Cement Fluid is a strictly sanitary coating, contains no Lead or poisonous material, and appeals to parties depending on Cisterns, as the water from roof coated with this cement (especially new shingles) can be used in 48 hours after application, avoiding Shingle Stain and Taste. Sold in 7 Colors in 1 and 5 gallon packages. Write for prices, particulars and Free Demonstration.

Century Cement Fluid Co.



The
Century
Cement
Fluid Co. Station
"M"

CINCINNATI, O.

Works: Madisonville, O.

Manufacturers of

WATER, WEATHER AND

Fire-proof Coating

In Fluid Form for IRON, STEEL,
BRICK, CONCRETE, WOOD, and Out-
side Construction Generally.

SEND US A PLAN

with measurements marked, of the rooms you desire to cover with metal, and we shall at once prepare a design drawing showing appropriate and attractive patterns of our

Perfect Art
- METAL CEILINGS -

With a copy of this drawing we shall quote you our lowest net lump price for the material delivered at destination.

ARCHITECTS!

Specify our Metal Ceilings and your work will be more satisfactory. Your clients will be greatly pleased with what they get.

LARGE STOCK. QUICK SHIPMENTS.

We manufacture a full and complete line of Galvanized Cornices, Finials, Weather Vanes, Cresting, Conductor pipe, Eaves Trough, Wire Hangers, Steel Tanks and SKY-LIGHTS of all kinds.

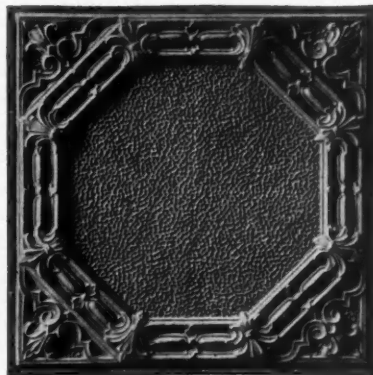


PLATE No. 3003.

The James H. Watson Company, Inc.

BRADLEY, ILLINOIS

Western Branch, Avery Building, Kansas City, Missouri.

Special Spring Announcement to Contractors, Carpenters and Builders

WE QUOTE and illustrate on this page of **American Carpenter and Builder**, specimen items just as they appear in our Grand Millwork catalog. These items are not leaders. They are regular quotations and are selected only because we believe they will be of particular interest to the readers of this publication at this moment. All qualities up to or above the grade of the Northwestern Sash and Door Manufacturers. We sell by mail order. We sell to the individual purchaser. We quote factory prices—America's greatest millwork factory prices—direct to the contractor, carpenter and builder. We ship promptly, we guarantee safe delivery, we guarantee satisfaction, we guarantee a saving of 50 per cent. at least on the dealer's price on practically all millwork, and we carry in stock for immediate delivery not only all the staple goods, but thousands of pieces, styles and sizes previously made only to order. Our mammoth business in selling, our sales from stock goods, our ownership of timber lands, our own factories (enabling us to supervise seasoning, manufacture and handling), our quick turning of capital, all combine to produce a business that has revolutionized all millwork conditions. Now we want to send you our

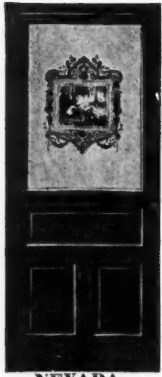
GRAND MILLWORK CATALOG FREE!

All we ask you to do is to send a postal—to send a postal—to find out the truth of our claims. It is a fortune for you if our claims are true—you are one cent out if our big, carefully printed, truthfully illustrated millwork encyclopedia doesn't back up our claims made here.

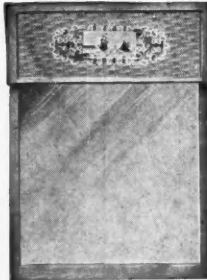
VARIOUS DOORS	
"A" Qual., 4 Pan.	"B" Qual., 4 Pan.
THICK	THICK
2-0x6-0, 1 1/2" .. \$1.36	2-0x6-0, 1 1/2" .. \$0.80
2-6x6-6, 1 1/2" .. 1.57	2-6x6-6, 1 1/2" .. 1.30
2-6x6-6, 1 3/4" .. 1.77	2-6x6-6, 1 3/4" .. 1.49
2-8x6-8, 1 3/4" .. 1.85	2-6x6-6, 1 3/4" .. 1.58
	2-8x6-8, 1 3/4" .. 1.68
Painted, 4 Panel	
THICK	THICK
2-0x6-0, 1 1/2" .. \$0.74	2-6x6-6, 1 1/2" .. \$1.07
2-6x6-6, 1 1/2" .. 1.02	2-8x6-8, 1 1/2" .. 1.12
Grained, add 11 cents net.	



