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A Method Suggested for Saving the 5% Now Wasted on Practically Every Job

We have received the following letter from the Paine Lumber Co., Ltd., Oshkosh, Wis., referring to a common practice among builders and one that is losing them money—viz., calling for bids without furnishing definite specifications and itemized lists.

Oshkosh, Wis., Nov. 15, 1911.

Editor AMERICAN CARPENTER AND BUILDER,

Dear Sir:

Your publication is always interested in benefiting the carpenter and contractor, and we are very glad to be able to put you in the way of starting a little campaign in the way of educating both of these classes of men to assist themselves financially. Every manufacturer of millwork receives hundreds of sets of plans, on which he is asked for an estimate. Now, in the first place, it takes experienced help to do this kind of work, and somebody has to pay for it.

Various little angles come to light in doing this kind of figuring, whereby the manufacturer necessarily adds slight amounts here and there to protect himself on quantities, sizes, etc. In addition he must protect himself against the chances of his having overlooked some items, or not having figured exactly what was wanted. These little differences, additions, etc., will average at least 5% of the entire bill.

(Continued to Page 17)
The Boy and the Hammer

A PAPER PRESENTED BEFORE THE FORTNIGHTLY CLUB OF ONEONTA, N. Y.

By Clarence M. Lyman

It probably is a safe assertion that if two “Want” advertisements were to be inserted in tomorrow’s paper, one reading: “Wanted—An apprentice to learn the trade of carpentry”; the other: “Wanted—A boy to be clerk in a store,” there would be ten applications for the latter position to one for the former.

Again, it is a safe assertion to state that in the leading trades there is less than one apprentice to every five journeymen. A canvass of four shops in this city employing tinsmiths or plumbers resulted in finding three apprentices. A canvass of large number of blacksmith shops resulted in finding none, unless, perhaps, in a few instances, where sons of the proprietors were “helping father.”

The Change in Conditions

Factories and machines have altered the demands made upon the skilled mechanic. My father built the houses erected a half century ago. Now, it is safe to say not one carpenter in ten can lay out the stairs in a house unaided, yet the skilled woodworker is in constant demand. The old-time tinner no longer spends the winter turning out piece ware, but finds from $15 to $18 in his pay envelope every Saturday night. And it means much, too, that with the dropping of the hammer at the stroke of 5 not a care or bit of responsibility rests on him until 7 the next morning.

Portent of Present Conditions

Reduced to its simplest form, we are face to face with a diminishing supply of skilled mechanics and are making almost no provision whatever to change this condition. The boy is not interested in the hammer and we are doing nothing to make him wish to be.

Nothing! What about our manual training and our trades school? Do I hear you say? Yes, nothing; for when less than 1 per cent of the boys of school age are getting any instruction whatever along mechanical lines, how can the little that is done, and in the way it is done, be counted?

Our educational systems; the stories our children read; the implied slur in the term “workingman” (as if the mechanic labored harder than the clerk in store or bank); the advertisements of business colleges, commercial, law and medical schools; the sensational newspaper articles, even the home conversation itself, has given the average-spirited boy with the average high school training a definite, even if an undefined, idea that a trade is menial and that the opportunities and emoluments of the skilled mechanic are small. Nothing could be further from the truth, and the opportunities of the boy with a hammer are so great that if this paper succeeds in arousing personal interest in the boy and a skilled trade its purpose will be accomplished.

Relative Earnings of the Mechanic

As most of those who have never given this subject a thought will ask first, “What is there in it?” and mean thereby the financial gain, let me venture this assertion, that given three years’ training in either case, the average clerk in the bank or store receives a daily wage 25 per cent lower than the average journeyman mechanic in the same community.

In our city the daily wage of skilled mechanics, such as carpenters, tinsmiths and plumbers, who are employed steadily, is somewhat lower than in surrounding cities, like Albany, Schenectady, Utica, Syracuse or Binghampton, but this is offset by the lower cost of living and steadier employment. But even here, where a good clerk, a married man supporting a family, can be hired for $10 to $14 per week and a young unmarried man for $8 to $12, with hours of labor from 7 a.m. (sometimes 6) to 6 p.m., with six extra evenings a month, when he must work until 9 or 10 p.m.; the mechanic commencing at 7 a.m. quits at 5 p.m. and finds from $15 to $18 in his pay envelope every Saturday night. And it means much, too, that with the dropping of the hammer at the stroke of 5 not a care or bit of responsibility rests on him until 7 the next morning.

But, some one impatiently asks, can a young man learn a trade as formerly? Probably not; factory methods and large business interests have led us to treat men collectively rather than as individuals. Once a boy was apprenticed to a master, bound out, if you please. He became a member of his master’s family, was boarded and clothed by him, and master and apprentice were brought into intimate personal relations. The apprentice was bound to render obedient service in all things; the master to teach him
all the arts and secrets of the craft. A pride in fine handiwork was fostered and the apprentice became a finished workman when he had served his time.

To-day a boy applies for a position in a shop to learn a trade. His potential earning power as proportioned to the wage he must be paid is the philanthropic thought of the employer; he himself is more than likely not a master of the craft. The boy is put to work and all the effort that is made to make a good mechanic of him is to give him a chance to work as a helper with his shopmates. If a good journeyman happens to take an interest in him and the boy is quick to assimilate what he sees done around him, he may pick up a fair working knowledge; then if he has had enough educational advantages to make him willing to study, he is in a fair way to become a skilled workman, but the chances are against this. Probably, however, he will be set at the work most likely to yield the largest material returns to the employer, irrespective of the knowledge he may gain. When the boy perceives this, and if he is ordinarily bright, it does not take him long to begin to reason that he is giving more than value received; he gets a grouch and quits.

He has picked up a smattering, knows the shop lingo, and, half baked, seeks a job elsewhere, posing as a full-fledged mechanic, but a botch always.

Time Not Taken to Develop Mechanical Skill!

Perhaps the ease with which machine-made products are turned out is another factor in unconsciously shaping the habits of the poor mechanic. He is impatient of the time necessary to turn out a good, honest-made article, and so neglects the constant practice necessary to make a skillful craftsman.

Our mill men try to copy the old colonial doors and trim, but do you think their work will stand with the beautiful specimens of joiner work that you will still find mellowed and ripened in our older communities? And remember, these were wrought by the "ordinary mechanic," untrained for the most part in any school of architecture.

Can anything be done to bring our boys and the hammer again together? Not until we change their point of view; and to do that we must change the ideals we hold out. If we would show the boy the possibilities for a mechanic, handicraft must be dignified in our speech and in our writings, in our school training and our home conversation.

I would like to see advocated a course in manual training that shall be as comprehensive, systematic and persistent as that required in teaching piano, for instance. Parents decide that the boy or girl must take music lessons, and then proceed to enforce the requirement of one, two, or more hours' daily manual practice. Why not some such course by which our children are daily drilled in the use of tools, through all grades of school work—first with the simple common tools of constant common use, and then, as they advance in grade, to the selection of some definite handicraft that could be taught both in theory and practice so that by the time the boy graduates from high school he would have a fair working knowledge of some useful trade?

Do you say "the unions will oppose such training"? Possibly in a few sections; but I hardly think so, provided the fundamental principles of unionism are taught. And they should be, for with all the mistakes that union labor has made it still stands both in theory and in the minds of the better element of mechanics, for trained workmanship and well-paid, intelligent service. But this paper does not contemplate any discussion of the question of union labor or open or closed shops.

A Master Workman the Goal

After all, the training of the boy is not to have him imbued with the idea of always remaining a journeyman. He should have the ideal of becoming a master always before him. What are his chances? There is scarcely a hamlet where two roads cross that will not support a well skilled carpenter, blacksmith, tinsmith and plumber.

Suggestions for Public School Instruction

A complaint of existing school conditions is not a remedy. I hesitate to offer the suggestion of what seems to be needed for fear I shall be told that the present school system is so nearly perfect that the iconoclastic ideas of a layman are entirely out of order. But I would like to see elemental manual training persistently followed from the third grade on, not as a side issue, but as part of the main disciplinary work of the schools. By the time the boy reached the high school he should then have a fair working knowledge of the simple tools and raw materials for working.

Beginning, say, with the high school, I would have a distinctly mechanical course, and this to contain one major subject that should be the trade selected as the pupil's probable vocation. I would cut from such a course all languages except English, and that I would drill and drill until a student writes without effort and correctly the ordinary good business forms of corre-
Builders' Hardware—The Gauge of Quality

"SHOW ME THE HARDWARE TRIM AND I WILL RATE FOR YOU THE WORTH OF THE OWNER"

Do you ever size up a residence by the looks of the front door knob and lock? Of course you have, and so too have many others. Quite the most prominent thing about an entrance door is its hardware—the bell or knocker announcing your arrival, the lock giving safe security to those within and a knob to which the hand instinctively goes out.

It seems needless then to say that the front door hardware is important. It is not only the most prominent thing about the entrance door, it may also be the most decorative, and by its appearance we have come—sometimes without knowing it—to "size up" the quality of the entire house.

And if this is true of the front door hardware, how much more true it is of the hardware trim on the inside of the house. The one feature that more than any other indicates the quality of a residence is the builders' hardware that is used—a very small item of expense itself, amounting to less than two per cent of the total cost of a dwelling even when the finest grade of hardware is used, the hardware trimmings are in such prominence that they dominate the entire structure. Cheap builders' hardware goes with a cheap house; high grade builders' hardware gives the entire interior the look of quality. For these reasons it is an exceedingly good investment to use high-grade hardware trimmings on all work.

The building public in general is coming to realize this. There is to-day a perceptible turning back again to the spirit of the old-time craftsmen who hammered and wrought their very heart's blood into their work, giving the best that was in them and producing honest works of real beauty, which were to be used in every day life; so to-day we are getting back to this old conception that things of beauty are to be used; or to put it the other way, that what we see and use in our every-day life should be strong and beautiful.

And to nothing does this apply with quite so much force, as to builders' hardware.

The mantle of the art-craftsman of the Middle Ages has fallen onto worthy shoulders. The great hardware concerns of America to-day have kept true to the spirit of the old; they have held fast to the quality
idea, and, at the same time, have brought the well-known "Yankee ingenuity" into play, developing the mechanism of locks and catches, case-
ment hardware and transom adjusters, etc., until they are now mechanically perfect. At the same time, the manufac-
turing processes have been so improved that the best in builders' hard-
ware can now be afforded by all builders for all types of structures. In fact, even though the cost were far greater than it is, good builders' hard-
ware would still be the only really economical sort.

And for this very reason, we suppose—namely, that the builders' hard-
ware is such a relatively small item of the total cost of a building—the prac-
tice has been all too common of putting off the selection of the hardware until practically everything else has been provided for. When the builder "gets right up against it," he hustles out and picks up almost anything that looks like hard-
ware—without giving it any thought or study. He spends the few dollars that are left, after most every-
thing else has been arranged for. And the owner has to be satisfied as best he may.

The object of this article is to impress carpenters, builders and architects with the importance of build-
ners' hardware and the necessity of making an early and careful selection.

Urge and advise the owner to make a large enough appropriation for this item so that real satisfaction can be had. The locks are the defense of the home, and the proper selection of the ornamental trim is an im-
portant factor in the decorative treatment. The build-
ers' hardware is in such prominence that it sets the style for the entire building. The builder's reputation is sure to suffer if he allows "any old thing" to be used. With builders' hardware, as with most other things pertaining to building, "quality is the only real economy."

It is interesting to note some of the present day de-
velopments in builders' hardware. There are styles here the same as in millinery or dress goods—though they come on more gradually and last longer. The tendency to-day in builders' hardware is decidedly

toward simplicity of outline and the return of Colonial standards. This is shown in the decreased demand for ornate designs. The substitution of handles with thumb-latches, instead of knobs, and the increased use of glass knobs on inside doors are both decidedly Colonial features. There is also a growing demand for the simple finishes, as the old brass, dull brass and bronze.

The popularity of casement windows has brought special casement hardware into prominence; and, at the same time, the ingenuity shown by the hardware people in designing sash ad-
justers, casement locks and bolts, etc., has augmented the popularity of this style of window. We must men-
tion, however, in passing, that a whole lot has yet to be learned by the car-

L'Art Nouveau Designs are Popular
Carpenters and builders, not to mention the planing mill men, about making and hanging casement windows so that the hardware can be put on and operated satisfactorily. Yes, even the architects have something yet to learn about this, as many a practical hardware man can testify to his sorrow. This is an important subject and deserves study.

We are glad to be able to state that the “American Carpenter and Builder” has secured a series of articles on this subject, by probably the best posted builders’ hardware man in this country. These articles are illustrated with detailed drawings, showing how casement glass doors, French doors, etc., should be made and hung from the point of view of the builders’ hardware people, in order that their fixtures may do the satisfactory work they are designed to do. These articles will begin next month and will be the “backbone” of a new department we are inaugurating in the “American Carpenter and Builder,” beginning with next month—BUILDERS’ HARDWARE.

The subject of Builders’ Hardware offers a broad and interesting field for study. Carpenters and builders will have more and more need of being thoroughly posted along these lines, for the day of poor hardware for good buildings is past. The subject has become so broad that it cannot adequately be considered in a single article. All the various interesting phases of it will, accordingly, be taken up individually in this new department for the benefit of the readers of the “American Carpenter and Builder.”

Note: For the use of the illustrations shown in this article, showing attractive, high grade, modern builders’ hardware, we acknowledge indebtedness to P. & F. Corbin, The Yale & Towne Mfg. Company, and Sargent & Company.—Editor.

“Better Building” and Our Readers

“The sweetness of low prices never equals the bitterness of poor quality.”

Says Contractors and Builders can be Trusted

To the Editor: Baldwin, Kan.

I notice that Mr. J. M. Kane, proficient in roof repairing, would urge the architects to have the contractors and workmen toe the line a bit; and wonders why “architects will allow contractors, and in fact anyone to nail on shingles with three-penny nails.” If Mr. Kane would find such a course an easy matter he would, no doubt, find ready engagement in the employ of architects to look after the details of the execution of their designs.

But under the present regime—and I trust under the regime of the coming decades—architects or owners can trust to the honesty and judgment of those in whose hands their plans are placed that their plans will be executed so conscientiously, and with such material, that they will not have to stand over us with the “big stick” of their authority; while we as humble and obedient servants execute their orders in silence.

Brethren, with all deference to the “powers that be,” I for one wish no more arbitrary and stringent authority over me; and I trust that the boys likewise have self respect enough to desire to use materials of such quality—“trusted to their honesty—that they will use nails whether “galvanized” or “cut” which, under the test of time, will prove adequate to hold the shingles. All, with this end in view that the architects can busy themselves with their designs; while we as men can busy ourselves with the execution of the same.

Burr Gunsaulus, Contractor and Builder.

Knows a Good Thing

To the Editor: East Martinsburg, N. Y.

The October number of the AMERICAN CARPENTER AND BUILDER is at hand, bringing a liberal offer for renewal of subscription. I have only to say that I take pleasure in grasping this offer. Enclosed find $2.00 herewith. I find much valuable information in your paper. I would not be without it for many times the cost.

I. W. Atwell.
To Educate People In Architecture
Government Plans to Give Small Cities Better Federal Buildings

W hat is regarded as a move in the right direction is the campaign inaugurated by the Government to educate the people of the United States up to architectural ideals, thereby stimulating a demand for the very best that the modern designer of buildings can produce. While the Government has always advocated high ideals in architecture, the effect of its efforts heretofore has been seen only in the large cities of the country, where the magnificent public buildings are ever an attraction for lovers of architectural symmetry.

To broaden the field and to give more people an opportunity to feast their eyes on buildings beautiful, the Federal authorities recently began a campaign to improve the architecture of the nation’s buildings in the smaller cities of the country. The plan necessitated securing the services of the very best architects in the land, which, in view of the fact that the best architects as a rule are too busy to fritter away time on small Government commissions, was no easy task. But, through the diplomatic management of Secretary of the Treasury MacVeagh, it was actually accomplished.

Secretary MacVeagh has been able to attract the leading designers of the country, by directing an appeal to the patriotism of these men, with the result that 17 responded to the very first call. They will prepare plans for post office and customs buildings to be erected in the smaller cities and towns. The U. S. will without doubt before long be freckled with Architecture.

Change of Names for Oak Flooring Grades

O n November first, the manufacturers of oak flooring found it very necessary to make some changes for the oak flooring grades. Heretofore the grades were generally known as “Clear,” “Sappy Clear,” “Select,” “No. 1 Common” and “Factory.”

The names are now, for quarter-sawed flooring “A” Grade in place of Clear and Sap Clear in place of Sappy Clear. For plain-sawed flooring “A” Grade in place of Clear, “B” Grade in place of Select and Common in place of No. 1 Common. The Factory grade remains same as heretofore.

The specifications for these several grades are as follows:

Quarter-Sawed. “A” Grade (Clear).—Shall have one face practically free of defects, except 3% of an inch of bright sap; the question of color shall not be considered; lengths in this grade to be 2 to 16 feet, not to exceed 10 per cent under 4 feet. “B” Grade (Select).—May contain bright sap, and will admit pinworm holes, slight imperfections in dressing; or a small tight knot, not to exceed 1 to every 3 feet in length; lengths to be 1 to 16 feet. Common (No. 1 Common).—Shall be of such nature as will make and lay a sound floor without cutting. Lengths 1 to 16 feet. Factory.—May contain every character of defects, but will lay a serviceable floor with some cutting. Lengths 1 to 16 feet.

The reason for these changes was brought about on account of the confusion caused by the old names. For instance, the Select grade often was misunderstood for the Clear. For the present, or until the architects, dealers, contractors and all concerned, are thoroughly familiar with the new names, the old names will be carried along in parenthesis for comparison.

It is hoped that within a year the use of the old names can be eliminated.

When these new names will have been established, the results will be far reaching towards the right utilization of oak flooring grades. Each bundle of oak flooring is stamped by the manufacturer to show the name of its grade, to avoid any misunderstanding by the dealer or the ultimate buyer.

A Way to Save 5%

(Continued from Page 31)

Now all of this could be avoided if the architect or contractor would draw off his own plans, and submit a “uniform list” of specifications to each manufacturer.

There is always a difference in the grades that the different manufacturers agree to furnish when figuring on a set of plans, whereas if each manufacturer knows exactly the items that he is expected to furnish, the grades, sizes, etc., there will be no guess work, and he will be enabled to quote them intelligently. One can hardly realize what the 5% wasted in a year’s time amounts to.

We are giving you this information with an idea that you will see the importance of it, enlarge on it and carry it along in a series of articles, pounding it in on the architect and contractor, showing him where he is spending foolishly either for himself or for some one else, at least 5% of the millwork bill, which he can save by drawing off the plans himself.

We trust that this appeals to you as it does to us, and if there is any further information along these lines we can give to you, do not hesitate to ask for it.

Yours very truly,

PAINE LUMBER CO., LTD.

This is certainly a condition of things that should be set right. There are today too many desirable things one could better buy with that 5% to allow it to continue to be lost. Luckily in this case you don’t have to wait for “the other fellow” to act. Every reader of the American Carpenter and Builder can fix this at once, as far as himself and his work are concerned—and save this 5%—by taking the slight extra trouble to submit such detailed information to all concerns he asks to give estimates.
Practical Uses of the Steel Square
GOING OUT OF THE ORDINARY TO EXEMPLIFY THE ORDINARY WAY OF ROOF FRAMING

We are going to take for an example a roof out of the ordinary shape to illustrate how to proceed with an ordinary shaped roof. What we mean by "the ordinary" is the common square cornered building, for which every carpenter is presumed to know how to frame a hip roof with any desired pitch. But how many would know how to proceed to frame the roof for a five-sided building without first having to do a whole lot of thinking and diagram work? Now, it does not necessarily follow that a four or five-sided building has equal sides, as it is the angle of the corner we are after, but for illustrative purposes we will consider the building of equal sides.

Most all of the rules in general use apply to the common square cornered and to no other.

Too many builders are contented with such rules, because they answer for the roofs that they are accustomed to framing; and when called out of the ordinary they are lost, because they do not understand the principles involved. It is well to understand a general rule for emergencies, if for nothing else. For that reason we have selected something out of the ordinary to illustrate a universal rule that applies to all alike, regardless of the shape or pitch of the building.
the square to obtain the miter, it takes \( \frac{1}{2} \) of 72, or 36 degrees, as shown by the square at the center of Fig. 2. But we are not through talking about Fig. 1 yet. There is a whole sermon that could profitably be preached from this as a text; but we are going to cut it short because we have gone over this before. Yet for the benefit of new readers, we will call attention to a few of the main points, as follows:

At A is the center for either inside or circumscribed diameter; and A B and A C represent their respective diameters. The 36 degree line passes at 8.72 inches on the blade, which is practically 8 17/24 inches, and is the reason 12 and 8 17/24 are used on the square to obtain the miter. The latter figures and the length of the common rafter for one foot run, will give the side cut of the jack. The cut will be on the side of the square on which the length is taken.

Another interesting thing about these figures, is that when the inside diameter is 12 inches, the length of the sides will be 8 17/24 inches. Thus, having the proportion for one foot of the diameter, it is an easy matter to find the required length of the sides for any diameter.

In Fig. 2 is shown the divisions of the circle for a five-sided frame and how the proportions shown in Fig. 1 apply to same.

In Fig. 3 is shown a roof plan with the proportion to take for the cuts, as follows:

A B and A C will give the seat and plumb cuts for the common rafter and B C will represent its length.

B D and B C will give the side cut for the jack.

A D and A C' will give the seat and plumb cuts for the hip and D C' will represent its length.

D E and D C' will give the side cut of the hip.

But we fancy we hear someone say, "What has this to do and where is the connecting link with a four-sided building?" Only this, it eminates as with all other forms from the same source—namely, the proportion of the angle to circular measure. Practical results may be arrived at by bisecting the angle, and from this the proportional parts may be arrived at without knowing the degree of the angle, but back of it all is the underlying principle upon which determines the angle.

In the case of the square corner, it is 45 degrees and, the degree line would pass at 12 on the blade instead of 8 17/24, as shown for the pentagon corner, and with this point established, the procedure is the same as here given for the pentagon or five-sided building.