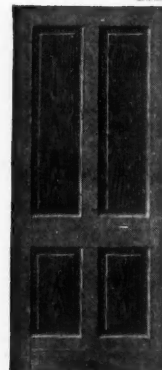
SUPERIOR
2-8x6-8, 1 1/2" glazed as above..... \$4.50
Glazed D. S. Glass... \$4.20



NEVADA PAINTED
2-6x6-6, 1 1/2"..... \$2.35
2-8x6-8, 1 1/2"..... \$2.45



NEPTUNE
Top Glazed. Battenberg Lace.
Bottom Glazed D. S. A. Glass.
3-8x5-0, 1 1/2"..... \$3.56
3-8x5-2, 1 1/2"..... \$3.68



FOUR PANEL DOOR
We carry the largest stock of Doors in America, comprising over 300 sizes and kinds in White Pine, Yellow Pine, Cypress, Yellow Pine Panel and Oak.



FIVE CROSS PANEL DOOR

5000 BARAINS IN SASH, DOORS Windows and Millwork of Guaranteed Quality Shipped Direct to Carpenters, Contractors and Builders

VARIOUS WINDOWS



2 Lt. Window

A Few Prices

16x20, 2 lts. . . \$0.65
20x24, 2 lts. . . .81
20x28, 2 lts. . . .89
22x28, 2 lts. . . .96
22x30, 2 lts. . . 1.04
24x24, 2 lts. . . .94
24x28, 2 lts. . . .98
24x30, 2 lts. . . 1.06
24x32, 2 lts. . . 1.19

Above Prices are Glazed S. S.



4 Lt. Window

More Prices

10x20, 4 lts. . . \$0.66
10x24, 4 lts. . . .75
10x28, 4 lts. . . .87
10x30, 4 lts. . . .98
12x28, 4 lts. . . .95
12x30, 4 lts. . . 1.10
12x32, 4 lts. . . 1.17

Above Prices are Glazed S. S.

STAIR DEPT.



No. R 335	No. R 341
Yellow Pine..... \$2.30	Yellow Pine..... \$1.65
Red Oak..... \$2.50	Red Oak..... \$1.75

CASING

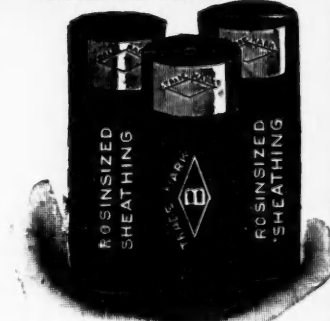
We carry this design casing in Yellow Pine, Cypress and White Pine. Price per 100 lineal feet, random lengths.



Prices on above Casing, 13-16x1 1/2"

Yellow Pine..... \$1.75
White Pine..... 1.90
Cypress..... 1.90

BUILDING PAPER



Our Building Paper is the best quality. We do not believe in cheap, shoddy goods at any price. We can save you half.

C Brand Red Rosin, weighs about 20 lbs. to a roll, per roll of 500 sq. ft. . . 33c
B Brand Red Rosin, weighs about 25 lbs. to a roll, per roll of 500 sq. ft. . . 42c
A Brand Red Rosin, weighs about 30 lbs. to a roll, per roll of 500 sq. ft. . . 50c
AA Brand Red Rosin, weighs about 35 lbs. to a roll, per roll of 500 sq. ft. . . 57c

ROOFING

"What is worth roofing is worth roofing well."

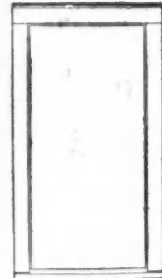


Less Than Half What Shingles Cost You

PRICE Per Square 108 sq. foot
1-Ply..... \$1.41 per Roll
2-Ply..... 1.95 per Roll
3-Ply..... 2.29 per Roll

DOOR AND WINDOW FRAMES

Window Frames Door Frames Inside Door Jambs



No. R 314
For Windows 2 ft. 5 inch. wide by 5 ft. 6 inch. high, \$1.25
For Windows 2 ft. 11 inch. wide by 6 ft. 2 inch. high, or smaller, \$1.35



No. R 315
For Doors 2-8x6-8 and smaller.... \$1.65
For Doors 3-0x7-0 and smaller.... \$1.78



No. R 316
Yellow Pine Doors 2-8x6-8, or smaller.... 54c
Doors 3-0 x 7-0, or smaller..... 60c

We carry these Frames, as well as thousands of other items in stock.

Write for our Free Roofing Catalog and Samples and let us save dollar for dollar—Half.

For Grand Free Catalog address

GORDON, VAN TINE CO.

215 FEDERAL ST. DAVENPORT, IOWA