A few more words and then we close. This is our last article for this year, and we desire to thank the readers for their kind indulgence. We have received a number of personal letters during the year, containing words of praise for the efforts we have put forth to help make this the best paper of its kind published. To these we extend special thanks, and to all of the readers we present a star for their long suffering, but we can assure them that there is no sham about this star. It is set with pentagonal diamonds and all cut on the square. The same proportions are used as described above for the five-sided roof—but in this emblem we have it in all its fullness, as all of its angles pertain to five.

Again thanking the readers, we wish all a Merry Christmas and a Happy New Year—and best of all, a prosperous year.

A. W. Woods.

Economical Proportioning of Concrete

"Economical proportioning of concrete does not always consist in using the leanest possible mixture. If the quantity to be laid is small, it is sometimes cheaper to use materials at hand, selecting the proportions arbitrarily and adding an excess of cement to insure the required strength and water-tightness, rather than to make the tests required for the more scientifically proportioned mixture. On the other hand, upon large or important work it pays from the standpoint of dollars and cents to make thorough studies of the aggregates, carefully grading the materials so as to use the smallest possible quantity of cement, which is always the most expensive ingredient.

"This fact has been seriously overlooked in the past, and thousands of dollars sometimes have been wasted on single jobs by neglecting laboratory tests and studies or by errors in theory," says Sanford E. Thompson, Consulting Engineer. "By adjusting the proportions of the aggregates instead of selecting them arbitrarily, a concrete of equal density, strength and water-tightness may be made almost always with the use of less cement. On a certain job, for example, where water-tight concrete was required, a net saving was effected of 74 cents per cubic yard by carefully grading the materials, the resulting concrete being as watertight as the richer mixture, having proportions selected by judgment."
Single-Color and Compound Stenciling

HOW TO GET MOST ATTRACTIVE AND DURABLE WALL AND CEILING DECORATIONS BY MEANS OF STENCILS—FLAT OIL PAINTING FOR INTERIORS

By Clyde E. Horton

THERE certainly are enough good reasons for having plain walls in the modern home to keep such decorations in vogue for many years to come. It is hardly necessary to illustrate the effect of hanging pictures against an highly decorated, large figured wallpaper, since everyone has seen attractive pictures practically ruined and lost by being brought into competition with such walls. This tendency to plain walls carries with it a desire for the durable and sanitary wall which can only be obtained by means of a good quality oil paint, producing the much desired flat tones. In the decorating of any rooms it is no more desirable to have over plain effects than over decorated effects. There must be a balance of attractions. The fact that plain walls can be most attractively offset by stencil decorations as well as decorative fabrics and other such furnishings, gives them a balanced effect and makes them very satisfactory.

Stenciling is not by any means a new method of decorating walls. It was extensively employed by ancient peoples as well as the artisans of the Middle Ages, and, being of sufficient merit, has by the formula, “The Survival of the Fittest,” been continued up to the present time; and is now becoming more popular than ever. There are several methods of decorating walls and ceilings by means of stencils. There are single-color stencils, two or three-color stencils, blended stencil, outline stencils, etc.

The impression that stencil decoration means considerable expense is erroneous. It may be considered expensive when applied over a cheap water paint or calcimine, because usually a wall finish of this kind is not worth stenciling well. The following description of stencil application will indicate the ease and satisfaction with which this work can be carried on.

Single-Color Stenciling—The work shown in Plate I is an example of this method. The entire design is applied in one color through the openings of the cut stencil. Thumb tack the stencil onto the surface at the top of the sheet in a position for stenciling. For the first experimental work any color can be used. Place a small amount of color on a piece of glass about one foot square; and thin it down slightly with turpentine. The size of the stencil determines the size of the brush. A brush about 1 inch in diameter will be found most satisfactory for this. The ends of the brush should be thoroughly covered with color and then all superfluous color wiped off the brush out on the clean glass. Then apply the color to the wall through the openings in the stencil. Hold the brush up straight against the wall, as shown in Plate II, and apply the color in a sort of revolving or pouncing motion. Do not attempt to brush the color on as in ordinary painting; and do not hold the brush as indicated in Plate III. The position of the brush shown...
in this plate forces the color up under the stencil and gives the design rough or ragged edges. Too much color on the brush will give the same difficulty, even if it is held properly.

Plate I shows just how to apply a stencil on the wall. A thumb tack at one corner will be found sufficient to hold the stencil securely in position as long as one hand is free to hold the other end. The stencil is then placed in position for the next repeat, registering by means of the guide opening in the stencil or by marks on it which keep the motifs of the design equally spaced. In this way the design is carried around the entire room. When a corner is reached the stencil is carefully bent into it as far as possible and any parts of the design which can not be applied through the stencil openings up into the corner are touched up by hand with one of the small brushes. Frequently all corners are left until the straight wall work is completed, then the bending of the stencil is not an inconvenience.

This simple operation should be repeated over and over again, using different colors, until it is possible to get clear and clean results and know the exact consistency of the color and just how much to have in the brush. Use different designs for variety's sake.

Two-Color Stencils.—The next step is the two-color stencil, which is usually made in two parts, one for each color. Illustration Plate IV shows the method of applying this style stencil. The leaf part of this stencil border should be applied as per instructions for single-color stenciling using Olive Lake. The grape part of the stencil is then applied in Cobalt and made to register exactly by means of the guides. Guide points appear in both parts of all two-part stencils, so that in moving the stencil along a wall the second part can easily be registered with the first part every time it is moved. In this way you can stencil an entire room quickly, carrying the first part of the stencil in its color around the room and then following with the other.

The reader should not understand by the above that in order to get two or three-color effects on this work, it is always necessary to have a separate part for every color. Some designs are made up of leaf and flower forms all cut on one piece of stencil paper. In such cases stencil the leaves of the design in one color, using a brush small enough so that the green does not spread out over the flower in the center. Then with another brush stencil in the flower, using Burnt Sienna reduced slightly with turpentine.

Plate V. No. 1. First Stencil in the Dark Shadows of the Flower

No. 2. Then Complete the Flower in its Natural Color

No. 3. The Leaves are Then Stenciled in Olive Lake

Very attractive results can be obtained by blending the colors in either the one-piece or two-piece stencils. This operation is very plainly indicated by the three illustrations in Plate V. The various operations are as follows: Plate V, No. 1. This shows a very slight blending in Olive Lake reduced slightly with turpentine. Apply the color in the center of the large flower and gradually blending (applying less color) as one advances outward. On the flowers at each side the blending is started close up to the stem and blended outward, not covering the entire flower.

Now refer to No. 2 of Plate V. Take another brush with the flower color (Burnt Sienna reduced) and stencil the entire flower, going right over the blended green color which was put on by the operation illustrated in No. 1. This gives the center flower a darker tone in the middle and the other two flowers darker tones nearest the stem.

The third operation is now reached (No. 3, Plate
Decorative Possibilities of Wall-Board
THE SPECIAL ADVANTAGES AND ECONOMY OF THIS NEW TYPE OF BUILDING MATERIAL
By W. F. MacGlashan

A WIDENING field of profit for builders is rapidly opening up in the use of wall-board for walls and ceilings, in either new or remodeled buildings. In facility of application, in cleanliness and hygienic quality, in enduring power under unfavorable conditions, wall-board has many advantages as a substitute for lath and plaster. Moreover, by its special adaptability to ornamentation, it lends itself readily to decorative work in panel designs or as a ground for the stencil effects now so much in vogue.

Plastered walls are constantly exposed to disruptive forces that tend to limit their life. Timbers shrink; a building settles; vibration is caused by machinery, outside traffic, or even the ordinary movements of the occupants; moisture is absorbed and water beats its way in or soaks through—all this weakening the plaster and in time possibly causing it to crack and fall. Even at best, the handling of plaster is accompanied with muss and litter, with delay in waiting for drying; and, in case of alteration or repairs to piping, with untold annoyance from dust and dirt.

All such troubles are avoided where a good quality of wall-board is employed. This material comes in panels ranging from 2 to 4 feet wide, and from 4 to 16 feet long, and is thus readily adaptable to all structural situations.

On new buildings, wall-board is nailed directly to studding, and, after decorating, edges of panels are covered with strips of wood, stained to harmonize with the other features. By this method the modern trend of architecture is adhered to, in providing artistic paneled walls and ceilings instead of blank monotonous spaces.

The possibilities of profit for the carpenter are seen in the fact that not only can he do every part of the construction himself, but also is freed from delay of waiting for the plaster work.

Wall-boards are made from various materials—asbestos, gypsum, wood fibre, paper pulp and composition, etc.—for each of which special advantages are alleged under various conditions. Chemical and physical tests, it is claimed, show that pure wood fibre, prop-
Here are some more kinkish ideas for the class in millworking:

Device for Band Sawing. In band sawing a tail on a long rafter, where one man has to keep the saw to the mark and another hold up the other end, it is a hard matter for the man at the far end to tell just which way to swing the timber. He must be governed by the man at the saw end by a wigwag of his head as he must use his hands to keep the timber to cut to the mark. I find that by placing on the saw table a thin block or disk of wood having a hole about eight inches in diameter on which to rest the rafter, the moving of the rafter is made much easier.

Steaming Wood for Bending. About steaming and bending wood, some mechanics say that hot soap suds is the proper thing, but I find that if I can add steam to the material in a place free from outside air (to keep from cooling) in addition to letting it lie in hot water, it works better. The time of leaving it in the hot or steam box depends on the size of the piece. Take, for instance, 7/8 by 6 inches and 6 feet long; I leave it in two and one-half hours. When taken out, it must be handled with gloves, because if it is not hot enough to burn or scald the hands, it is not soft enough to bend, and this must be done quickly. Much more could be said about wood bending, but conditions vary.

What a great thing it would be if there were some liquid or paste appliance which, when applied to a straight piece of stair rail, would make it pliable so it could be bent by hand in the form of an easment, wreath, ramp, etc. Then, allowing the piece to lie quiet, it would assume its natural consistence. How is that for dope?

Easy Way to Find Hip or Valley Rafter Curves. Sometimes we get an order in the shop for so many rafters and so many hip rafters with only a detail for the common rafter, making it necessary for us to figure out the elongation required for the hips. Now, the way I get at it (and get it correct every time) is by measuring each cut, or member back from the end as at c; and for each inch the cut is on the common rafter, I take 1 5/12 inches, or about 1 3/8 inches for the hip or valley. Say from x to x is one inch on the common rafter, then the distance is 1 5/12 inches on the hip. The depth of the cuts remains the same on both rafters. If the hip is for an octagon corner, the cuts should be elongated 1 1/2 inches instead of 1 5/12 inches.

Lasting Timber. A carpenter in our neck of the woods says cypress exterior mill work will last forever; he knows, because his father tried it.

How to Remove Old Putty

Remove the window sash and lay it flat on a table with the putty side up. Take a common spring bottom oiler filled with gasoline and squirt a small quantity of gasoline on the putty all around the sash. Apply a match, and the heat of the burning gasoline will soften the old, hard putty so that it can be removed with a putty knife.
Lights in the Batten Door
By Charles Claukey

It is quite a puzzle to a good many men to know just how to go about putting a light in a batten storm door without taking a sash and screwing it fast to one side of the door. But as the sash costs a good deal more than the glass, it is better to make a place for the glass in the door.

Figs. 1, 2 and 3 show both sides and a section of the upper part of a batten storm door, in which a hole is cut just a trifle larger than the light of glass to be used, and a door or window stop mitred around the hole as shown in Fig. 3, forming a rabbet for the glass. The glass is then set in and stopped with a strip or regular glass bead, if it is to be had.

Fig. 4 shows a still simpler way of fastening the glass to the door. The stop is rabbeted to fit over the glass and does not require the extra run of stops to hold the glass in place.

Fig. 5 illustrates three different ways of joining double storm doors at the open edges. The first or common rebate is the simplest and costs nothing extra except a little work, provided the doors are wide enough to allow for the lap. The second is the best of the three and is the regular "T" astragal, and is the same pattern as that used for heavier doors. The third and last shown is the flat astragal, and many different patterns are used, the half round, as shown in the figure, being the most popular type.

The Boy and the Hammer
(Continued from Page 33)

respondence and can spell properly the commonly used words. In mathematics I would substitute the ordinary business transactions involving persistent drill in the rapid elemental operations involving addition and multiplication, the use of fractions and per cents, or discounts. I would drill again and again the common every-day problems that involve mensuration of surfaces, etc., perhaps including elemental algebra and a very simple practical course in plane geometry.

What the School Product Should Be

But I would have at least half the time in this course devoted to distinctly manual work or mechanical study, this to include mechanical drawing, care and construction of tools and machines, and practice, practice, practice, until at graduation the boy should have a working knowledge that will enable him to commence work as a junior journeyman.

I would make this a course with honor, so that there shall not be that underlying feeling that apparently exists now that the young man taking a college preparatory course is somehow a little superior to the youth who elects the present so-called business or commercial course.

While my idea of instructors for such courses contemplates the employment of men trained in our higher scientific schools, such instructors should have at least two years' practical experience as journeyman or master working mechanics to enable them to eliminate or reduce to a minimum the teaching of purely theoretical unworkable ideals.

All this is needed. Some will say it is not the office of the State to furnish such instruction. But if the State sees that in such teaching as this lies the salvation of the delinquent in the reform school or penitentiary, why not a thousand times better take the boy before he is branded as a criminal and place him in a position where he can always earn a comfortable living and retain the confidence and esteem of his fellow citizens?

Single-Color and Compound Stenciling
(Continued from Page 41)

V. Take the green brush again and stencil in the leaves and stems. These leaves and stems can be easily blended in the green color alone, making some parts light and other parts dark (applying more or less color). Apply the darker tones on the flower nearest the stem.

The illustration, Plate VI, shows how to blend with different colors on a simple stencil. One color is first applied in spots and blended as indicated by No. 1. Over the lighter parts of the first color the second color is then applied and both effects are blended together. Many different experiments should be conducted with the blending of designs, and it will be found that an unlimited number of effects can be obtained.
Because of the large number of requests from all parts of the country for details of simple and inexpensive trim, we are showing this month two examples of such. A large part of trims of this kind is usually carried in stock by most mills and lumber yards, and can be obtained in soft wood at reasonable prices. Both doors shown are stock doors, one and three-eighths inches thick. In each case the elevations of the doors, windows, etc., are drawn to the scale three-fourths inch equals one foot; and all parts of the trim are detailed to the scale of six inches equals one foot. In this cheaper grade of work, many different effects can be obtained for different rooms by placing the picture moulding at various heights, making the head casing as shown, or by making it continuous around the room, and by the addition of chair rail, plate rail, etc., according to the use to which the room is put. By the use of a little careful study the attractiveness of a house can be materially added to without increasing the cost.

It may be of interest to contractors in connection with this series of articles on Interior Finish to know the official grades of doors and sash, which are graded under rules adopted by the Sash Door and Blind Manufacturers' Association of the Northwest.

AAA Oil Finish Doors. Material for AAA oil finish doors must be clear, no white sap admitted. Workmanship must be good.

AA Oil Finish Doors. Material for AA oil finish doors must be clear, with the exception that white sap will be admitted, not to exceed twenty-five (25) per cent of the face of any one piece. Workmanship must be good.

A or No. 1 Quality. Material in No. 1 doors must be clear, with the exception that water stains and small pin knots not exceeding on fourth (¼) inch in diameter may be admitted. No piece to contain more than two (2) such defects and no door more than five (5) such defects on each side; white sap not considered a defect. Workmanship must be good.

B or No. 2 Quality. Material in No. 2 doors may contain knots not to exceed one (1) inch in diameter, and blue sap showing on both sides not to exceed fifty (50) per cent in any one piece of the door and gum spots showing on one (1) side of a piece only and other slight defects, shall not exceed ten (10) in number on each side; and each white pine stile, bottom and lock rail must contain at least one (1) and not to exceed three (3) such defects; plugs admitted and not regarded as a defect. Slight defects in workmanship admitted.

C or No. 3 Quality. Material for No. 3 doors may contain all stained sap and small worm holes and fine shake; also knots not exceeding one and three-fourths (1¼) inches in diameter. Twenty (20) defects may be allowed on each side, also slight defects in workmanship. Each piece of white pine in a No. 3 door must contain a defect. Not more than six (6) defects in any one piece.

No. 4 Quality. No. 4 doors are regarded as cull door and must contain large coarse knots and may contain rot, worm holes, shake and other serious defects.

Check Rail Windows may contain two (2) knots three-eights (3/8) inch in diameter, or one red knot five-eights (5/8) inch in diameter in each piece of a window. White sap and not over thirty-three and one-third (331/3) per cent blue sap may be admitted in any one window. Workmanship must be good.

Plain Rail Windows and Sash may contain blue sap and small knots.

Concrete Cold Weather Advice

Don't let the weather deceive you—the days are warm, but the nights and mornings are cold. Cold weather is not conducive to quick setting, and long time sets mean slow hardening, thus reducing the strength of the concrete for a considerable period. Mr. Contractor, as a precaution, watch the weather—give your work ample protection, and—most important of all—heat the material and the water. This will insure satisfactory work.
PICTURE MOULDING

DOOR

WINDOW

PLASTER

ELEVATION

STOP

DOOR

DETAILS OF INSIDE FINISH

SHOWING DOOR, WINDOW, TRIM, ETC.

SCALES

ELEVATION — 34" = 1'-0"  DETAIL — 6" = 1'-0"

CAP TRIM

PICTURE MOULDING

STOOL & APRON

BASE

CHAIR RAIL

CASING

HEAD CASING
DETAILS OF INSIDE FINISH
SHOWING DOOR WINDOW TRIM ETC

ELEVATION

SASH CASING HEAD CASING PICTURE MOULDING STOOL APRON BASE

PLAIN TRIM

SCALES:
ELEVATION = \( \frac{\text{in.}}{1\text{cm}} \)
DETAILS = \( \frac{\text{in.}}{1\text{in.}} \)
THERE “General specifications and instructions” are presented herewith for the purpose of improving tile work, and bringing the standard up to a more uniform basis, giving to those in sections of the country where tile is not in general use, the necessary information to secure first-class work, thereby creating an increased demand for this worthy material.

If builders will follow these “specifications” the manufacturers of tile can guarantee first-class and satisfactory work, as the details have been most carefully prepared.

We trust that every person doing tile work will cooperate with us in this effort to improve tile setting, and preserve these specifications for future reference.

FOUNDATION FOR FLOORS. A good foundation is always necessary, and should be solid and perfectly level, free from spring or vibration. Tile must always be laid upon a concrete foundation, prepared from the best quality Portland cement and clean, sharp, washed sand and gravel.

Cinders should never be used, as they tend to destroy the life of cement, but if used, all ashes must be screened out and the vitrified cinder or clinker thoroughly washed. (The sulphur in cinders will destroy reinforcing in concrete.)

Concrete should be allowed to thoroughly harden before laying floor; thoroughly brushed to remove all dust; well-soaked with water, dusting on concrete thin coat pure Portland cement before applying cement mortar for laying tile.

Concrete should never be allowed to stand more than three or four days before laying the tile.

LIME MORTAR should never be mixed with concrete. Concrete should consist of one part Portland cement, two parts clean, washed, sharp sand, four parts clean gravel.

Mix cement and sand thoroughly dry, add gravel and mix, adding sufficient water to form, when laid, a hard, solid mass when well beaten to a bed. Bed should be not less than three inches thick. Surface of concrete must be level and finished to within one inch of finished floor line (when tile ½ inch thick is used), which will leave space of ½ inch for cement mortar.

Cement Mortar should consist of one part best quality Portland cement, two parts clean, washed, sharp sand, thoroughly mixed as directed for concrete. All mortar should be used fresh, before it has its initial setting.

REINFORCING. Place on top of the concrete an open metal lath and spread the cement mortar over it. This will prevent the tendency to contraction of the cement mortar and separation of the tile into floor cracks.

Before laying Tile sprinkle carefully with fine hand
screen a little dry cement over floor on top of cement mortar.

**Grouting.** Joints to be grouted with pure Portland cement, mixed with clear water, cleaned soon as grouting is done, leaving no cement scum on surface.

**Floors in New Buildings.** When tiles are laid on joists in new buildings, if possible, joists should be set five inches below intended finished floor line, spaced 12 inches on centers, thoroughly bridged, to make stiff floor, covered with one-inch rough boards not over six inches wide (three inches preferred), thoroughly nailed, and joints 1/8 inch apart to allow for swelling (see Fig. 1).

*A layer of roofing paper* on top of rough floor will protect boards from moisture of concrete, and prevent moisture from dripping through to ceiling below.

**Floors in Old Buildings.** Cleats are nailed to joists five inches below intended finished floor line, and short pieces of boards (not over six inches wide), 3/8 inch apart, fitted in between joists upon cleats and well nailed. Joists must be thoroughly bridged. Place roof paper as above directed. Corners on the upper edge of joists should be chamfered off to sharp point (see Fig. 2), as flat surface of joists will give uneven foundation. When strength of joists will permit, cut an inch or more off top. Where joists are too weak, strengthen by thoroughly nailing cleats six inches wide full length of joists.

![Fig. 4. Method of Laying Ornamental Tile Floor—Top View](image)

When solid sub-foundation is thus prepared, concrete is placed upon it as above directed.

**Iron Beams.** Where iron beams and hollow tile arches are used, frequently very little space is left for preparing proper foundation for setting tile. The rough coat is usually put in by hollow tile contractor to protect his work. *This cover should always conform to requirements for a solid tile foundation. Should this not be the case, the tile contractor must remove sufficient of covering to allow him to put down a foundation that will insure a satisfactory tile floor. Cinders, lime, mortar or inferior material must never be used.*

The tops of iron beams should be three inches below the finished floor line to prevent floors showing lines on the beams (see Fig. 3).

**Methods of Laying Floor Tile.** *Semi-Vitreous or Vitreous Tiles* for floors are first laid out to ascertain if they are all right, and compared with plan provided for laying floors. Strips are then set, beginning at one end of and in center of room, and level with intended finished floor line. Two sets of guide strips running parallel about 18 to 30 inches apart, should be set first (see Fig. 4). Mortar is then spread between them for six to ten feet at a time, and leveled with screed notched at each end to allow for thickness of tiles (see Fig. 5). Tiles are placed upon mortar, which must be stiff enough not to work up between the joints. Tiles are firmly pressed into mor-

![Fig. 5. Preparing Foundation for Floor Tiles](image)

When cement is sufficiently set, which should be in about two days, floor should be well scrubbed with clean water and broom, and joints thoroughly grouted with pure cement, mixed with water to consistency of cream. As soon as this begins to stiffen, it must be carefully rubbed off with sawdust or fine shavings and floor left perfectly clean.

*Method of Laying Ceramic Mosaic Tile.* Ceramic Mosaic Tiles are first examined to ascertain if design
Cement mortar is spread evenly and leveled with screed. Sheets of papered Ceramic Mosaic are laid carefully on mortar with paper side up. After space is covered, the tile setter should press tile into mortar, gently at first, firmly afterwards, using block and hammer, leveling tile as correctly as possible.

In large areas of floor work every third or fourth row of sheets should be laid to a chalk line to avoid bad kinks in line of tiling after floor is finished.

Tile should be beaten down until mortar is visible in joints through paper, however without breaking it. Paper is then moistened, and, after well soaked, can be easily removed. It is pulled off backwards, starting from a corner. After removing paper, tile should be sprinkled with white sand before finishing the beating, so that tiles will not adhere to heater, owing to paste which is used in mounting them. Corrections of surface are then made by leveling with block and hammer. The filling of joints and cleaning of surface is a delicate operation, as the looks of this work depends largely upon it. Joints are to be filled with clean Portland cement, mixed with water. This mixture is forced into joints with a flat trowel (not with a broom, which often scrapes out the joints). After joints are filled, surplus cement is removed from surface by drawing a wet piece of canton flannel over it. This cloth must be washed frequently with clean water. After the floor is cleaned, it should be allowed to stand for a day or two, when whole floor is to be rubbed with sharp sand and a board of soft lumber. This treatment removes the last traces of cement. In laying tile sheets on cement, care should be taken to have width of joints spaced same as tile on sheets to prevent floor having a block appearance.

Cleaning Floor Tile. Remove with sawdust, and afterwards with flannel cloth and water, all traces of cement left on surface of tile, as it is hard to remove after it is set. After thoroughly cleaning floor, cover with sawdust and boards placed on floor for several days where there is walking upon it.

A white scum sometimes appears on surface of tile, caused by the cement. This can generally be removed by washing frequently with plenty of soap and water. If scum or dirt can not be removed by washing, then use a solution of muriatic acid and water (six ounces of acid to a bucket of water), applied with scrubbing brush. Allow acid to remain on floor for a few minutes only, then thoroughly wash off.

Foundation for Hearths should be placed upon brick arch if possible, to insure perfect fire protection, then covered with concrete in same manner as directed for tile floors (see Fig. 6).

If placed upon sub-foundation of wood, concrete should be at least six inches thick.

Hearth and Facing Tile are set in the same manner as for floors and walls.

Foundation for Walls. A good foundation is absolutely necessary, and should be solid and perfectly plumb, free from any spring or vibration before applying scratch coat, to prevent tile coming loose.

Scratch Coat. The Scratch Coat should consist of one part best quality Portland cement, two parts clean, washed, sharp sand. Mix the cement and sand thoroughly dry and add sufficient water to form a thick mortar.

The Scratch Coat should be allowed to harden for at least one day before commencing to set tile, thoroughly brushed to remove all dust, and well wet, brushing on thin coat of pure liquid Portland cement before putting on cement mortar for setting tile.

Tiles Placed on Studding. When Tiles are placed on studding, the studding should be placed fifteen-inch centers, thoroughly braced about every twenty inches with horizontal strips to prevent vibration, and covered with expanded metal lath.

Scratch coat on metal lath should be ½ inch thick, or sufficient to make even and true surface to within ½ inch of intended finished surface of tile when tile ⅝ inch thick are used. Scratch coat should be roughly scratched.

Tile Placed on Brick Walls. When Tiles are placed on brick walls, mortar must be raked out of joints of brick work before using to form key for scratch coat.

Never Place on Wood or Plaster. Tile must never be placed on wood lath or on plaster. If placed
on plaster blocks, they should be driven full of nails, or wire lath placed over them. Plaster block material does not form a good bond with cement and in a short time tile tend to come loose and drop off.

Cement Mortar should consist of one part best quality Portland cement, two parts clean, washed, sharp sand, thoroughly mixed, as directed for floors.

If any lime is mixed with cement mortar to prevent it setting too quickly, it should never exceed 10 per cent, and great care should be used to have lime well slacked and made free from all lumps by passing through a fine sieve to guard against "heaving" or "swelling" and thus "loosening" or "lifting" tiles. White rock finish can be used as above in place of lime. Before setting tile and after carefully placing last coat of cement mortar to receive tile, place over it with a plasterer's trowel a very light coat of pure cement mixed to a consistency of thick cream.

Grouting. Joints should be grouted with Keene's white cement or with pure light gray Portland cement if more character is desired to tile work.

Soaking Tile. All tiles should be thoroughly soaked in clean water before placing on the wall. Dirty water or water off of cement will stain tile, causing variation in shade and making an unsatisfactory job.

Method of Setting Tile for Wall or Wainscoting. Tile are first laid out and compared with plan provided for setting them. Guide strips are then placed on wall parallel, and about two feet apart, bottom one being arranged to allow base to be set after body is in place (see Fig. 7).

When a cove base is used, it may be necessary to set it first, but in all cases must be well supported on the concrete (see Fig. 8). The strips must be placed plumb and even with intended finished wall line.

The method of setting wall tile is governed to some extent by conditions of wall on which they are to be set, and mechanic must decide at time which process he will use, whether buttering or floating, as equally good work can be done by either by following instructions as stated below.

Floating Wall Tile. Mortar is spread between guide strips about five feet at a time, and leveled with screed notched at each end to allow for thickness of tile (see Fig. 5). Tiles are placed in position and tamped until firmly united to cement and level with strips. When space between strips is completed on one side of room, strips are removed and work continued in same manner until completed. When tiles are all set, joints must be carefully washed out and neatly filled with thinly mixed pure light gray Portland cement or Keene's cement. All cement remaining on tile must be carefully wiped off.

Buttering Wall Tile. Cement mortar is spread on back of each tile, and tile placed on wall and tamped gently until firmly united and plumb with guide strips. When tiles are all set, joints must be carefully washed out and filled with cement, and tiles cleaned as directed above.

Fixtures. When Fixtures of any kind are to be placed on tile work, such as plumbing in bath-room, provision should be made for them by fastening wood strips on wall before rough or first coating of cement mortar is put on, strips to be same thickness as rough coating. Tiles can be placed over strips by covering them with cement mortar, and, when thoroughly set, holes can be bored in tiles for fastening fixtures without injuring tiling.
How to Make A Foot Stool

COMPLETE DETAILED INSTRUCTION WITH WORKING DRAWINGS FOR MAKING THE SIMPLE BUT USEFUL PIECE ILLUSTRATED

By Ira S. Griffith

A FOOT stool is always a popular piece with boy craftsmen. The accompanying design is one that has proven popular with a good many boys who have worked after it in their manual training woodwork.

That the stool may withstand hard usage, it should be made of some hard wood, such as oak. The following stock bill specifies stock of the exact thickness wanted, but to the width of the finished pieces one-quarter of an inch is added to allow for squaring up, and to the length one-half an inch.

**STOCK BILL FOR FOOT STOOL.**

Top, 1 piece, 3/4 by 9 1/4 by 16 1/2 inches; surfaced on two sides to 3/4 inch.

Legs, 2 pieces, 3/4 by 9 1/4 by 8 inches, S-2-S.

Rails, 2 pieces, 3/4 by 2 1/2 by 15 1/2 inches, S-2-S.

Begin work by removing the mill-marks from all the broad surfaces, using the smooth plane. Take off no more shavings than are necessary to leave the surface smooth and clean, as the stock is to be surfaced at the mill to the thickness desired.

Square up the top to the dimensions indicated in the working drawing. A quarter of an inch chamfer, or a round would serve to keep the edges of this piece from being splintered when the rough shoes are placed against the top.

Work the two ends to size and shape. In working these, it will be necessary to plane a face-edge on each and square the two ends in the usual manner. From this face-edge the measurements can be laid off at each end of each piece and the slanting lines put on to indicate the sides of the legs. Saw these lines, nearly, and then plane to them exactly.

Shape the lower ends. An easy way to do this is to place the lower ends together and bore two holes with a one-inch bit. Connect the edges of these holes and either chisel or saw and then chisel to these lines. The circle on the ends is merely suggestive of an appropriate place for a decorative design.

Now, make the two side rails. These edges are to be planed beveling. To get the angle lay the T-bevel upon the drawing so that the blade or handle rests on the line which represents the edge of the leg and move the blade until it rests on the line which rep-
resents the top edge of the leg. Plane one edge straight as to its length, but beveling as the T-bevel indicates. Gauge for width and bevel the second edge. Lay off and saw and plane the ends to the slants indicated in the drawing.

These rails are to be grooved on their inner surfaces so as to receive the edges of the legs. This is to give the stool greater rigidity. With the knife and trysquare score lines to indicate the sides of the grooves, and then gauge on the edges between these lines the depth—one-fourth of an inch. Saw to the lines and chisel out the waste wood. Keep the saw cuts or kerfs in the waste, of course.

**Finishing and Decorating**

Before putting the parts together, the finish should be applied. If the wood is oak or chestnut or other coarse-grained wood, apply a coat of filler first. Fillers are to be purchased at any paint store in small or large cans. It is thick and will need to be thinned with turpentine until it is like thick paint. Brush it on and allow it to stand about ten minutes, then rub it off with excelsior and polish with a cloth. Allow the filler to harden, then put the parts together with screws, as shown in the working drawing. The parts might be put together without waiting for the filler to harden, no harm would be done. On the filler, brush a coat of thin shellac and on the shellac, after it has hardened, apply several coats of floor wax. Wax, like filler, comes in small or large cans. It is of a consistency similar to shoe polish and is applied with a cloth and then polished exactly as one would apply shoe paste and polish it.

Fillers are colored in various tones and colors, so that one can get any finish he may desire, golden, English, mission, etc.

For the decorative design, should one be desired, use spirit stains and apply these before the filler. Make a design and transfer it to the wood by means of carbon paper. With a nail filed to a chisel edge, cut the outline of the design on the wood deep enough to break the fibres and thus keep the stain from “running.” The spirit stain or wood dye is to be applied with small brushes. When the filler coat is being applied, it may be brushed right over these colors. No harm will be done, for the filler wipes off the highlights and leaves the design colors standing out. In most instances the filler darkens the design colors just a little. This is a good thing, for most wood dyes are too bright for the best effects without this greying.

**Durn Him**

A newspaper writer suggests that the halaietus leucocephalus be taken off the $20 gold pieces and meleagris americana substituted. In other words, the educated son of a gun wants to take off the eagle and put on a turkey.—Milford (Tex.) Bugle.

"Our New House—How We Plan to Build It"

By Louise Perrett, Published by The Reilly & Britton Company, Chicago.

This is one of the “gift books” of the year that will be really acceptable to anyone who is planning now, or ever expects to plan, a home of his own—or perhaps we had better say, of her own. This is an indexed book of blank pages, that is they are blank except for the two-color decorative headings and borders on each page. They are arranged to give place for sketches, prints, photos or ideas from any source pertaining to the building, finishing and furnishing of a home. For many this will be an “air castle” book. We judge it will probably mean woe to the architect who runs up against one of these books in his practice.

"The Copper Hand Book,” Vol. 10

Horace J. Stevens, Editor and Publisher, Houghton, Mich.

A valuable book for those interested in copper, copper mines or copper mining. It lists and describes over eight thousand copper mines and copper mining companies in all parts of the world. There are also chapters on the history, chemistry, mineralogy, metallurgy, grades, alloys and substitutes for copper. The book weighs 4 pounds.

"The Contractors & Builders Hand Book"

By William Arthur. Published by the David Williams Co., New York City.

In this book the author shows his long experience in dealing with building problems. The titles of the three divisions of the book, viz. “The Contractor as a Business Man,” “The Contractor as a Constructor” and “The Contractor as a Tax Payer,” indicate in a broad way the scope of this book.

"Woodworking Safeguards"

For the Prevention of Accidents in Lumbering and Woodworking Industries.

By David Van Schaack. Published by the Accident and Liability Department, Aetna Life Insurance Co., Hartford, Conn.

In this 217-page book, a wealth of practical information has been gathered together concerning methods and devices for preventing as far as possible accidents in lumbering and woodworking industries. When we consider the alarming frequency with which machine woodworkers are maimed for life, or killed outright, the importance of this subject is realized.

While this book necessarily confines itself to machines, operations and conditions which are more or less common, it is hoped that the suggestions contained therein will aid in impressing upon manufacturers the possibilities in safeguarding themselves and their operatives. Many home-made as well as patented safety devices are illustrated and described. The illustrations are for the most part, actual photographs of shop conditions with the safety appliances in place. The book is well arranged in groups and is fully indexed.
In devotion to commercial activity and the pursuit of wealth, the real home life is always in some danger of sacrifice. But the good sense of the American people is working out a golden mean between a useless, sentimental dreaming and an all-absorbing worship of the money god. As a people we are at last learning how to live; and nothing reveals this more than the growing recognition that home ownership is the chief foundation stone of the ideal home life and the inspiration to all that is substantial and uplifting in community citizenship.

In crowded urban centers, with their high realty values, home ownership is forever beyond the great majority of men; but in outlying suburbs or in the country, anyone of moderate means can now buy or build. Modern transportation eliminates the distance that formerly put this out of the question; and the popular bungalow offers itself as a favorite type of dwelling for the moderate-priced ideal home. Its very name suggests a coziness that appeals to home lovers.

The principal features of attraction in the bungalow in general, are its ground-floor sleeping and living rooms and its convenience of arrangement, planned to "save steps" for the busy housewife, combined with its possibilities of up-to-date equipment in heating, lighting, and plumbing, and of harmonious adaptation to existing conditions in its entire trim and decorative scheme, both exterior and interior.

The little cottage shown in perspective in the accompanying half-tone cut, is of the bungalow type, though unlike many of the bungalows built for the warm climate of California, which merely stand on piers or posts, this one has a commodious concrete basement affording facilities for heating plant, storage, etc. On the succeeding pages will be found complete working drawings, all dimensioned and drawn to scale, from which every detail of the actual construction of the house can be easily carried out by the builder. These drawings comprise basement, floor, and roof plans; front, rear, and side elevations; and details of interior trim.

The main body of the house contains five rooms, besides which the up-to-date provision is made for an open-air screened-in sleeping porch at the rear. The
BASEMENT AND FOUNDATION PLAN

(Bungalow Shown on Page 54)
large, sheltered front porch affords an outdoor gathering place where the family will no doubt spend much time when the weather is favorable. Along the coping of the porch and step side-walls, could be arranged flower vases or boxes, adding much to the exterior decorative effect. A vestibule opening off the front porch leads directly into the commodious dining room with its bay window, built-in buffet, and beamed ceiling. A cased opening to the right of the vestibule door connects the dining room and the living room, the latter having an inviting window-seat under the front window. Access to the kitchen and pantry from the...
dining room is through a central hallway, though if it had been desired by the owners, an opening might have been cut directly through the wall connecting the dining room and pantry. The two bedrooms, each with ample closet accommodation, open off the hall on the right; and the bathroom may be entered either from the hall or from the sleeping porch, which is also connected with the rear bedroom. The basement stairs lead directly down from the kitchen, which also opens onto the back porch, giving access to the yard. In interior finish and trim, the house is in perfect conformity with advanced modern ideals, and its external appearance adapts it admirably to any suburban residence district. The plans call for electric lighting. Under favorable conditions, this house could be built complete for about $2,500.
VENERABLE as was the "Little Red Schoolhouse" where the birch rod formerly held sway, that historic relic which laid our fathers under tribute is fast becoming a mere memory. A structure built on broader lines and with a more intelligent eye to the increasingly complex educational needs of a later generation, is taking its place. The same old fire, however, is still kept burning on the altar.

In the accompanying perspective and floor-plan of a school building for a suburban or rural district, designed by the well-known school architect, George W. Ashby, of Chicago, Ill., we find a perfect adaptation to the most advanced modern ideals, combined with conformity to limitations of moderate cost.
Glad to Help Where We Can

To the Editor: Oswego, Ill.

Although a charter member of your subscribers, I have never availed myself of the privileges of your consulting department. Just now, however, I have a problem which I am at a loss to know just how to work out to the best advantage.

Changes in the original plans have brought about conditions like the sketch; and I would like to know how to arrange for proper trim for this stairway, to be suitable for a house costing about $5000. Would like an immediate answer by return mail if possible, and if there are any charges, send along the bill.

Answer: We take pleasure in enclosing herewith a sketch showing the best method of doing this work. There is no charge at all; we are glad to help out our subscribers in this way, whenever they will give us a chance.

It would practically be impossible to make the closet the same size as shown in sketch and use any sort of a newel. In case you do not care to go to the expense of putting in the panel work shown on the sketch, the front partition of the closet could be moved back about nine inches and the corner of the first step rounded and returned back again to this partition. In any case, there should be a newel placed at the bottom of the second flight and also one at the top of same, connected by an open rail. If desired, the hand rail supported on iron brackets can be supplied on the left hand side of the first flight.

Some Good Questions

To the Editor: Colon, Mich.

Enclosed you will find $2.00 for Radford’s “Details of Building Construction,” and the American Carpenter and Builder for the coming year. Please don’t miss me with either, as I would not know how to get along without my trade magazine. Each succeeding number is better than the one before it. I am a charter subscriber.

I would like to ask a question for the brother craftsmen to answer through the columns of the American Carpenter and Builder. It is this:

Wood polished floor? And here is another: How to remove stains from any hardwood polished floor? And here is another: How to remedy a door that is warped or twisted and hangs away at top or bottom? Still another: Where can red gum and Currassion walnut be bought? What is the price of each? Where does it grow?

I like the correspondence column very much and am waiting to hear from the gentlemen from Florida.

Answer: We take pleasure in enclosing herewith a sketch showing the best method of doing this work. There is no charge at all; we are glad to help out our subscribers in this way, whenever they will give us a chance.

Answer: Assuming that the pitch is the same on all sides, the length of the ridge piece between the center line of the hips where they intersect the ridge line should equal the difference in the length and width of the building, as shown in the illustration, as at A B; but since the hips cannot run to the center line of the building on account of the space...
that the ridge occupies, it is necessary that it (the ridge) be cut longer than shown at A B. The extra length should be the diagonal (45 degrees) of the hips’ thickness, plus the thickness of the ridge piece. This should be equally divided at each end and beveled to coincide with the roof pitch. This distance at each end is equal to C V. Or if it is desired to let the center line on the back of the hip intersect the corner of the ridge piece, then the amount to add should equal the thickness of the ridge piece, one-half of which at each end, is shown at E D.

This, of course, requires deductions in the length of the rafters as follows:

For the common rafter, measure square back from the plumb cut one-half the thickness of the ridge piece. Proceed the same for the hip, but measure back one-half the diagonal thickness of the ridge.

A. W. Woods.

Length of Ridge Piece Determined by Method of Framing

In Fig. 2 is shown an easy way for fitting siding against a round window frame. B is a board nailed across frame in a position on which the center may be located. In the center drive the nail A; securing to same the string C by means of a loop. The lead pencil D is tied to the string so that its point will exactly trace around outer edge of casing. A siding board placed as at E may be readily marked so that when sawed it will fit exactly. The same method may be used on a Gothic top frame. The centers, of course, being at the point from which the Gothic casing is formed.

Chas. J. Moore.

Your Wish will be Realized

To the Editor: Athens, Ohio.

Find enclosed picture of another barn I have built here. This one is 54 by 108 feet. I would like to see this published.

The American Carpenter and Builder is the best building paper I have ever seen. I wish it a long life.

Geo. C. Bolles.
General Contracting and Building.

A Friendly Feeling Which We Reciprocate

To the Editor: Gualala, Calif.

I am sending you herewith a picture showing some of my recent work. Many of the ideas I received from the American Carpenter and Builder and from your books.

I have not yet received my September number. Be sure and get it to me, as I and my paper are the best of friends.

Bruce E. Dake.

Offer Acoustical Help

To the Editor: Seattle, Wash.

In your October issue, one of your correspondents, Mr. H. Woodsock, Spokane, Wash., asked for information regarding acoustical defects in a church which he built. Our Company have been very successful in remedying defects in acoustics in a number of buildings and would be glad to confer with any one who experiences difficulties along these lines.

Jno. F. Matthews, Mgr. Acoustic Dept.
To the Editor:

Strawberry Point, Iowa.

I am a charter member of the AMERICAN CARPENTER AND BUILDER, having been a subscriber since it started. I enjoy the correspondence column, to read what the brother craftsmen have to say; so I will send herewith some views of a barn which I built this year. It is, as you will see, round in construction.

This barn is a novelty in some respects. It always brings forth the question, "is it any good?" People come here from miles and miles around to look at this building; and after inspecting it they pronounce it all right; for it is convenient and handy.

This barn is 56 ft. in diameter; is designed for a dairy barn and is used for such. In the center it contains a silo, 12 ft. in diameter, and 46 ft. high. The first 8 feet in height
of balance of barn is to accommodate 28 cows, the rest of room is for calves. The cows stand in circle form, heads toward center, which makes a short feed alley. For cleaning out the barn back of the cows there is plenty of room to drive in with manure spreader, and haul the manure out in the field. Over head in hay mow is ample room for hay and straw. The owner thinks he has enough feed in the barn to last till spring.

The plans and specifications of this barn I prepared myself, so if any Brother Craft likes I can supply a copy.

G. E. Gratke.

I wish to express my high appreciation of your Radford’s “Details of Building Construction.” It certainly meets the needs of the builder. It came just in time for me. I found just what I wanted—all so plain, yet up-to-date. It certainly will be appreciated. The American Carpenter and Builder gets better all the time. W. D. McBrude. Corpus Christi, Texas.
Final Solution of the Water Supply System

By Geo. C. Huppertz

The water supply problem has always been one of vital importance to people who build outside of the area supplied by municipal water works; yet it appears that the attention of engineers and inventors has been turned in other directions, and those that have occupied themselves with the domestic water supply problem have not left the beaten track very far and have made, comparatively, little advancement.

The advancements made in the field of domestic water supply all hinge on the ancient idea of storing water in a tank. First—an open tank placed on an elevation, or tower, outside of the buildings; then for better protection against freezing, the idea of the attic tanks was devised. Next came the idea of the pressure storage tank, which of late years has been very largely used because it could be placed in the basement of a house, or buried in the ground, and be thus protected from the elements. All of these improvements merely contemplated the construction of new forms of storage tanks, their location, and changes in the method of filling them.

Mr. Thomas O. Perry, a well known Chicago inventor, spent many years of study on this problem. In his opinion, the solution did not lie in improving old methods, in arranging a new way to construct a storage tank, or in locating it where it would be less liable to suffer from exposure. Having been raised on a farm, he knew that water stored in a tank becomes impure in a very short time, and in order to obtain water fit to drink, it had to be drawn direct from its source. To accomplish this, he found it necessary to abandon all old methods and establish an entirely new principle—viz.: "To store the power instead of the water." This meant the invention of a pump that would automatically deliver water direct from the source whenever a faucet was opened. He succeeded in designing a two cylinder pneumatic pump which when submerged in the water would fill by gravity and from which the water could be forced by the direct action of the compressed air. A pressure of air necessary to raise the water to the desired height is at all times applied directly upon the water in one or the other of the cylinders. The cylinders of the pump discharge directly into the service pipes, there being no intermediate storage tank between the pump and the fixtures. When an outlet for water is provided by opening a faucet, the pump automatically starts to operate and will continue to operate until all faucets are closed.

The essential parts of an installation of a Perry System consist of an air compressor, with the necessary power to operate it, an air tank for the storage of compressed air, and a reducing valve to maintain an even working pressure on the pump, and the necessary pipe, fittings and valves.
Where the Big Bargains Come From

Out from these great concrete warehouses come the greatest millwork and lumber bargains that the American market affords. Our whole business revolves around the bargain idea. The present building season finds us better equipped than ever before to save money for contractors and builders. You will be amazed to see the big reductions on staple millwork and lumber of highest guaranteed quality.

New Bargain Catalog Ready

This catalog is in itself an immense exhibit of the finest building material on the market. It offers an almost unlimited variety of the latest styles in millwork of every description. Doors in all regular sizes and in scores of new and beautiful patterns and in various woods—veneered doors in Colonial, Mission, Craftsman and other popular styles—art glass doors in exquisite designs and colors—doors for every purpose. Windows to correspond with every style of door. Mouldings, inside finish, flooring, mantels, stair and porch material—everything that goes into any home, down to the very last detail. A bargain price and a guarantee of quality, safe delivery and satisfaction on every item. Send for the catalog and see for yourself.

New Plan Books—Sent Free

The new Gordon-Van Tine Book of Plans, prepared at a cost of over $5,000, is now ready for free distribution to carpenters and contractors. A complete and practical work that gives 32 designs for city, suburban and country residences, cottages and bungalows costing from $600 to $6,000. Also 12 plans for barn, dairy and cattle barns and other outbuildings. This book keeps cost within original estimates, for every plan has been proved again and again by actual construction.

The Plan Book will be mailed free on receipt of 10 cents in stamps or a dime to cover cost of packing and mailing.

You Are Invited to Visit Our Vast New Millwork and Lumber Plant

Although we conduct our business entirely by mail, we like to have carpenters and contractors visit our plant. Hundreds of them do this every year. Our warehouse is the biggest place in Iowa. Come and see us loading 52 cars at a time from our loading platforms, extending the entire length of the plant. Meet personally the men who stand behind this gigantic enterprise. The latch string is always out.

We Can Save You Hundreds of Dollars This Season

Why pay middlemen's double prices for millwork, lumber and other building material? Save several hundred dollars this season by buying at net wholesale prices direct from

GORDON-VAN TINE COMPANY

595 Federal Street
Davenport, Iowa

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER
It was found necessary to construct a compressor of special design to prevent the admission of oil into the air tank, which under pressure, forms a gas that when coming in contact with the water, causes it to taste badly and become impure, thus defeating the purpose of the system. The Perry Air Compressor is single acting, two or four cylinder type, slow speed and back geared. This means the minimum consumption of power, and prevents, to a great extent, the generation of heat which causes a loss of efficiency.

While the Perry pump possesses the distinctive feature of delivering water direct from the source of supply to the faucets, this is by no means its only advantage. The elasticity of the Perry System is a very important and desirable feature. With the older methods of employing storage tanks, where water from a well and a system both is desired, two separate tanks were required, in fact, frequently two separate and complete systems had to be installed. With the Perry System it is only necessary to provide an extra Perry pump for each kind of water required. Thus water may be drawn from any number of sources, such as well and cistern for household use, lake, spring or river for sprinkling and general domestic use. The motive power, air compressor and air storage tank may be placed wherever desired, without regard to the depth of, or distance to, the sources of supply, and without considering the number of, or the relative position of the several sources from which water is to be drawn, or buildings to be supplied. Very seldom the equipment for a Perry Water System will occupy a floor space of more than 100 sq. ft., and the fact that it can be located anywhere, generally saves the purchaser the expense of a special pump house. This is usually an important item. Frequently, the motive power, air compressor and air tank are installed in the basement of the residence, but usually they are placed in the garage, or other out-building. The garage is the most convenient place, as compressed air can be used for charging automobile tires, cleaning the carbon out of engine cylinders, etc. As there is no storage of water, the building in which the equipment is housed need not be frost proof.

The Perry System has a decided advantage in the matter of power, as the air may be compressed at any desired intervals, using the larger power for a short time, to compress the air quickly, or smaller power, by operating over longer periods, and compressing the air more slowly. Thus it can be seen that the air compressing equipment can be easily added to any existing power installation. The amount of pressure necessary depends, of course, upon the height to which water is to be raised, but the storage of air is governed by the amount of water used and the facilities for compressing it. For instance—a 500 gal. air tank charged to a pressure of 100 lbs., will deliver approximately 1000 gals. of water to a height of 50 ft. For an average family of five people, using 200 gals. a day, this tank of air will last three days. The time required to charge the tank to a pressure of 100 lbs. would be from one to one and a half hours, according to the power applied. When electric current is available a much smaller air tank may be used, as an automatic electric controller can be added to the equipment to start the motor, when the pressure is used down to a given point, and stop it when the highest desired pressure is reached. Over three thousand
Put It At Work

In Your Shop

The "Multimotor" Shop Engine increases your profits and keeps down the size of your pay-roll. Does the work of three men at an expense of less than a cent an hour. Stop pedal-pushing and crank-turning! Let the Fuller & Johnson "Multimotor" Shop Engine turn the wheels in your shop. This wonderful engine is small in size but a giant in power. Runs all hand-power or foot-power machines—jig saws, lathes, emery wheel, grindstone, drills, etc. Just the thing for carpenters, contractors and owners of small workshops.

Perfectly Simple Absolutely Safe

Simplest, neatest, strongest, most reliable little engine ever built. Comes to you complete—nothing to add but gasoline. Easily moved anywhere. For indoor use has outdoor fuel tank, insuring perfect safety. Important working parts protected by dust-proof case. Needs no attention while running. Works steadily all day on a few cents' worth of grocery-store gasoline. It is air-cooled, fool-proof, cannot freeze or overheat. The "Multimotor" in design, material and construction equals the best automobile engines. Every engine is thoroughly tested before leaving the factory, and is guaranteed!

Fuller & Johnson Farm Pump Engine

Practically the same as "Multimotor," with pumping gears added. Can be hooked up to any pump in 15 minutes. Needs no belts, arms, jacks or special platform. Pumps 270 to 2,450 gallons every hour. Perfectly adapted to farm and suburban use.

Engine Book Sent Free!

Book, giving full information about "Multimotor" and Farm Pump Engine, sent FREE on request. Let us tell you more about these amazing little power-producers. Let us send you the name of the nearest dealer, who will show you the engine and explain what it can do.

If interested in larger engines, ask for Catalog of Fuller & Johnson's Famous Double-Efficiency Engines.

Fuller & Johnson MFG. CO. 12 Ames Street
(Established 1840) Madison, Wis., U. S. A.
plants have been installed since the Perry System was put on the market, about four years ago, a great many of which are combined electric light and water systems.

From this description, it will be readily seen that the Perry System offers all the advantages of a city supply, with the added convenience and comforts of rain water service for bath and laundry, and the very desirable feature of being able to obtain water pure, cool and direct from a deep well. Detailed descriptions, new plans and comprehensive lay-outs are furnished by an interesting series of pamphlets and books, which can be obtained upon request from the United Pump & Power Company, 465 Old Colony Bldg., Chicago, Illinois. Mention the AMERICAN CARPENTER AND BUILDER in your request.

"Specifications for Setting Tile"

The Associated Tile Manufacturers have issued a handy size little booklet giving complete specifications and recommended practice for setting tile, both floor tiling and wall tiling, as in bath rooms, kitchens, vestibules, etc. It is fully illustrated with line drawings. This book will be sent free of charge to any of our readers, writing for it. Address, Secretary Associated Tile Manufacturers, Beaver Falls, Pa.

Niagara Falls Metal Stamping Works Make Addition

The Niagara Falls Metal Stamping Works, Niagara Falls, N. Y., U. S. A., have completed their addition to factory. At the request of some of their employees, who have been for years with the firm, a two-story flat building is being erected in the rear of the property to accommodate from four to six families.

The Life of a Roof Depends On the Nail

THEN why hesitate over the Nails? Insist on the SIMPLEX with its large head. Roofing Nails are for paper, not metal, and an ample sized head is required. The life of a roof, and the reputation of the roofing manufacturer and the dealer are all hanging on the question—has sufficient nail head surface been secured? The very nature of prepared roofing demands a nail with a large head. If the roofing were wood or metal, a small head would answer, but being made of a substance that tears readily it is vitally important to have a head with a large area. When ordering smooth surface roofing, insist on SIMPLEX NAILS. Shipped in cans (marked TRADemark SIMPLEX REGISTERED) in prepared roofing, store stock in 100 lb. kegs.

H. B. SHERMAN MFG. CO.

Battle Creek, Mich.
ARCHITECTS and Builders are vitally interested in the proper heating of structures of their planning and construction. The right finishing touch for comfort and economy—CLEAN, EVEN heat at LEAST cost—is provided by the Underfeed Heating Systems. Securities of undoubted worth that pay $5% interest are rated profitable investments. What small return that seems in comparison with the profits insured by an Underfeed heating system investment! Of every dollar now spent for coal in heating the old-fashioned way, 50% to 66% can be saved by installing the UNDERFEED system—coal-fed-from-below and all-fire-on-top. The tremendous every-winter coal waste—smoke and gases, which result from the usual coal-burning way, means needless waste. By the Underfeed plan these generally wasted elements must pass through the fire, are consumed and converted into heat units. A combination of this rational plan and the use of the cheapest coal insures a tremendous saving.

The Underfeed Furnace with casing removed, cut away to show how coal is forced under fire, which burns on top.

Adapted to all buildings, large or small, Underfeed heating systems ADD to the renting or selling value of any building.

J. L. Wilcox, of Green Bay, Wis., writes: "I have used the Underfeed for five years, and heated my whole house throughout. My season's coal bills of from $42 to $47 have been less to heat eleven rooms than it once cost me to heat only part of my house. I consider it the best and most economical furnace."

Write TODAY for Furnace Booklet or Boiler Catalog and fac-simile testimonials, all FREE. Plans of our Engineering Corps are FREE. Let us tell you of our Winter Sales Proposition. Write TODAY.

THE PECK-WILLIAMSON CO., 436 W. Fifth St. CINCINNATI, O.
IT'S up to you to be the man at the top instead of the man with the dinner pail.

Don't hesitate to grasp this opportunity to win success, for there's always room at the top for the man who knows how.

The LIGHTNING ESTIMATOR stops worry, lying awake nights, over or under estimating and guessing—in fact, by showing you how to estimate the cost correctly, it spells the word $ucce$$ for you. Don't do yourself an injustice by passing up the greatest opportunity ever offered to Carpenter, Contractor or Builder.

The New Sixth Edition of the LIGHTNING ESTIMATOR will teach you: How much time and material involved in each part of your work; how to figure on unfamiliar work; how to estimate quickly and correctly on a large job; how to estimate on time, material and prices in all parts of the country.

This Book is written by a man who has made good in this profession, and is based on hard, solid facts, secured by the knocks of experience, making it an invaluable guide to any one engaged in or those about to enter the building business.

If you are just starting out, here is your chance to get a firm foot hold. If you are an old timer and getting a little behind the times, here's your chance to brighten up and get some new ideas.

This Edition is bound in cloth, profusely illustrated—a feature not found in other books of this kind. The price, $1.00. Don't delay. Send for it today.

BRADT PUBLISHING CO.
1260 Michigan Avenue JACKSON, MICH.

New Huther Cutting Heads

The patent groover or dado heads made by Huther Bros. Saw Manufacturing Company, 1000 University Ave., Rochester,

N. Y., have become well and favorably known to all users of woodworking machinery. These heads can be used on any circular saw mandrel and special heads are obtainable for turning out every kind of special work.

Three new heads have recently been added to this already extensive line that are of especial interest to carpenters and contractors. It is pointed out that those who have portable saw-rigs can use these heads for cutting out their trim, right on the job. The Huther Bros. heads cut either way of the grain and are made to fit any sized mandrel.

This company issue a very interesting catalog, illustrating and describing their complete line of circular saws, patent dado heads, special saws of all kinds and saw dressers' tools. It is a revelation to many, who are not familiar with the modern uses of groovers and dado heads, to look through this catalog and see the range of work turned out by them.

This catalog will be sent free of charge to any of our readers who will write for it.

Cow vs. Milkman

A Philadelphia lawyer maintains an admirable stock-farm on the outskirts of the Quaker City. One day last summer some poor children were permitted to go over this farm, and when their inspection was done, each of them was given a glass of milk.

The milk came from a $2,500 cow.

"How do you like it, boys?" asked an attendant, when the little fellows had drained their glasses.

"Fine! Fine!" said one youngster with a grin of approval. Then, after a pause, he added:

"I wish our milkman kept a cow."—Harper's Magazine.
"Holland Furnaces Make Warm Friends"

Holland Service
Direct to You
Mr. Architect, Mr. Contractor, Mr. Builder
Explains Why

THE HOLLAND Furnace has a reputation second to none

For Fuel Economy
Cleanliness
Simplicity and
Durability

We furnish detailed plans for proper installation—
detailed list of Fittings and cost—without cost or ob-
ligation to you. Send us your floor plans or write for
"Holland Service."

HOLLAND FURNACE COMPANY
HOLLAND, MICHIGAN
Paint Makers Meet in Chicago
National Association of Manufacturers Elects Officers—
Will Meet Next Year in Washington, D. C.

The Paint Manufacturers' Association of the United States ended its two-day annual meeting Oct. 19 at the Hotel Sherman, Chicago, with the election of officers.

E. T. Trigg of Philadelphia was elected president, Z. E. Martin of Chicago first vice president, E. D. Dyer of St. Louis second vice president, G. B. Heckel of Philadelphia, secretary, and S. L. Sulzberger, of Chicago, treasurer. The next annual gathering will be in Washington, D. C. Papers read before the convention were devoted to technical subjects pertaining to paint manufacturing.

Holland Service in a Nutshell
The Holland Furnace Company of Holland, Mich., have taken an advance stand on the "service" method of doing business as applied to heating furnaces, that is sure to win them many ardent friends among the readers of the American Carpenter and Builder.

Their heating engineers have had thorough, actual experience of installing furnaces, and therefore, know how to make plans so plain and specific that any mechanic can follow them.

Full instructions for installing the complete system are supplied with each outfit and in their fitting department they cut in the collars, put in the dampers, supply adjustable pipe so that the desired length can be had without trouble; and the installer of a "Holland Furnace" supplied under their system will in nine cases out of ten not even have to use a pair of snips to cut any metal.

Hundreds of contractors and builders have been delighted to find how easy it is to install the "Holland Furnace" complete, supplied with "Holland Service" in 1911. They simply send floor plans and say which rooms are to be heated; then by return mail the Holland Furnace Company send heating plans and detailed specifications, showing just what each part costs delivered. It is then easy to name a price and to know actual profit for installing.

You, Mr. Contractor and Builder, can do a neater, better job, installing a "Holland Furnace" with "Holland Service" than the average tinner. Then why not have the profit.

Give Holland Service a trial and you will know why "Holland Furnaces Make Warm Friends."

Write to this company today for full information about their furnaces.

Carpenters and Builders, Glaziers, Shademans, Plumbers and Every Kind of Mechanic!

You will find that once using the

MASTER SLIDE RULE
illustrated on this page, you will always use it, as it is the only practical rule for inside measuring of doors, windows, etc. A feature of the accompanying illustrations and it will become absolutely indispensable to you thereafter. For every operation there is a rule that compares with the MASTER SLIDE RULE. A four or six foot rule can be extended to full length in one or two movements and closed in two movements. When opened, it is kept in place rigidly by strong steel springs and cannot get out of order.

One side of the MASTER SLIDE RULE is marked for inside measurement. The other side is double ruled, thus giving an exact measurement for quick measurement of ceilings and walls, etc. It is made in lengths of from two to six feet and is excellently valueable for quick measurement of ceilings and walls, etc. It is made in lengths of from two to six feet.

Send 15c per lineal foot for a 4 or 5 or a 6 foot sample rule, which will be sent to you postage prepaid.

Dahl Manufacturing Company
1 East 42nd Street, New York City

AGENTS WANTED
To All Architects and Builders

At your request we will send you a beautiful panel frame showing Glidden’s Endurance Wood Stains in fourteen different color effects, and the same stains varnished with our M. P. Durable Interior (Green Label Brand.)

Glidden’s Endurance Wood Stains are the finest in the world, and Glidden’s M. P. Durable Interior is the varnish of varnishes for interior use.

The Glidden Varnish Co.

FACTORIES: Cleveland, U.S.A. Toronto, Canada

BRANCH WAREHOUSES: New York Chicago
Johnson’s Flat Wood Finish

A LIQUID—an easy spreading preparation made especially for finishing interior woodwork of all new buildings, equally valuable for refinishing old surfaces.

When applied with a brush, produces the soft, velvety effect of the hand rubbed finish at One-Third the Cost of Labor

It dries in an hour without the slightest suggestion of a gloss. One coat thoroughly brushed in is sufficient.

By use of Johnson’s Flat Wood Finish you can make estimates on those artistic and expensive hand-rubbed effects and get away with the contract every time. What’s more, you can guarantee perfect satisfaction, and besides

Make a Good Substantial Profit for Yourself

A single gallon covers 500 square feet—the price, $3.00 per gallon, places this extraordinary wood finish within reach of everyone.

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

"The Wood Finishing Authorities"

Painters, Decorators, Architects, Contractors

Get Liberal Samples Free

We want you to send for a free test can of Johnson’s Flat Wood Finish and copy of Instruction Book (A. C. B. 12). Try it yourself and be convinced. Fill out coupon. We’ll also send you artistically finished and convenient wood panel, finished with this new preparation, showing the beautiful effects possible with popular woods, when you use Johnson’s Flat Wood Finish. All FREE—it doesn’t cost a cent to try it and see.
"The Proper Way"

to Treat Floors, Woodwork and Furniture—the only proper way

WITH Johnson's Wood Dye you can make inexpensive, soft woods, such as fir, pine, cypress, etc., look as beautiful and as artistic as the costliest of woods—not a mere stain, but a deep, fixed dye, giving a rich, permanent color not possible with ordinary "skin deep" stains—brings out the natural beauty of the wood in every case.

Master Painters Say: "You Simply cannot go wrong when you use Johnson's Wood Dye"

All painters, decorators, builders and contractors who have used Johnson's Wood Dye are agreed that it is far superior in soft color, deep staining qualities and lasting richness.

Made In 15 Attractive Shades

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<tr>
<th>No. 126</th>
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<td>No. 122</td>
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<td>No. 131</td>
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<td>No. 120</td>
<td>Fumed Oak</td>
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Made In 15 Attractive Shades

Get Two Test Cans and Specimen Panels FREE

Send the coupon—give numbers of the shades you want and we'll send you absolutely free samples of Johnson's Wood Dye. Also a copy of an interesting 48 page book, A. C. B. 12, in six colors, "The Proper Treatment for Floors, Woodwork and Furniture," and a complete set of artistic panels showing what wonderfully beautiful effects are possible with this dye.

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

"The Wood Finishing Authorities"
Just a Cozy Corner
In a Summer Cottage

But it illustrates admirably the adaptability of Ideal Wall Board to interior finishing—

Ideal Wall Board

is a fibrous, water-proofed board, made in convenient lengths and widths.

It is used instead of lath and plaster in new buildings or repair work and can be applied by anyone who is handy with tools.

It is nailed right to the studs—is clean and easy to handle—is readily cut by a saw—fits any space and may be put on at any time, winter or summer—no waiting for plaster to dry—no dirt or muss—and less cost.

Ideal Wall Board is better than lath and plaster—it is warmer in winter and cooler in summer—makes a more handsome and more durable wall and costs less money—may be painted or decorated in any way desired.

If you are building a cottage, an extensive house, a garage, a church—any kind of a building—or if you are making over an old building—you can use Ideal Wall Board.

Write at once for sample and booklet.

The Roberds Manufacturing Company
Marion, Indiana

An Error Corrected

A great many of our readers have been interested in the article appearing on page 64 of our November number, illustrating and describing the Sharp Rotary Ash Receiving System. It has been brought to our attention that in one place in this article the address of the inventor, Dr. Warren M. Sharp, is given as Binghamton, Pa. It should, of course, have read, Binghamton, N. Y.; Dr. Sharp's address being 500 Park Ave., that city. Our readers who are alive to good things for both themselves and their clients will write to Dr. Sharp at once for full information about his sanitary and labor-saving system for taking care of furnace ashes, garbage, etc.

National Manufacturing Company

Sterling, Ill, gives promise of becoming a second New Britain, Conn. If present developments continue, and judging from the personality of the men that are back of these developments we feel entirely safe in predicting that they will, the time is coming when Sterling, Ill, will be the great builders' hardware center of the Middle West.

Without going into detail regarding the hardware interests in general that have grown up at Sterling, Ill, a single statement will serve to give the keynote to the whole situation—The National Manufacturing Company is located there.

Only ten years ago this company began business in the little two-story building seen at the extreme right in the illustration on page 78. The moving spirits in this organization, however, were practical experienced hardware manufacturers and something more; they were men of vision; they looked ahead and laid their plans; they looked into the future and saw the sure success in store for the hardware people bold enough, original enough and wise enough to really start something in builders' hardware.

They made good builders' hardware and they didn't care who knew it.

The idea came to W. P. Benson, the President of the company; L. A. Bittorf, Secretary; H. V. Bittorf, Vice President and Treasurer, and F. B. Kennedy, Publicity and Sales Manager, that there are some things to be said about builders' hardware!—That possibly everyone doesn't know builders' hardware as well as its manufacturers do, and so might like to be told about these things!

Builders' hardware is a mighty interesting subject with many ins and outs and new things being developed all the time. Why not get to the users of builders' hardware—to instruct and interest them? Why not make them realize the importance of choosing and using hardware fixtures rightly? To do this, early became the working publicity and selling principle of the National Manufacturing Company.

Other manufacturers might still continue to be satisfied with loading up the dealers and seeing the stock lie idle on their shelves. Not so, however, with these far-sighted folk at Sterling. They have been the first to come direct to the carpenters and building contractors—the users of builders' hardware—to instruct and interest them in their goods.

The success of this company and its remarkable growth testify to the wisdom of this policy.

Six years after the business was started, expansion became necessary. The three-story, fireproof building shown in the central part of the illustration was then added. This "held them" for three years, when again more room was needed; and the four-story fire proof building...
A careful investigation of the remarkable qualifications of Speedwell Motor Trucks for your line of business will show them to be worthy a place in your transportation department. Its mechanical design, its abundant power, its unusual strength, has caused the Speedwell Truck to be in great demand in almost every line of business. Speedwell Trucks have proved to their owners their low cost of upkeep, their freedom from repairs, and their ability to stand the extreme punishment of continual service under the severest conditions. They are built in 4-ton and 6-ton capacities and embody all the sterling principles of Speedwell products.

We want you to write for Speedwell Truck information, stating the exact nature of work you require of a truck.

The Speedwell Motor Car Co.
610 Essex Avenue - - - Dayton, Ohio

Grocery Truck in Service in Cincinnati, Ohio

The truck illustrated above was installed by the Bruns Bros.' Grocery Company (wholesalers) in addition to present equipment of horse-drawn delivery, owing to the delivery needs of a larger business; and a comparison of the efficiency of the motor compared with the horse was made. It was found that the truck carries nearly double the load of their largest two-horse waggons and makes long trips in half the time, while on short trips with many stops the time saved is somewhat less than half.

The advantages of the Speedwell Motor Truck are fully as great in winter when exposure from cold and when icy pavements are so trying to horses.
THE PERRY WATER SYSTEM

Will pull business your way—Help you to close complete building contracts—Satisfy your customers and increase your profits.

The System that Supplies Water Fresh from the Well

THE PERRY WATER SYSTEM offers all the advantages of a city supply, with the added convenience of Hot and Cold Cistern Water for laundry and bath—and pure well water for drinking purposes.

THE PERRY WATER SYSTEM is the final solution of the water supply problem. The most valuable improvement of recent years for the country home. Keep up to date and specify the best for your clients.

The Perry Principle of getting water "Fresh from the Well," the idea of having both well and cistern water piped through the house without the use of two water storage tanks and a lot of other equipment, the fact that the engine or motor can be located wherever desired regardless of the distance to, or depth of the well, the simplicity of installation and operation, and the feature of the entire system being frost-proof, have appealed so strongly to farmers and owners of country homes, that a big demand for Perry Water Systems has been created.

We also manufacture Air Compressors, Automatic Controllers for electric motors, Automatic Circuit Breakers for gas and gasoline engines, Automatic Belt Shifters, Reducing Valves and Special Air Valves.

United Pump & Power Co.

495 Old Colony Building
CHICAGO, ILLINOIS

Write for Free Catalog

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER
HARDWOOD VENEERED DOORS

Unselected Birch and Plain Red Oak

Our plant is well equipped with the latest Machinery. Our goods cannot be excelled in workmanship or quality. We make everything in the Millwork line and will submit estimates at all times.

Write for our New Catalogue.

MOORE & GALLOWAY LUMBER CO.
FOND DU LAC, WISC.

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER
You Should Have This Handbook on Concrete Brick and Block Making

We do not mean a machinery catalog but a REAL, STANDARD TEXT BOOK on concrete. The second edition is just off the press. You cannot afford to be without the up-to-date information it gives on any of these subjects:

- The field for concrete
- Selecting materials
- How to proportion
- How to cure product
- Plant arrangement
- How to estimate
- Comparative tests
- Table of compression working values.

Just think how often you have needed information on these subjects. It has cost a lot of money and time to gather this valuable information and while we should sell this book for no small sum, we only ask you to send 10c in postage for a copy. Many have told us it is the best book published on the subject. Better send 10c for your copy right now.

Here Is Another Valuable Book on Concrete and Machinery Which We Will Mail to You FREE

This Book Tells How to Make the Big Money in Concrete

Learn about the most Profitable Products and how they are made, also learn about the patented

Helm Brick and Block Presses
80,000 lbs. Pressure - Rapid - Easy Work

Built in two sizes to fit your pocketbook and built for power or hand operation.

You will make the best pressed brick and DRY WALL blocks all on the one machine. Only one of these RAPID OPERATING machines needed to equip a plant. The strongest, simplest and most economical for you to use.

You Should Know about the HIGH GRADE product of these presses—about the plain and ornamental PRESSED BLOCK, and the DRY WALL PRESS BLOCKS. They save the cost of fauling and lathing and always make DRY buildings. There are the best selling products. Their quality and adaptability mean increased sales.

Let Our FREE Book Inform You

New Peck, Stow & Wilcox Rafter-Framing Square

Building shown in the foreground and the one-story shop at the rear were added. This was in 1910, and the company already feel the need of more space.

The location of this factory is ideal. It is on one of the principal streets of Sterling, right at the river front by the big bridge. This is the Rock River. The huge Government dam just above is now completed and the power plant will soon be installed so that very cheap power can be furnished to all the Sterling factories. The main line of the Chicago & Northwestern Railroad skirts the north side of the factory, giving the best of transportation facilities.

Space here does not permit to tell of the line of builders' hardware manufactured by the National Manufacturing Company (our readers are already familiar with several of the items, notably the ornamental hinge), nor the very interesting processes of manufacture in use by them. They have, however, a new catalog illustrating and describing all of these, which will be mailed to our readers on request.

The Simplex Nail

The accompanying illustration shows the Simplex Nail, made by the H. B. Sherman Mfg. Co., of Battle Creek, Michigan. The manufacturers claim that this nail fills a long-felt want as it combines two features in one—the one-piece idea and the large head. The very nature of roofing material demands that roofing nails, to be a success, should have a head of sufficient size. The actual area of the head of the Simplex Nail is four times that of the so-called large-headed wire nail. If roofing material were metallic or wood, it would not be necessary to use large heads, but the material being paper, a large head is essential. The manufacturers advise that the Simplex Nails are handled through various wholesale houses, and for regular use are put up 100 lbs. to a keg. Where shipped by manufacturers of roofing paper, they are put up in cans.

Valuable Booklet on Rafter Framing, Free

The P. S. & W. Co. of New York and Cleveland, makers of a line of take-down, rafter-framing and standard squares, have published a little pamphlet on the use of rafter-framing squares, which is of considerable assistance to the mechanic in getting the best results from their use.

The book is small enough to be convenient, but large enough for good type and illustrations. The back cover has an ex-
UNCLE SAM SPEAKS ANOTHER GOOD WORD FOR

"THE WOOD ETERNAL"

"THE WOOD ETERNAL"

Dept. of Agriculture, Forest Service, Bulletin 95, Page 44, issued June 30, 1911, says of Cypress:

"The properties which fit it for such wide use are the freedom of the wood from knots and other defects... and the long period which the wood may be expected to last. To this might be added handsome appearance, which frequently has much to do with popularizing a wood."

Further on CYPRESS, the same Government Report says: "The wood contains little resin and thus affords a good surface for paint, which it holds well. It is a popular wood where it is subjected to dampness and heat. It shrinks, swells or warps but little. For the parts of houses exposed to the weather it serves equally well."

Both quotations above are from Bulletin 95, (page 44) U.S. Dept. of Agr. (Forest Service), June 30, 1911.

"The Money You Don't Have to Spend on Repairs is ALL PROFIT."

When planning new improvements or repairs to old ones, just remember—"With CYPRESS you BUILD BUT ONCE."

WRITE TODAY for VOLUME ONE of the CYPRESS POCKET LIBRARY, with Full Text of OFFICIAL GOVT. REPT. Also Full List of 31 Other Volumes. (FREE on request.)

Let our "BUILDER'S DEPARTMENT" help YOU. Our entire resources are at your service with Reliable Counsel.

SOUTHERN CYPRESS MANUFACTURERS' ASSOCIATION
1216 HIBERNIA BANK BUILDING, NEW ORLEANS, LA.

INSIST ON CYPRESS AT YOUR LOCAL DEALER'S. IF HE HASN'T IT. LET US KNOW IMMEDIATELY
in logical order, with the paragraphs numbered.

The booklet has an index in which the carpenter can find the information he requires for measuring or cutting any particular timber without delay.

The pamphlet takes up first the meaning of various terms used in referring to the square or to the parts of a roof, inasmuch as there is some variation in the use of these expressions by carpenters.

It next brings out clearly the fact that conspicuously displayed upon the face of the square is a series of numbers giving all the necessary information about the lengths and cuts of the various timbers in any ordinary roof.

In order to find the right set of numbers without delay the reader is first informed that he must know the rise in inches per foot run of his roof; he then looks on the center of the body of the square for the number corresponding to this rise per foot run; thus if his rise of roof is nine inches he looks for the number nine column to the right of the figure nine.

The book then takes up in detail all of the ordinary cuts and measures employed in roof-framing, explaining just where they are to be found on the square by means of a typical example and in many cases a diagram.

The intention of the publishers is to make this pamphlet a foundation for a right understanding of the uses of the steel square.

Many carpenters have become very expert in the use of the square by "rule of thumb."

It is evident, however, that an understanding of the reason "why" in each case will enable the apprentice to learn faster and to remember longer.

Moreover, being thus versed thoroughly in the rudiments he will be able to apply the same principles to the framing of more difficult roofs, to stair-building and other problems which he meets as he becomes more proficient in his trade.

**Originators of "Compound" Doors**

It may not be generally known that the oldest veneered door concern of the United States is located at St. Joseph, Mich.—The Compound Door Company. They make nothing but the highest quality built-up veneered doors, mostly to special order. They desire to get in touch with builders who want something extra high class in hardwood doors, one of their specialties being inlaid flush doors. Their catalog contains some beautiful illustrations of these doors and is well worth having.

**Isometric Drawing Paper**

Isometric perspective of projection has never been popular because it has always been surrounded with technicalities until it seemed to be an art only to be mastered by hard study. The Norman W. Henley Publishing Company, of New York, have now, however, brought out a special isometric drawing paper, ruled vertically, horizontally and obliquely in two directions. With this paper isometric drawing is easy. Such a drawing when made is well worth while, since it will scale accurately in all three dimensions.

**Myers New Hanger and Tubular Track**

F. E. Myers & Bro., Ashland, Ohio, wish to call the attention of carpenters and builders to their "New-Way" tandem door hanger and tubular girder track. This hanger is illustrated herewith, both front and side views being shown. The side view shows very nicely the tubular track also.

It will be easily seen that this hanger is adjustable to and from building, and to raise or lower the doors. These adjustable features are patented and used only on the Myers hangers. It has hard steel rollers, machine turned,
Sharpen Tools 30 Days FREE

No promises! No red tape! No money needed! You can try this all-metal, shaft drive tool grinder, with its Dimo-Grit (artificial diamond grit) wheels for 30 days absolutely free, and without putting yourself under any obligations. You can put all your tools in bright, shiny, keen condition, and you will be amazed how quickly and easily you can do it. You can sharpen your chisels, twist drills, draw knives, hatchets, augers—gum your saws and put a keen edge on every tool—all at no cost. Use the outfit 30 days—then if you want to part with it, send it back at my expense.

Dimo-Grit—"the Wheel for Steel"—25 times faster than the grind stone—10 times more efficient than Emery—No danger of drawing temper, nor need of cooling with water.

Dimo-Grit is the new artificial diamond abrasive, a twin product of carborundum you have heard so much about, but Dimo-Grit is especially adapted to steel, leaving the keenest, smoothest edge. Dimo-Grit cuts hardest steel as easy as emery does copper. The Dimo-Grit wheels of this grinder, turning 4000 revolutions per minute, make the hardest job of grinding but a few minutes easy work. Prove it by trying this outfit on your own tools 30 days free. Dimo-Grit crystals are really artificial diamonds as hard as real diamonds, fused in the marvelously hot electrical furnaces at Niagara Falls in which fire brick and metal melts like bees-wax and is vaporized like water in a kettle. Genuine South African diamonds could cut steel no quicker than Dimo-Grit. Carborundum wheels furnished if wanted.

Luther Hummer Tool Grinder
Mechanic's Outfit Consists of Machine and 16 attachments—16 other attachments from which you can select what you want

No machine ever built is like the "Hummer"—it is all steel and iron—nothing to wear out—steel shaft drive like automobile—ball bearing, dust proof bearing. Costs no more than cheap chain drive grinders. Runs as easy by foot as a sewing machine—engine power can be applied. The 14 mechanical attachments equip you for all kinds of sharpening, buffing and polishing. From the other attachments, such as jig-saw, rip-saw, lathe, drill, etc., you can select what you want. No other machine so moderate in price saves money so many different ways. You can prove it by 30 days free trial, 6 years guarantee. Over half a million Luther Grinders now in use.

The Wonderful Way the Grinder Saves Time and Money.

This grinder, because it makes tool sharpening so easy, enables you to keep your tools always in perfect edge, making all your work go twenty per cent faster and easier.

These patent tool rests enable an apprentice boy to sharpen twist drills, gum saws, etc., and do it exactly as well as a high-priced mechanic.

Dimo-Grit wheels do not draw temper—makes your tools last twenty-five per cent longer. This mechanic's outfit enables you to do all grinding, buffing, polishing, sharpening, lathe work, tool making, blacksmithing, wood-working, sheet-metal work, all at no cost. Use the outfit 30 days—then if you want to part with it, send it back at my expense.

Dimo Grit—Sharpening Stones
Ask your dealer for DIMO-GRIT sharpening stones, the fastest and smoothest cutting sharpening stones in the market—look for the name "DIMO-GRIT" on the stone.

What Others Say

Most Practical Grinder Made I received the grinder the 18th of April. I am highly satisfied with it. I consider it the best and most practical all-purpose machine I have ever used. I wish to write you with regard to my grinder. I am well pleased with it. It is the best grinder we have around here.

E. N. Earles, Bealsville, Ohio

What Neighbors Say

I received your grinder a few days ago, and it more than comes up to expectations. I am pleased with it. It does everything you claim for it and more, too. I have shown it to my neighbors, and they say it is one of the finest things they ever saw.

Lew Knuston, Leland, Ill.

Obtains Keen Cutting Edge Your machine reached me in due time in good shape, and as represented. I am pleased with it. It does everything you claim for it, and I am pleased with it. It does everything you claim for it, and I have a great many tools that require a very sharp edge, and I can obtain the keenest edge through using one of your machines. I enjoy good tools and have as many of them about me as possible.

E. R. Weesner, New Castle, Ind.

Return this Coupon for Free Trial Offer and Free Book

Send the coupon for full particulars about our 30 days Free Trial Offer—then decide if you would like to have us send this wonderful labor-saving tool for 30 days free trial, absolutely without the slightest risk or obligation on your part. Please remember that the coupon places you under no obligation—whatever you request for information. Send for our Free Trial Offer today and get a quick answer. With the Free Trial Offer we will send the 40-page book.

Luther Grinder Mfg. Co.
305 Michigan St.
MILWAUKEE, WIS.

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER
WIN NEXT $1200

TEN PEOPLE GET $40,000

They Tell You How to Win

LISTEN! Stoneman (Neb., photographer) actually received $1200 one month, $31.50 in 15 minutes, $800 in 11 days; Korstad (Minn., solicitor) $212 in 2 weeks; Sevigne (N. Y. telegrapher) $100 daily. Not a fairy tale, almost automatically, but proven absolutely true by sworn statements.

Government Patronage

Statesmen, judges, bankers, world's famed institutions, local references.

Costs Nothing to investigate. This gigantic, money-making contest no longer controlled a few—now open to any honest, industrious man or woman. Big money made by Mechanics, Clerks, Farmers, teachers, doctors, lawyers, people from all walks of life. Experience, capital, business training unnecessary. You can own, operate and control same private enterprise that brought Wilson (banker) $3000 in 30 days; Rasp (agent) $1685 in 73 days; Oviatt (minister) $4000; Rogers (surveyor) $2800; Juell (clerk) $6800; Hoard (doctor) $2800; Hart (farmer) $5000; Schleicher (minister) $195 first 12 hours. M. Juell, $5000; Schleicher (minister) $4000.

$195 first 12 hours.

Hundreds sharing similar prosperity—banking money, buying homes, automobiles. Don't wonder. Same appointment should mean same money for you same power, prominence, distinction, respect, influence. Rise to big earnings, wage freedom, ownership and private monopoly. Knowing the reason dispels all doubt. Wonderful, but true.

Strange Invention

Gives every home a bath room for only $6.50 excels others costing $200. Abolishes tubs, bowls, buckets, wash rags, sponges. Turns any room into a bath room with hot or cold running water. Think of it! So energizes water, one gallon ample, cleanses almost automatically; no plumbing, no waterworks; self-heating. Gives cleansing, friction, massage and shower baths. So simple child can operate, truly marvelous. A modern home-bathing without drudgery, inconvenience, muss of lugging water, filling, emptying, cleaning, putting away. Could anything be more popular! Think of millions who want bath rooms! At sight people exclaim: "There, there, that's what I've been longing for." Little wonder. Wilson sold 102 in 14 days; Hart, 16 in 3 hours. Think what you could do.

"SEE IT ENERGIZE"

Come—fall in line—make a fortune. Don't let another get there first. Your chance now to secure exclusive sale. Devote all or spare time. Means phenomenal earnings, no competition, fascinating, high-grade business. Credit given active distributors. SEND NO MONEY—investigate first. Send today for remarkable offer, it's valuable but free.

ALLEN MFG. CO., 3442 ALLEN BLDG. TOLEDO, O.

which revolve on hard steel roller bearings. This hanger has what is called a flexible engine track.

The Myers people lay special emphasis on the "New-Way" tubular girder track. It is made of high carbon steel with two flanges turning downward at the lower edge, making the truss or girder which stiffen the track, enabling it to carry a much heavier load than any other style tubular track. In addition to this, there is no possible chance for dirt to lodge on the inner side of the track.

We are informed that this style hanger and track is coming rapidly into popular favor. Large quantities of them are being sold both in this and foreign countries. An interesting booklet describing this line will be sent to you on request.

Why Asbestos Roofing has Become so Popular

The satisfactory result of building construction is dependant to a great degree upon wearing, fire and water proof qualities and up-keep of roofing. The selection of a roofing which will not be too expensive in price, and yet wear for years without painting or graveling and furnish absolute protection against fire and climatic conditions, has always been a study of considerable moment to engineers and contractors. The list of roofing materials manufactured to-day is a long one, and some of them embrace excellent features. Men experienced in roofing problems look upon asbestos roofing as a natural protection against all destructive elements because it is made of a natural mineral that has already proved to be practically indestructible by not being injured by exposure to the elements for centuries; and the wearing and elastic qualities of the material are not deteriorated in processes of manufacture, or preparation for roofing uses.

The H. W. Johns-Manville Co., of New York, has the question and problem of asbestos roofing down to a science. Behind "J-M" Asbestos Roofing lies the prestige and experience of a corporation that has been linked to domestic and foreign industry for more than a quarter of a century.

The asbestos used in these roofings is procured in mines...
If You are Tired Being
a Hard Working
Carpenter or Builder
then Make Yourself the
Highest Grade and Highest
Priced Man in Your Place

To do this you must be a good Draftsman, not one of those "would be" ones, no, but a first-class man, with actual, practical drafting room experience.

It will pay you well to learn this right from a practical man with twenty years' experience who will instruct you personally —individually on high-class architectural drawing, complete building designing and detailing in all branches;

Who will qualify you at home in a few months to double your earning capacity

Don't waste time and money trying to learn from books or printed lessons made for all alike, the same as patent medicine; you can only learn this right on practical work from a practical man.

Free This Month A high-grade Complete Drawing Outfit, including a $13.85 Set of German Silver Tools.

If you want to be the "BEST MAN" write me to-day. Address—

Chief Draftsman
Div. 17. Eng's Equip't Co. (Inc.) Chicago
owned by the Johns-Manville Co., at Danville, P. Q., and the fibre is specially prepared by their own experts and by their own particular process.

According to the "J-M" process several layers or sheets of asbestos felt are cemented together with genuine Trinidad Lake asphalt. This makes an all-mineral roofing that is shown to be practically as permanent as the brick walls or any other inorganic part of a building by the fact that it is still in good condition in many buildings after more than a quarter century of service.

Fire cannot get through an asbestos roof from the surface: and from underneath, only after the sheathing boards and timbers have burned away and allowed them to fall, the roofing being carried with them. The saturated and cementing oils cannot be drawn from "J-M" asbestos roofing by the heat of the sun, therefore it retains the waterproofing oils indefinitely. In the test which was recently made, the intense flame of a blow-torch was held on a piece of this roofing for nearly an hour without burning or injuring the roofing any more than to blacken it.

Owing to the increasing demand for a cool roof, the white surface "J-M" asbestos roof is especially valuable where comparatively low summer temperatures are desired on the inside of the building. An actual test made at a large Cleveland, Ohio, clothing factory in the summer of 1908, showed a difference of eighteen degrees between a black and a white surface roof, the thermometers being suspended four feet below the under side of the roof.

A Machine-Shop on Wheels
With the advent of the "Famous" Portable Woodworker, more opportunity is presented for the contractor to do his own millwork and to save the time and inconvenience accordingly.

This machine, which is really a combination of seven or eight ordinary woodworking machines, is mounted on skids, or a wheeled truck, and can be moved from place to place without any trouble whatever. It is equipped with its own power plant—a three-horse power gasoline engine, together with batteries and all necessary belting.

"Famous" Portable Woodworker

The advantages of such a machine can hardly be realized by a description in cold type. The bare fact of one machine performing the work of seven or eight is remarkable enough; when it can be taken around from job to job, wherever the work is, the achievement becomes all the more wonderful.

The Sidney Tool Co., of Sidney, Ohio, are the builders of this latest woodworking marvel. This company is the pioneer builder of Universal Woodworkers, having over eight hundred of their "Famous" machines already in use. They will send full particulars of their portable woodworker to anyone interested.

WHAT GOOD REASON HAVE YOU FOR NOT USING A TRUCK IN YOUR BUSINESS?

Just a moment, Mr. Contractor or Builder! We want to KNOW, and we think we have the right to know, why YOU have never considered the great possibilities of a motor Truck in your business—

for hauling your lumber, cement, stone, brick, lime, or any other kind of material or heavy hardware.

Probably you've never been told or had occasion to figure it out for yourself, how much time, labor and MONEY could be actually saved by the use of a truck. Undoubtedly you did not know that in six months' time a hard-working motor truck would easily pay for itself and for the three extra men you had been paying at least $2 a day to.

The Schacht 3 to 4 Ton Truck
will be the biggest paying proposition you ever invested your money in and it can SHOW YOU! With it you will be able to handle twice the work you are handling with teams and wagons. More trips—five to one—can be made with the SCHACHT; more material carried; more satisfaction given everyone of your buyers and more profit naturally will follow this additional business and that means a greater success.

With the SCHACHT 3 to 4 Ton Truck you have an unerring, work-all-the-time employee that costs materially less to handle than your horses, requires practically no attention, is far less trouble and care than two or three horses, is much more powerful and dependable, don't grow old and worn out, will carry the heaviest loads to the farthest suburb or section of town in any kind of weather—good or bad—and one man can run the SCHACHT at a salary of $2 per day and do much more work than your three teams and drivers could, although each one of them was costing you from $1.75 to $2 a day.

And, of course, this does not include feed for horses.

The SCHACHT is built especially for heavy duty service. There's no load it can't safely deliver quicker than teams. It is powerfully constructed—a forty horse-power strength that's ready to work for you all the time—that is SCHACHT SATISFACTION.

If you are interested, please write us and request further information and catalog.
THE SHARP ROTARY ASH RECEIVER
Installed by DELAWARE, LACKAWANNA & WESTERN R. R. in stations, in office buildings by BELL TELEPHONE CO. and others, in homes of prominent people everywhere.

Most valuable acquisition to house construcion in recent years. Idea easily grasped from illustrations. Value must appeal to every intelligent person. Eliminates ash and garbage nuisance, absolutely effective. Lessens fire risk. Safely disposes of ash dust, bad odors and germs from garbage. Cares for several month's accumulation.

A GARBAGE DISPOSAL PLANT for every kind of building. Easily installed before or after placing heater. No conditions prohibit installation. Satisfaction guaranteed. Requires no salesmanship but returns a larger commission than anything else. Get in Line. Write for Special Agency Proposition.

The W. M. SHARP CO. - 500 Park Av., Binghamton, N. Y.

MR. CARPENTER AND JOINER:
There is absolutely no necessity to spend one minute figuring with your square to get the desired angle of ANY CUT. SAVE TIME, LABOR and BRAIN WORK, and make any one of 390 different cuts instantly without use of your square by using

REISSMANN'S RAFTER AND POLYGON GAUGE

By its use you can obtain ANY DESIRED ANGLE, pitch, bevel, mitre or side cut for rafters, planiers, moulding, sheeting or shingles INSTANTLY and with MINUTE ACCURACY. It is the most useful and indispensable tool to every mechanic connected with the building industry. The Gauge is made of metal and is practically indestructible. Size, 10 x 13 inches.

PRICE POSTPAID, ONE DOLLAR
ADDRESS ALL ORDERS TO
WILLIAM BREMER COMPANY
Box N., JAMAICA, NEW YORK

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER
IT'S SO EASY TO TAKE ORDERS FOR MY HOT WATER HEATING PLANTS

Since I began this series of advertisements to the contractors, which by the way was co-incident with a general advertising campaign I have been conducting to get agents all over the country to sell our Hot Water Heating Plants and other equipment for modernizing the home, I have been really surprised at the large number of orders that have come in through these agents. In many cases these agents have gotten, without any apparent trouble, a 10 or 15 per cent commission on top of our regular selling prices, and done this in localities that are generally considered competition this as an indication of the wide spread popularity of the Andrews Systems, the merits of each being so well known that many will insist upon an Andrews, and will positively accept no other. This is the thing that gives me the most pleasure because Repeat Orders Come Easy

under these conditions, and every time you take an order you can rest assured that this plant is going to plug for you long after you have forgotten the sale. The best evidence of this lies in the fact that we are users of the largest magazine space in such mediums as the Ladies Home Journal, and Saturday Evening Post for the advertising of heating plants, all of which advertising pays, and yet every year we get more business through the recommendation of users of our systems than from any other one source.

This Army of Users Will Work for You

and not cost you a cent, if you will only put yourself in position to take orders for those equipments. You are relieved of all responsibility of guaranteeing the plants; as each equipment is sold on 360 days' free trial backed by a bond.

A complete Andrews plant (vertical boiler) ready to ship. We pay the freight. This plant complete for 7-room house $239.00

Identify Yourself With a Growing Concern

One of the best investments that you can make in a business way is to associate yourself with a growing and established concern by recommending and using advertised goods of a national reputation. By recommending the Andrews equipments to your customers you not only show that you are abreast of the times, but your own good judgment inspires confidence in you and that, after all, is what we all want, because confidence is the basis of all trade.

Everything to Modernize the Home

is included in our stocks—Heating, Plumbing, Water Supply, Sewage Disposal and Gas Lighting Systems. Each built to order and shipped "knocked down" direct from "factory to your customer." Big outfit, one small profit on each makes it possible for us to sell your customer an equipment, which for actual efficiency, satisfaction, durability, and beauty of design, would cost 1-3 to 1-2 times as much in competitive"门店.

Manufacturing Company

In order to identify their tools the Simmons Hardware Company, through an extensive advertising campaign, advertised extensively throughout the United States, and manufactured then by the Parsons Manufacturing Company. This company, through extensive advertising, showed from the orders they received that the tool met with the approval of the carpenters, but for financial reasons they were not able to make good and fill the large number of orders they received.

The present company, known as The Parsons Tool Manufacturing Company, acquired the patents covering this handy tool the 16th of October, filed papers for incorporation on the 20th, and are equipping an up-to-date plant for the making of this tool and will be ready to fill orders after Dec. 1, 1911.

We have been informed that some parties who ordered this tool failed to receive them; and if any of our readers are of this number this new company will be glad to hear from them, giving date of their order and such other information as will be necessary in tracing same.

The Pocket Miter Box, as its name indicates, can be carried in the apron pocket and used on a scaffold or on a ladder with ease and saving of time. You will also find it very handy and accurate in putting down base boards, base mouldings, shoe mould, quarter round or cutting flooring, as you can take the tool with you and make the cuts necessary without taking your stick to a bench to cut in a long miter box. It is made of aluminum and weighs about 8 oz.

By Dec. 1st, The Parsons Tool Manufacturing Co., Parsons, Kans., will have a thousand or more on hand and will be able to fill orders upon day received.

The Measure of Merit

The average tool is like the average man. No one can tell its worth until it has proved itself. No one can tell whether its edge will stay sharp, firm and true when a hard knock comes, or whether it will nick or twist.

The man who values all tools by the same standard, and buys average tools over and over again, loses money that he could save by exercising a little care. In the old days he had no protection and had to buy his tools on faith.

There is a way, however, to judge a tool before it is used. For more than forty years, there has been a line of tools so good and so fine in quality, that every one is guaranteed by the makers, the Simmons Hardware Company of St. Louis, to meet every requirement and give the best of wear, or any piece will be replaced without cost to the owner.

In order to identify their tools the Simmons Hardware Company brand them with the Keen Kutter trade mark, known in all parts of the world as the mark of efficiency and quality. When a workman of any kind, or a farmer, sees that trade mark, he knows that the tool that bears it will more than meet his expectations. He knows that
Brings the
Biggest
Dividends
to Any
Carpenter
or Builder

The International Auto Wagon is the most practical commercial vehicle you can buy. It will do all your light hauling in less time and at less cost than a horse-drawn vehicle. With it you can do all your necessary running around in one-third the time.

If you are a carpenter, contractor, or builder, you know from experience that tools, finishings, and working material must be on hand just when they are needed—or money is lost. With an

International Auto Wagon

there will be no delays—no unprofitable holdbacks.

Two trips after material can be made in the time required to make one with the horse-drawn wagon. This means both time and money saved.

The International Auto Wagon has solid rubber tires (no delays due to punctures), sufficiently high wheels for perfect clearance, and an air-cooled engine that can't freeze in cold weather. There are many other features that help to make it the most practical car for commercial purposes.

Why not find out more about the International Auto Wagon? Write for catalogue and further information.

International Harvester Company of America
(Incorporated)


"I took in $8,540 in 16 months from three Box Ball Alleys"—Says one operator.

Another $1,840 first 59 days on 4 Alleys

Start this wonderful business in your town now. These alleys usually run $35.00 to $75.00 per week. Many take in all they cost first month. Will pay big anywhere.

A clean, moral business, attracting patronage from good people. Nearly 8,000 sold.

The New Model Alley has full size ten pins—automatic, noiseless—set them on any floor. No trouble to install. Nearly all profit. No expense but room rent.

You can start with from $120.00 to $400.00. If not satisfied after month trial, return alleys, and we refund your money less your receipts during month.

We sell only one customer in each locality. Write today for special proposition.

American Box Ball Company

962 Van Buren Street

INDIANAPOLIS, IND.

OUR SPECIALTIES
Interior Columns and Consols

Established Twenty Years
Catalog (FREE) if you ask for it.

A piece of Grille work a Colonnade or Consol adds to the beauty of a dwelling, makes it worth more to you if you live in it, and increases the selling value.

Compare our prices with others before mailing your order. If you will do so, we are sure to get the order.

Chicago Grille Works

828-838 Wells Street

CHICAGO, ILL.

Mr. Contractor
and Builder

Why not equip the home or other building you are erecting with

Acetylene Lighting?

You can greatly increase your income by selling Davis Acetylene Lighting Plants, for new buildings, and during dull seasons for buildings already erected.

Write us for cost of equipping a building and for our terms as dealers.

Davis Acetylene Company

90 Crawford St., Elkhart, Ind.
any edged or handled tool, or any piece of cutlery that is marked Keen Kutter is the best his money will buy. The man who uses a Keen Kutter axe knows that the handle is put in to stay, because it is held fast by the Grelner everlasting lock wedge. He knows that that axe is balanced with absolute correctness, and that the "hang" is perfect. He knows that his Keen Kutter axe will hold its edge and cut true and deep. So it is with his Keen Kutter hatchet or hammer, chisels, draw knife or planes. He knows that he can get the very limit of service out of any Keen Kutter tool from a lawn mower to a pocket knife.

Every Keen Kutter tool, of any kind, is thoroughly tested before the Keen Kutter trade mark is stamped upon it, and if it is not just what it ought to be in quality it is destroyed. This is done for your protection and their own. If Keen Kutter tools were turned out hit or miss, they could not hold their customers and sell the same firms year in and year out.

Suppose you bought three chisels before you struck one that would do all you required of it. You would pay three prices for one tool, and have two useless tools on your hands. If the chisel were a Keen Kutter you could trade it back for another without cost to you, and keep on doing it until you struck the right one. That is a guarantee that really guarantees something definite.

Suppose you paid a few cents more for your Keen Kutter chisel. The difference in quality would more than repay you, and you would only pay for one chisel, once.

Keen Kutter tools and cutlery are recognized as the finest made, in almost every hardware store, as is the famous Keen Kutter guarantee. But if your dealer does not carry them, you ought to write at once to the Simmons Hardware Company, St. Louis, Mo., and they will see that you get what you want.

"Picture Book" of Roth Motors
Roth Brothers & Company, Chicago, Ill, manufacturers of motors and generators, have ready for distribution an attractive "Picture Book" containing over forty views of Roth motors applied to various machines. Brief description accompany each illustration. Write for your copy.

New York Passes Law Compelling Use of Fireproof Booths for Picture Machines
The State of New York has followed the lead of Massachusetts, New Hampshire, Pennsylvania, Maine, Vermont, Connecticut and Rhode Island by enacting laws compelling the use of a fireproof booth or enclosure around moving picture machines. This is to do away with the possibility of fire in case the highly inflammable celluloid film used catches fire.

This law, effective July 24th, 1911, reads as follows:
"No cinematograph or any other apparatus for projecting moving pictures, which apparatus uses combustible films of more than ten inches in length, shall be set up for use or used in any building place of public assemblage or entertainment, unless such apparatus for the projecting of moving pictures shall be enclosed therein in a booth or inclosure constructed of iron framework covered or lined with asbestos board, or with some equally strong and fire resisting material, and unless such booth shall have been constructed as provided in Section 210 of this article and the certificate in section 211 of this article shall have been issued to the owner or lessee of the premises wherein such booth is situated."

One of the first to see the need of this protection for moving picture machines and films and to build booths to conform to the requirements of the insurance authorities and inspection departments of the States which passed such laws was the H. W. Johns-Manville Co., New York, whose booths have
Asbestos "Century" Shingles

"The Roof that Outlives the Building"

The time to think about the durability of your client's roof is before you put it on—not after the repair bills begin to bother him.

Look over all the roofings in the market.
You'll find that only one is truly permanent—Asbestos "Century" Shingles, made of reinforced concrete.
Asbestos "Century" Shingles are protected by basic patents. They are the only practical roofing made of reinforced concrete in the world today.
You can get Asbestos "Century" Shingles in shapes to suit any architectural style—in several sizes—and in three colors; Newport Gray (silver gray), Slate (blue black), and Indian Red.

Send for quotations, and booklet "Everlasting 1911".

The Keasbey & Mattison Company, Factors
Ambler, Pennsylvania
Branch Offices in Principal Cities of the United States

Be the Man Who Gives Orders

Don't forever be at the beck and call of some petty, tyrannical "boss." It is every American's right to be independent. ... the effort to better your position But you must have special and individual preparation to rise above the rank and file. You offer your an opportunity to become the man who gives orders. To carpenters, bricklayers, and all men in building trades, we offer a short but complete course in DRAFTING.

Estimating, Plan Reading, etc.
BY MAIL

You know the advantages of being able to read plans and to estimate, and the opportunities for promotion and prosperity that come to those with that ability. ... you have had previous training in practical lessons. The lessons are sent by mail and are practical and simple to learn from.

If you are a bricklayer, mason, carpenter or builder, you need this course—it will bring you higher wages. If you are a foreman or superintendent, you need this course—it will help you to figure contracts. If you are a contractor, you need this course—it will help you to figure contracts. It will eliminate mistakes and increase your profits.

The lessons are approved by experienced Chicago architects. We have partial courses to fit your individual need. If you have had previous experience. Start where you are. Don't say you haven't the time—take it. Don't say you haven't the money—save it as you study. Determine now whether you will advance in salary and position or let other men go ahead of you. Send for free folder, now.

CHICAGO TECHNICAL COLLEGE
501 ATHENAEUM BUILDING. CHICAGO, ILLINOIS

This Engine Saves You 3 Men's Pay
15-Day Free Trial to Prove It

PUT the wonderful Perfection portable kerosene engine in your shop—the difference in your pay-roll will soon cover its cost. Never gets sick, discontented or restless—just plugs away day in and day out doing the work of three men with never a complaint. Does a hundred things about the place quicker and better than manual labor could do them.

Perfection Portable Kerosene Engine

is the simplest, most compact engine made. That's because it's built by skilled automobile men, with years of engine experience. And the principle is right. The kerosene is drawn in a light film through the carburetor, vaporized and having the same energy as gasoline. And kerosine is from 6 to 16 cents cheaper than gasoline. The Perfection works equally well with gasoline, distillate or naphtha. Call on your nearest dealer today—let him explain our great 15-day free trial offer or write us direct for our big free engine book. Sizes and types to suit every purpose.

FREE Advice on Power Problems

If you're in doubt about the quantity of power you can use profitably, or the kind of engine to buy, write your questions on a post-card and mail it to our Chief Consulting Engineer. He will give you an absolutely without charge or obligation to you, unprejudiced advice about your problems that may mean a big saving to you. Learn how easy it is to make a cheap transmission layout that will help you to run several machines at once with a single engine. Write today to

Chief Consulting Engineer,
Caille Perfection Motor Company
232 Second Avenue, Detroit, Mich.
The Carpenter's Greatest Aid to Smooth and Rapid Work

Carborundum Sharpening Stones

Just go to your hardware dealer, or write us direct for one of these wonderful sharpening stones—then begin your day's work by sharpening your plane bits, chisels, or other edge tools—note how quickly and easily the Carborundum stone brings the tool to an edge, it cuts the edge on—doesn't merely rub it on—gives an edge that will stay keen and smooth longer. Carborundum stones are always clean and free cutting, they don't fill or glaze. You can get them in any grit, shape, or size; their use means better conditioned tools—better work.

Carborundum Round Combination Bench Stone, No. 107 - - - $1.00
Carborundum Oblong Stone, No. 108 - - - 1.25
Carborundum Pocket Stone, No. 149 - - - 25

From your hardware man or direct.

The Carborundum Company
NIAGARA FALLS, N. Y.
Branch in London, England

been tested also and approved by the New York City building department. These booths are known in the trade as "J-M Transite Asbestos Wood Booths."

The framework of these booths is of heavy angle irons or tees on which the asbestos wood panels are mounted, and when set up, the booth can be painted and decorated in keeping with any style of interior finish.

These booths are made in two styles, stationary and semi-portable. The permanent or stationary booth is shipped "knocked down" and is provided with a door and window shutters, which close automatically in case of fire. Also, when desired a complete ventilating system can be furnished for this booth, including galvanized iron pipe flues and an exhaust fan. In the semi-portable booths, the asbestos wood panels forming the walls and roof are interchangeable, and are marked so that the booth can easily be set up in an hour's time by any carpenter.

This concern also make a portable tent booth, which consists of an asbestos cloth covering in three pieces, forming the top, sides and flooring, over an iron pipe framework. The cloth, which resembles heavy cotton duck, is made wholly of asbestos, and is furnished plain or painted, or sized and tinted like asbestos fire curtains. A hinged trap affording
A six inch lap is better than a three inch lap. It gives better protection against leaks and permits nailing down on the under sheet only, so that no and bends appear on the surface. Otherwise this is the same Granite Roofing that we have sold for 26 years for use on great factories. It is immune from damage by coal smoke or cinders, and it has a sea grit surface which makes painting entirely needless. Behind it is a reputation that has Passed the Quarter Century Mark.

EASTERN GRANITE ROOFING CO.
19 Battery Place, New York
Pittsburgh

Our Improved Union Mitre Box

We claim and believe has many important advantages over any box manufactured. This space is too expensive for us to describe the many features that will appeal to you so strongly.

Dosch Mfg. Co.
BRIDGEPORT
CONN.

Hupmobile Long-Stroke "32" Five Passenger Touring Car—$900

F. O. B. Detroit, including equipment of windshield, gas lamps and generator, oil lamps, tools and horn. Three speeds forward and reverse; sliding gears. Four cylinder motor, \( \frac{3}{4} \) inch bore by \( \frac{5}{4} \) inch stroke. Bosch magneto. 104-inch wheelbase. 35\%2\% inch tires. Color—standard Hupmobile blue.

The new touring car will be first exhibited at the Grand Central Palace, New York, Jan. 10-17; and subsequently at the principal automobile shows throughout the country.

A totally new idea of what you ought to get for $900

A new and larger Hupmobile which immediately thrusts upon your attention a score of tangible superiorities which set it in a class apart from cars of its price.

A passenger Touring Car for $900 which rejects every characteristic of commonplace construction; and makes clear its invasion of the field above that price; by points of difference and departure which no motorist can mistake. Evolved out of the experience which has built thousands of the Hupmobile Runabout—the quality car today, as it always has been, of the runabout class.

Designed by E. A. Nelson, Chief Engineer of the Hupp Motor Car Company since its inception, and designer of the original Hupmobile Runabout. To him and the skilled shop organization which he has continuously maintained, we owe the inimitable lines, the marked simplicity, the efficiency and the high quality of workmanship incorporated in the Runabout.

Impressed with the same strong individuality as the Runabout; and still further removed from comparison by:

First, the small-bore, long-stroke motor. Second, the body design and construction which attains the purpose of the "underslung" and avoids all of its disadvantages; and Third, the Americanization, after close study abroad, of invaluable engineering principles entirely new to this country.

These highly specialized features speak so plainly of greater structural soundness; more progressive engineering principles; and costlier and more careful shop practice; that it is obvious they proclaim a product without precedent at the price:

Small-bore, long-stroke motor—\( \frac{3}{4} \) x \( \frac{5}{4} \) inches—60 per cent more pulling power for mountain work and heavy roads; 4 to 50 miles of speed; ability to pick up quickly without feeling the weight of the car, or throttle instantly to a walking gait.

Unit power plant. Cylinders cast en bloc, with three bearing crankshaft (found only in other cars selling upward of \$2,500) instead of two. Bearings extra large, having bronze back, babbit lined. Valves enclosed by pressed steel cover, keeping oil in and dirt out—noiseless, minimum wear, minimum adjustment.

Thirteen-inch multiple disc clutch, action positive, smooth and easy.

Transmission gears of 40 H. P. size, run slowly and quietly.

Full floating rear axle, amply strong for a seven-passenger car.

Aluminum crank and gear case; drawn steel used in parts where lightness and strength are requisite.

HUPP MOTOR CAR CO., 1255 Jefferson Ave., Detroit, Mich.

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER
A Universal Woodworker

In the woodworking shop of every progressive carpenter, contractor, builder or retail lumberman, will be found a Universal woodworker. This machine will directly produce a revenue sufficient to make it pay for itself in a short time, and in addition enables the progressive owner to turn out just what he needs, and when he needs it; keep his men busy in bad weather and off seasons and increase his business by making it possible to take his contracts at a lower figure than his competitors who still depend upon the planing mill.

J. A. Fay & Egan Co., after a careful and exhaustive study of the needs of this class of trade have designed a universal woodworker especially to meet the requirements. This machine is shown on this page and will be found especially meritorious carpenters, contractors, builders and retail lumbermen because of its simplicity. The manufacturer's chief aim in the construction of this machine was simplicity of construction so that any ordinary employee could operate it.

This is undoubtedly a great machine where one machine is required to do a large variety of work. In fact, the work that may be accomplished by this machine is practically unlimited. It will plane out of wind, surface straight or tapering, rabber door frames, rabbit and face inside blinds; joint, bevel, gain, chamfer, plow; make glue joints, square up posts, table legs, newels; raise panels, either square, bevel or ogee; stick beads; work circular mouldings, etc., rip, cross-cut, tenon, bore, route, rabbit, joint and head window blinds; work edge mouldings, etc. In fact, its name, "Universal Woodworker," well describes its uses, and it will be found a whole workshop in itself.

A machine of this kind well fills the requirements of the term "efficient," as it seldom stands idle; for when through with one task it can be instantly changed to do something else.

The manufacturers, J. A. Fay & Egan Co., 545-565 W. Front St., Cincinnati, Ohio, have just issued a handsome booklet, containing two large photographs and full description of this machine, together with a number of illustrations of the work done on it, which can be obtained free on request and will prove of great interest.

STANLEY'S No. 160 Ornamental Surface Butt

Time and Labor Saved and the Owner Satisfied

With these Butts it is not necessary to mortise the door, as the ornamental leaf screws on the surface.

The Butts can be changed to either right or left hand by simply unscrewing the slotted tip and reversing the pin. A screw driver is enclosed with each box that fits the slot in the tip, and can afterwards be fastened on your key ring.

Write us for a Handsome Booklet of Wrought Steel Hardware

THE STANLEY WORKS NEW YORK NEW BRITAIN CONN. CHICAGO

J. A. Fay & Egan Co., after a careful and exhaustive study of the needs of this class of trade have designed a universal woodworker especially to meet the requirements. This machine is shown on this page and will be found especially meritorious among carpenters, contractors, builders and retail lumbermen because of its simplicity. The manufacturer's chief aim in the construction of this machine was simplicity of construction so that any ordinary employee could operate it.

This is undoubtedly a great machine where one machine is required to do a large variety of work. In fact, the work that may be accomplished by this machine is practically unlimited. It will plane out of wind, surface straight or tapering, rabbit door frames, rabbit and face inside blinds; joint, bevel, gain, chamfer, plow; make glue joints, square up posts, table legs, newels; raise panels, either square, bevel or ogee; stick beads; work circular mouldings, etc., rip, cross-cut, tenon, bore, route, rabbit, joint and head window blinds; work edge mouldings, etc. In fact, its name, "Universal Woodworker," well describes its uses, and it will be found a whole workshop in itself.

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Have You Had Your Sample?

There is a free sample of Utility Wall Board and a handsomely illustrated book of interior designs waiting for every reader of the American Carpenter and Builder.

If you haven't had yours

Write for It Today!

Ten thousand carpenters and builders all over the country are using Utility Wall Board regularly—They are making more money—Their work is easier and their customers are better pleased as a result.

Utility Wall Board is extremely tough and durable—Takes the place of lath and plaster—Is easy to put up and makes a wonderfully attractive wall or ceiling when it is up. Positively moisture-proof—Will not shrink or warp—Lasts as long as the house does.

Every carpenter and builder needs it every day of his life.

Write today for your sample.

THE HEPPEs COMPANY
4503 Fillmore Street Chicago, Illinois
Let us help you

We have prepared a folder showing successful color schemes and fashions and colors for 1911 which we will send free to any builder, contractor or carpenter.

It gives an idea of the handsome effects received by using

Lowe Brothers
HIGH STANDARD
Liquid Paint

and other products. Try "High Standard" and demonstrate its economy. Practical tests show it covers more square feet to the gallon and wears longer—hence is most economical. Forty years on the market. See our nearest dealer about the supply.

The Lowe Brothers Co.
450-452 E. Third Street, DAYTON, OHIO

CARPENTERS

In the booklet "Simonds Guide for Carpenters" you are told some of the true facts about the very high quality of Simonds Hand Saws. Made of Simonds Steel. You are also given a mass of useful Carpenter's information.

Simonds Mfg. Co.  FITCHBURG, MASS.

THE DENNIS "CLINCHER" FELT WEATHER STRIP

Specifying the W. J. Dennis Clincher Felt Weather Strip

If You Want the Best Made

NOTE—NAIL PASSES THROUGH BOTH MOULDING AND FELT.

Manufactured only by W. J. Dennis & Co. - 2226 W. Lake St., Chicago
Free Sample to any address for your Hardware dealers' name.

“Red Devil” Chain Drill

New appliances and devices for lightening and simplifying hand labor keep on the increase.

Drilling attachments for hand braces are not new. Many of these attachments have been put on the market and some of them have met with some success; but the majority of them have been dismal failures.

The Smith & Hemenway Co., No. 150-152 Chambers St., N. Y., are putting on the market the "Red Devil" Chain Drill for use with a bit brace, as shown in the illustration.

This attachment is so compact, simple and practical that it has met with instantaneous success, and has been highly commended by several hundred master mechanics who have used it during the past year.

The "Red Devil" Chain Drill is an attachment to be used wherever pressure is required, as in drilling steel or iron girders, iron tanks and cylinders, slate, stone, marble, etc.

It consists of an iron yoke with a ball-bearing journal through which a threaded steel spindle works. A "Giant" Chuck with alligator jaws for round or square shank drills is fitted to one end of this spindle. The other end of the spindle is square tapered to fit an ordinary brace. The speed of the spindle may be regulated by a set or thumb screw in the yoke.

One end of the steel chain is permanently fastened to the yoke. This chain is used as a clamp or for pressure by looping it around the material to be drilled and fastening it in the groove provided on the opposite side of the yoke, as shown in the illustration. The "Red Devil" Chain Drill is practically a portable drill press. It weighs but two pounds and can be put in the tool bag or box, and is especially suitable for metal workers.

Old and Reliable Hardware Manufacturers

The McKinney Mfg. Co., of Pittsburgh, Pa., whose advertisement appears on another page of this issue, is one of the largest and oldest manufacturers of builders hardware in the country, having been in business for nearly 50 years. Their goods are known for quality. Builders and dealers can feel satisfied that goods of this firm's manufacture, stamped with their well-known Trade Mark, are of the highest quality and finish.

Their Anti-Friction door butts, fitted with patented Non-Rising pin, is filling a long-felt want in the building line.

The Non-Rising pin obviates all the troubles and unsightliness of pins sticking out of butts, as is the case with the old style ordinary butts. The anti-friction washers are made of a special metal which they have developed and perfected after long experimentation and at a heavy cost, and which has successfully withstood the severest tests to which it could be subjected.

The Butts have no delicate parts to become deranged or lost. They require no adjustment—need no oiling—will permit the heaviest doors to swing easily, freely and noiselessly and will not wear away at the joints.

They manufacture a number of other articles also of special interest to the building trade.
Mr. DEALER

IN ACCOUNT WITH

DECO-VENEER CO.
INDIANAPOLIS

Terms: 2% 10: Net 30 Days

To Make,
MATERIAL COMPLETE FOR
DINING ROOM (15'x12')
Total sq ft. excluding openings,
210 ft., 6 ft. high.
IN SOLID MAHOGANY DECO,
(Or BEAUTIFUL AMERICAN WALNUT)
Including Cap, Base, and Strips.

This Room in Plain Oak, $31.65
Or in Circassian Walnut, 63.65

Compare These Prices with Mill Work
Stock Sizes: 12, 16, 18, 20 and 24 inches by
3, 4, 5, and 6 feet insure minimum waste.
A sample order will convince you that Deco-Veneer makes wainscots in moderate-priced homes possible and practicable.

We Sell to Dealers Only

Deco-Veneer Co., Indianapolis

FROM FOUNDATION TO FLASTAFF

Don't stick along at an under job through all the best years of your life. Don't let the humdrum drudgery of everyday routine CRUSH your spirit; Don't be satisfied with merely pushing a saw and driving nails. Learn to PLAN as well as to work—to use your BRAIN with the same skill that you use your hands.

Learn to fill a BIG-SALARIED job—the kind of a job that hundreds of other men, with no more natural ability than you, are filling with ease and success.

HOW YOU CAN LEARN MORE AND
EARN MORE

You can MASTER EVERY DETAIL of your line of work. EVERY BRANCH of building construction, EVERY ANGLE of architecture and carpentry—can do it in your spare moments and at almost no expense at all. You can have the knowledge and experience of over FOUR SCORE EXPERTS at your command, ready for instant use whenever you want it—can fit yourself to fill any first-class position above you that you desire—simply by allowing us to place in your hands this great ten-volume set, without your sending us one cent in advance.

This Cyclopedia of Architecture, Carpentry and Building

is the most exhaustive, comprehensive and practical work on the building trades that has ever been published. It covers every detail of building construction from foundation to flagstaff, from Circle Swing, Stiff Leg common carpenter work to reinforced concrete and steel, from masonry to heating and ventilation; from specifications and estimates to building laws and superintendence. It covers all the practical things that you want to know, all the things that you've GOT to know if you're going to be a success. It contains over 4,000 drawings, full page plates, diagrams, etc., has 4,760 pages, is bound in handsome half morocco and printed on special paper in large clear type. No CARPENTER, CONTRACTOR, OR BUILDING OWNER can afford to be without it a single day.

Get these books FREE and see for yourself.

Just what they are before you send us a single cent. Look them over carefully at your leisure. Keep them for seven days. Then, before you decide whether you want them or not, and then if you don't believe that each volume is actually worth more to you than the price of the entire set, send them back at our expense and the transaction won't cost you one penny. If you do decide to keep them, our charge will only be $24.80, spread out thin in easy payments of only $2.00 a month. We don't ask you to buy these books on our description of them. We don't ask you to trust our judgment. We simply ask you to get the books and see for yourself.

Free with every order received before January 1st, 1913

With each set we include a Consulting Membership entitling you to the advice of our business and engineering experts free. This will give you practical help in handling working problems which are too special to be taken up in detail in the cyclopedia. There will be no limit to this service. A single problem solved for you might be worth more than first cost of the books. Order the books now.

American School of Correspondence

American School of Correspondence, Chicago, U. S. A.

FREE EXAMINATION COUPON

American School of Correspondence, Chicago, U. S. A.

Please send me Cyclopedia of Architecture, Carpentry and Building for seven days' free examination. I will send $2.80 within seven days and $2.00 a month until I have paid $24.80, or notify you and hold the books subject to your order. Title not to pass until fully paid.

NAME

ADDRESS

OCCUPATION

REFERENCES

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER
New Kanneberg Metal Tile

In this era of metal building construction when iron beams, metal sides, metal lath, and metal ceilings have so extensively displaced wood and other materials, it is fitting and natural that metal roofing should assume its place of importance. The advantages of metal in building construction have been established and in no other article are these advantages so pronounced as in roofing.

Roofing like all other parts of metal constructions has had acknowledged deficiencies and has undergone periods of slow development to its present stage of perfection. The Kanneberg Roofing & Ceiling Co., Canton, Ohio, are now offering their Metal Tile as the culmination of the most critical and careful investigation and experimenting, and the application of the knowledge gained by their experience of twenty-five years in the manufacture of sheet metal goods.

Kanneberg's sheet metal products have for two decades occupied a position of pre-eminence for excellence in quality and design; but we believe that they have perhaps never offered an article in which greater confidence in its absolute perfection could be placed than in this metal tile.

We want to advise builders, owners or others interested, to write for their new catalog "E." It contains much interesting and valuable matter besides demonstrating the superior features of their Metal Tile.

Address the Kanneberg Roofing & Ceiling Co., Canton, Ohio.

Dennis "Clincher" Felt Weather Strip

The successful business man buys the best goods obtainable. W. J. Dennis & Co., of Chicago, are offering the trade a "clincher" felt weather strip which they claim is the best that has ever been offered to the trade. They say that a trial order will convince any carpenter or builder.

The Dennis (Clincher) Felt Weather Strip is claimed to be the most practical and durable strip made. The felt, which is extra heavy, is glued to the bottom of the molding, and the nail used to apply the strip passes through both molding and felt. This feature assures complete satisfaction, and makes the strip much easier to apply.

The moldings are made in two finishes (oiled finish, imitation walnut), or (shellaced polish, imitation oak or mahogany).

Modern Method of Fitting Fancy Sash

In years gone by it was necessary when making up diamond light or fancy sash, to fit all the joints by hand, whittling out the shape with either a jack knife or chisel. This method required a great deal of patience and time, and the fit obtained was usually so poor that considerable putty had to be used to make the joints look well. Today, however, this method is very rapidly disappearing, due to the bringing out of a machine designed especially to do this work, which is illustrated on page 100.

OAK FLOORING

Attracts Your Attention Immediately and Holds Your Admiration Permanently

Builders and owners use OAK FLOORING, because it is the one flooring that women of today want. There are reasons. OAK FLOORING will harmonize with any kind of furniture, interior trim or any decoration scheme. In color, it is rich and cheerful.

OAK FLOORING 1/4-in. thickness by 1 1/2 in. or 2 in. faces can be laid over old floors in old homes or over sub-floors in new homes at a very low cost. It is cheaper than carpets or pine flooring. When laid, it has all the appearance of a heavy floor.

Any truthful landlord will tell you that OAK FLOORING increases the renting and selling values of any building, more than any other part of the interior construction. Besides a better class of tenants is assured when OAK FLOORING is used.

Write for further information

THE OAK FLOORING BUREAU, 857 Hammond Bldg., DETROIT, MICH.

The Peerless 5½ "Stork's Beak" Combined Compass and Scriber (No. 55)

Superior as a compass, because double joint and thumb screws make it the most secure and rigid compass on the market. Insert any style or length pencil for scribbling. Cut shows its superiority as a scriber.

Explanation of figures in cuts: 1—Steel point inserted. 2—Adjusting slot. 3—Pivoted round pencil. 4—Lever for fastening pencil, which for the steel point can be inserted in this holder equally well. 5—Double locking device. SPECIAL OFFER—To introduce this wonderful compass (regular price $1.50) we will sell 50 puzzles until April 15, 1912, at 40c each; add 5c. for postage. Pencil 5c. extra, if desired.

No. 100—PEERLESS FLEXIBLE BIT GAUGE—Lightest and most durable made. Nickel-plated, 30c.; No. 55—3-inch polished steel PEERLESS SCRIBER, 30c.; No. 55—nickel-plated, 50c.

We refer dealers to our new catalog, No. 9. Mail orders promptly filled.

Niagara Falls Metal Stamping Works

Manufacturers of Hardware Specialties

Niagara Falls, N. Y., U. S. A.

Niagara Wall and Venner Ties for use in Brick and Brick Veneer Walls. 12-inch Galvanized Wall Tie for Stone, Brick and Concrete Block Walls.

WRITE US FOR FURTHER INFORMATION

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER
NICHOLLS NEW TAKE-DOWN SQUARE
and How it is Constructed so it Will Remain True

The bevels at point A and B are so slight they act the same as a square shoulder and are machined perfectly square with each point. The clearance at point C allows tongue to settle down as we put in attendant square, thereby producing constant accuracy. End of tongue springs down under a button and is held down at other edge of body by a very rigid spring. Rust proof canvas case with each square.

If your dealer does not handle our goods and will not order them for you, write us. We have a special inducement to those who order first square in every town.

NICHOLLS MFG. CO.
OTTUMWA, IOWA

The Standard Portable Combination Woodworker
FOR BUILDERS AND CONTRACTORS
NINE MACHINES in One
Equipped with G H. P. ENGINE
Large Facilities. Prompt Deliveries.
Atlantic Engine Co.,
67 Mercer Street, MEADVILLE, PA.
Canadian office: BRIDGEBURG, ONT.

Send us two or more names of persons who are interested in or want to buy Hot Water Heating Plants and we will send you this scale. Back in inches are divided into 6, 10, 12, 16, 20 and 40 parts. Also free catalog on request. Mention this paper.

Do You Know
What it means to buy Builders' Hardware at the right prices?
Send for our No. 5 illustrated catalog and net price list free to contractors and material men.
When sending for catalog state whether contractor, carpenter, or material man. We do not sell to contractors, carpenters or material men in Cook County.

Andrews Heating Co.,
1165 Heating Bldg., Minneapolis, Minn.

Wood Carvings for Interior Finish
Our beautiful Catalogue No. 21 will be sent upon receipt of 15 cents in stamps. Our product is of the highest grade, and too large to list here.

Send today.

Waddell Mfg. Co.
Corner of Taylor and Coldbrook Streets
Grand Rapids, Michigan

THE WINTHROP SOLID TAPERED ASPHALT SHINGLES
ARE OF A COOL, GRAY SLATE COLOR
And have all the Durability of Asphalt—the Fine Appearance of Slate and the Light Weight and Low Cost of Wood Shingles. Laid with regular Shingle Nails, the same as Wood Shingles. NEVER REQUIRE PAINTING.

Write for Free Booklet and
SPECIAL INDUCEMENTS TO THOSE WHO APPLY FIRST ROOF IN EACH TOWN
Winthrop Asphalt Shingles are Fire-resistant, Water-proof, Wind and Sun-proof, and never Crack Break or Fall Off.

WINTHROP ASPHALT SHINGLE CO.
1101 The Temple
CHICAGO, ILL.
A Beautiful Ceiling

The illustration above conclusively proves that a modern fire-retarding and durable ceiling need not necessarily be ugly or unsightly merely because it is constructed of metal.

Berger ceilings are manufactured from high-grade sheet steel, deeply embossed with classic designs. They are arranged in interchangeable panels, so that many different patterns of ceiling may be built from the eleven basic designs.

A prominent feature is the Lap Joint which makes erection a matter of great ease, simplicity and speed.

Have you seen our large, handsome catalogue? If not send a card to the nearest branch.

THE BERGER MFG. CO.
Canton, Ohio

It consists of a base casting with column upon which is mounted the face plate and swinging tables supporting the sash bars.

The column and base are of the best possible design to secure rigidity and strength. The base casting rests on three points, giving it a solid bearing on the floor, however rough and uneven, and is made heavy enough to stand firm without being screwed down.

The face plate is of special design and carries swinging tables which can be clamped at any desired angle in relation to the cutters, by hand wheels at the back side of the plate. It is accurately machined, and contains grooves to receive a set of stops, engaging with the "spring pins" in the ends of the tables; which enables one to set to different angles and afterwards return to the same position without any delay in resetting.

The American Sash Trimmer

This plate is also graduated on each edge to locate the tables instantly at the angles of 30, 45, 60 and 90 degrees.

On the tables are wooden bed pieces made of selected, close-grained, hard wood, which are grooved out to fit the sash bar perfectly and prevent any splintering of the work when cutting at any angle.

The face plate is also graduated on each edge to locate the tables instantly at the angles of 30, 45, 60 and 90 degrees.

The cutter head is accurately machined, holds the cutters in correct position and is adjustable for wear.

It is operated by a foot treadle and is provided with a
Mr. Block-Maker

Why the Hercules Concrete Block Machine is the BEST for YOU to buy

The man who is about to take up the manufacture of concrete blocks, should exercise the greatest care in selecting a block machine. The biggest mistake to make is to buy a small machine that will always remain a small machine. Why not buy a machine large enough for your immediate needs and capable of being expanded to make more and larger blocks as your business expands.

You can buy a HERCULES equipped to make whatever size of block you need when you start. Parts for other sizes are added as you require them. Your machine is a plant in itself. When you expand you don't have to throw away old equipment—you merely add at small cost to what you have.

There are many other important points connected with Hercules Machines that you ought to know.

We have just issued a little book full of information. Send for it today.

The Mogul Invincible Block Machine COMBINES ALL THESE IT IS RIGHT

It is 46 inches long and will make three 16" or two 24" blocks at one operation. It makes sills, caps, copings, rails and steps, faster and better than a special sill machine. It has every adjustment that any other machine has and many that no other machine has.

PRICE—Machine and Outfit, $75.00
WRITE FOR CATALOG

Consuming Block Machine Co.
290-300 St. Paul St.
Rochester, N. Y.

A FREE BOOK

On Concrete Machinery

It isn't exactly a catalogue because it gives you the cost of making concrete Blocks, Bricks, Porches, and Chimneys. It tells all about the profits in making Drain Tile for farmers. The advantage of drainage, etc. You ought to have this book if you are interested in concrete. Sixty-four pages of illustrations and interesting reading. Send at once, today, a postal will do.

TRUS-CON Joist Hangers

Avoid cutting away and weakening of timbers and walls—save labor, time and money.

Trus-Con Joist Hangers are made from open hearth steel plates, and are proven by actual test to be the strongest on the market. Note the bulb shaped reinforcement at upper angle.

We also furnish Post Caps, Post Bases, Wall Plates and Base Plates made in rolled steel, malleable iron, or cast iron.

Write for catalog and prices.

TRUSSED CONCRETE STEEL CO., 344 Trussed Concrete Bldg., Detroit, Mich.
strong spring of proper length to insure uniform tension the entire length of the stroke.

This foot treadle is made amply strong for all work and has two holes at the rear end where it is pivoted, so that the pin can be changed to give double the leverage, if you desire it, when cutting hardwood bars with wide cutters.

We now come to the most vital part of the machine, the cutters, which as you will see from the cut, are mounted in the machine like the sides of the letter "A," and have the formed portion at the lower ends.

These cutters are made up especially to match each customer's shape of sash bar, and the recess which they make in the end of the sash bar makes a perfect fit with the sash bar of the same pattern; it makes no difference to what angle the piece may be cut. Plain cutters can also be furnished to use in mitering, in which case the tables of the machine are set at 45 degrees. Special cutters can also be furnished which will leave a short tenon on the end of the sash bar if desired, which is very convenient when fitting up mortised sash.

This machine enables the user to turn out as much work in one hour as in nearly half a day in the old way, which means to him all the difference between doing this work at a profit or a loss; and sending out a nicely finished job, in place of one that is unsatisfactory to his customer.

This machine is known as the American Sash Trimmer and is said to be the only machine of its kind being manufactured today; it is the result of over ten years' experience in building machines for this work, during which time thousands of them have been sold and are now giving unequalled satisfaction.

It is made by the Heald Machine Company, Worcester, Mass., who are the originators and sole manufacturers. They will send full information on request.

Disston Saws, Files and Tools

For fifty-six years we have been making Disston Crucible Steel. It is made under the exclusive Disston process. The long life and cutting properties of Disston Saws are due to Disston Crucible Steel and the treatment it undergoes in our shops.

The Disston establishment is the only one making steel for its full line of saws and tools—one reason why Disston Saws are uniformly durable and efficient.

Disston Saws are hardened and tempered by the exclusive Disston process.

It pays to buy Disston Saws and Tools. For any and every kind of work Disston Saws, Files and Tools are the most reliable.

We have been making saws for over 71 years.

HENRY DISSTON & SONS
Incorporated

Keystone Saw, Tool, Steel and File Works

PHILADELPHIA, PA.

BRANCHES: Chicago, Cincinnati, Boston, New Orleans, Memphis, San Francisco, Seattle, Portland, Spokane, Vancouver and Toronto
You can't afford to be The Man Who Stood Still. You don't want to stick to the plane, the saw and the hammer all your life. You don't want to continue to work for the next twenty or thirty years just as you do now. You must want to advance, and you can advance by studying

Radford's Cyclopedia of Construction
CARPENTRY, BUILDING AND ARCHITECTURE

Twelve great, big, massive volumes. More thorough, more complete, more exhaustive than anything before even attempted. Over four thousand pages, thousands of illustrations, diagrams, charts, plans and working drawings, made especially for this set of books, including three complete volumes on cement and concrete construction, the only thing of the kind in existence. Practical carpentry, steel square, framing, roof construction, and even manual training, painting, glazing and decorating are thoroughly treated in addition to the bigger work, such as masonry and steel construction, heating, ventilation and plumbing, reinforced concrete, contracts and specifications. And all this explained thoroughly without the use of a single square root sign or algebraic equation, or the use of anything but simple arithmetic. Practical information from start to finish.

Free Set of
Blue Prints and Book of Plans

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Delivered to you at bare cost of manufacture merely to introduce the set. Privilege of examination free. We pay transportation both ways if you don't keep the books. One dollar with your order and two dollars a month pays for the books. Order on the coupon below and get all the benefits of the One-quarter Price Offer—$23.80 instead of $79.00.

Including year's subscription to the American Carpenter and Builder and one extra large Portfolio size volume of three hundred pages of all kinds of plans, perspective views and floor plans, selected for their excellence, economy of design and popularity among the building classes.

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Invaluable to the house owner or prospective builder

A.C.W.
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Medinah Building, Chicago

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER
Magnetized Tool for Handling Small Nails

The accompanying cut illustrates a novel tool recently placed on the market by the Standard Tool Supply Co., No. 42 W. 15th St., New York City. The tool is designed for driving and setting small brads and nails that are too short to be conveniently grasped between the thumb and finger. It will also drive and set brads and nails in places inaccessible by ordinary methods. The tool consists of a plunger sliding in a tube provided with a spring for limiting the upward movement of the plunger and it also serves as a friction drag on the plunger. The driving end of the plunger is permanently magnetized and all parts that come to any wear are hardened and tempered in the most approved manner.

The tool is made in four sizes, full particulars of which will be found in our advertising columns.

The "Lightning" Line

This is the name of a readable little publication which is to be issued monthly by the J. A. Fay & Egan Company, 545-565 W. Front Street, Cincinnati, Ohio. No. 1, Volume 1, has just come to hand, and we are informed by the J. A. Fay & Egan Company that they will be glad to mail a copy of it free each month to every reader of the AMERICAN CARPENTER AND BUILDER interested in it. The purpose of the periodical, as stated, is to give owners and operators of wood-working machinery in all its branches, quick advice as to what is new in this line, and to give it in an interesting manner.

Key to the Steel Square

This is a handy little instrument suitable for carrying in the pocket and should be in the possession of all who have work to do in angles. It can be referred to in a moment's time to find what figures to use on the common steel square to obtain any angle desired. It gives roof pitches from one to twenty-four inch rise to the foot run, also any angle in degrees. It is based on the fundamental principle of steel square rafter framing. There can be nothing contained in so small a space that will give the genuine boiled down information as does this little instrument.

It is the work of Alfred W. Woods, who is a recognized authority on the use of the steel square.

It is for sale by the AMERICAN CARPENTER AND BUILDER. (See advertisement on another page).

Special Hack Saw Outfit

C. E. Jennings' new special Hack Saw Outfit No. 177-6 is illustrated herewith. It gives you a saw suitable for every purpose for which a hack saw is needed. Frame is steel, full nickel plated, and is adjustable to hold from 10 to 14-inch blades. Faces blades to four different angles and is instantly adjustable to hold different length blades.

Blades are said to be of highest quality, and tempered very hard. Outfit consists of frame and 6 blades, assorted fine, medium and coarse teeth, and in length, assorted from 10 to 14 inches. Sold by C. E. Jennings & Co., 42 Murray St., New York, who will send complete information to all interested on request.
ST. FRANCIS HOSPITAL, Colorado Springs, Colorado, is a very fine building, as this photograph shows. No expense or care was spared to make it THE BEST AND MOST SANITARY hospital in the West. After exhaustive competitive tests, the authorities decided to roof it with THE BEST COVERING FOR ROOFS KNOWN—for Walter's Galvanized Metal Shingles Last!

INVENTED AND PLACED ON SALE BY THIS COMPANY IN 1885

Here is a sample of the roofing accepted by this Hospital and by thousands of other public and private builders. IT WAS THE ORIGINAL DESIGN OF THE INVENTOR IN 1885 AND IS THE FIRST SHINGLE COATED WITH PURE ZINC EVER MADE. Hand dipped so that every crevice is FILLED. No chance for rust to creep in EVER. Send for free sample and confidential information. Might as well have THE BEST.

NATIONAL SHEET METAL ROOFING COMPANY
Inventors of the FIRST Metal Shingle
JERSEY CITY, NEW JERSEY

“We Wish to Say a Word in Praise of Our Coltrin Mixer”

The Knickerbocker Co., Middletown, Ind., Nov. 6, 1911.

Gentlemen: We wish to say a word in praise of our Coltrin No. 7 Mixer. We have been doing an excellent business and feel that much of our success is due to the machine which is giving satisfaction in every respect. In our estimation and experience there is no mixer so well adapted to the mixing of concrete as the Coltrin.

Very truly yours,
MIDDLETOWN CONCRETE WORKS
E. W. Allen, Mer.

Write for Catalog of
THE COLTRIN CONCRETE MIXERS
Shipped Anywhere on Five Days’ Trial.
THE KNICKERBOCKER CO.
Jackson, Michigan

FOOT, HAND AND LIGHT POWER WOOD-WORKING MACHINES

Carpenters, Builders, Cabinet-Makers and other woodworkers can successfully compete with large shops by using our labor saving machinery. Save for yourself some of the profits you have been paying to the mills. With our machines one man will do as much work as four to six men using hand tools; will do it easier; will do it better.

Send for Catalog “A” describing our complete line

THE SENECA FALLS MFG. CO.
218 Water Street
SENeca FALLS, N. Y., U. S. A. (249)
Ford’s All-Wood Weather Strip

Special attention is called to the weather strip of the Ford Manufacturing Company, 120 Burns Block, Holyoke, Mass. The advantages of this weather strip will be quickly appreciated by all practical carpenters and builders. The point is made in regard to this weather strip that it contains no rubber, felt, or metal, and so will not corrode, rot or get moth-eaten. With its use windows are made practically air tight.

Ford’s all-wood weather strips have been in use for years and have given full satisfaction. The manufacturers desire to arrange with a wide awake man in every locality to act as their agent for this weather strip. We understand they have a very attractive proposition to offer readers of the American Carpenter and Builder.

New Edition Henricks’ Commercial Register

The 20th annual revised edition of Hendricks’ Commercial Register of the United States for Buyers and Sellers has just been issued. Established in 1891, it has been published annually since that time and is the most complete work of its kind in existence. Its aim is to furnish complete classified lists of manufacturers for the benefit of those who want to buy as well as for those who have something to sell. It covers every branch of the architectural, engineering, electrical, mechanical, and kindred trades and professions. It establishes a direct link between the buyer and seller.

The present is by far the most complete edition of this work so far published. The 19th edition required ninety-nine pages to index its contents, while the 20th edition requires one hundred and eight pages, or nine additional pages. As there are upwards of four-hundred classifications on each page, the nine addition pages represent the manufacturers of over three
C. E. JENNINGS ARROW
HEAD EXPANSIVE BITS

Price including two cutters as follows:
No. 11½ Bit (Large) with Nos. 3 and 4 Cutters, ranging from 7/8 to 1¼ inches, $2.00 each.
No. 7½ Bit (Small) with Nos. 1 and 2 Cutters, ranging from 5/8 to 1½ inches, 1½ each.

Or No. 1 Bit will take the place of 35 Auger Bits, Costing $35.00.

When you cannot procure from your local Hardware Dealer, we will mail, prepaid, on receipt of P. O. order for above price. These Bits are put up in a neat Leather Scabbard.

The cutters are graduated in 32nds of an inch. By moving the cutter 1-32 in. the diameter of the hole is increased 1-16 in., and increase the size of the hole 1-16 in. The gauge mark on the cap indicates to the mechanic where to set the cutter to bore a perfectly smooth hole, remove the bit as soon as the screw point pricks through; insert the screw point into this prick-mark from the opposite side from which the hole was started and bore until the hole is finished.

C. E. JENNINGS & CO., Sole Manufacturers

42 MURRAY STREET, NEW YORK

THE JAMES SWAN COMPANY
SEYMOUR, CONN.

Manufacturers of
Mechanics' Tools, Augers, Auger Bits, Draw Knives, Chisels, Hollow Augers, Gimlets, Boring Machines, Gouges, Screw Drivers, etc.

Send for Catalogue

When looking for quality buy goods with the “Swan” trade mark.

RUSSELL & ERWIN MFG. CO., Sale Agents, NEW BRITAIN NEW YORK SAN FRANCISCO CHICAGO

PERFECTION ELEVATORS

The Best Value for the Money in the World
Mechanically Correct

Dumb Waiters, Carriage and Store Elevators, Sidewalk Hoists, Etc., Etc.

Our Elevators are noted for their EASY RUNNING and SERVICEABLE QUALITIES. They are practically self-contained, and can be erected by any carpenter in a few hours. We furnish plans for erecting.

The Low Cost Will Surprise You

State your requirements, giving capacity, size of platform and number of feet to travel and we will name our lowest money saving estimate.

SYDNEY ELEVATOR MFG. COMPANY, SYDNEY, OHIO

RUSSELL JENNINGS PRECISION BIT SHANK is turned for accuracy and perfect alignment, is tapered to prevent pulling out of brace chuck or extension, has slotted end to prevent turning in chuck. It cannot wobble or work loose.

RUSSELL JENNINGS MANUFACTURING CO., Chester, Conn., U.S.A.

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER
Van Guilder Hollow Wall Concrete Machine—A Continuous Air Chamber from Cellar to Roof

Steel Reinforcement Throughout

Completely revolutionizing building methods.

We manufacture and build with one operation; saving manufacturers profits, transportation charges and half the labor cost, producing a more durable and up to date building. Only one machine needed for each job.

Van Guilder Houses Costs Less Than Wood and Sell Quick at a Wonderful Advance

They have stood the test for over three years and are long past the experimental stage.

This superior construction was immediately approved by the building department of the city of New York, one of the most severe and conservative boards in the world.

SILO WALLS

Our curved silo luting a watertight and frostproof, greatly improving the quality of the ensilage. The most economical and durable construction in the world.

Send for Booklet

VAN GUILDER HOLLOW WALL CO.

720 Chamber of Commerce Bldg.
Rochester, N.Y.

THE MILES SIMPLEX MIXER

Continuous Feed, Batch Mix, Low Down Steel Frame, 2 Hoppers, Positive Feed, Attractive Price

"The Miles" No. 5, Down Face, Wet Concrete Block Machine


WRITE FOR NEW 1911 CATALOGUE

THE MILES MFG. CO., Inc. 309 E. Franklin St. JACKSON, MICHIGAN

thousand articles, none of which have appeared in any previous edition. The total number of classifications in this book is over 45,000, each representing the manufacturers or dealers of some machine, tool, specialty or material required in the architectural, engineering, mechanical, electrical, railroad, mine and kindred industries. The 19th edition numbered 1,342 pages, while the 20th edition numbers 1,419 or 77 additional pages. They also omitted 47 pages of matter from the new edition that appeared in the 19th edition. This makes a total of 124 pages of new matter. The whole representing upwards of 350,000 names and addresses.

An important feature of Hendricks' Commercial Register is the simplicity of its classifications. They are so arranged that the book can be used for either purchasing or mailing purposes. As an illustration—all manufacturers of a particular trade first classified under a general heading for mailing purposes—then each firm or corporation is subdivided under as many classifications as every variety of their products call for. By this system of compiling, the book is made of equal value for either the purchasing or sales departments. No other publication embodies these features.

Again, the value of the Commercial Register for purchasing purposes is not confined to its complete classifications alone, it also gives much information following the names of thousands of firms that is of great assistance to the buyer, and saves the expense of writing to a number of firms for the particular article required. This latter information is also not found in any other similar publication. The trade names of all articles classified in the book as far as they can be secured are also included. These trade names appear in parenthesis between the names and addresses under the classification where they appear. The book is revised, improved and issued annually by S. F. Hendricks Co., Publishers, 74 Lafayette Street, New York.

OLDs Hoists

OLDS GASOLINE CONTRACTORS' HOISTS are built in all sizes, 3 H. P. to 12 H. P. and in several types to meet all requirements.

Do not buy without first getting our printed matter and prices.

Gasoline Engines 1 ½ H. P. to 100 H. P.

SEAGER ENGINE WORKS

LANSING, MICHIGAN

Olds Gas Power 5113 Central St. Kansas City
Olds Gas Power 1007 Farnum Omaha
Olds Gas Power 204 N. Los Angeles St. Los Angeles
Seager Engine Works 65 Beverley St. Boston
IMPERIAL "SPIRAL" "AMERICAN" INGOT IRON LATH
THE MOST SUPERIOR RUST-RESISTING
Government Approves It---Architects Specify It,
Contractors Demand It.

RUSTPROOF
Made From
"AMERICAN INGOT IRON"
The Attainment of the Highest Purity in Iron
99.94% PURE
Imperial "Spiral"
Is unequalled by any expanded lath made, NOTE that "Spiral" Twist
SAVING of THREE to FOUR cents Per Yard IN labor AND Plaster.
MADE IN ALL GAUGES, ONE STANDARD SIZE 16½ INCHES x 96 INCHES
Samples and Prices Furnished on Request.
THE AMERICAN ROLLING MILL CO. - Middletown, Ohio

SYKES METAL LATH
The lath that is positively different to anything else made; different because it combines more good features.
Cup lath is the only Expanded Metal Lath that can be plastered on either side—cannot be applied wrong because both sides are alike.
We make two kinds—Sykes Expanded Cup Lath, and Sykes Trough Lath. Both are supreme for their own purpose.
The top illustration shows Trough Lath, bottom cut depicts Cup Lath.
NO PICKLED LATH
Sykes Lath is absolutely guaranteed not to have been pickled in an acid bath. This means that the weight and thickness is not reduced and is less susceptible to rust.
Requires no furring out from studs because it is self furring.
It has been approved by U.S. Government and by leading architects, carpenters and builders throughout the country.
In fact, when we say it is the best ever made we are simply stating a proven fact.
Samples and prices mailed upon request.
Sykes Metal Lath & Roofing Co.
NILES, OHIO

WIRE LATHING
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**NOTICE TO ADVERTISERS**

**Forms for the January number of the American Carpenter and Builder will close promptly on December 20. New Copy and orders for omissions of advertisements must reach our business office, 176 West Jackson Boulevard, Chicago, not later than the 3rd of January. The 3rd of the month is the closes date to which the publishers reserve the right to repeat last advertisement on all unexpired contracts.**

[AmeriCarpenterAndBuilder.com](http://www.AmeriCarpenterAndBuilder.com)
W ith Bishopr ic W all B oard in P lace of P last er you can make the finest kind of walls in your house in the coldest weather. Save a month’s time! Bishopr ic Wall Bo ard comes in sheets 4 x 4 feet, ready to go on. It goes on dry. You don’t have to wait for setting or drying as you do with plaster. Bishopr ic Wall Board does not freeze—has none of plaster’s troubles—costs far less to put on. You don’t have to wait for a skilled workman. Any man who can drive nails can put on Bishopr ic Wall Bo ard and have a wall all ready for paint, paper, burlap—any decoration. Or with panels it makes a handsome wall just as it is.

F ire-Resi sting---A ir-Ti ght---Mo isture-Proof---R at, M ouse and Cockroach P roof!

Here is the reason: Bishopr ic Wall Bo ard is made with Asphalt-Mastic. This is asphalt toughened by a patented process and it won’t burn. In hot Asphalt-Mastic kiln-dried laths are imbedded at a pressure of 500 pounds to the square inch. The Asphalt-Mastic is surfaced with heavy stiff cardboard.

The non-burning Asphalt-Mastic protects the lath. Buildings have been saved because of Bishopr ic Wall Bo ard. Imagine a rat trying to gnaw through that asphalt. He can’t do it. It gums up his teeth. He has to give it up and go where they use crumbly plaster.

Bishopr ic Sheathing

Bishopr ic Sheathing is made of precisely the same materials as Bishopr ic Wall Bo ard, but finished surface is not so smooth. It uses 25 per cent of the cost of lumber sheathing and building paper, is applied in less time, does away with building paper and makes a more solid and wind-proof job.

It is nailed to outside of studs with lath side of sheathing exposed. Over the sheathing weather-boards are nailed or cement or stucco applied. When weather-boards are applied, dead air space is left between the laths, furnishing excellent insulation. Paralleled laths form an excellent key for cements or stucco exterior is desired.

Sheathing may be used in place of Wall Board where a fine finish is not necessary.

Use Wall Board or Sheathing in All Your Buildings

The finest homes as well as cottages are finished with Bishopr ic Wall Bo ard. Use it in your new house and get it ready to occupy right away, no matter how cold the weather gets. Use it in your present home. Close up your attic and make a comfortable room with it. Make new partitions with Bishopr ic Wall Bo ard. Finish the porch—cell and wall the ceil- ler with it.

Use Rat-Proof Bins, Cribs and Poultry Houses

Use the Bishopr ic Sheathing in your barn. Make your bins, your poultry house, your milk house rat-proof, rain-proof, frost proof. It takes only a few minutes. It makes the neatest as well as the strongest walls of all materials invented—and remember, they are fire-resisting!

Be Sure You Have the Wall Board Made with Laths

Bishopr ic Wall Bo ard is the only wall board made with laths. Laths are positively necessary to back up a wall board—to make it rigid and substantial—and to keep a perfectly flat surface. Without laths, wall board swells, warps, cracks, and pulls away from the joints. Bishopr ic Wall Board never warps, never cracks, never pulls away from the joints. It keeps its firmness as long as your building lasts. It is sold to you on one binding money-back guarantee that it will make good on every claim.

Dealers! Write for Our Liberal Proposition

There is big business and generous profit for you in Bishopr ic Wall Bo ard and Bishopr ic Sheathing. We have a new proposition for the live dealer in every town.

Write for it at once. You put yourself under no obligation. Our advertising is bringing inquiries from people all around you. We prefer to fill orders through you.

Let us hear from you. Fill out the coupon, or write us a letter before you buy your American Carpenter and Build- er down.

Mail It Today!

The Mastic Wall Board and Roofing Mfg. Co.
20 East Avenue, Cincinnati, Ohio

DEALER’S COUPON

The Mastic Wall Board and Roofing Mfg. Co.
20 East Avenue, Cincinnati, Ohio

Please send me your Wall Board and Sheathing Proposition and Sample of Bishopr ic Wall Bo ard. This is not an order for goods.

Name: ____________________________
Address: ___________________________
City: ____________________________ State: ____________________________

Mail It Today!

The Mastic Wall Board and Roofing Mfg. Co.
20 East Avenue, Cincinnati, Ohio

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER
Your Dealer Has: These Cabinets

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KEEN KUTTER Tool Cabinets

The Only Complete Set of Tools Under One Name, Trademark and Guarantee

To get just the tools you will need, go to your dealer today and select a Keen Kutter Tool Cabinet. Each tool has a place of its own, so there is no chance of its becoming dull through contact with the others. The cabinet illustrated contains a set of tools adequate for almost any carpenter or cabinet work. All bear the Keen Kutter trade mark—the mark of highest tool quality for over forty years. It stands for highest quality material, temper unparalleled, and finish that lasts. Keen Kutter Tool Cabinets vary in price according to the number and kinds of tools they contain. The $8.50 size contains enough tools for any ordinary work about the house. The $125.00 cabinet is complete with tools, workbench, vises, etc., for the highest class cabinet or carpenter work. Between these two there is a wide range of choice. Take a look at your size today.

Send for Tool Cabinet Book No. 986

"The Recollection of Quality Remains Long After the Price is Forgotten"

E. C. SIMMONS

SIMMONS HARDWARE CO. (Inc.), St. Louis and New York, U. S. A.

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER