

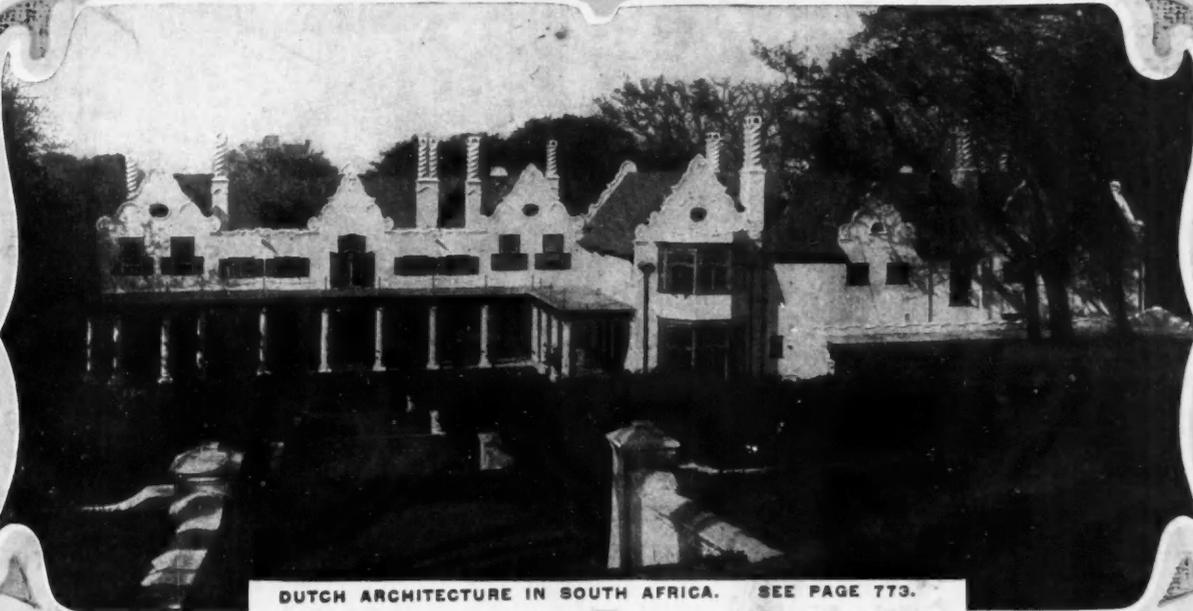
OCTOBER, 1906

Price 20 Cents

AMERICAN CARPENTER AND BUILDER



The World's Greatest Building Paper



DUTCH ARCHITECTURE IN SOUTH AFRICA. SEE PAGE 773.

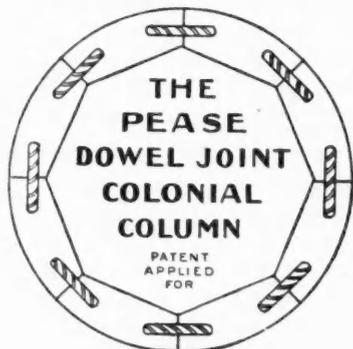
SPECIAL CARPENTERS' NUMBER.

\$5.00 Reward for each and every joint discovered opening up in any Pease Dowel Joint Column.

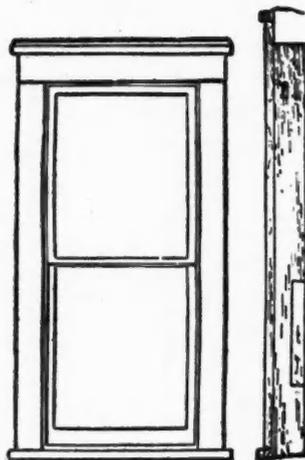


Pease Dowel Joint Column No. 70

Have You Seen the New **Pease** Dowel Joint Colonial Column No. 70 at **\$1.76 up?**



Would You be Interested in Our Line of Door and Window Frames at **\$1.15 up?**



Window Frame No. 1



Write to-day for our **FREE SAMPLES** of Building Papers and Ready Roofings

What do you think of our **Stair Newel** No. 7, surmounted with our elegant, genuine **Wood Carved Cap**, at **\$3.80 up?**



Stair Newel No. 7



Door No. X.L., 5 Cross Panels Soft Arkansas Yellow Pine free from Check.

We carry the largest stock of good doors in the world. Perfectly manufactured.

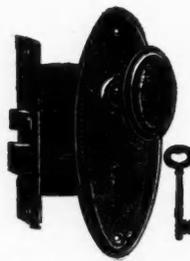
At **\$1.05 up**



85c per gallon up

Write for our beautifully colored folder

Practical Paintin g mailed free



Inside Door Set No. 13271.

We carry a complete line of

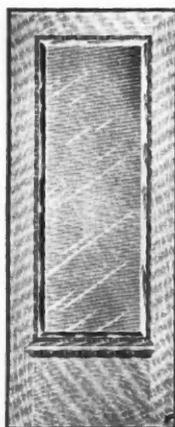
Builders' Hardware

at before unheard-of prices

Write To-day for our **BIG ILLUSTRATED CATALOGUE** and Price List. Just off the press. Gives you our low net prices on Frames, Doors, Sash, Blinds, Hardware, Paints, Screens, Mantels and thousands of other building material items. Mailed to you **FREE**

THE PEASE CO., Cincinnati, Ohio, U. S. A.

AMERICA'S ONLY QUICK SHIPPING HOUSE

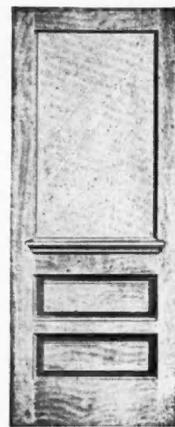


HOOSIER

Established 1869

**Makers of
HIGH GRADE**

**Doors, Sash, Blinds, Veneered
Doors, Colonial Columns,
and Glass of all
Descriptions**



FILLA

**We Positively Ship Odd Work in
4 to 7 DAYS**



GOSHEN SPECIAL

☞ We ship stock work upon receipt of order.

☞ We make the Highest Grades to be had from any concern.

☞ *We invite a trial order from you. Just one will make you one of our regular customers—the only kind it pays to have and serve.*



ELSBETH-A

Goshen Sash & Door Co.

Goshen, Indiana

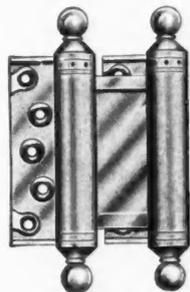
GOODS OF HIGHEST QUALITY



CHICAGO SPRING BUTTS



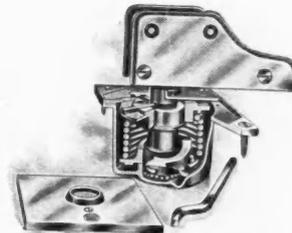
A Product of Recognized Superiority



TRIPLE-END
Double-Acting Spring Butt



CHICAGO
Double-Acting Spring Butt



CHICAGO FLOOR HINGE
Ball-Bearing

GOOD

judgment should naturally be exercised in the selection of a SPRING HINGE most suitable to conditions and requirements. Our product is adapted to the varying conditions of automatic door operation.

BETTER

recommendation could not be offered than the many years, extensive use of our product and the recognition of its many points of advantage in construction and general merit.

BEST

of material and workmanship are embodied in our SPRING HINGE product, and our trade mark insures an absolute guarantee of quality and satisfaction.

The HARDWARE TRADE Will Supply Your Requirements



Chicago Spring Butt Company,

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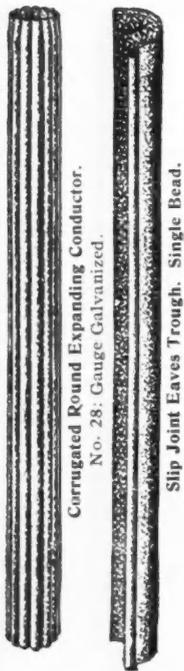
CHICAGO

NEW YORK



THE EDWARDS MANUFACTURING CO.

"THE SHEET METAL FOLKS"
 Main Office and Works: 401-417 Eggleston Ave.
 CINCINNATI, OHIO.
 Manufacturers of the Most Extensive Line of Sheet Metal
 Building Material in the World.



Corrugated Round Expanding Conductor.
 No. 28: Gauge Galvanized.

Slip Joint Eaves Trough. Single Bead.



The Edwards "Perfect" Hip Shingle

Made in Tin, Galvanized Iron and Copper. Size: 4x9 inches.



Illustration showing application of
 The Edwards Metal Shingles
 The Edwards Perfect Hip Shingles
 The Edwards Queen Anne Comb Cresting
 The Edwards Hercules Deck Cresting



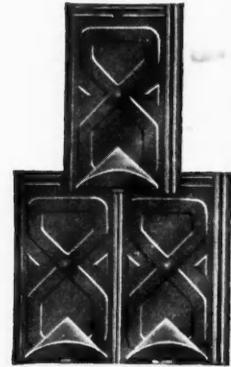
The Edwards Imperial Valley For Shingle Roofs
 No. 28 gauge Galvanized Iron in 10 foot lengths.



The Edwards "Imperial" Ridge Roll For Shingle Roofs

Made of Best Quality Galvanized Steel in 10 Foot Lengths only
 Makes a Neat Waterproof Cap for the Ridge of Roofs.

Made from one piece of Metal Folded as shown, the shingles being inserted into the folds over the nailing flanges, thus protecting the nail heads from the weather.



The Edwards Metal Shingle

Made of best grade Worcester Terne Tin, Painted or galvanized (galvanized after being formed), and pure Sheet Copper in sizes 7x10, 10x14 and 14x20 in.

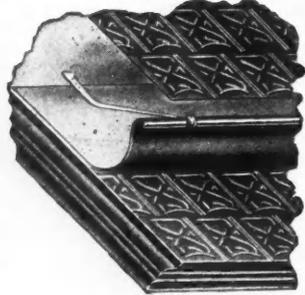
THE EDWARDS "IMPERIAL" RIDGE ROLL

CORRUGATED IRON and STEEL ROOFING

Galvanized or Painted
 We carry large stock and ship promptly. Write for 160 page catalog A-1.

THE EDWARDS ROOF GUTTERS

Made of best quality galvanized steel. In 10 foot lengths only
 NO WOOD SUPPORTS NEEDED



Style A

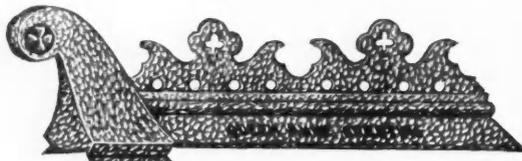
Made in 14, 20, 24 inch Girt, 1/2 inch Bead.

Illustration shows style A as applied to roof in connection with the Edwards Metal Shingle.

The Perfect Roof covering.

THE EDWARDS QUEEN ANNE ORNAMENTAL ROOF CRESTING

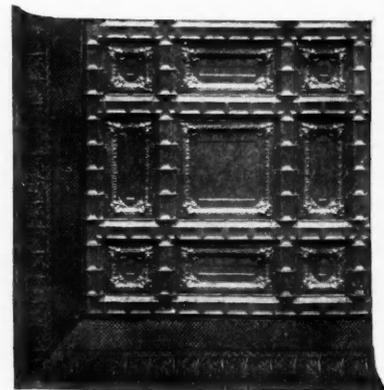
Made of Best Quality Galvanized Steel, in 10 Foot Lengths Only.
 A Substantial Roof Ornamentation at a Low Cost.



The Edwards Metal Ceilings

The possibilities of Stamped Sheet Metal for interior decoration are unlimited, owing to its adaptability for Ceilings and Side Walls, in Churches, Schools, Halls, Public Buildings, Stores, Residences, in fact anywhere, being Economical, Sanitary, Ornamental, Permanent, Dust Proof, Moisture Proof, Fire Proof, Vermin Proof, and will compare favorably in cost with any other covering,

length of service being considered. We show here our colonial design No. 1925, one of the many handsome and artistic Patterns illustrated and described in our new



Metal Ceiling Catalogue A. Sent FREE on request.

BY OF THE MAKERS

We make HESS FURNACES in a modern factory, in large quantities, with all mechanical appliances possible to produce perfect work at low cost. We sell these furnaces direct to the users at one small profit above cost. We back up our sales with the strongest guarantees of quality and efficiency, and our customers have the benefit of our thirty-three years of experience in planning and installing heating equipments.

Our prices are surprisingly low, when you consider the high quality of our goods. For instance: Our No. 45 Steel Furnace will heat 7 to 9 rooms, or a good size store or church. The price, including lined galvanized casing, chain regulation, rocking grates, evaporating pan, etc., is \$49.00 freight prepaid to any station east of Omaha. Six other sizes for other needs. Pipes and registers extra, at lowest factory prices. Ask us today to send you our free hand book "Modern Furnace Heating." It will interest you.

NORTH SOUTH

Wichita, Kan., Feb 8, 1906. Hess Warming & Ventilating Co., Chicago, Ill. I received your letter of the 1st inst. and in reply to you I beg to say I bought two of your furnaces recently and they are giving entire satisfaction. The Leader Furnace is all right. It is admirably adapted for this country and the fuel used here. It is the best fuel for soft coal ever seen. I also wish to say that I have had with you the best service in the factory. Everything has been represented. The Hess Warming & Ventilating Co. is the kind of people one likes to do business with. Yours very truly, DR. J. H. DOWNEY.

Boise Idaho, February 6, 1906. Hess Warming & Ventilating Co., Chicago, Ill. In reply to your favor of the 3rd inst. I beg to say I bought two of your furnaces recently and they are giving entire satisfaction. The Leader Furnace is all right. It is admirably adapted for this country and the fuel used here. It is the best fuel for soft coal ever seen. I also wish to say that I have had with you the best service in the factory. Everything has been represented. The Hess Warming & Ventilating Co. is the kind of people one likes to do business with. Yours very truly, DR. J. H. DOWNEY.

Lincoln, Neb., February 20, 1904. Hess Warming & Ventilating Co., Chicago, Ill. Gentlemen: I purchased one of your No. 45 Leader Furnaces last fall, and have used same all winter to my entire satisfaction. I can heartily recommend the Leader to any one in need of a furnace. It is a quick heater, and easy to take care of. I am glad to credit Chicago with another "good thing." You have kept your agreements and I thank you for your courteous treatment. Yours very truly, WM B HAMILTON.

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Free Carpenter's Pencils, two of them, the best and highest priced in the market, will be mailed to you, in exchange for three or more names of owners in your town, who will buy furnaces. Send in the names and mention this ad. A postal will do. **HESS WARMING & VENTILATING COMPANY, 920 Tacoma Bldg., CHICAGO**

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Malleable Iron Fittings Company

Branford, Conn., and 176 Federal Street, Boston, Mass.

Manufacturers of zinc coated (galvanized) refined iron and steel cut nails and wire nails for laying shingle and slate and for other exposed work. Send for illustrated catalogue showing extensive line we manufacture.

Indestructible. Absolutely Perfect in Operation. Cannot Get Out of Order

Has Been in Use 3 1-2 Years and Never Failed

No more Sash Weights, Cords, Pulleys, Balances and their annoyances, if you use the

Automatic Sash Holder

A Simple and Economical Device. Positive and automatic in its action, which can easily be seen from the illustrations showing position in and out of sash.

It has the following advantages over the old system, particularly on the lighter weight sash, which all practical minds will admit:

PRICES LOWER than weights, cords, pulleys or balances.

Saving of Labor and Lumber in making sashes and frames by doing away with pockets, grooves, etc.

Saving of Nearly Entire Labor of Fitting and adjusting windows, as sashes after inserting Holder are easily slipped into frames and stop beads put on.

Saves Carrying Stock of Weights for each weight of sash.

Prevents Windows from Rattling while in any position, a great annoyance heretofore.

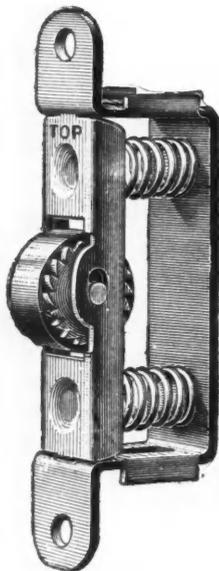
Shrinking or Swelling of Sash or frame is no longer of any consequence, as Holder adjusts itself automatically.

Is Invisible, being inserted into the sash or stile, thereby eliminating the unsightly appearance of ropes and pulleys.

Can be easily adjusted to any old window, and for windows without pockets meets a long felt want.

For sashes up to 16 lbs. one Holder on one side is sufficient, thereby reducing cost to one-half. For those of 16 to 35 lbs. use one Holder on each side, and for heavier ones use two or more on each side.

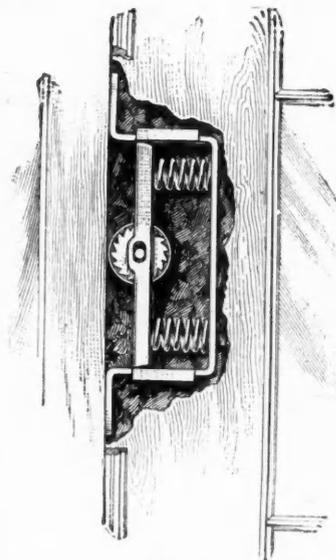
Inquire of your hardware dealers or write us direct and we will send by mail sample set of four Holders on receipt of One Dollar or one-half set for Fifty Cents.



Patented

Fig. 1

Automatic Sash Holder, nearly two-thirds size.



Patented

Fig. 2

Holder in Position, with part of the stile cut away.

Automatic Sash Holder Company

277 Broadway, New York City

Figures on Millwork

Our line of interior woodwork, such as doors, stairwork, mouldings, railings, wainscoting, paneling, grilles, brackets, columns, flooring, ceiling, etc., is without a superior. Our line of *Building Paper, Tarred Felts and Prepared Roofings* is second to none. Samples and prices on application.

Interior Woodwork Co. Park Street, Milwaukee, Wis.

NATURAL COLOR

Unfading Red—Unfading Green—Unfading Purple
 Unfading Mottled Purple
 Hard Vein Variegated Green and Purple (Partly Fading)

ROOFING SLATE

Any Size Any Thickness

MILLED SLATE

Treads Risers Platforms Flooring
 Partitions Etc., Etc.

MATHEWS

CONS'D SLATE CO.

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MINERS — M'F'RS

Buy Your Material Direct from the Producer

The New Hero

For Large Residences and Public Buildings. Brick Set or Portable. Six Sizes. A Combination of Hot Air and Hot Water or for HOT AIR Exclusively



The New Hero being Corrugated has more surface and also fewer joints than any furnace made.

Being all Cast Iron, it has great strength.

The Grate has no Cog Wheels or Bolts.

Send Plans for Estimate.

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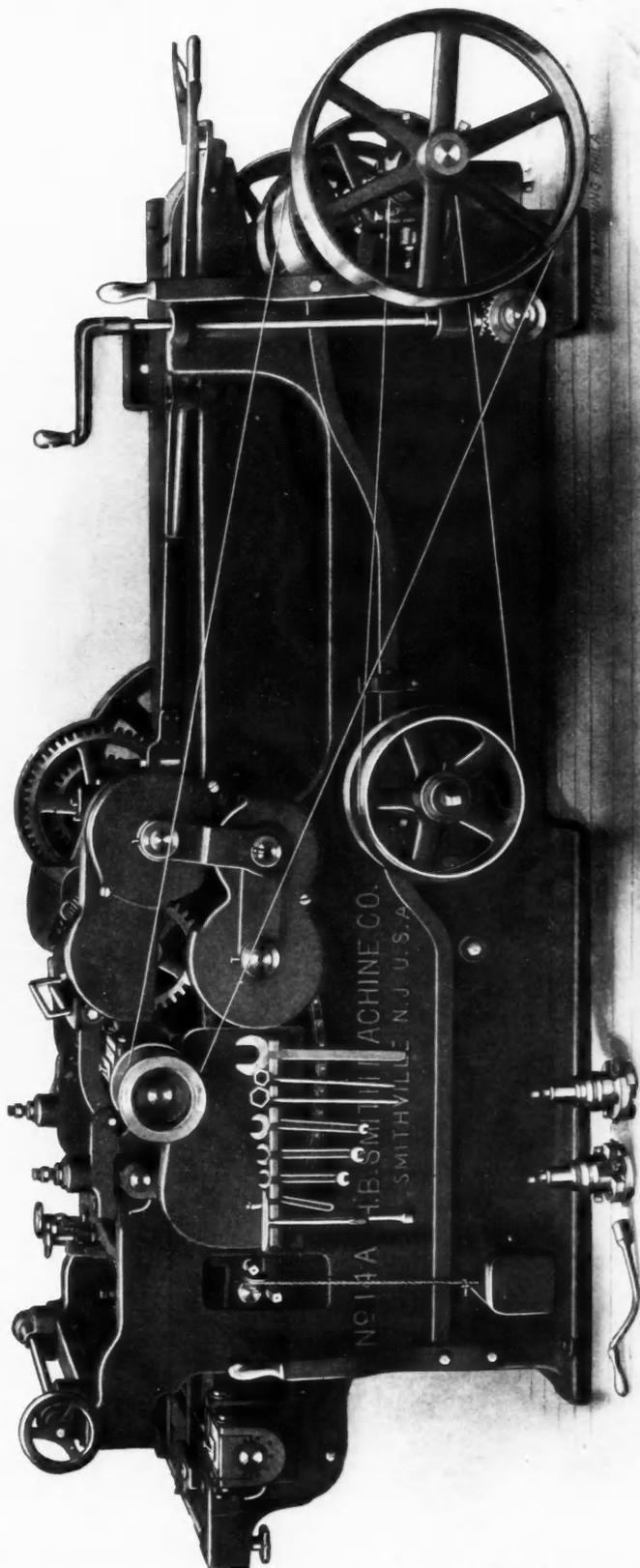
CHARLES SMITH CO., 101 Lake St., CHICAGO

SMITH, of Smithville

A NEW WOOD WORKING MACHINE

For Surface Planing, and for making Flooring, Siding, Etc., Etc.

(SEE CUT BELOW.)



The above cut represents our **NEW COMBINED PLANER AND MATCHER**, which will surface as wide as 24 inches and as thick as 6 inches, and will match plank as wide as 14 inches and as thick as 4 inches. It will make Novelty Siding, Crown Mouldings, Etc. Send for circular.

H. B. SMITH MACHINE CO., Smithville, N. J.
U. S. A.

BRANCHES: NEW YORK, BOSTON, CHICAGO, ATLANTA.



BUILDING PLANS

and complete
specifications
for all kinds of
public buildings

A MODERN SCHOOL BUILDING

¶ Are you going to build a school house, a church, a public library, a city hall, Y. M. C. A. building, office building, house, barn, or any kind of a building?

¶ If so, it will pay you to write to us, as we are one of the oldest and most reliable architectural firms in the world.

¶ We point with pride to public buildings and private residences, built after our plans and specifications, all over the United States, and each is a monumental testimonial of our skill, experience and reliability.

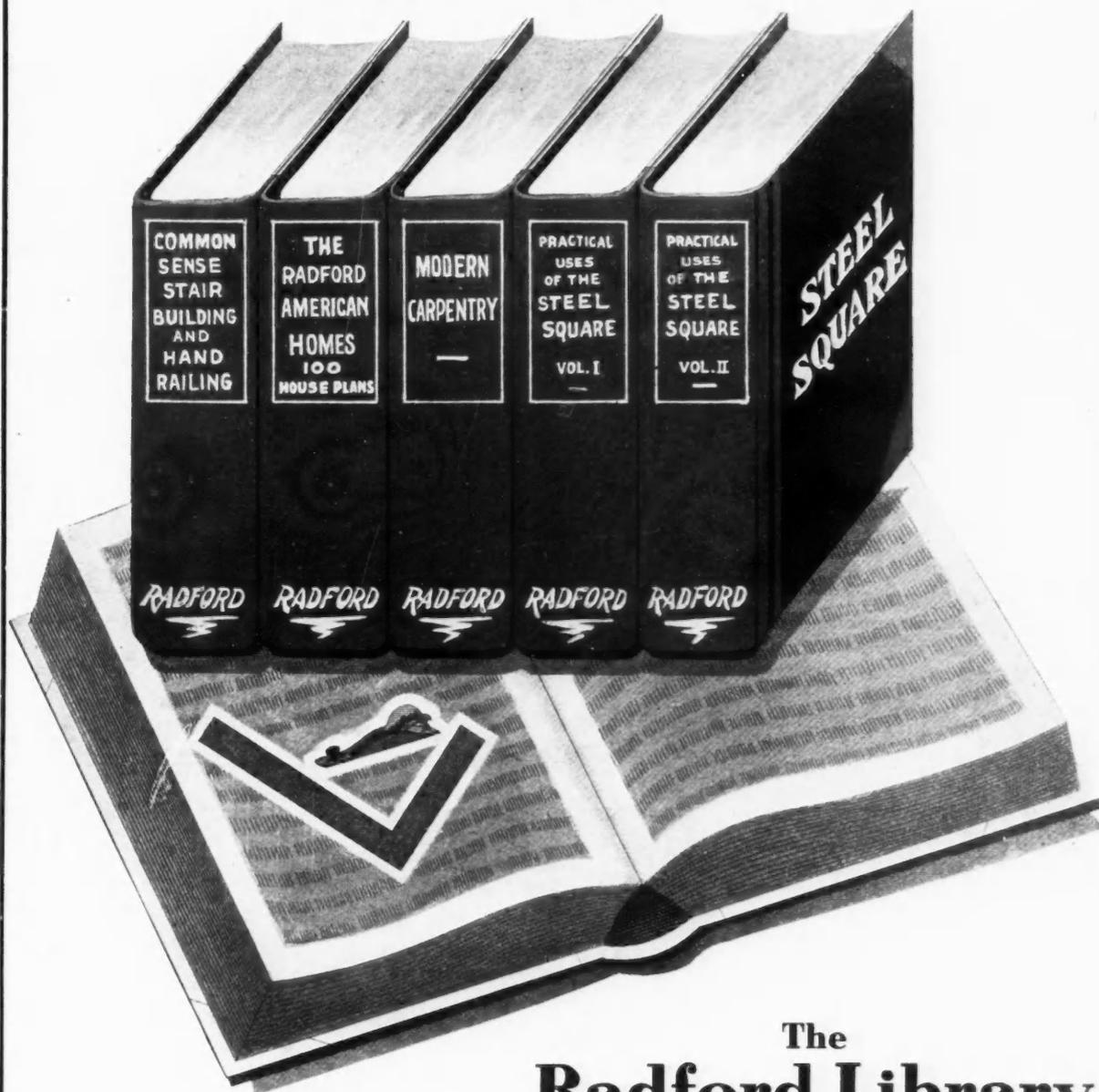
¶ Our charges are moderate when compared with the usual cost for this kind of work. It will pay you to investigate fully. Bank references.

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This is the finest Library relating to Carpentry, Building and Architecture ever placed upon the market. It is the only Library of its kind ever **sent on approval**—and for **ONLY ONE DOLLAR** down and One Dollar per month for four months. This Library is bound in Red Morocco and English Olive Green Cloth, Gilt Tops, Gold Leaf lettering. Every Contractor and Carpenter should have this Library because it treats of everything pertaining to the building of a house, besides containing 200 plans of low and medium priced houses, which will interest his customer as well as himself. Every Carpenter and Mechanic, young or old, will gain valuable information from it.

As Professional Men, such as Lawyers, Doctors, Ministers and Teachers, have their own particular libraries, to which it is necessary for them to refer from time to time to refresh their memories, so should every Contractor, Carpenter and Mechanic have his Library relating to Carpentry, Building and Architecture, to which he may refer when occasion requires.

RADFORD ARCHITECTURAL CO., 194 Fifth Avenue, CHICAGO

THE AMERICAN COMBINED LEVEL AND GRADE FINDER SOMETHING ALTOGETHER NEW

All progressive and up-to-date Mechanics, Machinists, Carpenters, Bricklayers, Masons, Plumbers, Millwrights, Road Supervisors, Track Foremen, Surveyors, Architects, Civil Engineers and others will find this an **Indispensable** invention. A **Civil Engineer that you may have with you at all times. The most practicable, durable and convenient instrument of the day.** The cost of the instrument is so low that it is within the reach of all.



SIDE VIEW.

THE AMERICAN COMBINED LEVEL AND GRADE FINDER.

This instrument, manufactured by Edward Helb, Railroad, Pa., is most complete in all its arrangements, and is the only one of its kind on the market. In size and appearance it is like the ordinary spirit level, being two feet long, three and a half inches wide and one and five-eighths inches thick. As illustrated in Fig. 1, it serves every purpose of the ordinary level. However, on account of the longitudinal recess formed in the bottom, by means of which it is possible at first sight to find the true bottom level of any grade or surface at any distance, the instrument far surpasses the common level even for ordinary leveling purposes. It will at once show the exact height in inches and degrees needed to block up to a true level. The chief distinguishing feature of the Combined Level and Grade Finder, however, and that which gives it its great value, is the graduated dial with the pointer on the side of the level. This dial makes the instrument serviceable for all forms of carpenters' and mechanical work, and for all forms of grading, landscape gardening, excavating, etc., it enables the ordinary laborer to do work which otherwise often requires the expense of a civil engineer. Moreover, the dial in connection with the spirit level makes the instrument a double proof of accuracy, both for horizontal and vertical positions. A booklet of 24 pages, thoroughly indexed, is sent with every instrument. This booklet contains a number of cuts illustrating the use of the instrument in carpenters' work; in plumbing, drainage, getting the height of objects, finding length of base line and slant lines, where the perpendicular is known; also the perpendicular when either the base or slant is known, and a number of other uses. It is simple in construction, not liable to get out of order and in case any part should be broken it can readily be replaced. The low price at which it is marketed brings it within the reach of all mechanics and workmen who would be equipped with up-to-date instruments.



TOP VIEW.

Agents wanted on liberal terms. Apply to

EDWARD HELB, - Railroad, Pa., Manufacturer



It Pays to Buy Good
LEVELS

Catalogue Free
Sold by Dealers

Stratton
Levels are Superior

Stratton Brothers
Greenfield, Mass.

CARPENTERS—READ THIS

Buy a Davis &
Cook Level



Buy of your dealer—or write us. The Davis & Cook Level is made of better material than any other. Can be used to plumb or level. Has two tubes. Can see them 10 feet away, and in any position—under or over. You know the trouble with the old style bulb-in-the-top levels—useless unless you stand over them. Avoid that trouble. We make them in wood, iron, aluminum. Guaranteed. Ask for Davis & Cook Level.

Davis & Cook, Makers. 13 High Street
WATERTOWN, NEW YORK

Genuine Swedish
Iron Shingle Nails

Free
Sample by
Mail



Every
Keg
Guaranteed

These are the kind you have been asking for. Old Fashion Swedish Iron Shingle Nails. Kind grandfather used. Kind you have been unable to get.

Henry J. Miller's Sons, Bridgewater, Mass.

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Offers you an exceptionally good chance to increase your earning power. There is always a demand for the skilled worker. We can show you how to prepare yourself for a better paying position by correspondence, without leaving home or losing any time from your present work. Write for our

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describing our 60 courses in Mechanical Drawing, Architectural Drawing and all branches of engineering work. If you are ambitious you will be interested. Let us prove it at our expense.

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No. 108

Automatic
Drill

One You
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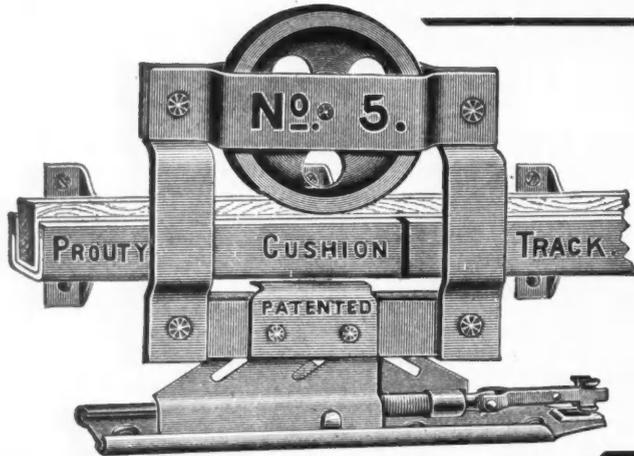
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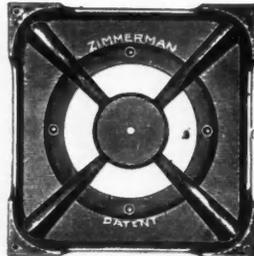
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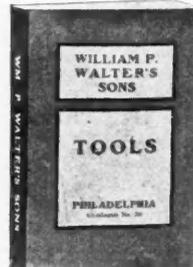
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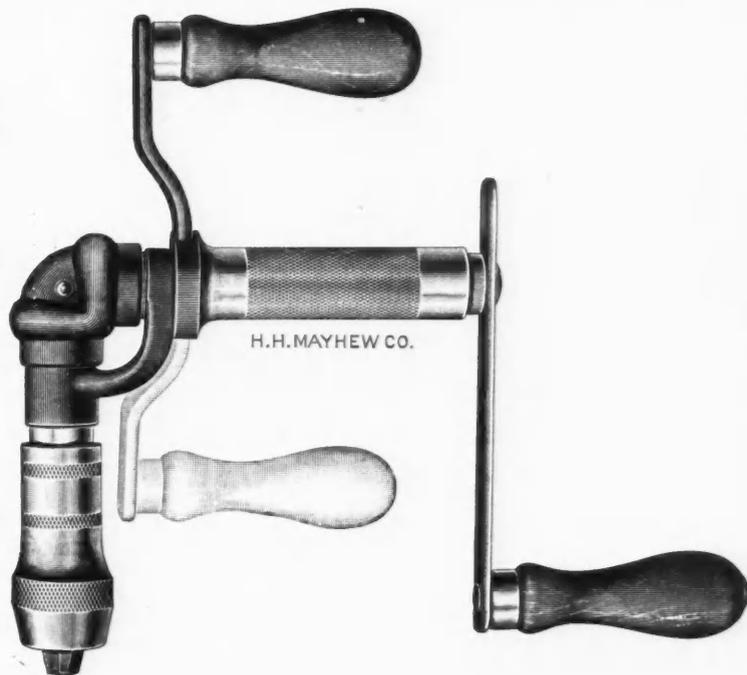
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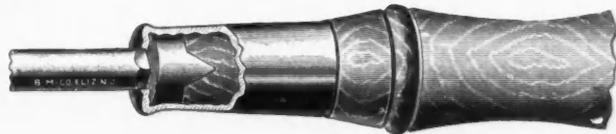
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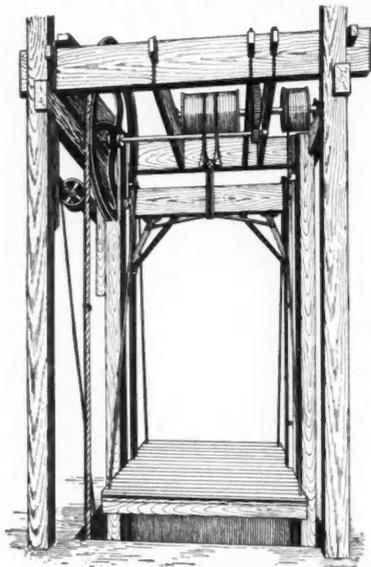
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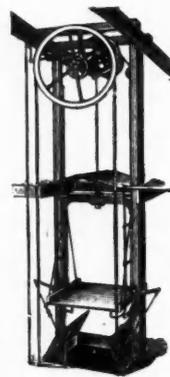
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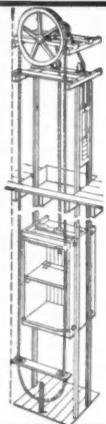


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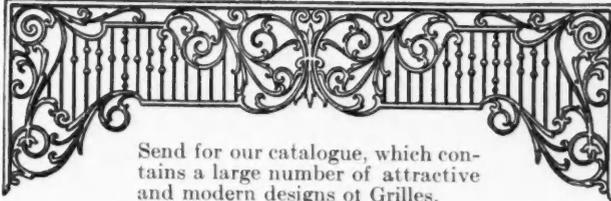
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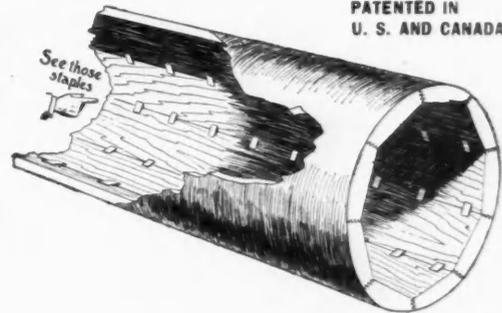
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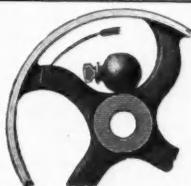
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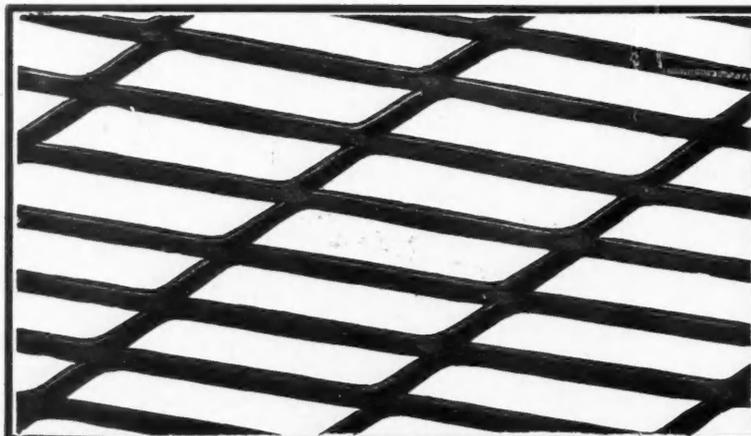
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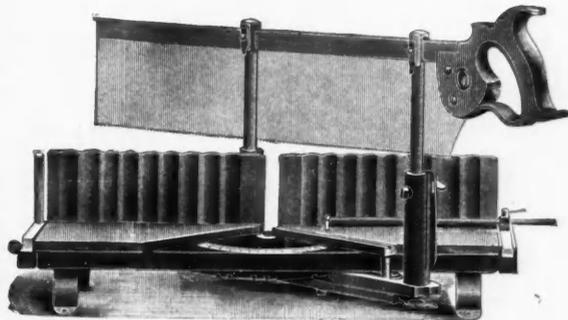
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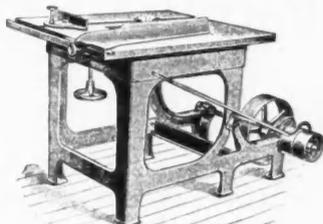


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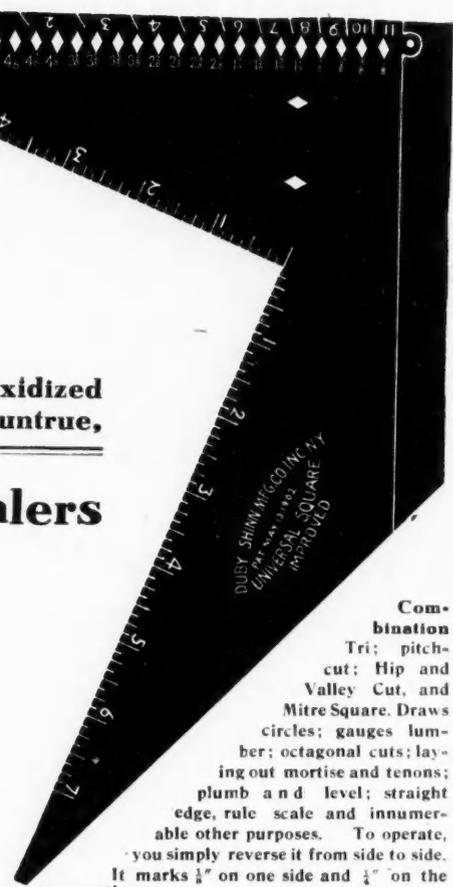
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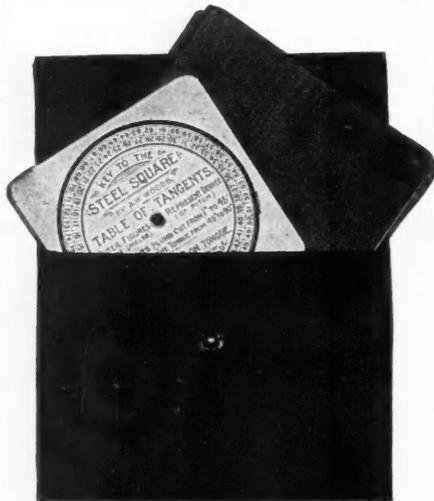
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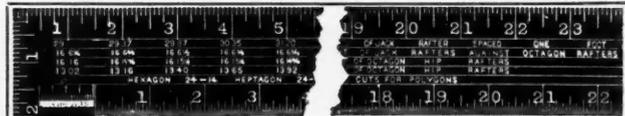


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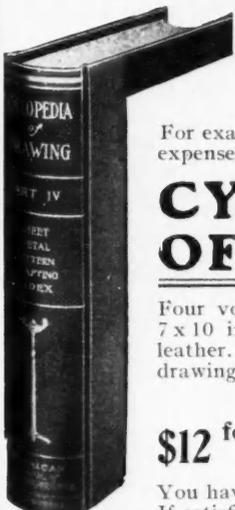


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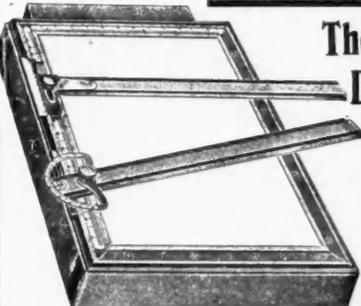
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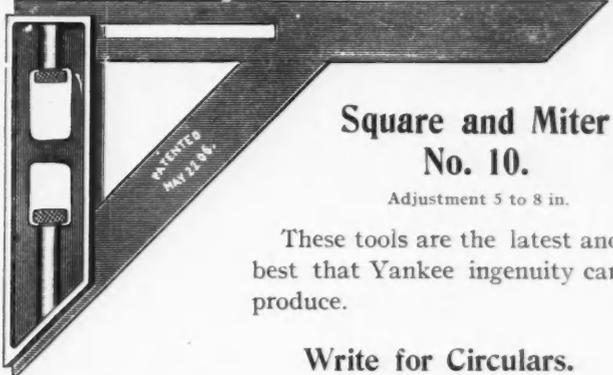
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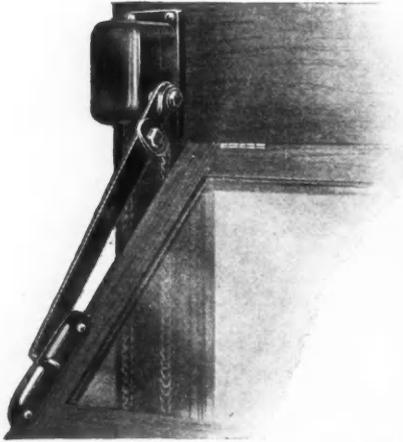
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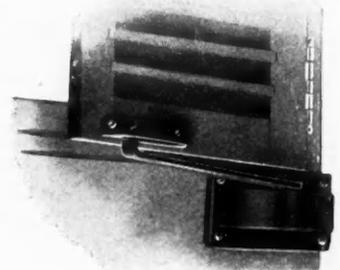
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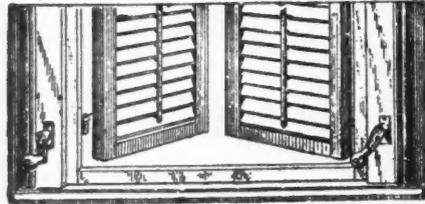


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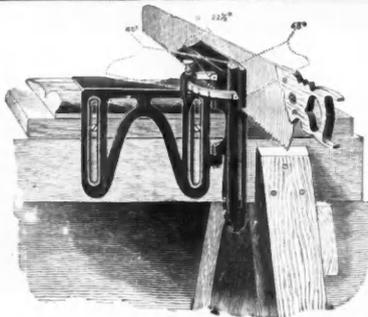
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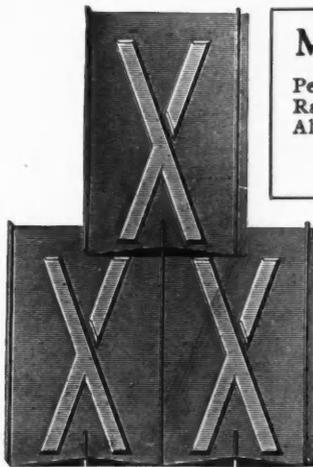
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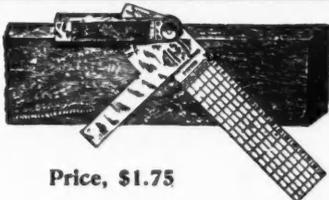
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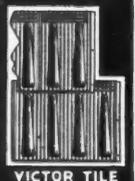
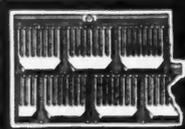
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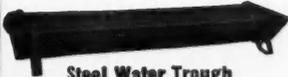
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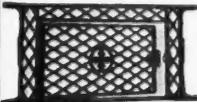


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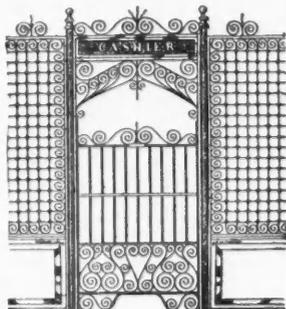
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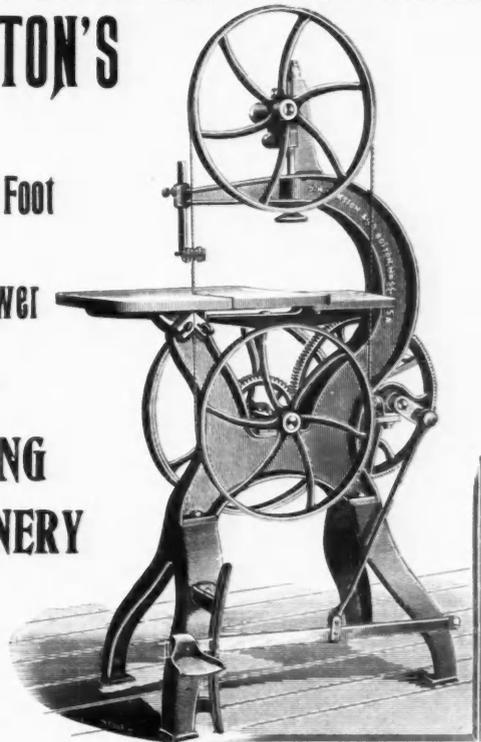
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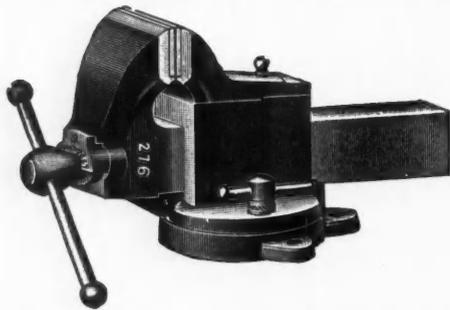
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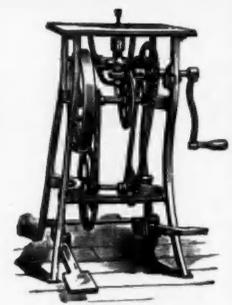


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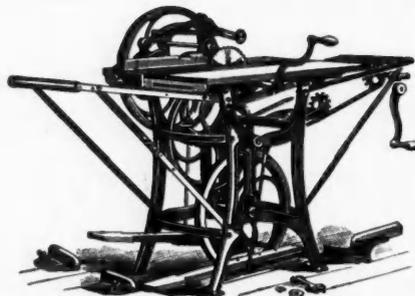
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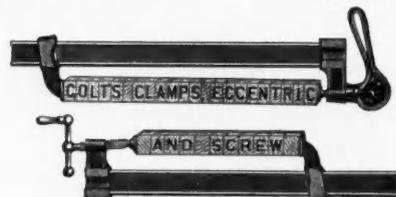
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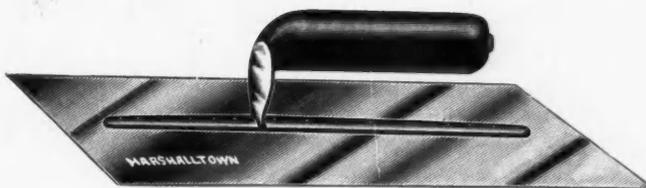
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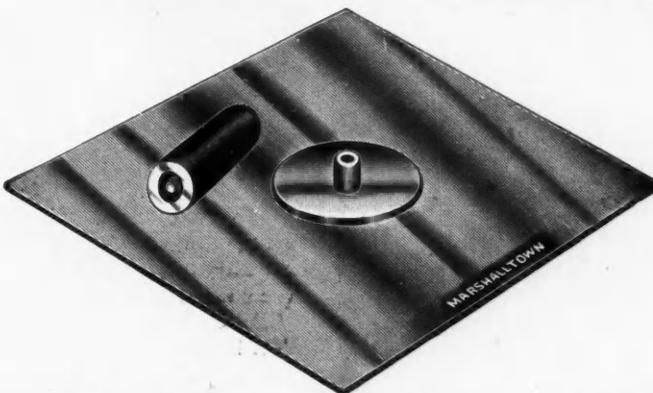
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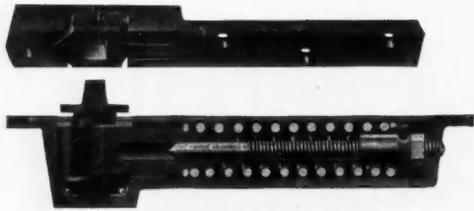
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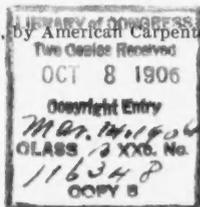
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The Largest, Best and Most Practical Trade Journal in the World for the Carpenter and Builder

SPECIAL CARPENTERS' NUMBER

American Carpenter and Builder

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HE who attends to his own business is never out of a job.

ONE good way of running a small carpenter machine shop is to run it for profit.

ALL things may come to him who waits, but we are under the impression that part of this saying

has been lost track of, and that is that man should work while he waits.

SO many men have the faculty of never being on hand when wanted that the world soon learns to get along very nicely without them.

IN THE very formation of our bodies and brains there are a thousand evidences that we were planned and equipped in every detail of our marvelous structure to achieve great things, to accomplish something worth while; and it is a disgrace not to live up to our birthright.

The Kind Wanted

THERE is still room for argument in favor of "side face" and "down face," but we all agree that the important thing is to have the face properly finished no matter which way it is done. That's what the buyer looks at—the finish. He does not inquire whether it is done "side" or "down," just so it's done right, and it is pleasing to note that the manufacturers are beginning to realize this.

Carpenters and Concrete Construction

THE popularity of concrete in the structural world, instead of curtailing the use of lumber and doing away with the services of the carpenter seems to be enlarging the demand for both. This is due to the fact that many big buildings which might have been built of steel, stone and brick are now being built of concrete, and in this work it takes a large amount of lumber and a great deal of work to make the forms, more in fact than would have been used in a brick building.

Reputation and Confidence

THE best and most profitable way of erecting a building is to build a reputation at the same time upon which future work can be obtained. To build a house which is a disappointment to the owner, no mat-

ter how large your immediate profit may be, will be your ultimate loss.

Every building you erect should be a standing advertisement for securing future business. This often leads to a discussion with the owner, but, as a prominent lumberman said, "every house owner loves to bargain, if you sell him cheap lumber he will be dissatisfied and not come back to you, but if you sell him good lumber at a higher price he will remember the quality of the lumber and forget the price and come back to you."

The best builders, those who are in the field to stay and upbuild a continually growing business, do not misrepresent their work in any manner, and in that way get the confidence of the owner. Confidence is a vital factor in any business and its presence or absence will show itself in a very short time. Get the confidence of the community and you will have plenty of work to do and this confidence builds up your reputation.

Care must be taken not to betray this confidence, for that which has taken years to build can be destroyed in a short time, never to be restored.



Style in Architecture

IT IS often said that style is the language in which an architect expresses his ideas, and there is much truth in the saying, though many architects have acted, and still act, as if style were the idea itself. To make a building subordinate to style is much like making an essay subordinate to the language in which it is written. An architect's ideas may be conveyed equally well in many different styles, but just as few writers can express themselves with perfect grace and ease in any other than their native language, so there are few architects who can produce architectural work of real merit in any other style than that which they have learnt by long custom, or, in other words, than that in which they have been brought up. The young man who wishes to rise to eminence should train himself upon the best work of the best periods, and not studiously measure buildings of a mixed character, saturating himself with misconceptions and imbibing faulty ideas of proportion and construction; but he should bear in mind all the time that the ideal at which he aims is not copyism, but development.

The great hope for the future development of something truly national in larger works, and truly modern in its spirit, is to be derived from the coming of new methods of construction. Just as arch construction necessitated great changes, and eventually led to the production of an entirely different style from that which had preceded it, so perhaps will the adoption of steel and concrete construction in the future lead to as great a change. If it follows precedent it will develop from below, and consequently upon the lines which have become universally accepted in modern domestic work.

What Carpenters Need

SHOULD anyone ask what carpenters need most in a locality where trade is dull, I am afraid the majority would answer "Work," without even thinking what they would receive for their work.

If the same question were asked in a locality where work was plentiful, the answer would likely be that more wages were wanted, and if asked in the small town where they work ten hours, and knowing they only work eight hours in most large cities, the answer would probably be a shorter day. While work and wages are important needs of carpenters, yet they should not lose sight of the fact that there are other needs in this world, besides the almighty dollar.

I have been on many large jobs and found the tools so dull that it seemed as if the only things that were needed here were grindstones and files. Any carpenter, who expects to live his allotted time, needs sharp tools, as nothing will wear out one's life like pushing dull tools day in and day out, although one's life may be dashed out much quicker by careless construction of scaffolding.

Some may say the carpenter trade is not dangerous, with which I agree, yet I will ask whoever worked at the trade for years, and has not seen many carpenters dashed to the ground and either killed or very seriously hurt by material and even tools falling from above on the workmen below. It is true many localities now have laws which compel construction of temporary floors and preventing many of these accidents. Yet these laws at first were ruled out on some technical point until the contractors realized that it was cheaper to protect their workmen than to kill them.

Another place where the almighty dollar plays a very important part, and prevents many good carpenters and builders from doing honest work, and that is where men have some cheap lots and want to build cheap houses to sell. These are built purposely to sell to the uneducated to whom all houses look alike. Still one could be built with matched lining and paper all over the walls and floor, while the other would be just thrown up and have only the cheapest kinds of floor, siding and no lining at all. It is true that most of the large cities now have laws forbidding anyone from building houses as cheap as many would like. Every honest carpenter should do all in his power to enforce this law. In the large cities the laws and also the architect are a great protection, yet I will have to admit that some of the worst work that I have ever seen was worked on a good architect on a large state building.

The carpenter should be on the square and be able to go to work knowing that his life will be perfectly safe and be able to return home at night knowing he has done an honest day's work, not only to himself, but to the contractor, architect, and owner as well, not only an honest day's work to just "us four and no more," but also to anyone who may buy or be interested in the property later on. DWIGHT L. STODDARD.



By J. R. White

THERE are many attractions to allure one into visiting a South African farm. The old farm houses are well worth seeing in themselves, and then the hospitality one finds in African homes, especially in the country, is as simple as it is delightful. In the immediate neighborhood of all villages many farms are within easy walking distance.

A brisk walk of an hour or so is rewarded by a warm welcome, a cup of strong black coffee, and then

In the winter season when the days are cold and nipping, the oranges and guavas ripen.

We had walked one winter morning to a near-by farm, and as our host took us through the orange grove we looked back at his picturesque home half hidden by the great oaks, and exclaimed involuntarily on the beauty of it all.

"The Dutch farmhouse suits its surroundings," someone remarked.



Back Porch of Cecil Rhodes' Residence

an invitation to visit the orchard or the vineyard. Early in the season the trees are laden with apricots and loquats, and the strawberry beds redden the ground for acres. Later one may have a feast of peaches and most luscious grapes in endless variety.

"And it suits the climate," responded our host. "Our forefathers knew what they were about," he added, with the pride of a man who could claim a long line of Dutch ancestry.

The thatched roof in this country is not devised for



Front View of Rhodes' Residence

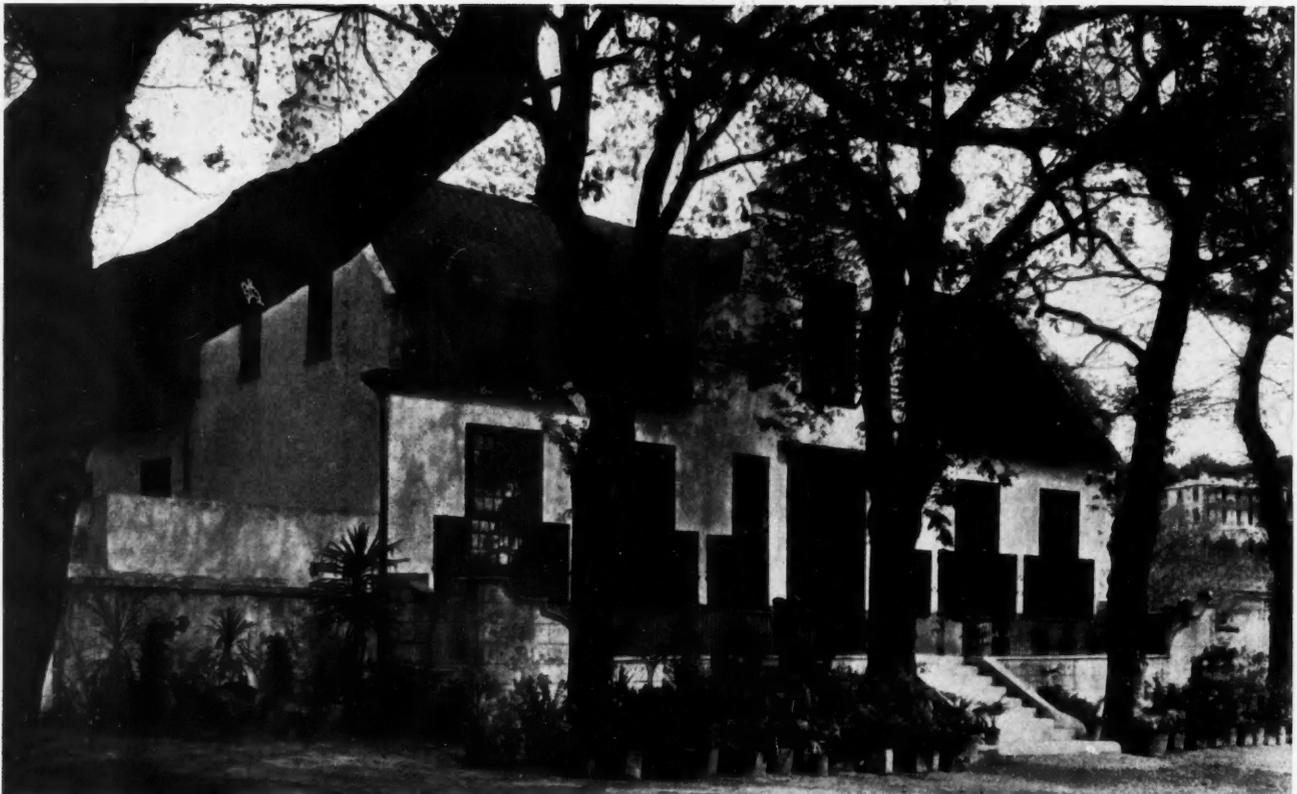
effect. It shuts out the heat of summer. A roof of tiles would be too expensive to be considered for the ordinary farm house, for the tiles would have to be imported from Europe. A shingled roof would be a curiosity in South Africa where wood is too scarce to be cut up for such purposes; besides the climate would make such a roof impracticable.

Our farmer friend explained that the walls of his house as well were built with a purpose. Through

several thicknesses of brick, coated over with cement, even the African sun cannot penetrate.

The small Dutch windows with their many panes of glass, open outward and are protected by heavy wooden shutters. They are picturesque always, and cheerful enough in summer, but give the guest who tarries within a sensation of darkness and dreariness during the days of winter.

The ponderous Dutch door lends a finishing touch.



An Old Dutch Dwelling, Cape Colony

In the old houses it is divided into an upper and lower section. In many cases where the door is a solid panel the farmers have had the taste not to mar the beauty of the rich weathered teak with either paint or varnish. Simple carving decorates the door, and sometimes a massive ancestral knocker.

The Dutch type of house is characterized by irregularly rounded gables. This ornamentation is in the center rather than at the ends. Sometimes a great

If one associates with a Dutch kitchen the picture of rows of shining copper kettles, a neat array of mugs and a trim, hustling housewife, such a pleasing fancy must be modified for an African Dutch kitchen. Here there is the slow-moving, untidy Kafir or Hottentot servant, whose kitchen with its dirt floor and its confusion is as near a reflection of her native hut as a scolding mistress will allow. People who have many servants must pay a twofold penalty—deterioration in



Old Dutch Farm House. Cape Colony

single gable ornaments the doorway, but in the more pretentious houses the gables are in pairs. The resulting contour is always graceful and dignified.

The Dutch kitchen in South Africa is a delusion and a snare, and it is in many cases quite as well for one's appetite if one refrains from penetrating into this dark region. A barefooted Kafir or Hottentot reigns here, and she learns slowly the ways of modern housekeeping. The dirt floor is considered tidy when freshly smeared with cow dung. When this is mixed with blood the floor is as hard as cement, and has a not unpleasing polish. Although the idea seems distasteful, the floor is effective and serves its purpose.

Many of the features of the kitchen were brought from Holland; the oven is built into the wall in true Dutch style, and the great chimney is outlined in considerable proportions on the outside of the kitchen. This room, like all the others, has its lofty ceiling adorned with massive exposed rafters of teak.

their own physical vigor and the final punishment of being ruled by their servants. Colored help is so plentiful and so cheap in South Africa that the African descendant of the proverbial scrubbing and cleaning Holland housewife bears about as much resemblance to this type as her New York society sister of the present day.

There is something very quaint about the front stoep of an African farm house, outlined as it is with stiff plants in their painted kerosene tins. It is usually unroofed. When a protecting cover of corrugated iron painted in stripes of red and white is added, it shows that the present owners think more of comfort than of effect.

Just as in Southern California the wealthy have been discriminating enough to see that they could not improve upon the beauty and the utility of the old Spanish mission style of architecture, so the Englishman in South Africa has been wise enough to borrow

his ideas from the Dutch patterns of the seventeenth century. The homes in South Africa that are most closely modelled on the style of the early Dutch dwelling are certainly the most beautiful. Near two of the suburbs of Cape Town, Wynberg and Rondebosch, are to be found the finest specimen of the real early Dutch house and its modern English imitation. In about 1790, Simon van der Stel, governor under the Dutch East India Company, laid out his wine farm near Wynberg. The great farm house he built with much thought and care, and it stands to-day practically just as he left it. His wife refused to come to such a remote and forsaken country as the southern end of Africa, but he found consolation for her absence by erecting a life-sized statue of her in the niche over his front door. The old chronicles say that it was perhaps in scorn of the inconstancy of his wife Constance that he named his estate "Groote Constantia." The long teak benches are still in place on the wide stone stoep, and we can imagine the company of portly Dutch burghers that met there on sunny afternoons to discuss political affairs, while they smoked their long Dutch pipes.

To-day Groote Constantia is the government wine farm of Cape Colony, but everything that speaks of the early days of van der Stel is carefully preserved. The furniture is of the most substantial Dutch type, and the heavy tables, chairs and wardrobes would fill with delight the heart of a furniture collector who loves things antique. The connoisseur in wines would perhaps find as great delight in the immense, cool vaults, where in tuns, great and small, the wine is stored.

During the whole period of the rule of the Dutch East India Company in South Africa—a period of a hundred and fifty years—there was one sculptor. He has left few works to testify to his genius, but there is a beautiful model standing in relief on the front wall of the old wine vault. The sculptor's name was Anthon Anreith, and this work represents the vintage and Bacchus.

Five minutes' walk from van der Stel's house is his deep bathing pool paved in granite, with stone step leading down to its depths. A trickling stream of clear water from the mountain sources near by issues from the trumpet in the mouth of a playful Cupid, leaning out from a niche in the wall high above the water's edge.

It is not strange that Cecil Rhodes found in van der Stel's home a type he was proud to imitate. Not that the Rhodes house, Groote Schuur, is a servile imitation—it combines rather all that is best in Dutch architecture. Many travellers have declared it the most beautiful house they have ever seen. It is neither large nor pretentious, but every inch of it is in perfect taste. A winding path through an avenue of stone pines shows a vista of hills beyond. A turning brings us to the front stoep. Over the doorway is a great bronze tablet depicting in relief the land-

ing of van Riebeeck and his little company who came to the Cape in 1652, under orders from the Dutch East India Company, to start a refreshment station for the company's ships sailing to India.

The pictures show the plan of the house, but no picture can give any idea of the richness of coloring of the natural woods and the simple harmony of the furnishings. No price was too great for this lover of things beautiful to pay for the pieces of old Dutch furniture that he chose with so much care and pleasure. The wide back stoep looks across a sea of blue hydrangeas to the bluer hills beyond. Comfortable old settees and great brass bound teak chests, firm as ever after many a stormy ocean voyage, furnish this wide veranda.

If one wishes to see how these more splendid types of Dutch architecture may be adapted to a modest modern home, there within stone's throw of Groote Schuur on the Rhodes estate is the home where Rudyard Kipling comes every year to escape the severity of English winters, and possibly the greater severity of English critics.



A Great Concrete Chimney

Out in Butte, Mont., where the great stamping-mills and ore-concentrating works have turned the mountain city into a titanic inferno of tall chimneys, belching black and sulphurous fumes, stands one tremendous tower, the top of which is 350 feet above the ground. When its erection was planned the first idea was to build it of brick. That would have required a thickness of twelve or fifteen feet of masonry at its base. But a constructing engineer from Chicago was called into consultation. He proposed that the huge chimney be built of concrete, and, with some misgivings, the plan was adopted. He prepared a foundation six feet deep, twelve by twelve, of concrete, with a number of steel reinforcing rods. Beginning at the ground level, he carried two thin concrete shells upward for 100 feet. The outer one is only nine inches in thickness, while, separated by four inches of space from this, is an inner shell five inches thick. At a height of 100 feet these two unite into a single seven-inch shell of concrete, which extends skyward until the vast height of 350 feet is reached. This chimney, many feet higher than our modern city skyscrapers, is therefore composed of but fourteen inches of concrete at the base and half that amount for the upper 250 feet. It is not of plain concrete, but is reinforced both horizontally and vertically with a number of small steel rods, which were held in place until the concrete had been deposited around them, making a reinforced-concrete body superior in every way to both steel and brick masonry. There are in the United States scores of these wonderful chimneys.



When a man starts in to pave the way to success with promises, he must expect to make the promises good or he will soon have rough going.

Nursing a Job vs. Cultivating Trade

BY J. CROW TAYLOR

"I 'VE got it," said J. B., as he came down from the roof of a house he was shingling and joined Mosby, Uncle Rural and Lefty, preparatory to have the mid-day lunch.

"Got what?"

"Got an idea."

"Oh!" said Lefty, "I am beginning to breathe easier. You had me scared for a minute, for I thought maybe you've got something that is catching, but if it's just an idea it will keep, and I guess it won't hurt you much."

"No, I don't think it will hurt me much either, but I hope it is catching though, or at least I can get some of the rest of you to become infected with some idea and use it to good advantage."

"Well, if it won't keep until after dinner spit it out, and let's have it over with."

"Never mind, Smarty, when you get a little older you will begin to have some ideas, too, and know how it feels, especially how it feels to have some one make sport of you. I have been studying all morning on this problem of cultivating business. Of salesmanship or whatever you may call the thing that will help us get more business and better business. And, the idea I've got is that the main thing is not so much to encourage a man to build as it is to encourage him to build better and more extensively than his original plans call for. I got a pointer the other day down at the lumber yard from the manager, who was explaining that he did not handle much low grade stock, and said that after a man buys lumber and pays for it he forgets the original cost and his likes and dislikes are influenced solely by the quality of what he has got. In other words, the man that buys good stuff is pleased with it after he has it, and being pleased with it he comes back to the same place where he got it, and gets some more when he is in the market again, while, on the other hand, should he drive a bargain and afterwards become displeased with the stuff, he is very likely to go after material somewhere else the next time he is in the market. The pleasure of bargaining is only temporary, and the lasting pleasure, the kind that makes a man come again and feel glad of it is the getting of something that is good and worth while. Now, then, apply this same idea to the carpentry trade, and I see where by encouraging a man to build better and probably more extensively than the original plan there is not only a chance to get lots more work, but also to leave the man better satisfied with the results. There is too much tendency when a man goes to building a house to make use of the bargaining instinct and figure out what is the cheapest way of doing it. There is a certain amount of this bargaining instinct inherent in the American make-up, but I believe a lot of it is due to the lack of specific ideas,

of lack of cultivation and development, or definite ideas of just what they do want when it comes to home building. That's why we find a man giving trouble now and then by coming around and making changes in his plans from day to day when some one makes suggestions to him, or as a new thought occurs to him. It is a problem we had up for discussion once and Uncle Rural told us the thing to do was to make a man want what we had to offer him or what was in his plans, so that he would not always be changing them. Adding this new thought of mine to that, I figure it out that it's up to us to engage, cultivate and shape the interest of the man we are building for by developing new thoughts and suggesting this or that, adding to or altering the original plan so that when the building is complete it will cost most, but will be better than the builder expected originally, and after he forgets the cost he will be pleased with it."

"J. B., I see where you are going to get in trouble with Uncle Rural in about two minutes and a half," said Lefty. "Did you not get a lecturing at one time from him on nursing a job? And what you are talking about now sounds a little bit like nursing a job, but it makes me think more about a barber we've got that landed down here from St. Louis. When I go into the shop to get a shave he first wants to cut my hair, then he wants to give me a face massage, when he gets through shaving me, then a seafoam. In fact, he insists on offering me every service the shop affords every time I go in. It's such a habit with him that it's got to be second nature, and grew out of the St. Louis barbers' idea of working their job for all there is in it, or rather working their patrons. That's what this idea of yours sounds like; it sounds like working a man for all you can get out of him. Ain't I right about it, Uncle Rural?"

"No," Uncle Rural replied, "you are not right. There is quite a difference, as well as distinction between working a man and giving him good counsel. J. B.'s idea is good, and while it is true that some people might take this same idea, like they do the world over, and abuse it, these features we can never get clear of. But, because an idea is likely to be abused by some one is no reason whatever for it not being used if it is a good one. It is a carpenter's duty to study and develop new ideas in building and wood work, to supply these ideas to would-be builders, and naturally he should get as returns for his trouble an increased amount of business. On the other hand, if a man just drifts along, does what he is called on to do and don't have anything to offer himself except his services as a skilled worker, he will never amount to a great deal. I might add that that is the trouble with most carpenters; they allow themselves to drift too much. Some people call it getting in a rut, but no

matter what name you call it by it's a thing that a man must get rid of if he expects to ever distinguish himself. We don't want to drift with the current, but set up a little cross current of our own. We don't want to lose our identity in a beaten path or rut, but strike out and make a way of our own. To do this

homes than ever before, and there is a general desire to build better, so that all we need is for somebody to shape it into a definite form, and that's where the carpenter should get in his work."

"Speaking of individuality," said Mosby, "it is all right I guess, and I have noticed by the papers that



"I've got it," said J. B. as he came down from the roof of the house

we must develop individual thought; not only develop it, but make use of it, and the proper way to use it is logically contained in J. B.'s idea. Use it by encouraging a man to build better than he probably intended to build. Not only better, but to include in his building features of individuality. We are reaching an age in this country when home builders as a rule are prepared to expend much more in the erection of

it is a feature of the building operations during the past year or two, but when the idea of individuality gains headway and becomes a fad, so to speak, it soon begins to take on freakish tendencies or abnormal features here and there, and what was at first a good idea develops into a passing fad that takes on grotesque characteristics here and there, has but little more staying qualities than the fashion in women's hats.

The man that falls a victim to it finds himself after the storm has passed in the possession of a home that attracts attention a minute simply because of its freakishness and not because of any natural beauty."

"Oh, well," said Uncle Rural, "that would be another case of a good idea running amuck when it gets to leading individuality into the land of freaks. Still, it's better to make a freak or two than not to make anything new, and in this respect even freaks serve their purpose in a way, as they help to pull us out of ruts and start us on to a new plane of thought. Go to the cement plant, or go to any large industry, and look at a lot of company houses if you want to see an extreme idea of lack of individuality, and then you will be ready to admit that even a few freak houses mixed in to break the monotony of a lot of company houses making up an industrial village would be a relief. But, as in the case of J. B.'s idea that Lefty jumped onto, there is no need to be freakish. A man can display individuality and still play in harmony, so to speak, especially if he has a natural eye to beauty."

"An eye to beauty?" chimed in the voice of Lefty. "That's J. B., all right; didn't you notice him Sunday?"

"I noticed him," said Mosby, "and I also observed that J. B. is not the only man that has an eye for beauty of the feminine kind, but you boys are off the track a little. There is another kind of beauty besides the kind that wears skirts; it is beauty in designing, and equipping of houses that Uncle Rural has reference to."

"Well, then," said Lefty, "just what is beauty?"

"Beauty, my boy," said Uncle Rural, "according to the old Roman definition is 'multitude in unity,' or, as we might translate it to read to-day, a harmonizing with local surroundings and conditions. To use this in the broad sense, it not only means that you should not build a mansion on a little 2 by 4 lot, or a shack on a big plantation, but also that detailed design and coloring and everything should harmonize with the surroundings so that every part of the landscape should look like it belonged there and is not a false note or a borrowed bit of some other widely different part of the country. There are many other definitions of beauty, the most popular one for boys of your age applying to the feminine type, and these are not to be forgotten in any way or at any time or place, but there is room for an extensive study of the subject of beauty as applied to designing and building homes, and it is in this study that a man should develop his individuality. Moreover, when it is developed under conditions of this kind of consistent study of what really constitutes harmony and pleasing effects—a study in which you should always remember that simplicity and not complexity is the best keynote—there is not much need to worry about the element of freakishness outcropping very seriously, for most of the freaks are the result of abortive ideas begotten by an untrained desire, and are not the result of carefully

trained and well-formed theories that come from persistent study. That's where J. B.'s idea fits in, and it's a good one, one that I hope you boys will follow up. There is no need to tell the people that they want to build homes; there is an inherent desire in the human race to build homes, and the best place for the exercise of your talents is in developing that desire until the prospective builder will build better than he intended, build a home of which he will be proud in the future and which will reflect credit on the builder. You just stick to that idea and get some of the other boys to take it up, too, for it is a good thing that every man can push without hurting anybody."



Secret of the Pyramids

A Brooklyn engineer of note, who spent several years in Egyptian exploration, is of opinion that the mystery of the pyramids has been solved. The most extraordinary pictures showing 200,000 men hauling on a rope to raise a 200,000-lb. stone into its proper niche near the pinnacle of old Cheops is familiar to all of us. Theories as to the mode of construction are legion. But all the engineering logic and experience of to-day and for the last 100 years has failed to cast more than a shadow over the mystery. Piazza Smith thought he knew all about it, but nothing of a practical nature has come of his researches.

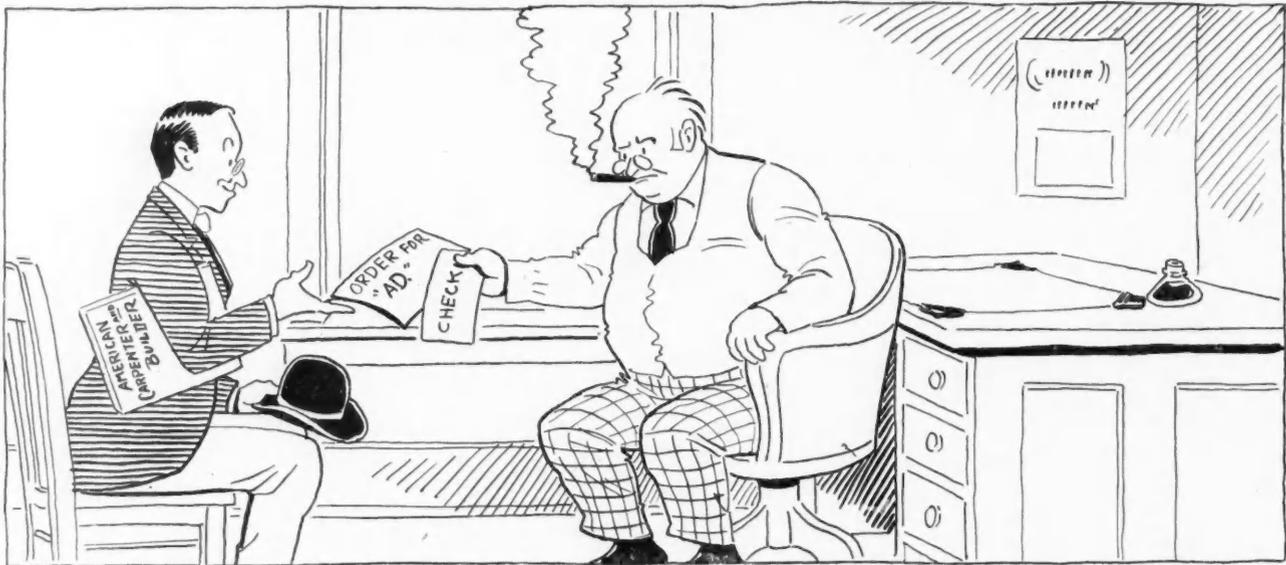
It is singular that our wise men did not think of examining with critical eye the tools found in the catacombs. The old saw—a workman is known by his chips—is no better than a workman is known by his tools. Our Brooklynite says that the tools are not those of rock masons, nor mere plasterers' implements for filling the cracks between stones, but are plainly the crude Egyptian plant of operatives engaged in mixing and laying cement. What a splendid patch of sand they had as a foundation for their cement!

Cement is the coming building material. Railroads are renewing their steel, iron and stone piers, abutments, culverts, etc., with it, and it is expected to last forever. No great skill is required in manipulating it. There is no chiseling, hammering, doweling, no heavy lifting with derricks, no misfits. The industry already has grown to enormous proportions. Drop a sack of dry cement to the bottom of a river and in a few minutes you have a solid stone that never will wear away. Drop 1,000 sacks on top of it and round it and presently you will have a foundation that will sustain for all time a million ton bridge.



The price of good quartered oak is now getting so high that furniture manufacturers and others using this class of material extensively are not only talking about mahogany, but they are taking it up and figuring that there is very little difference in the cost of a piece of furniture made from quartered oak and one made of mahogany. Take a table that retails for about \$25.00, for example; there is not really much more than a dollar's difference in the cost.

Mr. Doubter and the Advertisement



Mr. Doubter (to the advertising solicitor)—“Well, well, don't say any more. Here's my ad.; I'll take a chance anyway.”



“There's some more money gone, but I got rid of him. The best thing I can do is to forget all about that magazine.”



But after the answers began coming in Mr. Doubter couldn't do it.

Short Talks With Our Subscribers

OUR cartoon this month depicts a condition which may be a little exaggerated—but only a little. The letters which advertisers receive from our subscribers may not be piled in a promiscuous heap, like that shown in the third illustration, but they



Advertising Doesn't pay—He has Tried it. No, not in the American Carpenter and Builder.

get the replies just the same. Many and many an advertiser is induced to try an advertisement in the AMERICAN CARPENTER AND BUILDER, not expecting to get any greater results from his announcement than he has secured from other advertising in the past, and Mr. Doubter's surprise is no

greater than that experienced by hundreds of others.

In this little talk with our subscribers we are going to take them into our confidence and tell them something about the advertisers who assist us in making our magazine so valuable. Without the aid of the advertiser we could not give them such a nicely printed magazine, so many practical articles, so many fine illustrations, nor many other things which go to make the AMERICAN CARPENTER AND BUILDER "The World's Greatest Building Paper."

The members of our great family of subscribers all realize this, and they are interested in seeing just as much advertising as possible in the magazine, for they know the more advertising there is the better magazine they will get. In order to be of the greatest possible assistance to the magazine they



THE DEGREES OF HAPPINESS
The Small Space



The Larger Space

have with one accord determined wherever they can to buy the materials advertised in its pages when in need, and wherever possible to buy direct from the advertiser. This accounts for the great results which advertisers secure when they use our magazine.

Our readers have found that we accept none but reliable advertisers, and they also find that they can secure better prices, prompt service and more satisfactory treatment in dealing direct with these advertisers.

The illustrations on this page give a little idea of

what our experience has been with the advertiser "before and after using." First, we have the man who has advertised, and he knows all about it—"it doesn't pay." He admits he never used the AMERICAN CARPENTER AND BUILDER. He is at last persuaded that perhaps there may be something in a circulation of 30,000. Note the change as he takes off his coat and proceeds to open his morning's mail.



He Tries the American Carpenter and Builder

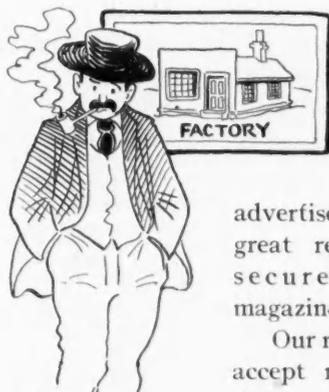
Then we have the man who tries a small advertisement. He is pleased with the way it looks in our magazine, because even a small space can be made attractive when it is nicely printed. A little later, encouraged by the results, he ventures to use a page. See how much more pleased he is. He will be even more so when he discovers how many

more of our subscribers "sit up and take notice" when they see his striking announcement, and send in their orders.

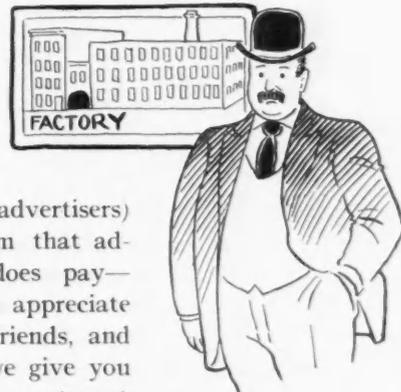
Last we depict the man who is doing a small business, or no business at all. He doesn't advertise

because "advertising costs too much." He refuses to believe that there is another side to the argument. Yet the other picture shows another man's view—and it is the view of the man, too, who speaks from experience,—"It's worth all it costs."

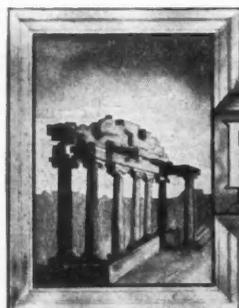
These are not exaggerated examples—not at all. And our readers are doing their share (by their co-operation in buying of advertisers) in convincing them that advertising really does pay—and pay big. We appreciate your assistance, friends, and assure you that we give you full credit for the great part you have played in this good work, and we will endeavor to repay you by giving you a better and more practical magazine every month. Keep it up.



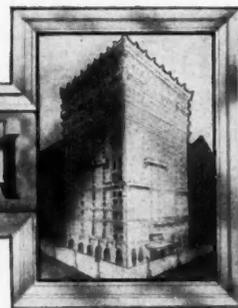
"Advertising Costs Too Much"



"Advertising is Worth all it Costs"



BUILDING CONSTRUCTION



J.A.F. Cardiff.

Building a Home

A SERIES OF ILLUSTRATED ARTICLES COVERING CONSTRUCTION DETAILS IN THE ERECTION OF OUR AMERICAN HOMES—FROM THE LAYING OF THE FOUNDATION TO THE DELIVERY OF THE HOUSE TO THE PAINTER

PLATE 33, illustrates windows in both frame and brick walls with inside blinds projecting in the room and folding back flat against wall.

Fig. 142 illustrates the window in the frame wall. This wall is constructed of two-inch by five-inch studs set 16 inches on centers. Studs are doubled about window and door openings and are doubled for the head and sill of each window and the head of each door. One row of herringbone crossbridging is provided between the studs for each story.

The outside of the framework is covered with 1-inch by 8-inch matched or ship-lapped hemlock or North Carolina boards. These boards should be laid diagonally in preference to horizontally as they make a more rigid wall when so laid.

This sheathing is covered with a heavy tarred or rosin sized building paper, well lapped at all joints and well turned in at all corners and angles.

The exposed covering of the exterior of the wall consists of shingles laid five inches to the weather with broken joints and of random widths. Shingles over six inches wide should be split. Shingles should be well nailed with two galvanized nails to each one.

The inside of the wall is plastered on wooden lath and grounds are nailed to the studs to form a gauge for plastering and to give a nailing for the trim. The strip on which the studs are hung should be of the same material and finish as the adjoining trim. The inside stop head also serves the purpose of a blind stop.

The blinds are hung on a special hinge as shown, which permits them to be folded back against the wall, clear of the trim.

This manner of folding the blinds is not quite so good as the methods given in previous numbers as the blinds are rather unsightly and are great dust catchers. This method, however, is resorted to quite frequently owing to lack of space for a blind box.

The window frame is known as a box frame and the space between the box and the stud is either filled with 'scratch' mortar or calked with oakum, so as to make it wind proof.

Fig. 143 shows the same construction adapted to a masonry wall. The window frame is set so as to give an eight-inch reveal. The masonry jamb is re-

bated for the frame and the joint of the frame with brickwork is covered with a moulded staff bead.

The construction of the heads and sills is about the same as in previous window frame illustrations.

The wall is of brick, thirteen inches thick and the opening is spanned on top by a stone lintel or a brick face arch, back of which is turned rowlock relieving arch over a wood lintel or center.

The sill is of stone cut with a wash and has raised lugs or stools to receive the brick impost or jamb. The sill is usually two brick corners in height, eight inches longer than the width of the brick window opening, and is of a proper depth to extend under the wood sill at least two inches. The projecting portion of sill has a water nose or drip cut on the underside. The sill when first set should have mortar placed only under the ends which receive the brick imposts. The portion of the sill spanning the opening should be kept free from mortar until the building is topped out, as the settlement, which inevitably occurs, would be likely to crack the sill if bedded in mortar under the center. The open joint however should be well pointed up after the settlement has taken place.



To Upbuild Georgia

At the annual meeting next week of the Georgia Industrial Association, largely representative of the cotton-mill interests of the state, special attention will be given to the question of immigration and addresses will be made by men thoroughly acquainted with the subject and of practical experience in the field. For several years efforts have been made to establish in Georgia a state bureau of immigration. Public sentiment in favor of it seems to be at present stronger than ever before, and it is hoped that the gathering next week may crystallize the sentiment so effectively as to induce positive action by the next legislature.



Corticite is the name of a new cork insulating material invented by a Portuguese firm. It is said to resist alike the cold of a Siberian winter and the heat of a tropical summer, and it not attacked by insects, even by the white ant. When made into bricks and slabs it can be sawed like wood and will not take fire.

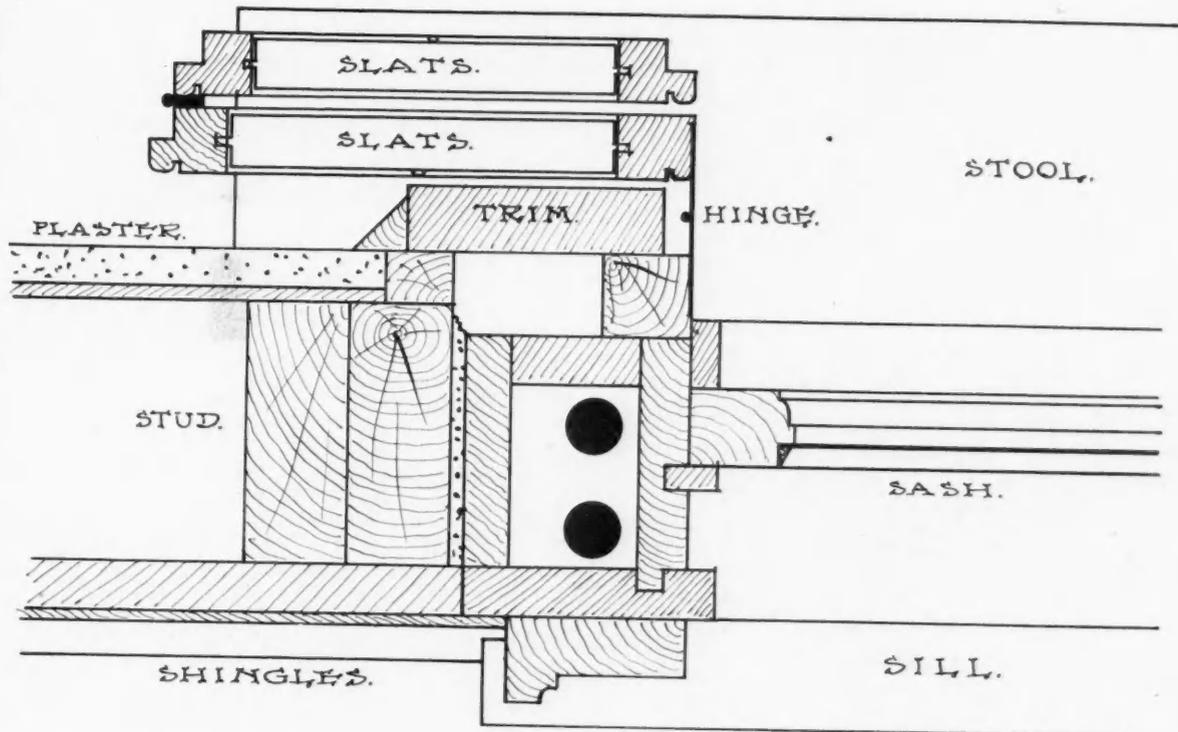


FIG. 142.

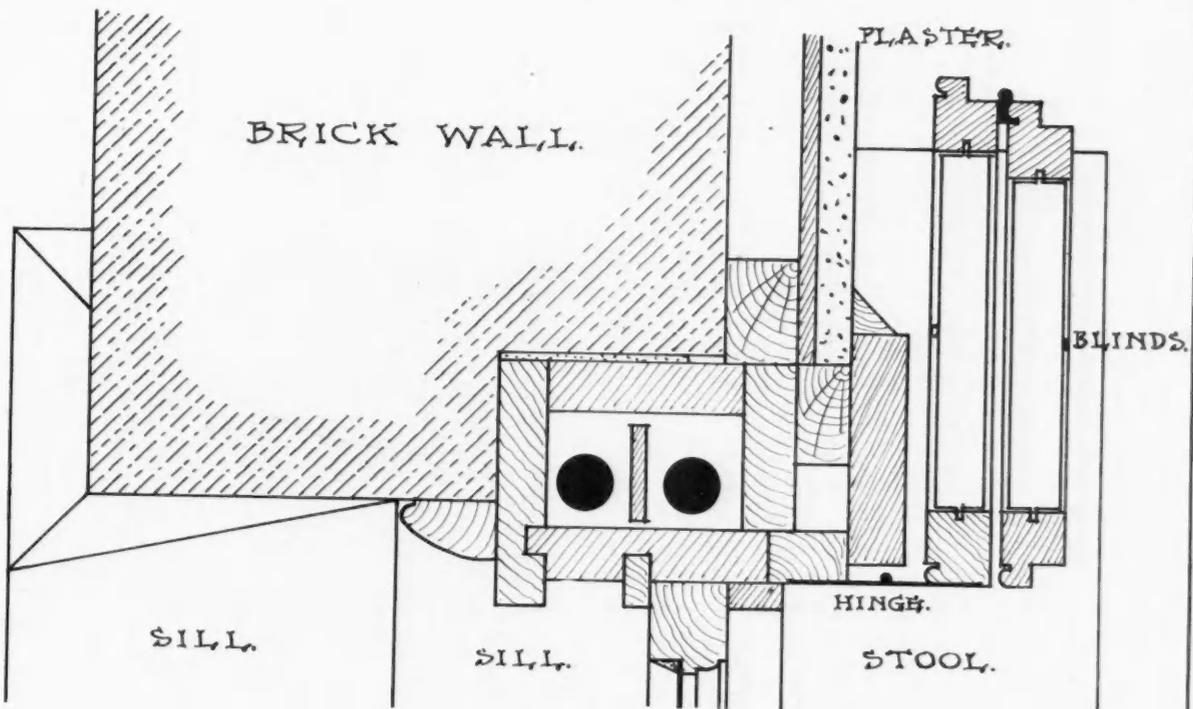
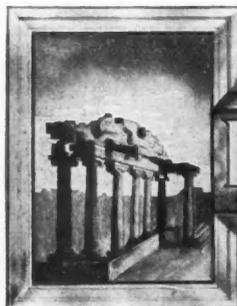


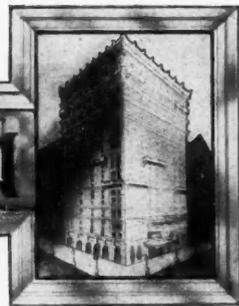
FIG. 143.

PLATE XXXIII.

WINDOWS.



BUILDING CONSTRUCTION



J.A.F. Cardiff.

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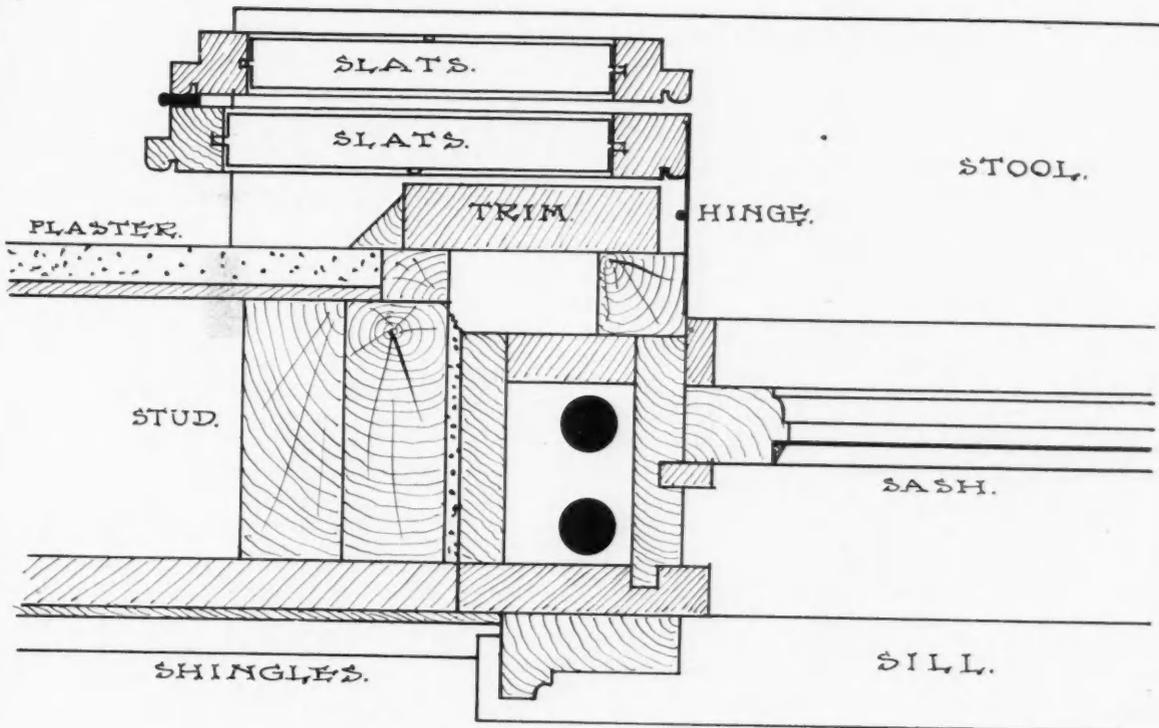


FIG. 142.

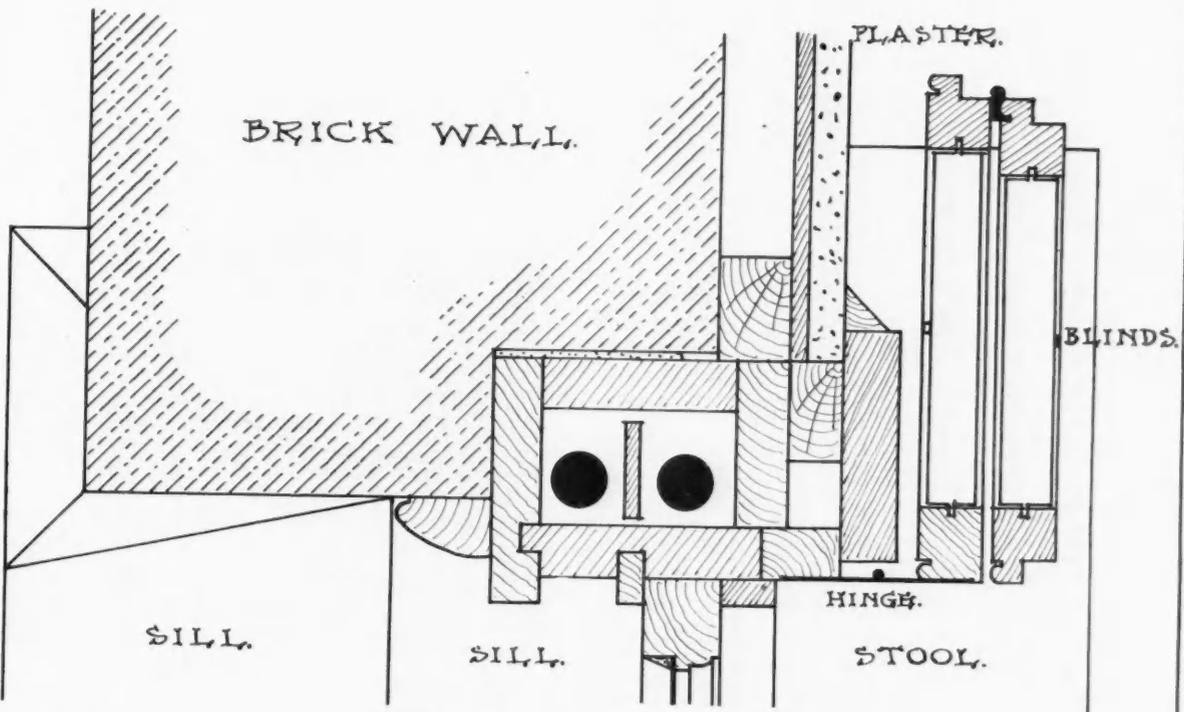


FIG. 143.

PLATE XXXIII.

WINDOWS.

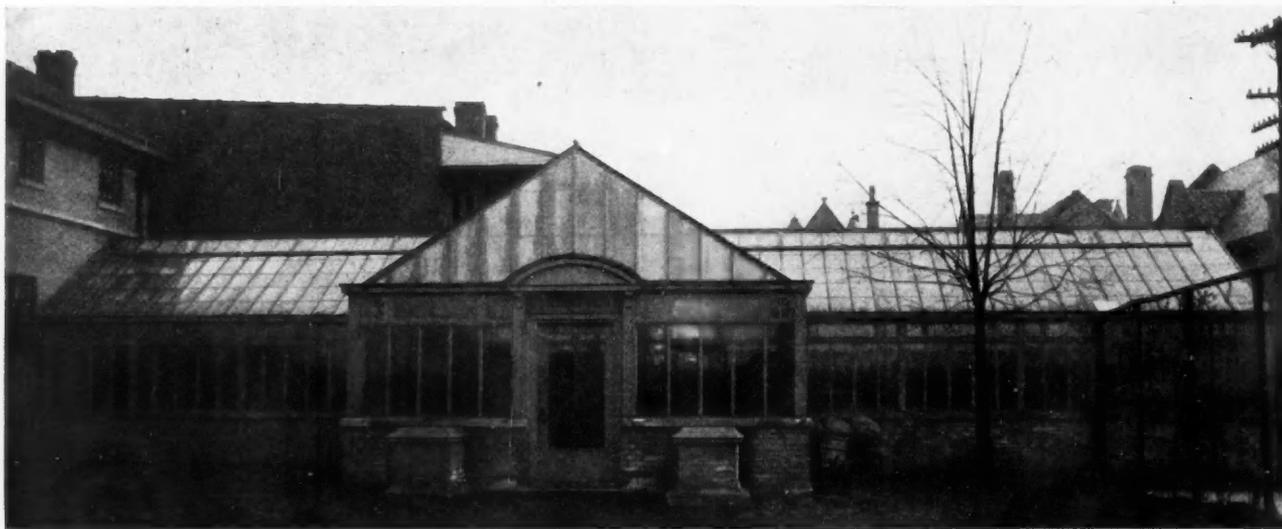
Modern Greenhouse Construction

INCREASING POPULARITY OF GREENHOUSES AND THE METHOD OF CONSTRUCTING THEM—ARRANGEMENT AND KINDS OF MATERIAL TO USE

By George E. Walsh

THE popularity of greenhouses, conservatories and cold-frame plants for the cultivation of plants the year round makes their designing and construction of vital importance to carpenters in both town and country. The greenhouse has reached a stage of development where it is no longer an experiment, but a commercial plant or factory built along

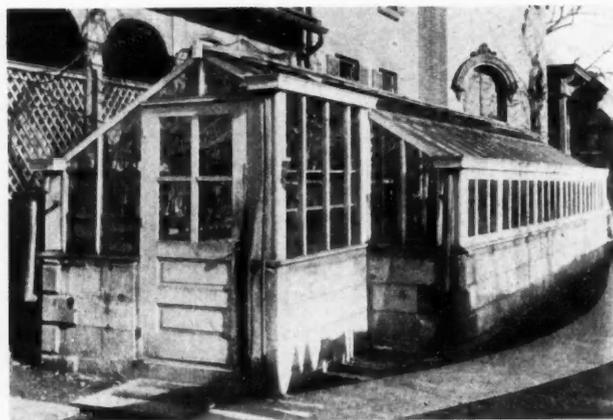
Greenhouses may be built all the way from \$500 up to any amount desired. A lean-to greenhouse, 20 by 10 feet, complete with beds, ventilating apparatus and heating plant, can be put up for \$500 in any section of the country, while in regions where lumber and labor are cheap the cost may be reduced to \$400 and even \$300. In such a simple, inexpensive house suffi-



exact lines from which certain given results can be obtained. Its lay-out and construction should be just as exact as that of any other building, and to give entire satisfaction it is necessary that every part of it conform to rules which experience has demonstrated as the best.

In the treatment of a plant factory of this nature it is necessary to consider the greenhouse, conservatory and cold-frames separately, while to a certain extent covering the same needs and requirements of growers of plants and flowers, they are totally different in their size, design, method of construction, ventilation and heating. The greenhouse whether for amateurs or professionals is the most important for it is built on a more ambitious scale and assumes to cover more ground and accomplish greater things. Greenhouses for amateurs are becoming the most popular accessories to country homes. In the past the owner of a greenhouse was considered a fortunate individual, and only the man of wealth or a commercial florist could own one. They were considered too expensive luxuries for the ordinary owner of a country place. But to-day all sizes and styles of greenhouses are being built, and few suburban or country places are too small not to have space enough for an amateur greenhouse. Moreover, the amateur greenhouses pay, that is they pay more than good interest on the money invested in the abundance of flowers and vegetables raised.

cient plants can be kept through the winter for the ordinary household. There is a general plant room for flowers and vegetables, a seedling section, a special room for raising some choice flowers such as violets, a work room, and the heating plant. The conservatory is usually an adjunct to the house, with an inside entrance, cold frames and hot beds are places where the



heat is obtained entirely from the sun and the fermentation of the manure; but greenhouses proper are independent outside structures which have their own apparatus. Where a lean-to is built on one side of the house, the heating may be derived from the house system of steam or hot water by means of a set of

pipes and coils run through the sides of the house. Such a greenhouse has many economical advantages, both in construction and heating.

If a lean-to greenhouse is built it should face toward the south, with the house forming the wall on the north side. The slope of the lean-to should average about one foot in twenty. The foundation walls

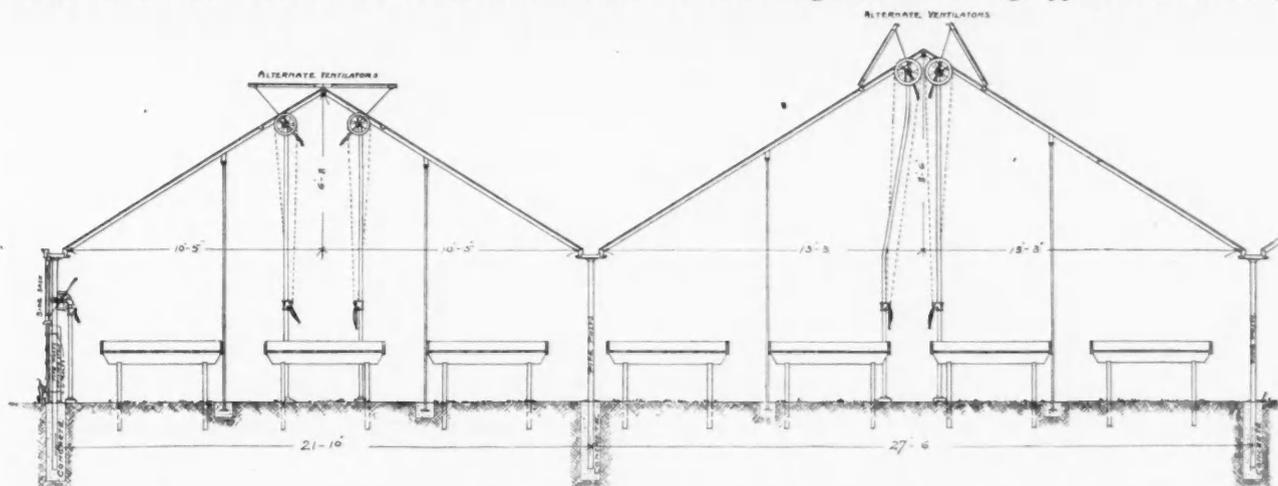
of such a heating plant is less than 34 inches, diameter 20 inches, and diameter of fire pit 15 inches. The supply and return pipes are two inches in diameter. These specifications are for hard coal, but when soft coal is to be used a larger size boiler should be used. The size of boilers and heating apparatus is generally rated by the amount of glass surface for different tem-



should be made of brick, stone, cement blocks or other masonry. The walls should be carried at least two feet below the surface level, and should extend two or more feet above. If masonry walls are not desired, the wooden or iron frame of the house should begin on a concrete footing. Good cypress free from sap makes an excellent wood for this purpose. The measurements of the sills, plates, ridges, gutters and sash bars should be made in advance and cut to rule. When

A boiler plant suitable for 750 square feet of glass surface where the temperature is to be kept at 55 to 60 degrees in zero weather can be used in a house with 1,160 square feet of glass surface if a temperature is needed of only 40 to 45 degrees. With five pounds of steam at the boiler a temperature of 150 degrees in the pipes for water is maintained.

Much depends upon the construction of the house and the design of the heating apparatus in securing



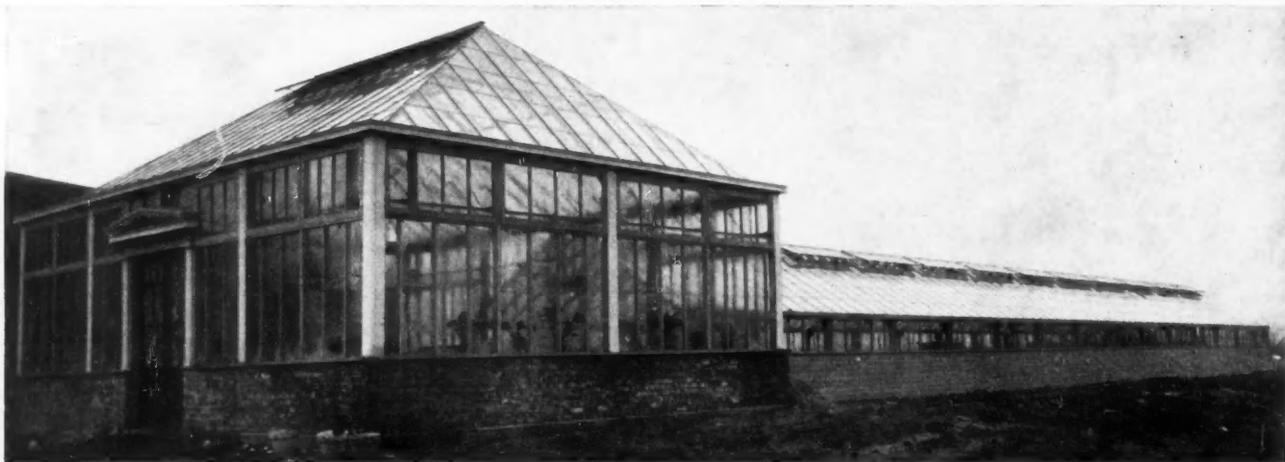
thus cut the frame is erected and fitted as in ordinary houses.

The interior of the greenhouse should be divided by light partitions so that the temperature of each room can be kept at any desired point independent of all the rest of the house. Simple, hot water heating apparatuses cost as low as \$62, so that a temperature of 50 to 60 degrees can be maintained in a house with 1,000 square feet of glass surface during zero weather. The piping of such a plant includes 250 to 400 linear feet of cast iron or wrought iron pipes. The total height

satisfaction with any greenhouse. If it is not a lean-to, but an independent greenhouse with no protection on the north side by other buildings, it is essential that the north side of the building should be amply protected by thick walls and the heating apparatus located on this side. The best and simplest practice is to build the north wall of masonry or double wooden siding to a height of five or six feet, with the glass sash above. The double wall can be made wind-tight, and with the boiler room on this end the difficulty of keeping up a high temperature is easily solved.

The glazing of the roof and sides of the greenhouse should be made of clear glass of double strength and about sixteen inches wide. It should be set with lapped joints, bedded in best putty, and secured with zinc or brass nails so that no danger can be experienced from falling out. The glazing of the house is a most important item in the whole work, for the weight of snow

A 20 by 10-foot greenhouse, costing \$500 or less, should have a height at the ridge of 8 and a half feet, with every partition adding a little extra to the cost. In such a greenhouse no masonry work is actually required other than that needed for setting the boiler and heater. A wooden base setting can even take the place of this for a foundation, but owing to the noncombus-

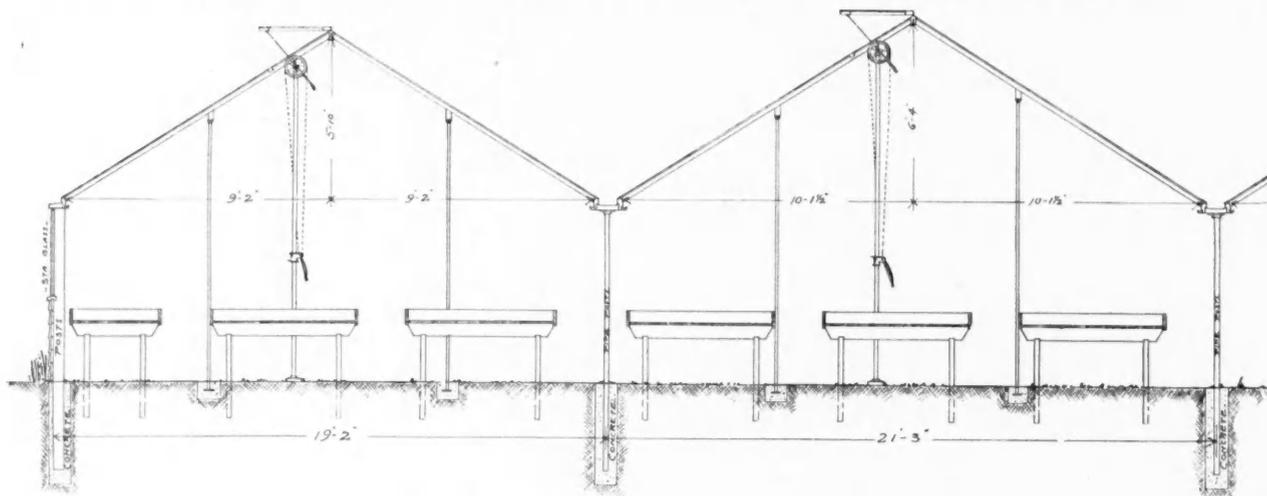


and rain may injure the sloping surface very easily. The slope is sufficient to permit rain and melting snow to run off easily, but on very cold nights ice may form on the roof and add a considerable load to it. The breaking of a roof of a greenhouse in winter means something more than the loss of the material and the cost of repairs. Hundreds of dollars worth of fruit and vegetable plants may be ruined by the cold and a whole season's work lost.

The ventilation of the greenhouse is as important as

tible nature of the bricks a masonry setting is preferable. The greenhouse should be divided into at least two sections, the larger for the plant tables and walk, and the smaller for the heater and a convenient bench for working.

A three-quarter span greenhouse, 12 by 25 feet in width and length, built against a north wall or other structure at least eight feet high, is a cheaper type than the former, and it can be put up complete, with sash, ventilator and heater, at a trifle under \$400. The front

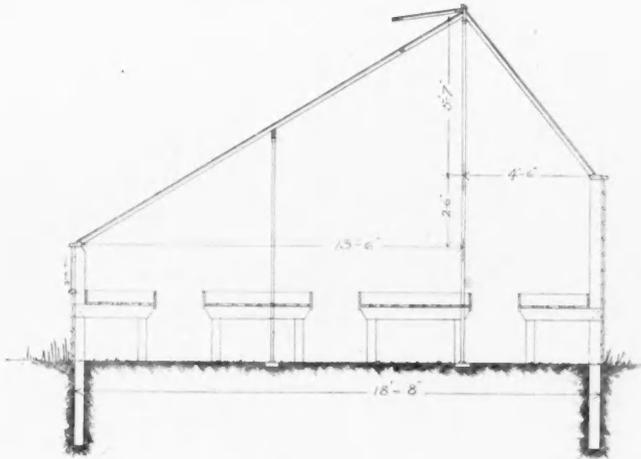


the heating. Unless proper change of air is obtained throughout the day the plants cannot do well. In winter time the problem of proper ventilation without injury to the plants is somewhat difficult. A continuous sash ventilator should be constructed. The ventilators should be hinged to the ridge and opened by means of arms or gear handles within easy reach from the interior. In large greenhouses additional ventilators along the sides and eaves are sometimes supplied.

of the house is about five feet high, and consists of two feet and six inches of foundation wall and two feet and six inches of glass work. This type of house is particularly suitable for locations running east and west, and where the proper site can be secured it gives the greatest amount of satisfaction for the money invested. While it may be used for the same general purpose as the full span house, it has many special advantages of its own in mid-winter for forcing. A forc-

ing room can be kept at a very high temperature on the north side at a minimum expenditure of fuel.

A small lean-to greenhouse located in a favorable angle of a house, barn, corner wall or other protection is the cheapest form of structure that can be erected. In such a type two sides of the greenhouse are formed by the wall or building already in existence. It follows then that only the other two sides and the roof need building. A greenhouse of this character, 20 by 10 feet can be put up complete at an expense of \$250 to \$300. The height at the ridge is about nine feet.



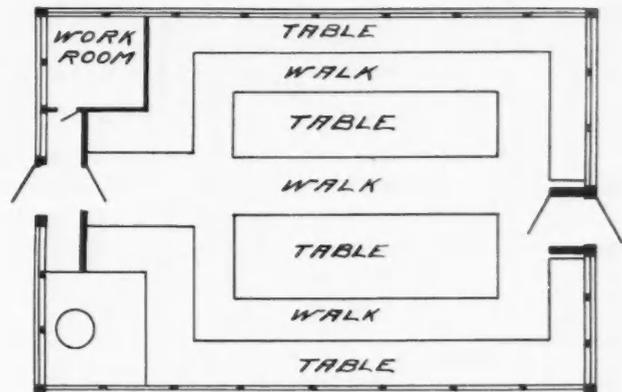
and the front five feet, including a two and a half foot foundation wall. The foundations are shingled on the outside, and if built of wood the wall should be double with an air space between. The old method of filling the space between the walls with saw-dust is not considered necessary to-day. Air is as good a non-conductor of heat and cold as saw-dust. All that is essential is that the two walls be built with good lumber well matched, and builder's paper attached to either side. If the corners are snugly fitted there is little chance of wind or snow filtering through. Frequently a single door is used for such a house, but it is always more satisfactory to have double doors, one opening inside and the other outside. This insures dry air and warm temperature inside. On very cold days the frequent opening of the door tends to chill the plants placed near the entrance. A temporary vestibule built outside and taken down in spring saves fuel and protects the plants from any danger. Such a vestibule can be constructed in sections so that it can be removed and stored away through the summer, and beyond an occasional painting it requires no further care.

The commercial greenhouse built on a more substantial plan requires more planning and designing. One would hardly think of putting up a commercial greenhouse of less than thirty or forty feet in length and fifteen to twenty feet in width. This size house, and the larger ones of fifty to sixty feet in length, necessitates a wide span which increases the problem of construction. With a greenhouse twenty feet wide, the distance from the center to the sides is ten feet, and from the roof ridge to the eaves makes a formidable

span. The weight of the glass on this span is considerable. Most houses of this size are constructed with purlins to support the roof.

Commercial greenhouses are built in a great variety of ways and of many different materials. Portable wood or iron greenhouses are now manufactured so that they can be shipped direct from the factory and assembled on the spot by the contractor. In such houses exact measurements of design are prepared in advance, and all parts of the house except the masonry work is prepared. It is better in such cases, however, to draw the plans for the work, and then after assembling it on the spot to glaze the sash and roof with local supplies and finish off walls, doors and interior fittings as needed.

The use of cement and concrete blocks for greenhouse walls and floors is growing in many sections. Hollow concrete blocks make an excellent foundation and wall for amateur or commercial greenhouses of any size. The first course of blocks is laid a foot or two below the grade and carried up five or six feet in the north side and two or three feet on the other three sides. The walls are proof against changes in temperature, and the air space between prevents much dampness from soaking through. A concrete walk in-



side, with proper slope to the sides to carry off moisture gives a permanent finish to the place.

Down the center of the greenhouse a table of wood should run, and on either side similar tables should be constructed. A walk should be left between the tables all around the building, so that any plant can be easily reached. This walk is made of concrete, and the spaces under the tables left without any flooring. Any moisture from the watering of the plants will then run off and be absorbed by the soil. The heating coils and pipes must run under the tables and benches down the middle and on either side so that under or bottom heat can be supplied.

Greenhouse construction has become to a certain extent a specialty, but there is nothing in it that cannot be picked up and executed by the ordinary carpenter. Material can be bought, cut, fitted and prepared with plans and diagrams for its erection, which give the best of satisfaction and can be put together by an ordinary mechanic.

STEEL SQUARE

Alfred W. Woods

How to Use the Steel Square

SHOWING A READY RECKONING TABLE FOR FINDING THE FRACTIONAL LENGTHS OF RAFTERS, DEVELOPING THE LENGTHS AND CUTS FROM THE TRIANGLE AS APPLIED TO THE STEEL SQUARE

TAKING up the subject where we left off in the last number, we will refer to our last illustration showing the table at Fig. 87 in the convenience of same for finding the lengths of rafters for odd runs, such as feet, inches and fractions of an inch in the run, as the figures stand for either feet, inches or fractions of an inch. The fractions, being expressed in the same denominations (twelfths), permits of a

above figures again as so many twelfths and fractions of a twelfth of an inch. The whole may be expressed thus:

For the six feet.....	7 feet 2 and 6-12 inches	
For the six inches.....	7 and 2-12 inches	
For the six-twelfths.....	7-12 inches	2 6
Answer	7 feet 10 and 3-12 inches	8 6

Then 7 feet 10 3-12 inches is the correct length. The last two figures (8 and 6) are dropped because they represent too small a denomination to be retained. Remember these figures represent twelfths (not tenths) and we only carry to the next column when the sum exceeds twelve, otherwise the operation is just the same as in simple addition. If the run was, say 5 feet 7 and 9-12 of an inch, the figures would be expressed thus:

For the 5 feet.....	6 feet and 1-12th inches	
For the 7 inches.....	8 and 4-12 inches	11
For the 9-12 inch.....	10-12 inches	9 10
Answer.....	6 feet 9 and 4-12th inches	8 10

Then 6 feet 9 and 4-12 inches would be the correct length of the common rafter. This may seem like getting the lengths and cuts down to a small point. So it is. To many it may seem useless. In this, we have been accused of splitting hairs but we would rather see split hairs than to see rafters wedged up with a "dutchman" and with gaping joints at the bearings, for what is the use of using good material and leave yawning joints with the bearings oftentimes at the tip ends of the rafters where the wood is thin and this cut to pieces with nails in the vain effort to make it "good enough?" If we make poor joints why not use poor lumber? Sorry to say we are forced sometimes to use poor lumber, but there is no occasion for poor joints. Make the cuts to get the full bearings and thus save all

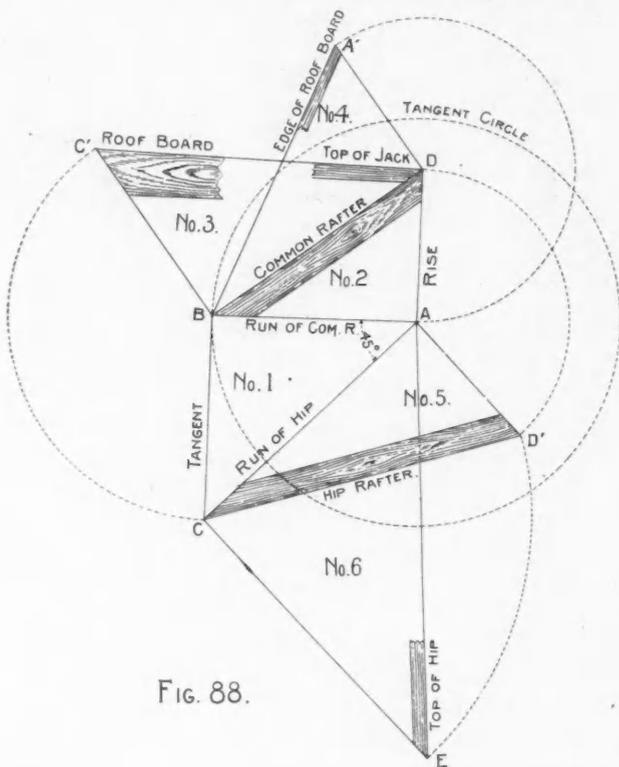


Fig. 88.

sliding scale as follows; for an example, suppose the run is six feet and one-half inches with a one-third pitch. In the intersecting square opposite the rise and run, we find seven feet two and six-twelfths which answers for the six feet. For the six inches in the run, read the above figures as so many inches and twelfths of an inch, and for the half inch, read the

the strength there is in the material in bracing power. This table refers only to the rise and length of the common rafter. It could be so enlarged as to include the corresponding octagon hip and common hip or valley, thus making a very handy table for ready reck-

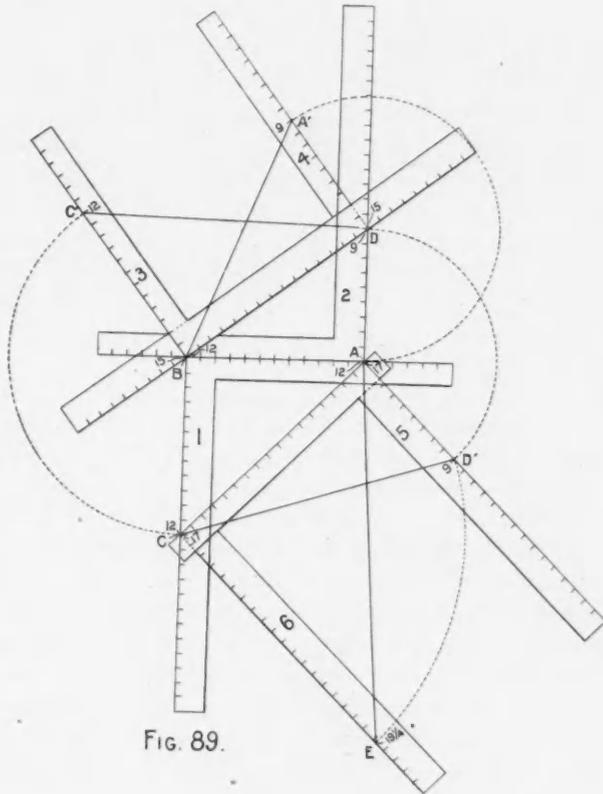


FIG. 89.

oning purposes. We have the data now ready and the preparation of such a chart under way, but we must pass on. In Fig. 88, we show how all of the lengths, cuts and bevels may be obtained from the triangle, bounded by A-B-C, formed by the runs of the common and hip rafters and the tangent, as shown at No. 1, as

follows: From the run of the common rafter, erect the desired rise as at A-D and connect D-B. This forms the second triangle and contains the length, seat and plumb cuts of the common rafter, as shown in No. 2. At right angles from the common rafter draw a line equal to the tangent as B-C¹ and connect D-C¹. This forms the third triangle, as shown in No. 3. In this are shown the face cut of the roof boards to fit in the valley or over the hip. This angle also gives the cut across the back of the jack to fit against the hip or valley, commonly called side cut of the jack. At right angles from the common rafter draw a line equal to the rise as D-A¹ and connect B-A¹. This forms the fourth triangle, as shown in No. 4. In this is shown the edge or miter cut of the roof boards to fit in the valley or over the hip. In other words, this is the same as the miter for a hopper. Now then, we will work from the other side of triangle No. 1. From the run of the hip draw a line at right angles from A-C equal to the rise, as at A-D¹ and connect C-D¹. This forms triangle No. 5 and contains the length, seat and plumb cuts of the hip. From hip rafter and at right angles to A-C draw a line equal to C-D¹ as C-E and connect A-E. This forms triangle No. 6 and in it is contained the top or, commonly called, the side cut of the hip. This illustration is for the 3-8 pitch or 9 inches rise to one foot run of the common rafter. For an octagon roof the angle at No. 1 would be 22½ degrees. For a hexagon roof it would be at 30 degrees, and otherwise, proceed as in the above.

In Fig. 89 are shown all of the above angles formed by as many steel squares, with the corresponding numbers placed on same that help to form two of the sides of each angle, and, by referring to the preceding illustration, the reader can readily see how the cuts are obtained on the steel square. To make this point clear, we refer to Figs. 66, 67, 68, 69 and 71 in the June number, where these cuts are separately illustrated.

Optical Illusions

HOW THE BEST TRAINED EYE CAN BE DECEIVED—SEVERAL ILLUSTRATIONS THAT ARE COMMONLY USED TO SHOW THIS POINT

By A. W. Woods

WHILE the eyes are the most useful of all the parts of the human make up, they are to a certain extent liable to lead the thinking faculties astray in many things unless specially trained along certain lines. Even then they cannot be relied upon for accuracy in proportionate measurements, such as is used in the different parts of entablatures, tapering of the column, etc.

A carpenter once said when his attention was called to a piece of work that did not come up to the standard in proportion, "I have a mechanical eye and I know the work is all right." We said to him that he could not always depend on the eye, that it was liable to deceive and that it was best to take the proportions laid down by the old time artisans that had made the

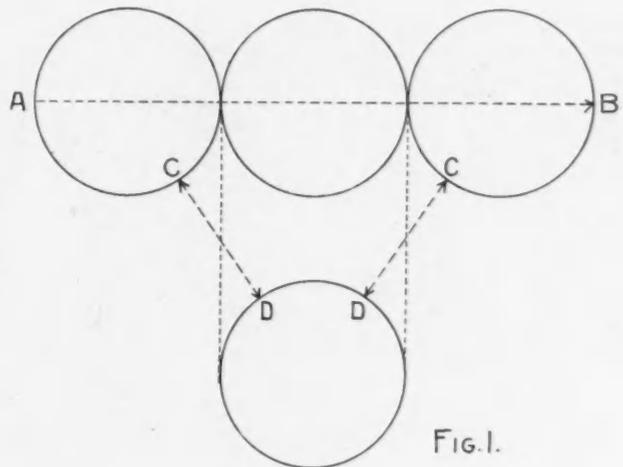


FIG. 1.

subject a special study, their works were models that had stood the test of time and upon which none have been able to set up a better standard of proportions. Yet he said he considered his eyes as good as any

other man's and did not consider it worth while to rely on others for his information.

To hold our end of the argument, we handed him a newspaper and asked him which end of the letter S was the larger. Without hesitation the answer came back, "Why, there is no difference." Then we turned the paper upside down and this is what he saw S. Here in this simple example was a

propem in proportion that his mechanical eye had not detected after having seen it for more than forty years in the very words that went to make up the sentences from which he gathered his

storehouse of information, yet he had not detected it. Then we took three dimes and placed them in a row, as shown in Fig. 1, and asked him to move out the

center one till the space C-D equaled the space over all, as at A-B. He did so, and to his astonishment, he was off nearly one-third of the space. There is a well defined proportion in measurements that requires care-

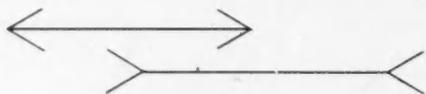


FIG. 2.

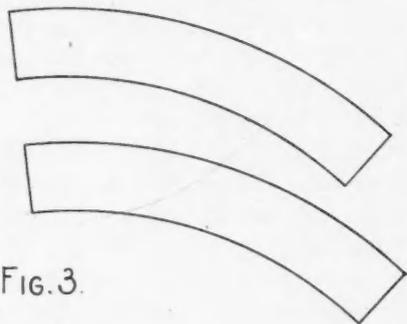


FIG. 3.

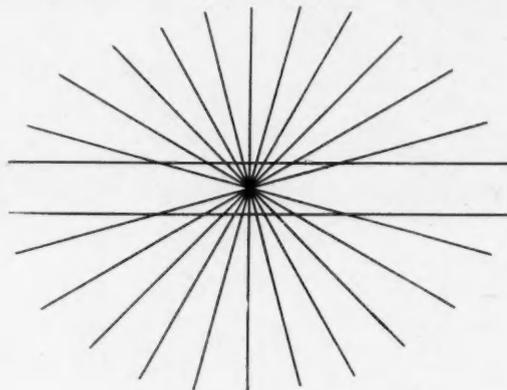


FIG. 4.

ful study and with which the successful artisans are acquainted. The inexperienced eye becomes accustomed to certain forms and when taken out of that channel is deceived, as was this man.

We will give a few other illustrations that are liable to deceive. In Fig. 2 are shown two parallel lines. If we were to ask which of the straight part of the lines was the longer, the answer would most likely be the lower one, of course; but by careful measuring, they will be found to be of the same length. If we were to ask which of the parts of Fig. 3 contained the larger area, the answer would most likely be the lower one;

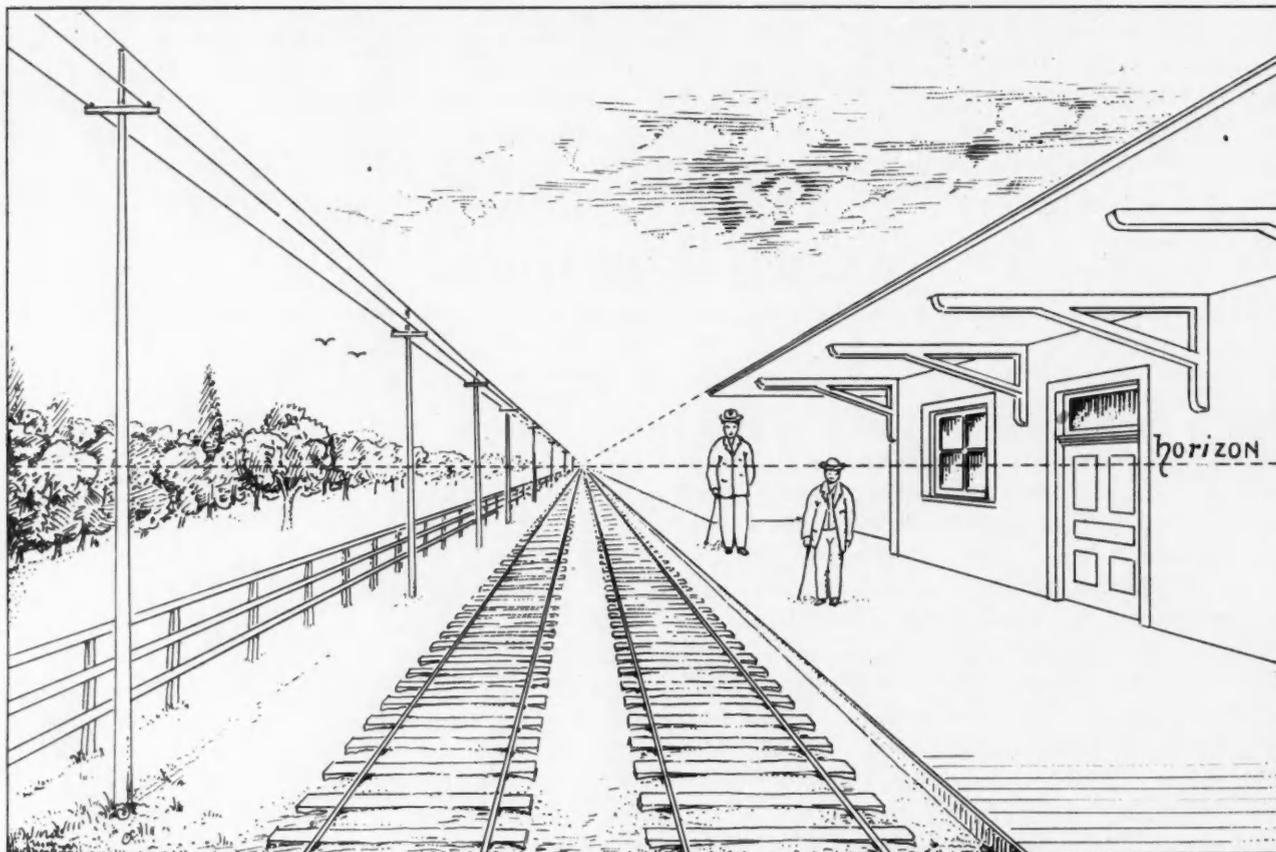


FIG. 5.

yet they are of the same size. Here is another one showing a lot of straight lines crossing at a common center, as shown in Fig. 4. Now there appears to be two gently curved lines drawn above and below the center, but they are not curved as will be seen by applying a straight edged rule to same. In Fig. 5 is shown a double railroad track with the station house on one side with an orchard field on the other. Now suppose you are standing in the center between the two tracks and looking down the straight run of the road, the rails and even the fences and telegraph poles seem to draw into a common center as they recede from us till away yonder at the horizon, they seem to almost come together. There is nothing strange about this, indeed, if it did not look so we would at once

know that there was something wrong with our optics; but let us look in the foreground. Here are two men standing on the station platform. If we were to ask which of the two was the taller, the answer would more than likely be the one farthest down the platform, and yet, by measuring, they are found to be of the same height. The deceptive point in this is that the second man is not drawn in proportion to the surroundings. In other words, if the first man be six feet in height, then the second man, according to the picture, would be about nine feet tall. If they were of the same height then the horizontal line would pass through the hat of the second man, as in the case of the first man, because they are standing in line on a level plane and their heads should be in line with the vanishing point.

Making a Red Gum Desk

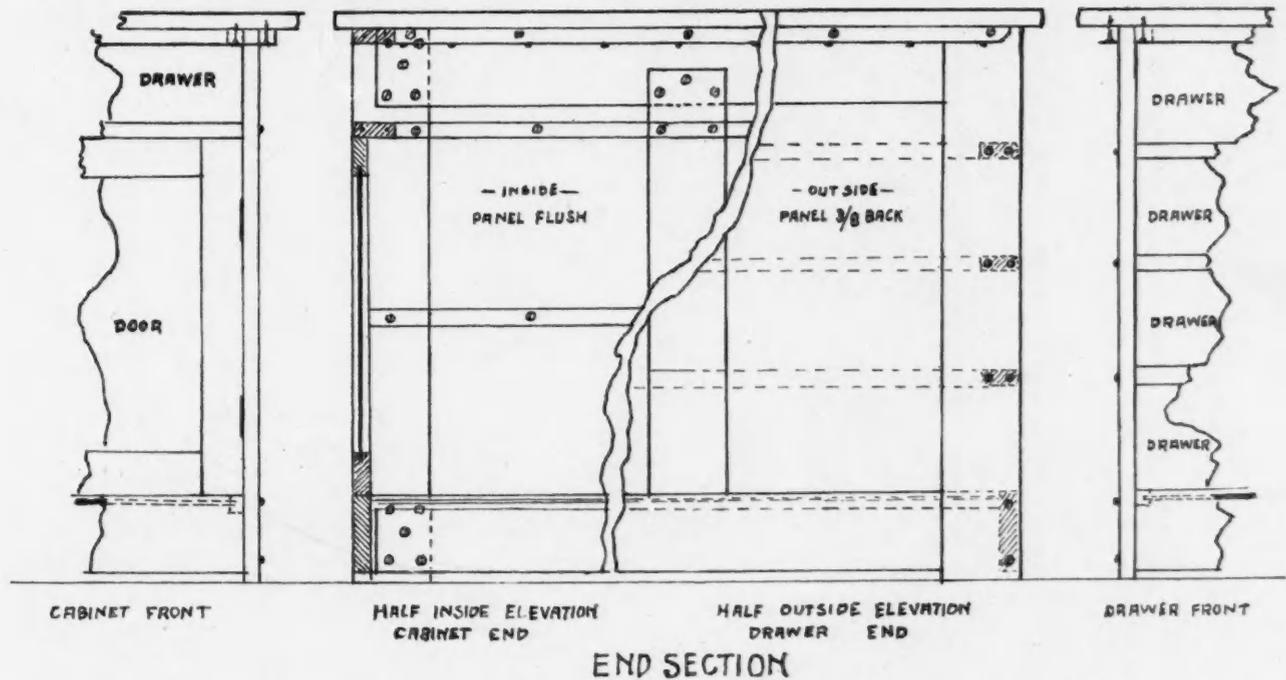
WHAT CAN REALLY BE ACCOMPLISHED WITH RED GUM IN MAKING FURNITURE—HOW TO PREVENT WARPING AND PROPER FINISH TO GIVE THE SURFACE

By J. Crow Taylor

I HAVE a red gum flat top desk made by myself of which I am rather proud, not merely because I made it, but largely from the fact that it stands as a demonstration of a point that I have been persistently advocating for some time, and that is, that red gum is an excellent wood for cabinet and furni-

appreciated for its natural beauty and polishing qualities.

There is nothing complicated nor mysterious about the desk, nor the process of its manufacture. The original idea was to have a simple, plain desk embodying certain features of convenience, made double with-



ture work, interior finish, etc. What impelled me to spend a lot of painstaking time in building by hand a piece of office furniture that I could have purchased for a small sum is a matter that might furnish a more or less interesting story in itself, but the thing more to the point right now is, how I built it and what it looks like since it is done, and I want to tell you it looks fine and convinces all who see it and are competent to judge that red gum has not been properly

out getting the excessive width of the average double flat top desk. The size of the top is 36 by 60 inches, and it stands 2 feet 5 inches high. For the framing and all the material in the desk I went to a box factory using large quantities of red gum and asked them to select a few nice red boards, run them through the planer and cut them to the rough dimensions given.

To simplify the matter of dimensions, the frame was all made from 1 by 4 stock, as are also the two

drawers in the cabinet end that go above the doors. The main tiers of drawers are made of 5-inch stock, the panels are from 1 by 12-inch stock resawed, and the body of the drawers is made from inch stock resawed also with $\frac{1}{4}$ -inch poplar for the drawer bottoms, and for the stationary cabinets with the exceptions of the ends, which are gum.

The main point I kept an eye out for was to so construct the work as to safeguard against the tendency of this wood to warp, for it is quite notorious for warping tendencies. The drawing will give a pretty good outline of how the work was done. Instead of mortising the frame together I halved it at the corners, fitting each frame carefully and boring for screws and then fastening the joints up with glue and screws. In fact, not only is the entire frame fastened together with screws, but the slide strips of the drawers are put on with screws and made to support the panels on the inside.

Instead of plowing the frames to receive the panels in the groove I rabbited them on the inside so that the panels would come flush on the inside and the slide strips which are $\frac{7}{8}$ inch square crossing these panels served to hold them firmly in position and prevent warping.

One end of the desk contains a tier of four 5-inch drawers on each side and 4-inch base, while on the other end, which from outside appearances contains the regulation cabinet on each side, but inside it has peculiar features in that the stationary cabinets are removable. The doors for this are mortised together in the regulation way and have a 4-inch drawer over them as a receptacle for envelopes to match the stationary below.

The top is made of two pieces with a glue joint in the center and banded with a $\frac{7}{8}$ -inch strip with the outer edge slightly rounded, and the fronts of the frame are rounded to correspond. Also the handles to the drawers are made of the same wood, $\frac{7}{8}$ by $1\frac{1}{2}$ by 6 inches long, rounded at the corners to harmonize with the frame. There is no carving and no ornamentations, the only thing appearing on the outside with the exception of these rounded edges is the heads of screws, and they are quite plentiful, as the whole frame is put together with screws of the round head variety nickel plated. As the desk is not near as wide as the regulation double desk, the drawers, of course, are short, measuring just 15 inches in the clear in length and $12\frac{1}{2}$ inches wide. This I find is plenty long, too, and a desk of this width and drawers of this length is so convenient that I have been wondering why furniture people do not make them this way.

There is not much detail to explain about the work of construction, as it was a simple matter of careful hand smoothing the stock, fitting it together and sanding it off. But, after the frame was together and it came to the matter of finishing there were some matters that it may be worth while going into detail about.

For example, I did one thing that the furniture manufacturers and cabinet makers don't seem to have the habit of doing, and that was to thoroughly shellac all of the interior of the work. After the frame was put together, and before fitting the drawers in, I gave the inside of the top and the inside of the frame, handles and all, two coats of orange shellac, and then when the drawers were made and each carefully fitting in its place, they were given two coats of shellac on all parts except the front or face. What I did this for was to prevent the wood from absorbing moisture and warping, in other words, a protection to the wood. This is one thing that the makers of fine furniture might give attention to and spend a little time and money on to advantage, because I have found that while gum is considered the worst of woods to warp, swell and shrink, I have had no trouble whatever with this wood so treated, and the drawers slide as nicely as the day they were put in, and I know of a number of instances where expensive furniture has failed to behave that well.

So much for the inside. And now when it came to the problem of finishing the outside, I did a lot of thinking before I decided just what I wanted to try. I knew I wanted to show the natural color of the wood as near as possible. I did not want to stain with coloring matter, because the wood already had a beautiful brown tone with here and there a dark and light streak making a pleasing figure, and I wanted to see just how well that would show up under proper finishing. And what I finally did was this: I got some clear paste filler, gave it a coat of that, followed after immediately and rubbed it off well and then started in with orange shellac. I was a little afraid of it showing spotted, because of the difficulty of smoothing it down due to its quick drying qualities, and, as a safeguard on this point, I mixed it very thin, using probably twice as much wood alcohol as is commonly used in working shellac. I put on two coats of this thin shellac, which is equal to about one of ordinary consistency, and then when it was dry took "oo" sand paper and spent about three hours rubbing the surface of that desk. Next evening (for bear in mind all this work was done in the evening by lamplight, both the cabinet work and the finishing) two more coats of thin shellac followed and then the rubbing down with sandpaper was repeated, and the process was again repeated, making about six coats that were rubbed down, then came another coat of shellac, which was rubbed down with "oo" sandpaper, and after that the surface was carefully wiped off with a soft cloth, after which came powdered pumice, oil and rubbing galore. There was encouragement for this rubbing, though, for about this time the wood had begun to demonstrate its qualities for receiving polish and the finish came out nicely. It took quite a lot of patient rubbing, the whole time of shellac, and finishing taking the evenings of about two weeks. But, after it was done it

(Continued on page 816.)

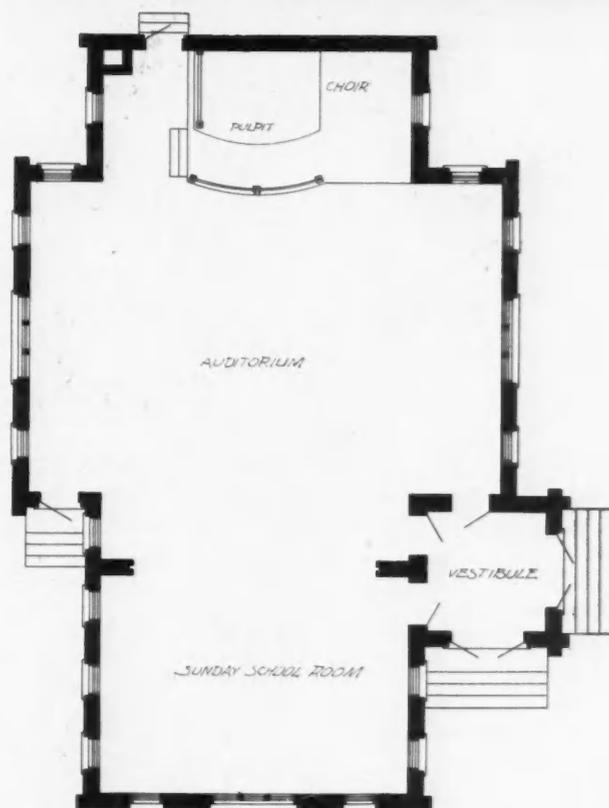
A Well-Built Church

PERSPECTIVE AND FLOOR PLAN TOGETHER WITH A CROSS SECTION SHOWING THE SLOPE OF FLOOR AND OTHER FEATURES



WE ARE this month illustrating a church which was built in Herrin, Ill., by G. W. Ashby, architect. The building is 45 feet 6 inches wide by 63 feet 6 inches long, with the main auditorium 40 feet by 42 feet, and the Sunday school room is 26 feet by 18 feet.

The church is built of red brick trimmed with buff Bedford limestone, making a very attractive building. There is a stone foundation under the entire church, and the basement floor is constructed of concrete, while the posts all rest upon concrete footings, which are 24 inches by 10 inches. The floor of the main auditorium slopes toward the pulpit. This is being done in all of the churches built at the present time, as it enables those in the rear to obtain a better view of the pulpit, and also enables them to hear better. Dividing the main auditorium from the Sunday school room is a rolling partition. This is operated by heavy weights, and it slides between the roof trusses. The windows are of Gothic design and add very materially to the appearance of the church. The building is heated by the means of a furnace, which together with the fuel and storage room is located in the basement. The distribution of the light which is often a perplexing problem has been well solved in this case.





Four Modern Houses

DIFFERENT STYLES OF HOUSES SHOWN AS SUGGESTIONS TO THE CARPENTERS AND ARCHITECTS—PERSPECTIVES AND FLOOR PLANS OF EACH SHOWN

SIX rooms and a bath room besides a good reception hall are shown on page 794. A house built like this offers a good deal of room in proportion to the amount of building material, and for this reason it is a very economical house to build. The more vertical pitch of the roof answers for both siding and

handsome naturally and a house encumbered with one needs some kind of embellishment. Architects sometimes fail in this one particular. It makes no difference how carefully a house may be planned if the proportions are not right the building is never satisfactory. Nobody likes a narrow minded veranda on any



water shed. The slope is not lost because the odd spaces are used for clothes closets and the stairway. A roof of this kind may be built almost as easily as any other and it certainly offers considerable advantage in the way of extra room.

There is something about the size and proportion of the front porch of this house that helps materially in giving it a good appearance. A gambrel roof is not

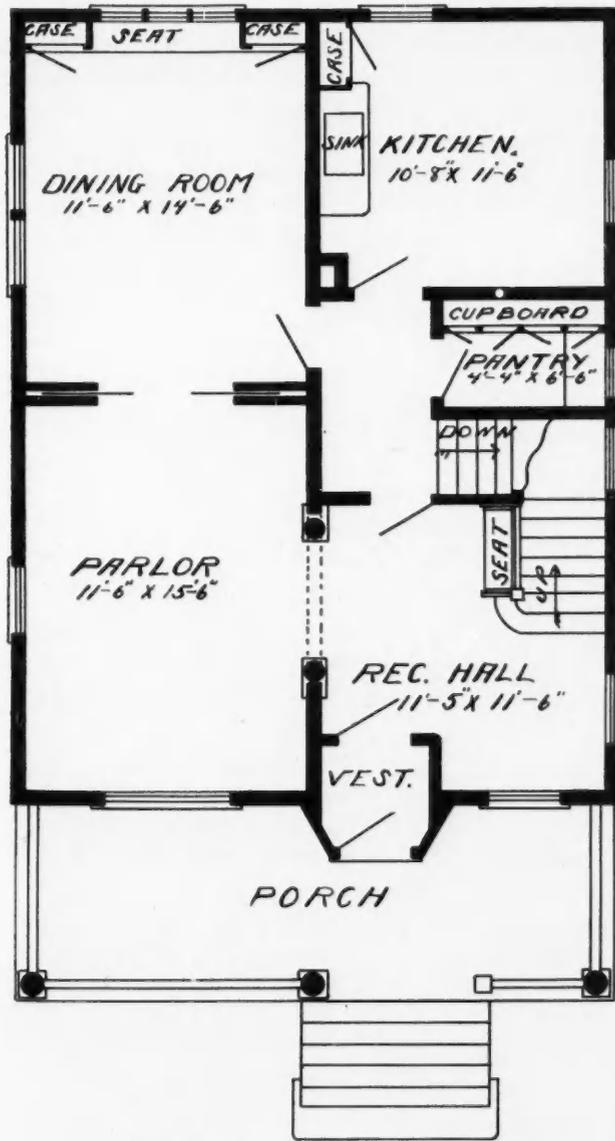
house and a narrow veranda here would make a fool of the whole thing.

The present fashion of leaving porches open underneath is open to serious question. If you do not build lattice work you have to pick up the brickbats and one costs about as much as the other, besides it is a great satisfaction to be able to leave a lot of rubbish where no one can see it.

A Gambrel Roofed House

The house shown on page 796 was designed by A. Raymond Ellis, Hartford, Conn., and he describes it as follows:

This is practically a country house, although not necessarily. The exterior of the first story and the



FIRST FLOOR PLAN

gables and dormers are of cement plaster. The roof is covered with cedar shingles stained a soft green, the trim is a cream white and the blinds a green, producing a very harmonious effect.

The front entrance porch is made the central decorative feature. The side porch with the den at one end is something of a luxury and is planned in such a manner as to allow it to be built at a later date and not interfere with the design, that is if a saving on the first cost was necessary.

The interior arrangement is convenient and spacious. The dining-room, hall, living room and den are finished in cypress stained in dark colors, which brings out its beautiful grain, which is remarkable for its

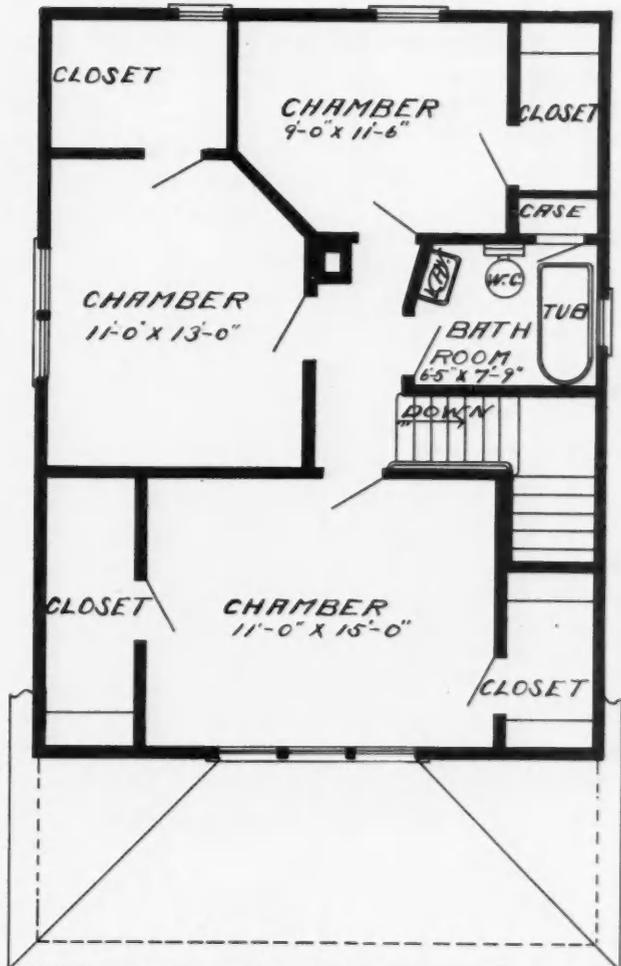
wearing and color in standing finish after being well joined and seasoned.

The floors throughout the main living portion are of narrow matched maple. The service portion is finished in white wood, trim stained natural, except kitchen, which has a North Carolina pine wainscot around it 3 feet 6 inches high. The floors are of rift North Carolina pine.

The dining-room and living room have fireplaces of red brick laid in designs with plain mantels, composed of pilasters and brackets.

The second floor contains four good bedrooms, a bath room and plenty of closet space. The attic contains the servants' quarters and storage room.

Cypress is used for the finish in the second floor hall, carrying out the scheme of the hall below, and the remainder of the rooms in the second floor in white wood painted or stained a natural finish. The floors throughout the second floor are rift North Carolina pine and in the attic selected matched spruce. A



SECOND FLOOR PLAN

metile wainscot 4 feet high is carried around the bath room with a tile floor and white enamel iron fixtures.

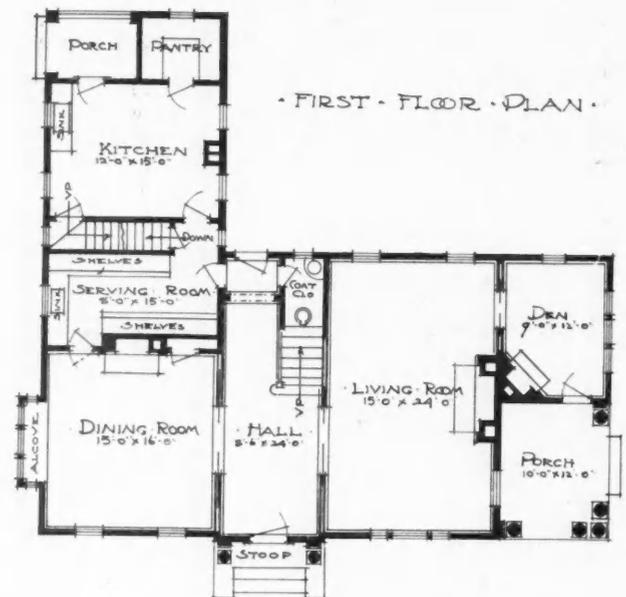
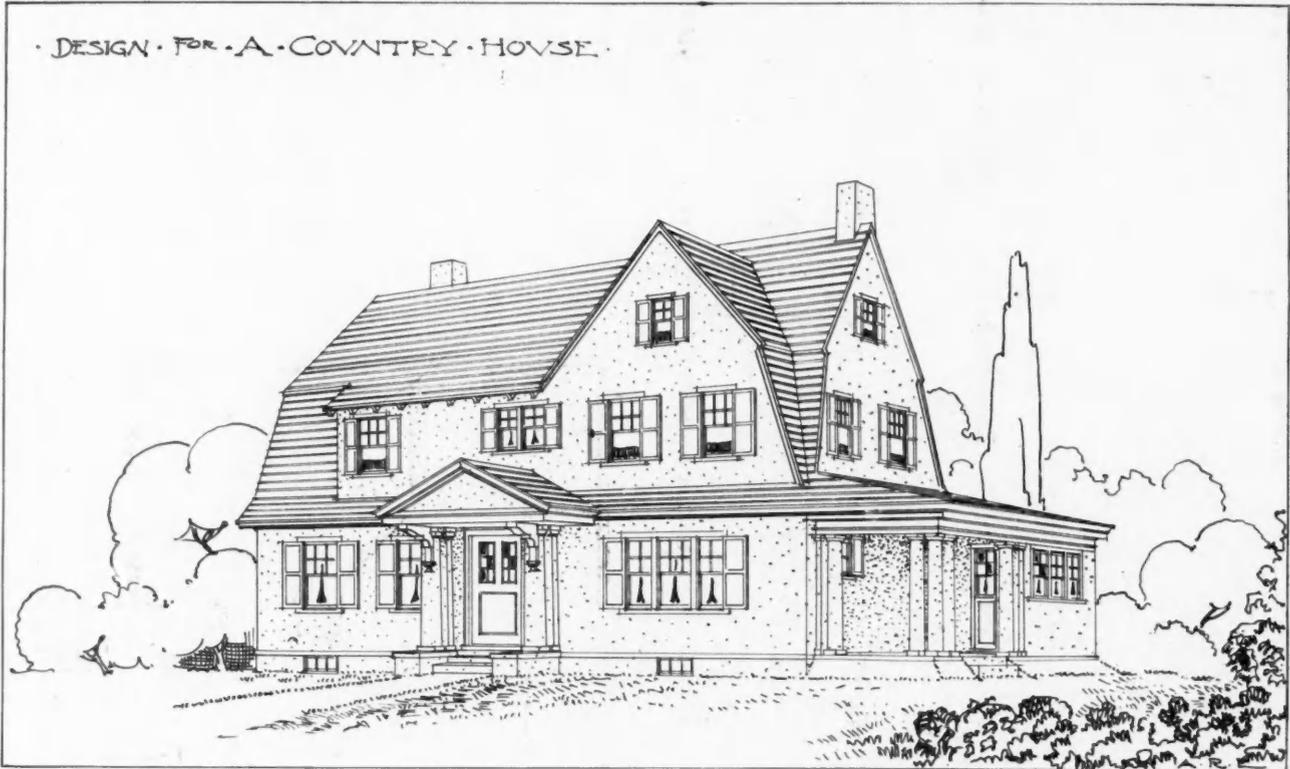
In the cellar the usual arrangement is found as the owner may desire. This house can be well built as described and built at a very low figure, while the

design is so far above the ordinary that it would be rated much higher.

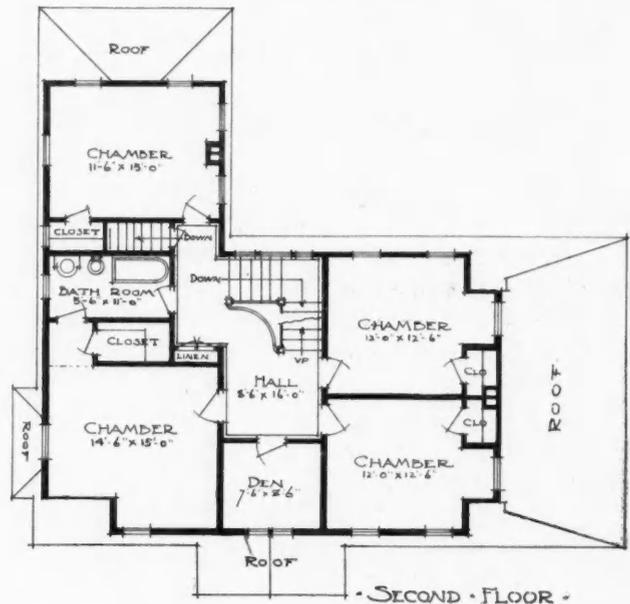
Six-Room Cottage

The six-room cottage with front and side elevation shown on page 797 was designed and drawn by Miss Reba Pim of Lincoln, Neb. Miss Pim a few years ago entered an architect's office as a stenographer. In her spare moments she became fascinated with architectural work and as she was neat in her work and ambitious to learn, she was given odd jobs at tracing

of the illustrations in this magazine in connection with his articles are from her pen and so closely has she adapted his style of work that it is sometimes hard to distinguish them apart. The plan here shown is well arranged with good sized rooms and bath. The dining and living rooms are separated by a columned archway, as shown in detail section, which gives a very pretty effect. The house is provided with ample cellar and a spacious attic room which could be finished off into two or more rooms. The exterior presents a



very pleasing appearance with its flared base, wide projecting cornice, and the general tone of the building goes to make it a beautiful home at a moderate price. This house was built at Lincoln, Neb., for about \$1,500.



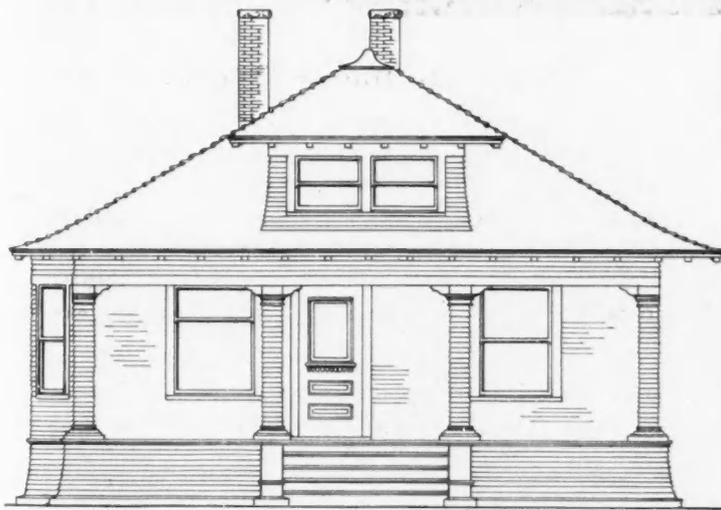
to begin with, her progress was rapid until to-day stenography is only a secondary matter with her, doing only the office work where she is employed. Most of her time has been spent in the office of our Mr. A. W. Woods and for two years was his main help. Many

An Indiana House

The house plan, shown on page 798, is designed for small family. A woman with a small family needs or thinks she needs as much room down stairs as though she had a dozen children. The regulation four rooms are just as desirable for a family of two as they are for a family of six or eight, not that they use all of the room all the time, but they expect company, relatives or friends, and they want the house to appear to advantage. In theory two rooms down stairs and two rooms up stairs should hold two persons, but in practice it won't work. But a family of two can manage with two bedrooms all right enough and this plan solves the problem of how to get four rooms down stairs and only two rooms up stairs and at the same time utilize to advantage all the floor space as well as the roof in the main part of the house.

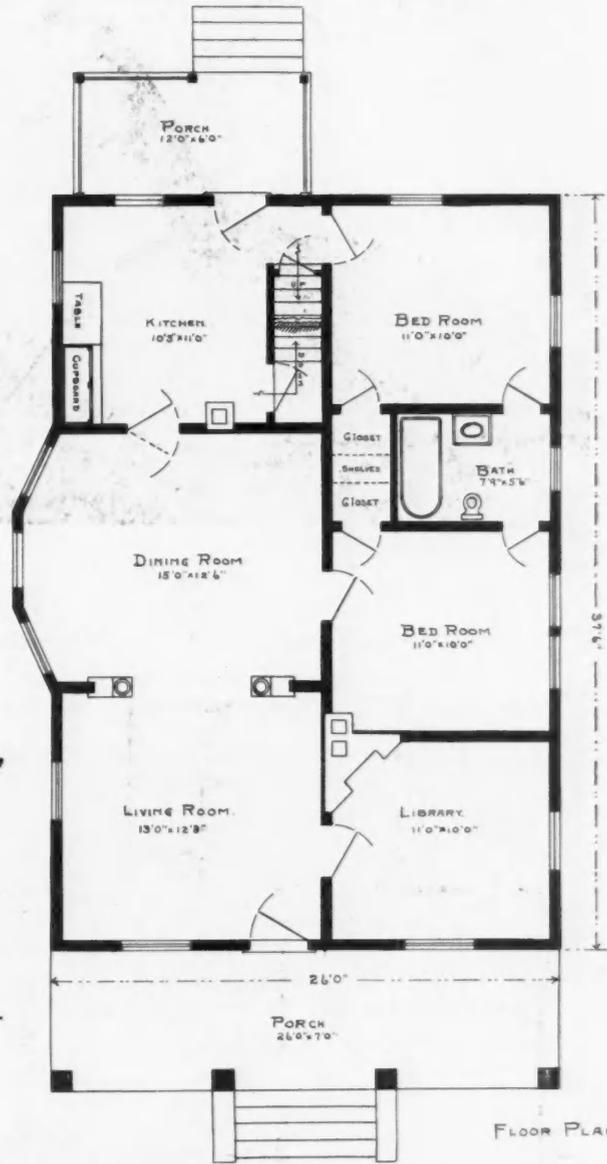
In the back wing the bathroom is tucked away in the

built like this has many advantages to recommend it. In this plan what would otherwise be waste space



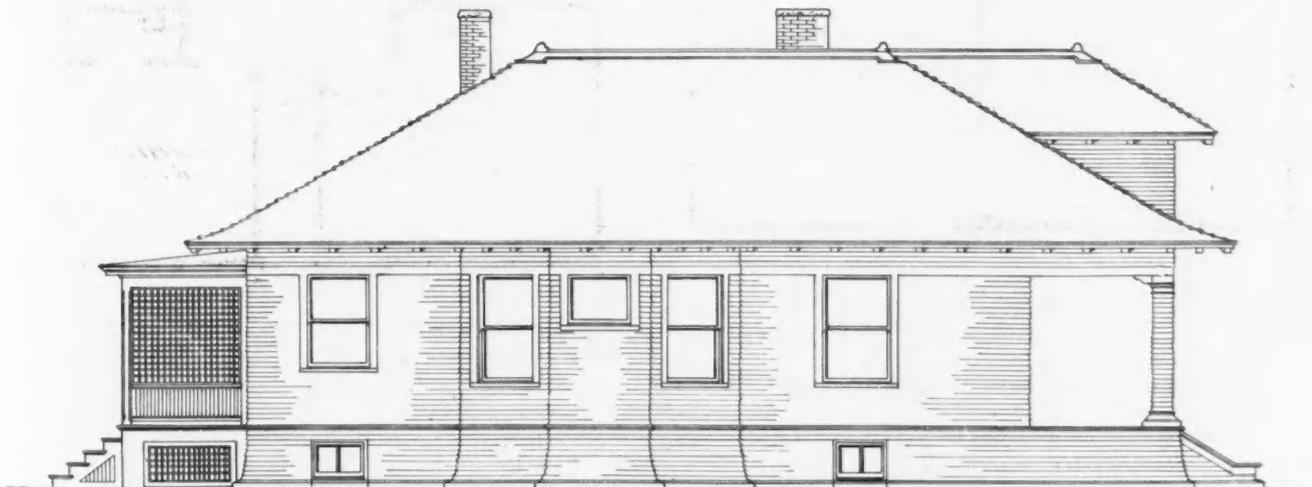
FRONT ELEVATION

attic, occupying space that would otherwise simply provide a gymnasium for spiders and lodgment for dust. The back porch in this plan is a little unusual, but the arrangement is a good one, especially when the house backs off towards the south. A cellarway

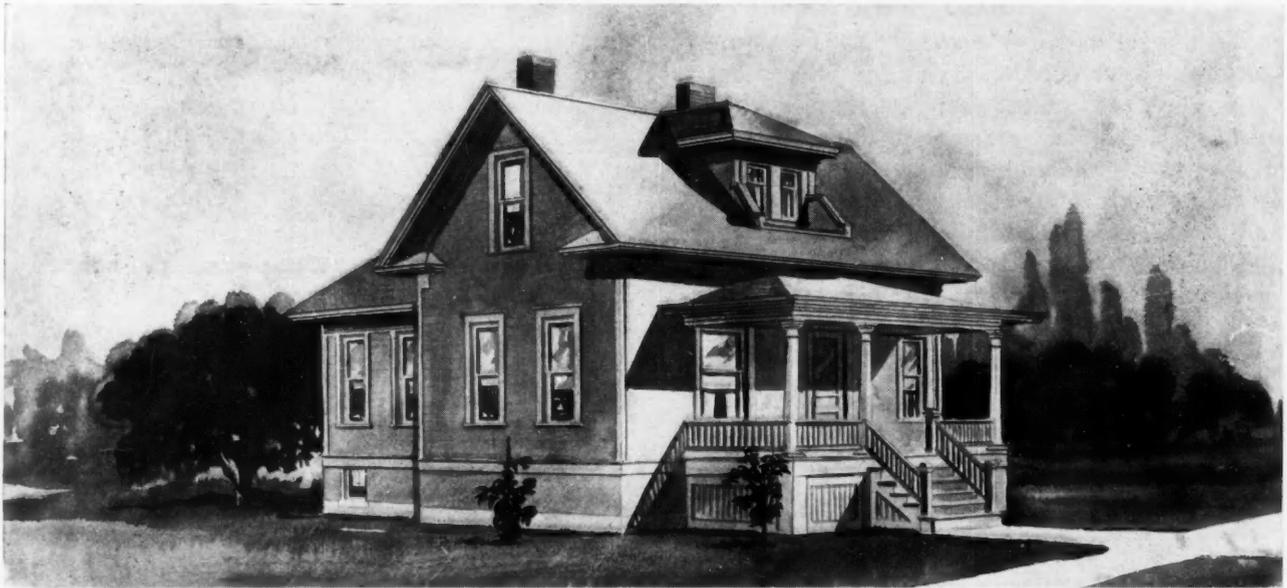


FLOOR PLAN

above headroom is utilized to advantage for a kitchen cabinet.

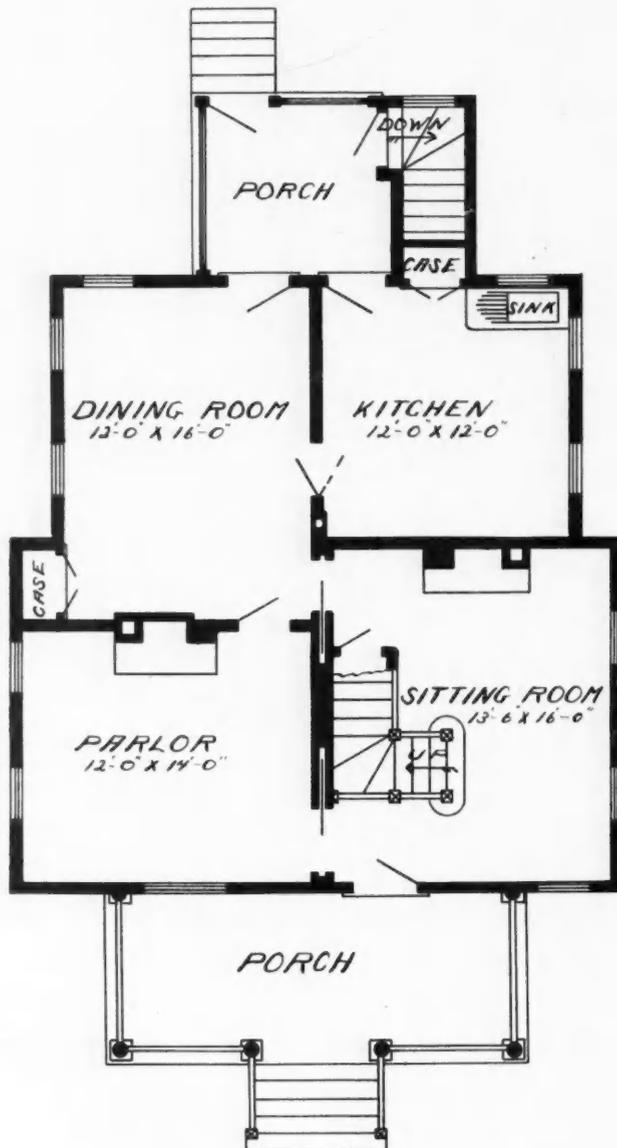


SIDE ELEVATION

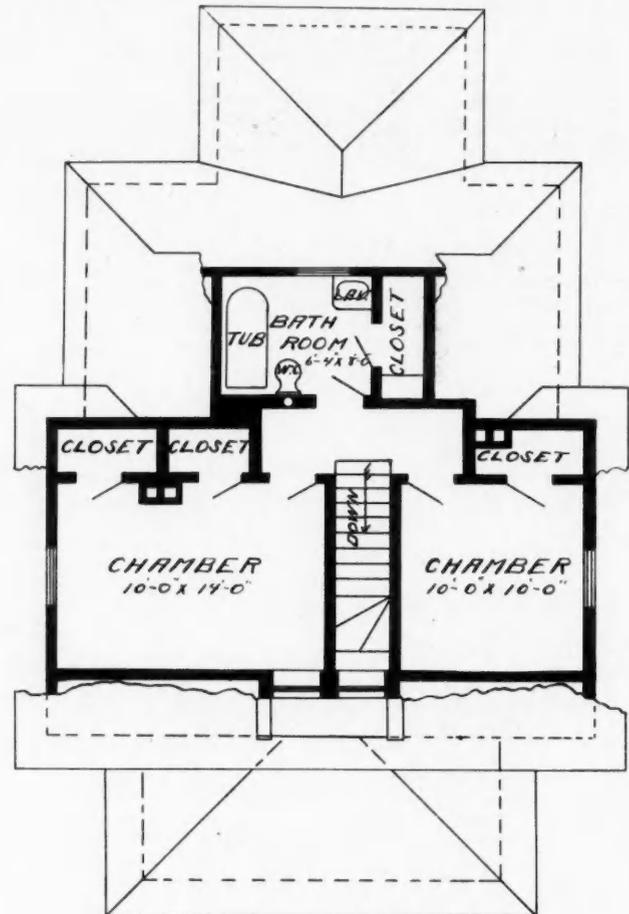


Concrete Block Theaters

The Bridgeport Theater Company of Bridgeport, Conn., are now manufacturing concrete blocks for the erection of a large and handsome theater. It is estimated that 50,000 blocks at least will be required, together with 1,500 feet of water table, sills, etc. It is stated that this is to be the first of a chain of theaters to be erected of concrete blocks throughout the east.



FIRST FLOOR PLAN



SECOND FLOOR PLAN



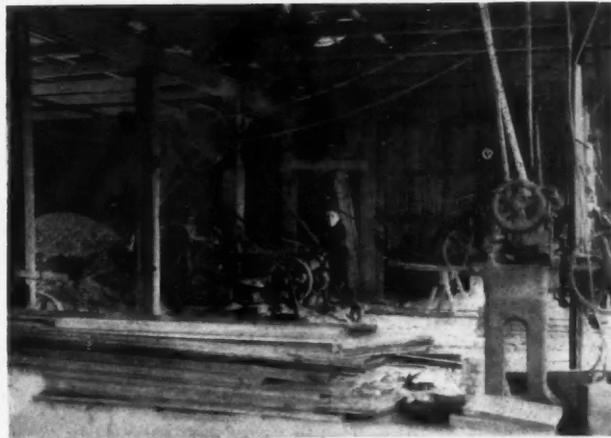
Problem of the Shavings Pile

BEST METHOD OF REMOVING SHAVINGS FROM THE MACHINES—COST OF INSTALLING AND OPERATING BLOWER NOT VERY GREAT

THERE is one problem confronts the carpenter operating wood working machinery and the small planing mill man that is very easily solved by the larger wood working institution, but it still remains as a source of much annoyance to the mill running just a little wood working machinery, and that problem is the shavings pile. In almost any machine wood working shop of small proportions you can generally find around the planer a great mess of shavings which not only makes the shop look sloppy, but when it gains large proportions it seriously handicaps and interferes with the work and must be removed in some way to some place, and the question is, how is the best way to move it and where? The planing mill using steam power has a use for the shavings in the boiler furnace, which furnishes a solution to the "where" end, but there still remains the question of "how" to remove them from the machine to the boiler room. But, with the majority of wood workers who have this problem of the shavings pile to contend with, there is no boiler furnace yawning for them, because the power equipment for small institutions of this kind is usually either electric or is a gasoline engine, so the shavings must be disposed of outside the factory. However, the final disposition of the shavings is in itself a small matter, because they can generally be sold for some purpose or other, and the main problem is, how to handle them, how to keep this big pile from accumulating in the way.

It is too well known to need elaboration here how the larger wood working institutions dispose of these shavings. They put in blower systems and take the shavings and dust from every machine through a fan and blow it into a fuel room or storage bin. Any man, even though he may be running only one planer, and that intermittently, may put in the same kind of equipment to dispose of these shavings. That is, put hoods around the cutter heads and a system of piping with a fan to draw the shavings away from the planer and deliver them into a bin or wherever they may be wanted about the premises. What can be done, and what is worth while, though, are two different things, and apparently the majority of those operating just a few

wood working machines do not think it worth while to put in a blower system to keep the shavings away from the planing machines. Evidently if they figure on it at all, they figure that the end will not justify the means which it is necessary to adopt for their automatic disposal, for the fact remains that these shavings are left to fly about and pile up around the machine, getting in the way all the time and requiring quite a lot of manual labor to remove them, to say nothing of the inconvenience and loss of time caused



by having to work around and through them while running the machine.

I have been trying to get some figures on this point so as to offer some positive light on the subject, but I find that while the makers of fans for blowing shavings give lots of attention to areas of piping, speed, etc., they do not apparently give much effort to compiling of estimates in their catalogues of how large a fan it will take to handle stock from one ordinary planer, what it will cost to put it in and the power required to run it. That is, they do not show estimates in their catalogues as guides for those seeking information on the subject. Of course, we can readily understand that each wood working machine shop has to be estimated separately when it comes to the problem of equipping with a blower system, but notwithstanding this fact, there is no question but what the builders of fans might give us more information on this subject than they do. From their experience in equipping

various kinds of plants and machines they should be able to form an idea of what would be required to handle the shavings from an ordinary planer, that is, what size fan would be required and the amount of power ordinarily necessary to drive it. With information of this kind before them, even though they make no pretense of being precise figures for each case, it would probably furnish light that would encourage more people who operate a small amount of wood working machinery to put in a blower system.

There is absolutely nothing that compares with a good blower to take care of the shavings as they come from the machine, and I believe any man operating only one planer, and that intermittently, will likely find it worth while to install some kind of simple blower system. It need not take much power, especially if all that is to be done is to take the shavings coming from the machine and deliver them outside without having to elevate them to any considerable amount, and in many instances a man can unquestionably make a fan himself do this work and provide wooden spouts. Probably the easier and better plan, however, would be to purchase a small fan, and then, if desired, one can make a wooden discharge spout, but the hood over the planer must be metal, otherwise it will soon wear out. If a planer only runs intermittently, the thing to do is

to provide your fan with a driving equipment which can be stopped and started, so that you need not have the fan in operation except when the planer is running. If the planer is driven from a counter shaft and you can arrange to drive your fan from the same counter shaft, this matter of running the fan only when the planer is running will take care of itself. And even where this is not practical, it ought to be comparatively easy to rig a counter shaft with a light and loose pulley for driving the fan so that it need not be kept in operation when there is nothing doing at the planer. With this provision the power used in disposing of the shavings should be cheaper in the end than the labor that would be necessary to clean up and remove the shavings that have accumulated around the machines, and it insures a cleaner shop and facilitates better and nicer work all the time. It's a subject that needs more attention than it seems to be getting from the carpenters and building contractors who only operate a few wood working machines, for those accumulations of shavings are certainly a nuisance in any shop, and if they can be gotten out of the way with a blower, without adding materially to the expense account as compared to removing them by hand, it is rank foolishness to continue in the practice of permitting them to accumulate around the planer, interfering with the work.

Onward March of Concrete Blocks

DEMAND INCREASING FOR BLOCKS WHICH ARE ARCHITECTURALLY ATTRACTIVE AND ORNAMENTAL—REMEDIES FOR EXISTING DEFECTS EAGERLY SOUGHT

By Harmon S. Palmer

THE time has arrived when an observing public begins to realize that concrete hollow blocks, properly made, are to supersede inflammable material for buildings designed as residences. The fact that fireproof buildings can be made as cheap as wooden ones, the architectural effect more beautiful and the lasting qualities greatly enhanced, is one of the greatest boons to humanity. Because of the millions who have perished in inflammable buildings, and the constant danger to millions more, the time will surely come when it will be a crime to erect a building that can burn. The world will rejoice when this time arrives, not only by reason of safety and enhanced appearance of cities and towns, but because of the economy in repairs, the saving of yearly painting and other bills, including the great but necessary bill for fire insurance—for with proper construction in Portland cement concrete fire insurance becomes entirely unnecessary. While this may seem a bold assertion, it is not too strong. Floors, ceilings and roof should be made of the same material, as well as windows and doors and their frames and casings. With such construction a building becomes absolutely fireproof, except in the midst of many other inflammable buildings.

You have read and reread the numerous catalogues on this new cement block industry, every one of which

has pictured in glowing terms the fortune for those who would invest in this or that machine. You have also learned that many have proven failures, and buildings have been erected which have proven anything but satisfactory. You have also learned that many buildings are a complete success and a delight to their owners. In view of these facts is it not plain that success must be found within certain lines?

The industry needs men of a mechanical education as well as a builders' education. An architectural education is also essential for producing all the pleasing effects of which this new method is capable. But while this is desirable, there are many who will sacrifice beauty for lower cost—a condition to which these blocks are peculiarly adapted. This is the cause of so much just criticism of buildings erected of these blocks; it costs money to follow intricate designs of angles and embellishments in any material, but much more when using hollow blocks unless they are adapted to fit in the building without cutting and fitting them after they are cured. It is much easier and better to set the machine and make them right at first. Such machines also cost money, but owing to the fact that so many have been advertised as costing but little, many have gone into the business with them, the result being the prevailing uncompromising square house.

The same may be said of face designs; these also cost money, and many who would embark in this business start out with the cheapest outfit, expecting to increase their facilities after putting up the first building, using their profit to buy additional attachments as wanted. But here again unforeseen difficulties arise, for the cheap machines are not adapted to the numerous changes which will be called for, so that in many cases the purchaser will stick to what he has rather than discard it and start again with what he has learned would be better. To say that a cheap machine would not make a good house would be wrong, but the fact remains that many are erected which are entirely lacking in architectural effect.

The buildings of the future will be of hollow concrete blocks with all the pleasing effects of which any other material is capable. The reason for this is because of the lower cost of concrete blocks, together with their sanitary qualities. The hollow space makes a light, ventilated wall at a reduced cost, and the great strength of Portland cement renders a solid wall unnecessary. This is the whole thing in a nutshell.

It costs just as much to make a cubic inch of good concrete as it does to make the same amount of good brick. Why, then, do we favor building with hollow concrete blocks? Because we can use less raw material in the first place, and in the second place we can build so much faster. An ordinary hollow block will displace from thirty to forty brick in a wall and can be laid in half the time, so that when architectural effects are omitted, the builder has sacrificed beauty for cheapness. But with the apparent advantages, architects will compel builders to follow their more pleasing designs, and investors will compel the architects to produce them. Why do they not do so now? Because the average architect has his reputation at stake, and being unacquainted with the details of hollow block construction, and not wishing to incur the time and expense necessary to learn, he naturally sticks to that which he has already learned. Besides in many cases he must rely upon the honesty and integrity of the man who is to furnish the blocks for his building. He knows as well as anyone else that many such men are trying to get out whole with a small investment, that their knowledge is perhaps no greater in the manufacture of concrete than his own, and that there may be great difficulty in producing such blocks as his plans call for. Therefore is it any wonder that an architect who considers his reputation, and who must make a living for himself and family, prefers to say to a prospective customer, "You had better build with brick or some other known material," and in justice to themselves and to the hollow block business they are perfectly excusable in their advice.

But this condition is only temporary. Experts are fast coming to the front, both in the manufacture of competent machines, and also in the manufacture of perfect and shapely blocks. They can explain to the architects the co-operation of the machine with the

most advanced architectural designs. In many cases some very eminent architects have taken up this branch as a sole occupation, and in connection with the machine manufacturer are rapidly bringing order out of chaos, by filling the appalling gap between the novice and the educated builder.

Again, as the demand increases for these buildings the defects which were so prominent at first are being overcome. One of these being the porosity of the average concrete block. While this was in most cases due to inexperience in others, it was also due to such material as was available and had to be used, in which case many defective buildings have been erected to the great detriment of the industry. But, fortunately, discoveries and experiments in this direction have completely mastered this situation, so that at the present time there is no excuse for putting blocks into a building that will let moisture through. Waterproofing compounds are now known to be both effectual and as lasting as the stone itself, and very cheap.

The great question as to wall construction has been settled, so that definite dimensions of blocks and their webs have been determined, eliminating the necessity of cobble construction, or such a multiplicity of cavities as to add greatly to the cost of the block and much more to the laying in the wall, besides obviating that great difficulty of proper subdivisions.

Gradually the darkness and the difficulties incident to all improvements are passing away in this as in others which have come before. Hollow concrete blocks of some kind are now used all over the world, their merits are discussed by competent builders and architects all admit their universal use in time and all are ready to adopt them just as soon as standards of measurements and quality are proven correct. Men who are proficient in their callings, either architect or builder, will not take the word or product of those unacquainted with the art of proper construction. The great desideratum at the present time is ornamentation. It must come from talented devotees of the block, in connection with the machine manufacturer. Neither can do it alone unless expert in both branches. It will never develop by calling attention to this or that palpable defect by newspapers or conventions, unless someone can point out a remedy, and that is what we all want and all should strive to find.



Fireproof Stairways

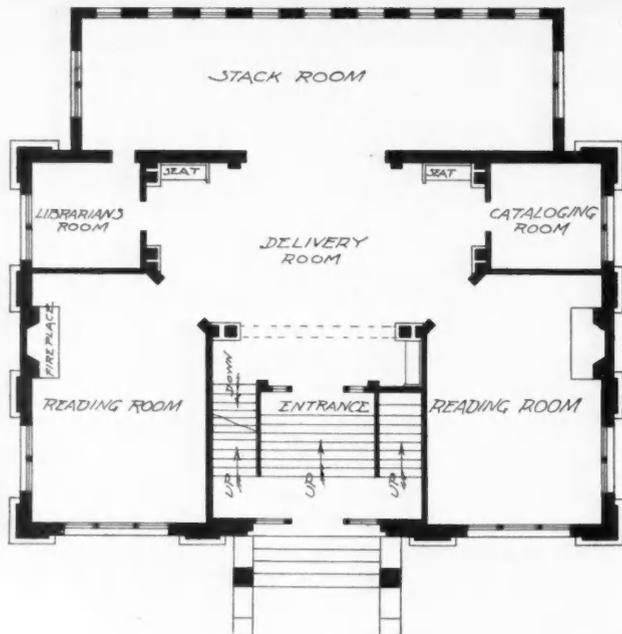
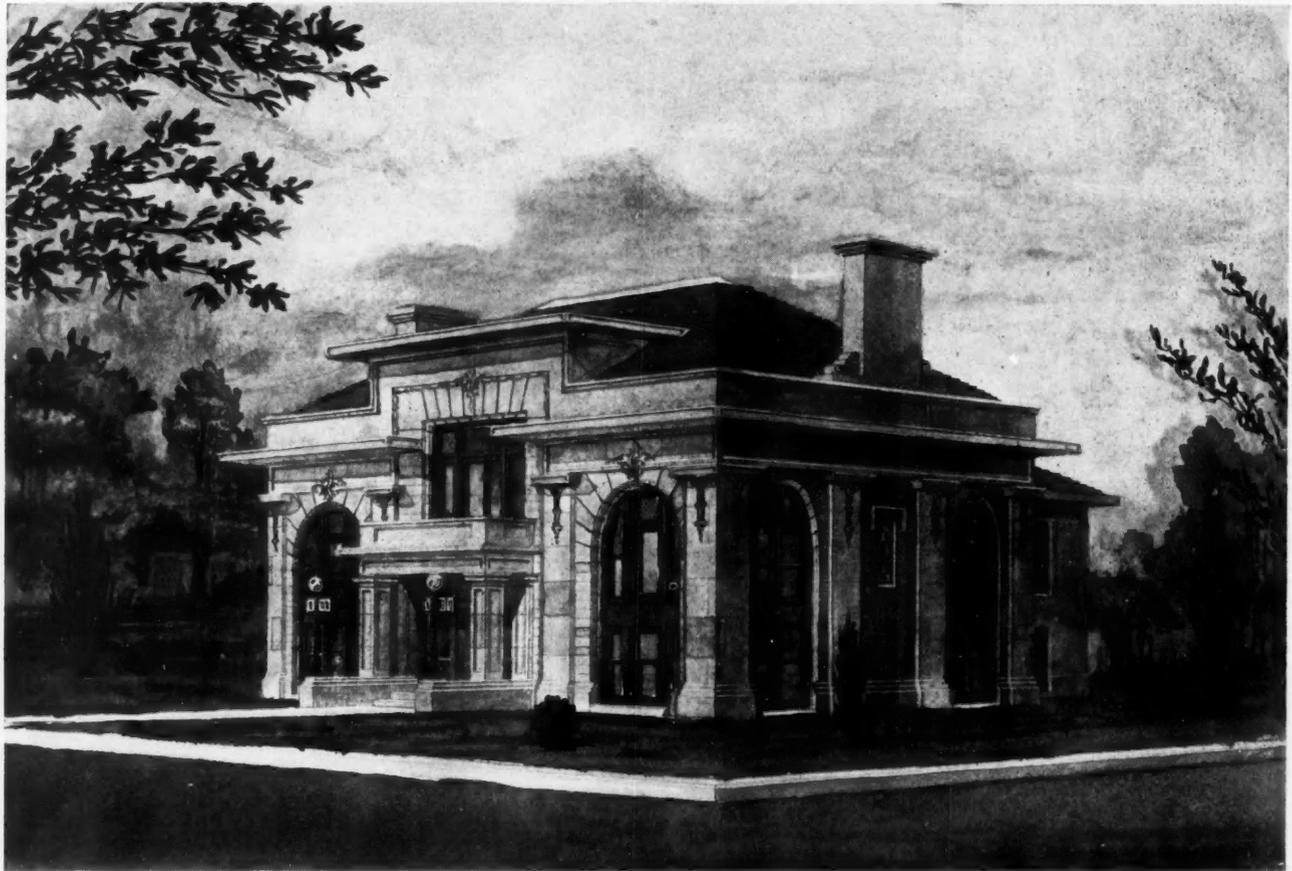
Circular fireproof stairways represent a further adaptation of fireproof tile to modern building. In the New York custom house two pairs of semi-circular fireproof stairways have been built, leading from the sub-basement to the top floor. In many respects these stairs represent an extreme advance in the fireproofers' art. They consist of hard burnt tile slabs built up in the form of the arch so that they are self-supporting and entirely secure against any damage from fire.

Two Modern Libraries

PERSPECTIVES AND FLOOR PLANS OF TWO LIBRARY BUILDINGS WHICH OFFER SOME VALUABLE SUGGESTIONS—SPECIAL FEATURES OF EACH MENTIONED

THE library shown on page 803 is being built at Des Plaines, Ill., after the plan made by G. W. Ashby. It is being built of Bedford stone with paving brick between the first story windows. This combination makes the exterior very attractive. The shape of the building is very unique, but is very suitable for a triangular lot. The base-

ment, which extends under the entire building, contains the heating and ventilating apparatus, storage room for coal, two toilet rooms and two club rooms. These club rooms are underneath the reading rooms and are connected by wide arches, making in reality one large room, which can be used for various gatherings. The main floor is divided into two reading



rooms, the stack room and the delivery room. Two arches separate the reading rooms from the delivery room, and the location of the librarian's desk enables her to have a complete view of both reading rooms, which is a very desirable feature.

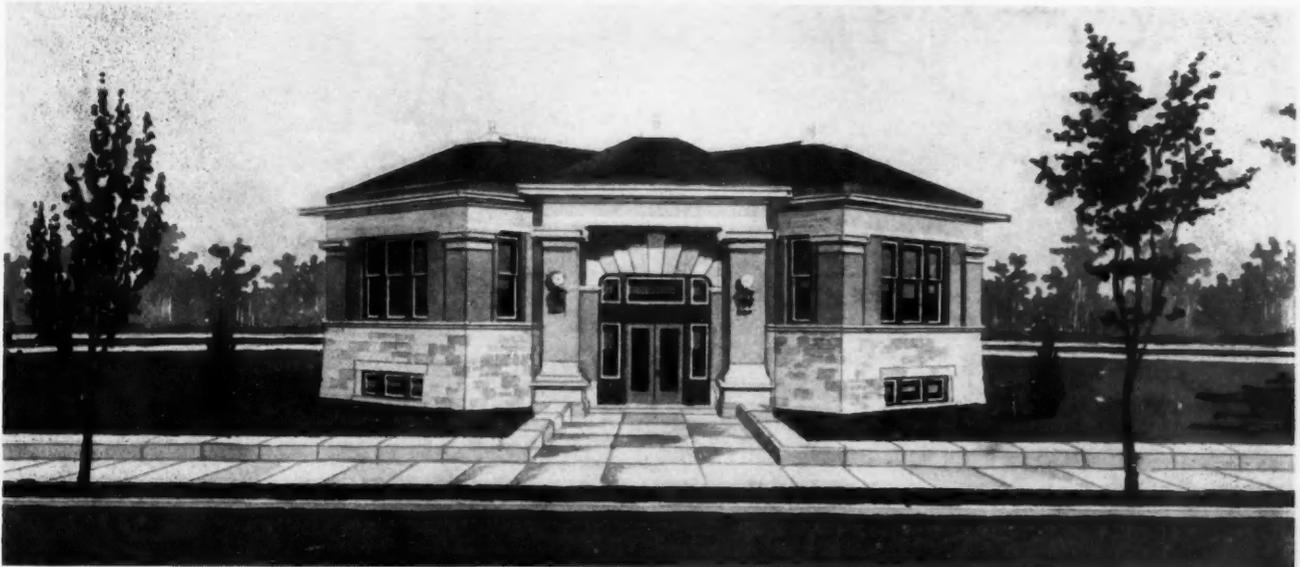
The windows are well arranged, so as to throw all the possible light into the reading rooms, and this is a very important feature in library construction. All the rooms on the main floor are connected, and this is possible in a library building, as it is taken for granted that everyone will be perfectly quiet while in these rooms. The floors are protected with cork mats, which will deaden all the sound of persons passing back and forth, and the result is perfect quiet in the reading rooms. The cost of this building is less than \$6,000 complete.

Modern Library Building

A library which combines utility and comfort comes as near to the ideal in this line as it is possible to get.

The design shown on page 802 endeavors to combine these two features. The reading rooms are both equipped with large fireplaces, which are ornamental in summer, but prove to be very useful during the fall and winter. There is nothing that has the tend-

some logs into the river separate from the main rafts and followed their progress down stream in a boat. After floating south for some distance the logs with one accord sank. Much surprised, the scientific gentlemen returned and followed another consignment.



ency to keep one indoors and read as an open fireplace, and we would here suggest that they be placed in public libraries more often than they really are.



Why Cypress Wood Sinks

Southern lumbermen take great delight in a story of certain scientific gentlemen who were sent by the government at Washington to study the growth and uses of the bald cypress at a time when cypress lumber was comparatively new to the market. They

The phenomenon was repeated; at a certain distance from the camp all the logs sank.

The gentlemen from Washington, being very scientific, did not think to question the unlettered superintendent about the power of cypress to become water-logged, but after numerous observations and much comparing of notes reported to their department the startling discovery that cypress floated north of a certain parallel of latitude and south of it invariably sank. Of the cause they were not yet certain, but hazarded the suggestion that it might lie in the rotary motion of the earth, increasing in speed as the logs approached the equator until it was powerful enough to draw them under.

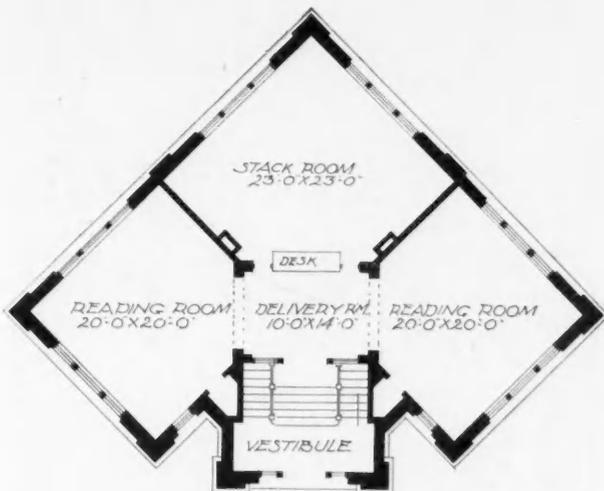


Use of Peat in Brickmaking

In Germany they are mixing coal and peat, making a compressed mixture, which has been used as fuel in a brickyard with a result so favorable that it will no doubt open a new field for the use of peat fuel in brick manufacture. In the neighborhood of Jever, Oldenburg, an excellent heavy blue clay is found which was considered suitable for the manufacture of hard clay paving bricks. All efforts to manufacture such bricks from this clay proved unsuccessful until a mixture of one part of peat and ten parts of coal was tried as fuel. The result was a hard, brown brick instead of the light red brick which was produced formerly. The experiments were repeated until at last a first-class brick was produced. So much for fuel in brick building.



There's no time to begin like the present.



went direct to a large camp, presented credentials to the superintendent, and watched with minute care the processes of cutting the timber and floating it down stream.

Cypress is a light, spongy wood that grows in swamps and absorbs water readily. The scientific gentlemen requested the superintendent to throw

PLUMBING

W^M R. MARSHALL

Soil, Waste and Vent Pipe Installation

INSTALLATION MUST BE SUCH AS TO PREVENT ANY LODGEMENT OF SEWAGE—ADVANTAGES OF CERTAIN SYSTEMS THAT HAVE GIVEN SATISFACTION

THE soil pipe and fittings in good plumbing should be first-class; the installation, such as to prevent secretion of rust, lodgment of sewage and to permit free circulation of air throughout the system. The F. & W. system consists of a patented invention of a combination drainage and vent fitting in which it is impossible for secretion of rust

either wrought iron or steel under the same conditions in a similar combination.

The F. & W. system has the advantage of displacing two or more ordinary fittings, thereby reducing the

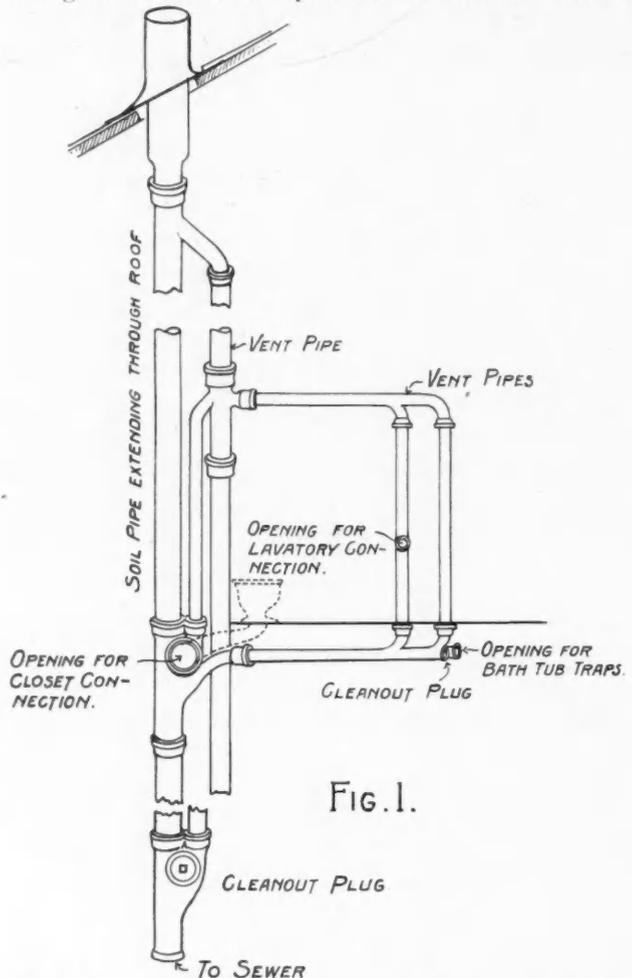
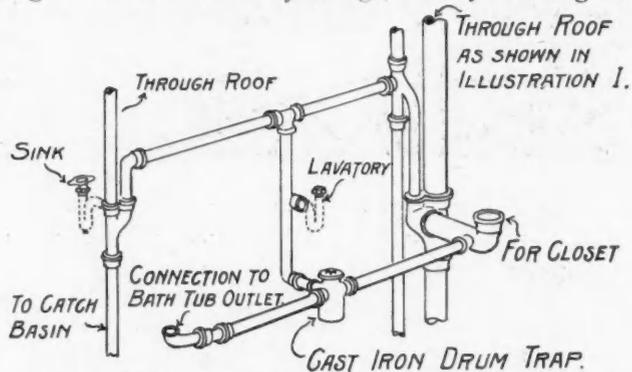


FIG. 1.

and other foreign substances to lodge and remain. Fig. 1 shows a combination of fittings for a set of bath-room fixtures, including closet, lavatory and bath tub. A very important advantage devised from this installation is that only cast iron is used in the vent, waste fittings and connections; it being an acknowledged fact that cast iron will last twice as long as



number of joints and decreasing the liability of leakage. Any rust formation in the vent pipes falls into the drainage part and is washed away by the flow of water from the fixtures. As there is positive circulation through both the vent and revent pipes at all times, syphoning is impossible. The curves and angles are easy and are made with the object in view of decreasing friction to a minimum.

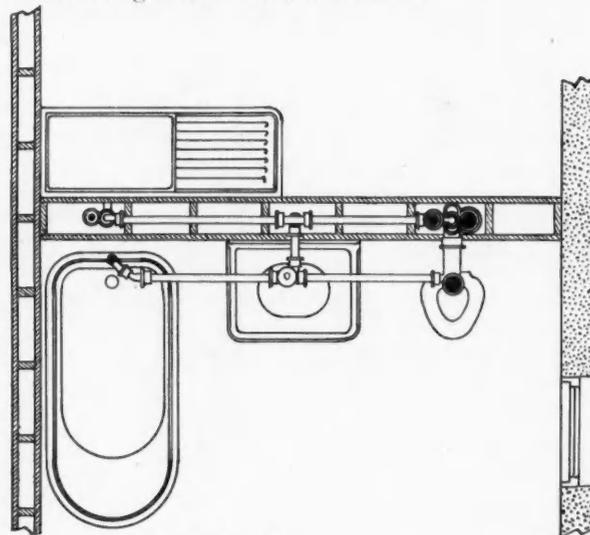


FIG. 2.

The vent pipe, which is two inches, is connected into the four-inch soil pipe at a point just under the roof and the soil pipe is increased to five inches as

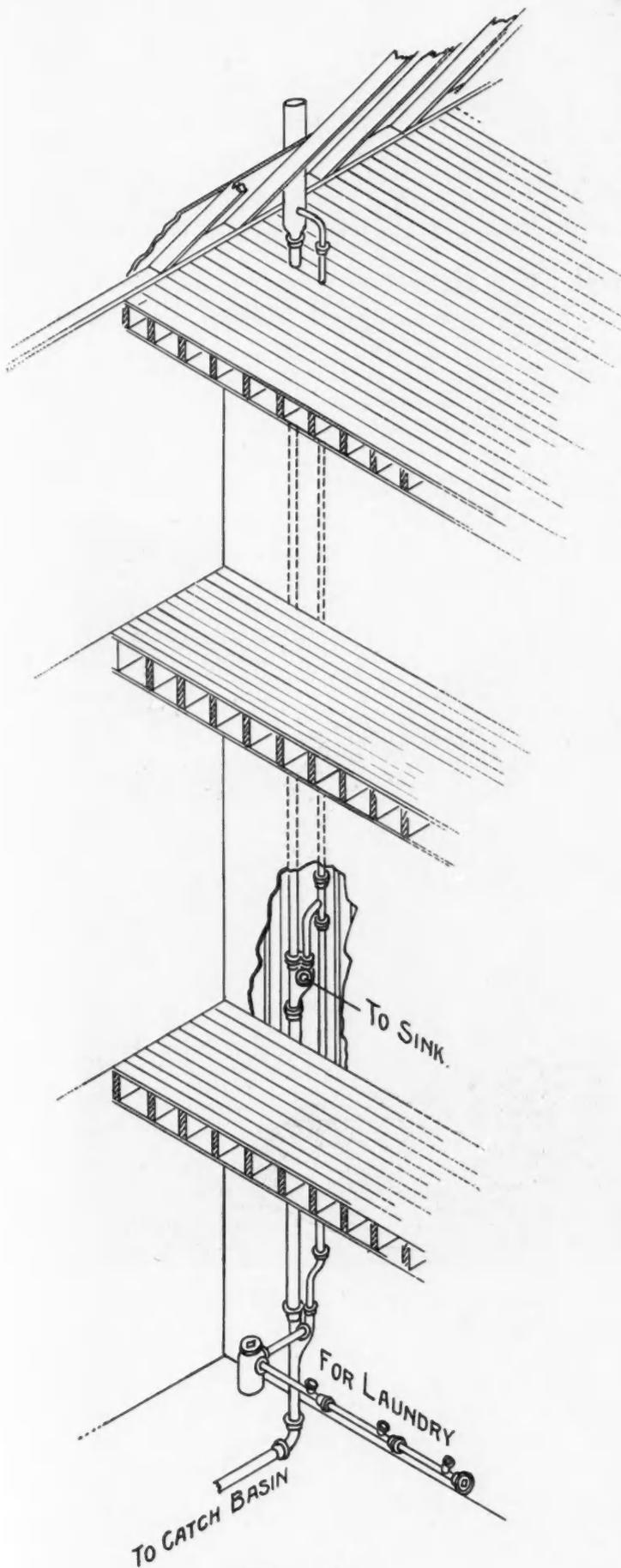


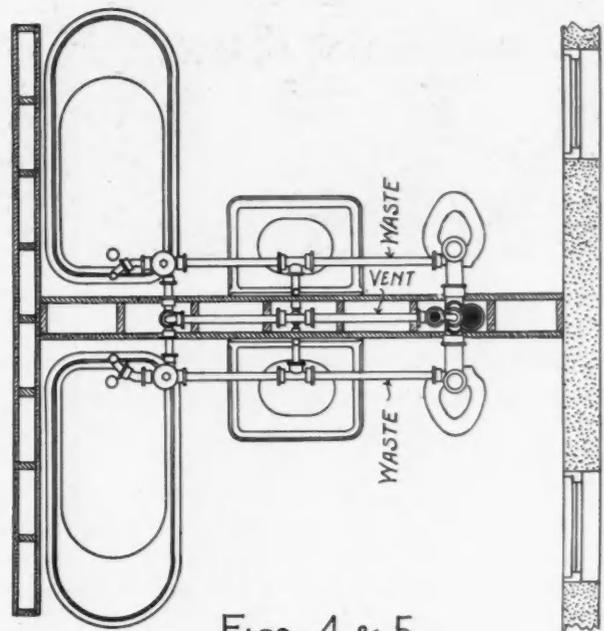
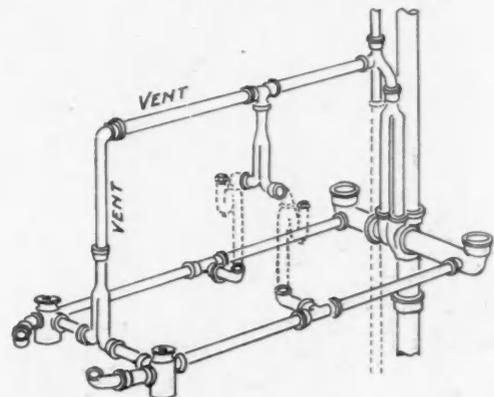
FIG. 3.

it passes through the roof. In the basement the vent pipe is connected into the special soil and vent tee at the foot of the stack. This allows any rust scales to fall into the tee and are washed into the sewer by the flow in soil pipe. This connection also permits the circulation of air.

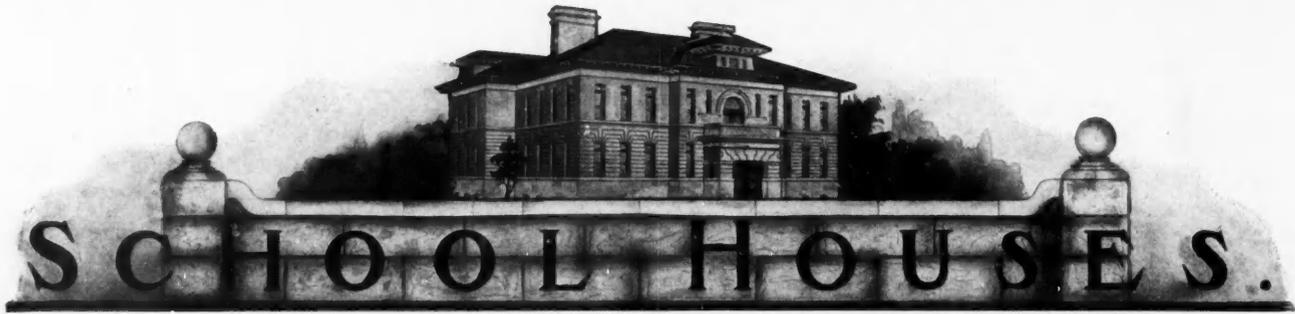
Fig. 2 is a combination for bath tub, lavatory, closet and kitchen sink. The plumbing ordinances of many cities require that the sink waste pipe be run independently to a catch basin to intercept the grease and prevent it from entering the main sewer. In this installation one stack of vent pipe is saved, the reventing (which should always be done) is accomplished by connecting into the bath run stack. The cast iron drum trap is desirable from a standpoint of durability.

Fig. 3 shows manner of installation for kitchen sink and laundry tub in basement. These two fixtures discharging into a catch basin and from these to main sewer.

Figs. 4 and 5 show arrangement for double bath room. One soil pipe and one vent stack being all that is necessary, a marked economy in labor, material and space, and yet a high grade of efficiency.



FIGS. 4 & 5.



Public School Building

SHOWING DETAILED CONSTRUCTION OF ALL PARTS OF THE BUILDING—METHODS OF DEADENING FLOORS SHOWN, AND SIZE OF TIMBERS USED

WE ARE this month illustrating a public school built at Maywood, Ill., by G. W. Ashby, architect. It was built of red pressed brick and trimmed with buff Bedford stone. One-half of this building is being used for a high school and the

methods of deadening floors, the lower one being used in this case. This problem of deadening floors is a very important one in school house construction and as we have been asked about the various methods used we show the best way as used in this building.



other half for a grade school. As soon as the new high school is built the assembly room in this building can be divided into two rooms or it can be left as it is at present, as it makes an ideal place for holding exercises and entertainments. The interior trim is cypress throughout.

The longitudinal and transverse sections here shown are of the new addition which has recently been built. It gives the dimensions of the various timbers and shows the location of the doors, blackboards, stairways, etc.

The sections through the joist here shown give two

This is also shown in the transverse section, under all second story floors.

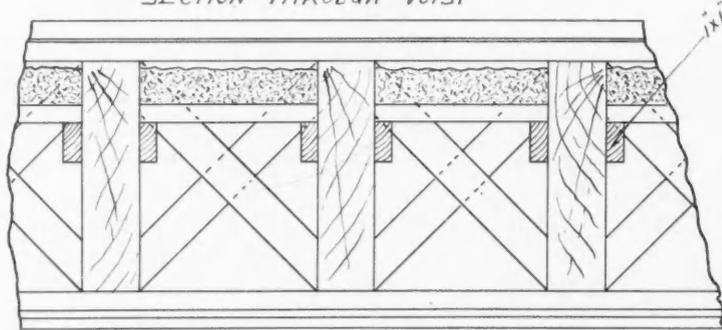
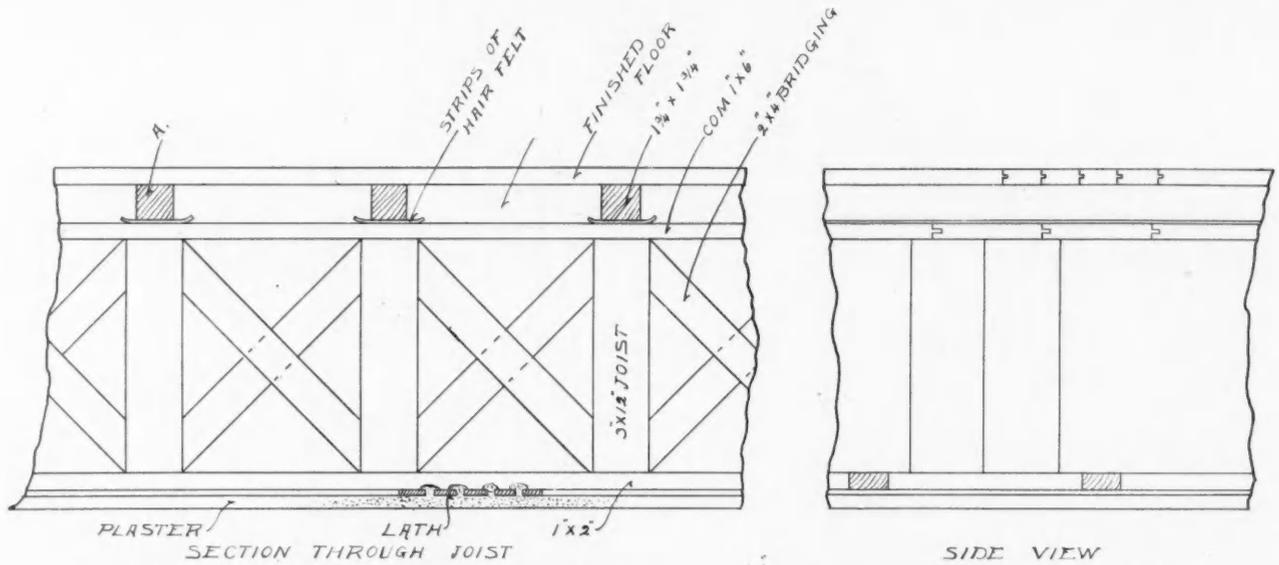
The material used is common mortar, just enough mortar so that the sand will not sift. This will prevent any ordinary sound from penetrating through to the floor below, although such sounds as children marching in unison cannot be completely deadened.



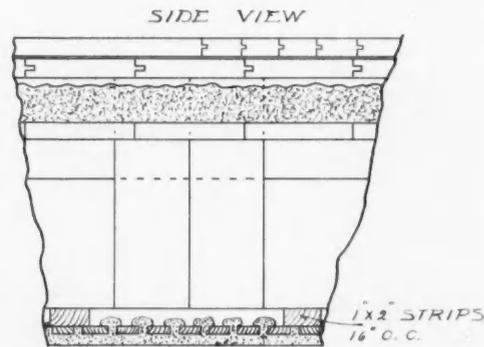
Keep to the trail. Success lies in continuous effort along a certain line.



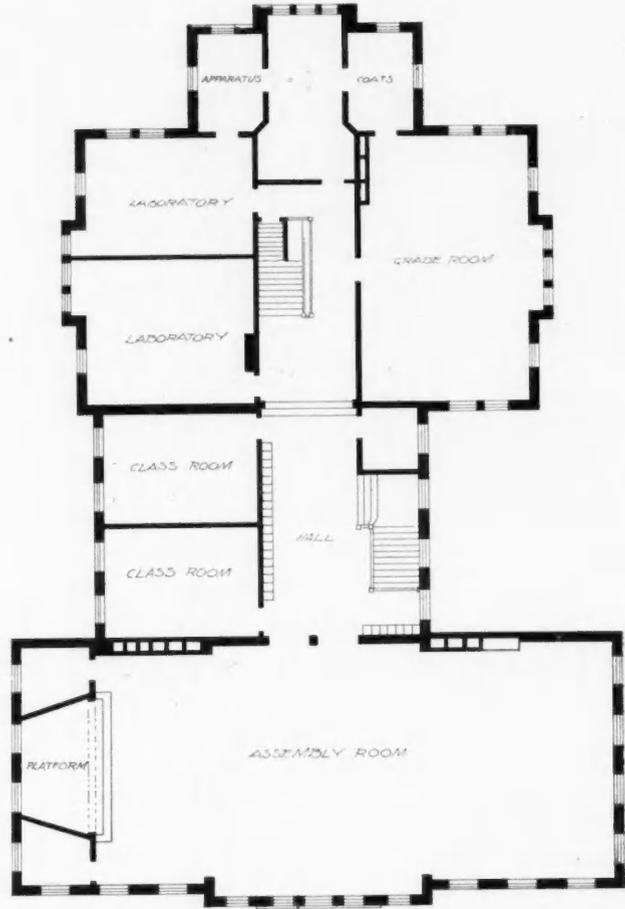
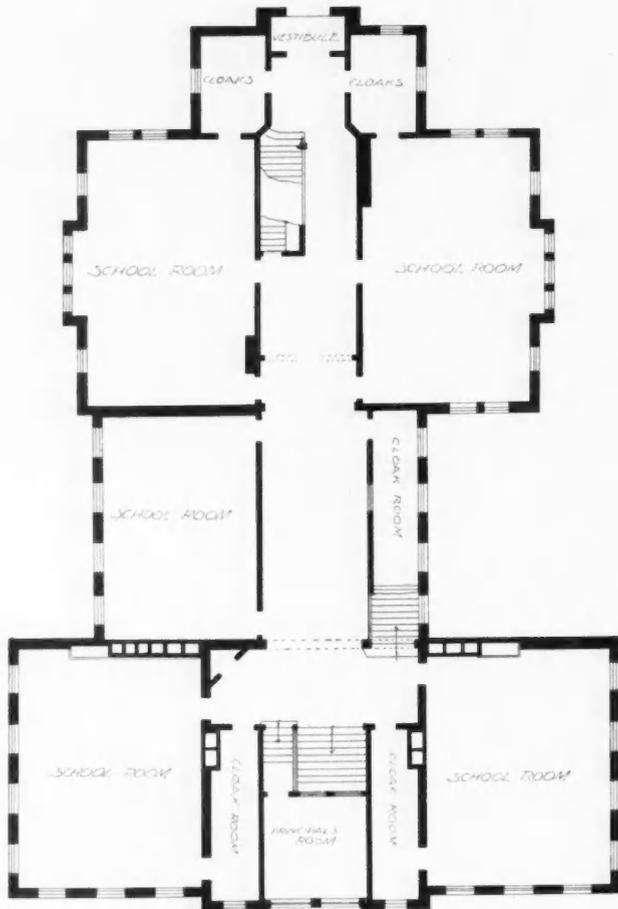
One experience is worth more than ten theories.



SECTION THROUGH JOIST



SIDE VIEW



Ornamental Products*

WHAT CAN BE PRODUCED IN THE LINE OF CEMENT STONE—BEST KINDS OF FORMS TO USE TO OBTAIN GOOD RESULTS

By E. C. Harter

CONCRETE or cement may be made in almost any ornamental or architectural designs by various methods.

It may be cut as other stone or marble is cut by the stone carver, cast in sand, or moulded in various wood, composition, rubber or iron moulds.

The sculptor or stone carver can, without a doubt, produce finer and more elaborate work than is possible by casting or with moulds of whatever description, and while I believe that there will be call for hand-carved concrete stone in the future, at present those wishing to invest the amount of money necessary to produce this class of work prefer to use natural stone, granite or marble.

Casting cement stone in sand is a simple and practical method, where the operator has the ability to mould and draw patterns.

It is best that patterns be of metal and nicely finished, the same as those used in an iron foundry. By using various cores or fillers, cut underwork may be made by this method. It is necessary to use a mixture having sufficient moisture to admit of pouring or even running it through hose.

The stone made by this process is of good quality and has a fine surface.

Rubber or Elastic Moulds. On account of the slow setting of cement it is not practical to cast concrete stone in gelatine or glue moulds, as plaster of Paris is cast, but I have seen very nice work made in rubber moulds that are vulcanized onto the form desired, and encased in a perfectly fitting metal form to hold them in place until the concrete is sufficiently set to admit of removal. The rubber seems to cleave freely from the cement and very elaborate stone may be gotten out in this way.

By far the most economical method of making ornamental work from concrete is to use metal moulds. Very nice designs are possible by this method. The models from which the patterns are made must be gotten out by an architectural moulder in play.

The details may approach very nearly those of the

*Address made at the Concrete Machine Manufacturers' Convention held at Detroit, Mich., August 8 and 9.

stone carver, but cut under work must be avoided, unless fillers are used, which is possible in some cases.

Basing an estimate to the cost of ornamental stone on labor at \$2.00, cement \$2.00 and sand \$2.00 per yard, the cost of a renaissance baluster post made in a metal mould is about 10 cents, while the cost to cut them by hand in natural stone would be \$10 each.

In the past stone of this class had only been found on the boulevards and finest residence streets, while in the future, with the help of concrete, this class of work will be used in the medium and even low-priced buildings.

The virtues of concrete should put it in a class by itself. It should not be called artificial stone. It is stone, and of a better and more lasting quality than the average natural product.

The cheapest cut stone is what is known as rock-face or pitched. It seems this is the style the manufacturers of stone machines have been called upon to imitate, and while it is the easiest to make from natural stone, it is the hardest to imitate with moulds.

Although the patterns may be made directly from natural stone, the concrete will have the moulded effect, which is disappointing.

Real rock-face or pitched stone may be made from concrete by making the face of sufficient thickness, of fine material and when well cured, pitch it with stone cutters' tools. This will produce the desired effect, but will leave the surface more porous than the moulded products.

Beautifying cement stone by mechanically finishing the surface has not had the attention of the artisans that it is worthy of.

Some very fine laboratory specimens of polished work have been produced, but I find that by exposing them to the elements for only a few days the luster or highly polished surface changed to a dull finish.

I firmly believe that this is the result of the continuation of the chemical action of the cement in the mass and is caused by further crystalization. All of the specimens of this work that I have seen have been upon newly made samples.



E. C. Harter

Should the highly polished surface be produced on stone that is thoroughly cured there is no reason why it should not retain the polish.

When the progress that has been made in the manufacture and use of cement stone during the last five years is taken into account, those engaged in this have reason to feel encouraged, or even optimistic.

Every season's cut of lumber necessary for the thousands of buildings constructed in our country raises the price of that commodity and unless the pro-

duction of concrete stone increases in a greater ratio than the timber decreases, we will surely be afflicted by a lumber famine in the comparatively near future.

The advancement towards practicability and beauty in concrete stone, which is now generally admitted to be the most durable of building materials, lies almost entirely in the hands of those who engage in the manufacture of stone machinery, and from past results I am satisfied that the building public appreciate what is being done along these lines.

Foreign Trade*

GREAT FIELD OPEN TO CONCRETE MACHINE MANUFACTURERS—METHODS OF REACHING PEOPLE IN FOREIGN COUNTRIES

By Mentor Wetzstein

I HAVE been wondering why our secretary saddled upon me such a red tape proposition as the reading of a paper on foreign trade, nor do I know why or how he reached the conclusion that I was in a position to give out much information with reference to this very intricate and complicated subject, and I must therefore ask your indulgence because of the shortcomings of my paper and its dealing to an extent in generalities.

"Foreign Trade" has a world of meaning, and we Americans, like Monte Cristo, can indeed cry the "world is ours." Every foreign country lays her purchasing toll and tributes on the shores of our land—these great United States. The ingenuity of the Yankee nation in producing articles and machinery that appeal to the people of other lands has won her a market throughout the world, and one has but to read the business agency reports to learn the marvelous and astonishing results and the great tonnage sent from our ports. Government reports show a continual increase of exports over imports until even these figures have swelled into the hundred millions on the credit side of Uncle Sam's foreign ledger account, a complete reversal of former conditions, when our imports far exceeded our exports by millions upon millions. Urgent business that has kept me in Canada the past fourteen days has prevented my obtaining and presenting to your notice exact figures and statistics, but I hope at some future meeting, if again honored, to prepare a paper that in the preparation of my subject I will be able to give it more careful thought and study.

No country on earth is doing so much for the business man and manufacturers as the United States—in every foreign land, in every clime, in the smallest principality, our government has stationed its consular representative, wide awake, vigorous, energetic, with his country's good in heart and mind he is our foreign watchdog, sending in his reports, his observations, his suggestions, and, to use a slang expression, "he plugs the game for his country." If the manufacturer sends

forth his representative into a foreign land he gets in touch with the consul, who may be styled an advance agent. Respected in the office he holds, he is in a position to introduce the American salesman and the balance comes natural and easy—a sale is made. No manufactured article has a better field in the foreign country than the block machine; it is like Castoria, they cry for them. In the tropics they find a ready market and their sale depends upon proper exploitation only; the opportunity is there, if we but grasp it. We have been busy here at home and have in reality neglected the foreign opportunity that has been knocking at our gates—luckily for us our product is so strictly American that its manufacture has not been attempted abroad, and hence has not suffered competition. We, however, have not sought nor have we properly gone about it to secure this foreign trade. Instead, they have sought our block machines, recognizing the merit of the material they produce. We belittle in our own minds the intelligence of the foreigner who sends us in an inquiry. Most of these inquiries are in foreign language, which we are obliged to have translated, and although it is so self-evident, by the very nature of the inquiry, that the man at the other end of the line is not in a position to write us in our own language, yet with supreme indifference as to conditions there, we send out our package of voluminous printed and illustrated matter, and if we do not get results, we are disposed to say that there is not much to be obtained by going after foreign trade. This is all a mistake, and those of us who have developed some business in that direction are realizing the force of this criticism every day of our lives. If we hope to have concrete block machines taken up by the foreign element and induce them to buy in large quantities, we must first place ourselves in the position of the man at the other end who is sincerely seeking information, and, second, send him such matter as will in the briefest and most comprehensive manner convey to him the merits of our proposition. We spend our money in advertising in export journals, and after doing so and receiving inquiries, we absolutely neglect the fundamental prin-

*Address made at the Concrete Machine Manufacturers' Convention held at Detroit, Mich., August 8 and 9.

ciples of trying to make things clear to the people who have sent the inquiry to us. I dare say your experience has been on the same lines as ours. Long ere we spent a dollar in advertising that would reach foreign shores, we received inquiries from far off lands asking about our machines. We often wondered how they got onto it. Undoubtedly American journalism as exemplified in papers and magazines should receive the credit—they reach the world over, and many is the tourist who, leaving our shores lands across the sea plentifully equipped with our readable literature, which likely finds its mission in disseminating knowledge of concrete and concrete machinery, and since concrete is destined to be king, how can they keep it out of the land of kings and queens, princes and potentates? True, it is indeed galling the amount of work entailed and red tape necessary to make an export shipment, but the business generally comes to us with only an advertising effort, and coming thus easy we should not complain—perhaps reciprocity will some day change it all; perhaps even now the Pan-American Congress deliberating in South America is laying the plans of simplifying these present annoyances; perhaps as our representatives are flitting about among the peoples of that country they are telling of our products, and having cast the stone into the water the ripple of the waves will wash unto us the benefit. Let us strive to get more of this trade. Let us be the benefactors to the foreigner by placing in his hands the instrument with which he can produce the best building material known to man. Let us be the missionaries to introduce and give him building blocks, and when he erects his habitation it will be his shrine from which he will arise to bless the block machine makers, and I dare say we will have accomplished more good in some of these foreign climes than those who teach and force upon them some of our religions. Let him live in a hollow concrete block house and more thankfulness will pour from his heart to his Maker than through the benefit obtained by him from the exhorting missionary.

The recognition of the foreign trade, its paying results and returns finds as its greatest captains the exporters at our great seaports. New York and many other cities have them, and their great firms are numbered by the hundreds—they often receive tribute from both the buyer and the seller. They have waxed rich, and honorably so, and have obtained a foreign clientele that looks upon them, and rightfully too, as their American agents. They have sent away satisfactory goods, and one never loses a customer under such circumstances. Many of our larger manufacturing concerns, however, have saved the profits of this middleman and have established foreign branches and connections. Let me suggest right here that we get together as an association and establish a few depots in the greater European marts—each of us can have our machines on display, and an impartial person in charge to sell, or, rather, take orders. We could then

unitedly and systematically carry on a block machine and block machine product propaganda, the expense in my opinion of doing all I suggest would not begin to cost what we are now as individual firms spending in foreign advertising, and once more, if I dare refer to it, the red tape would be decidedly shortened. Let us discuss this when we have the proper time. Unless we take some action we should be satisfied to pay the exporting firm a commission tribute if they secure for the business—it will pay you to get in touch with them, to write to our consuls, to send them your literature and call attention to your product; it will pay to advertise in those trade journals that make a specialty of reaching the peoples of the Orient and the Occident.

I hope I may be pardoned for digressing and giving my own company a little patting on the back, for in the past few months we have received orders from and made shipments to many European countries, among which I call to mind England, Scotland, Cuba, New Zealand, South America, Japan, Philippine Islands, Australia, even the Malay Peninsula. Block machines are an absolute necessity in the tropics, and the irrepressible Jap has the nerve and the backbone to spend money to preach among his people in his land of sunshine, flowers and happiness the gospel of concrete blocks. May success be his, may his energy be rewarded and may he succeed in teaching his people to erect habitations that will shelter them without danger even when Manana Loa, their great volcanic mountain, growls, thunders, shakes the earth in tremors and pours forth the fiery vomit of her ever-heated bowels.



For Finishing Walls

A rather novel method of finishing the outer surface of the walls of a reinforced concrete building was recently adopted in connection with a structure in Knoxville, Tenn., says *The Record*. The sides of the building have curtain walls of concrete brick, while the front and back walls are of monolithic construction. When the work was completed, the front elevation was treated to a cement solution applied by means of whitewash brushes. The solution consisted of water and cement of the consistency of thin grout, which was strained through cloth to remove any coarse particles that might scratch the concrete surface of the building. The coated surface was given a light and quick rubbing with carborundum bricks until a very smooth surface was obtained. The thickness of the solution prevented it from running off the wall and served as a plaster as well as a dressing. The result is a front of one color, which closely resembles limestone.



No one has a right to make others unhappy in order to please himself.



Farm Buildings

Henry H. Niemann

A Residence Barn

THINGS TO BE CONSIDERED IN CONSTRUCTING A BARN IN THE CITY—BEST ARRANGEMENT TO DERIVE ALL THE BENEFIT POSSIBLE FROM IT

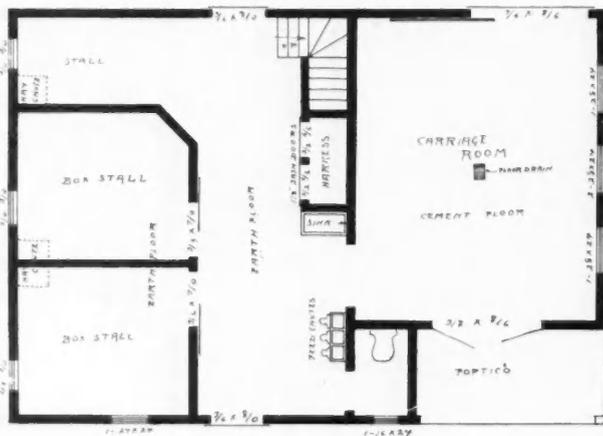
ALTHOUGH residence barns are only intended to accommodate several carriage horses, two or three vehicles and the necessary appliances, tools, feed, etc., their arrangement is often the result

it is often necessary to build a straight blank wall on a side where the interior demands lots of light and air which must, however, on account of existing conditions, be switched around to some other side for better



SIDE ELEVATION

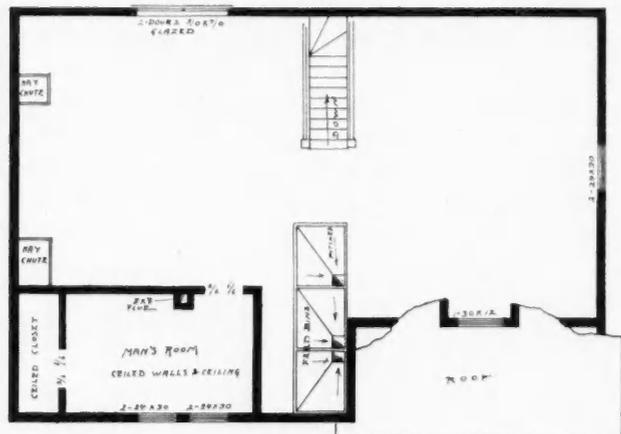
SECTION END ELEVATION



GROUND FLOOR PLAN

results. Often an outside door would be very convenient at a certain location to suit the interior arrangements, but would be rendered utterly useless on account of some existing exterior surroundings.

For these reasons it is impossible to lay down certain rules to follow in the laying out of a residence barn or to establish a design that could be called a



SECOND FLOOR PLAN

of careful and complex study, because in many cases they are built to occupy a small space and often crowded in between other buildings which destroy the light and natural ventilation. Farm barns can in most cases be built to suit their interior requirements, with all windows and doors located to best advantage for the interior arrangement, but in city residence barns



Edward Hurst Brown.

Painting the New House

SPECIAL FINISHES AND METHODS OF APPLYING THEM—KINDS OF MATERIAL TO USE AND WHERE MOST APPROPRIATE

IN THE previous articles we have omitted several special finishes or methods of doing work required for particular purposes, which are often necessary to know because they cannot be replaced by the methods more generally in use, and which might properly be taken up at this time.

Oil Polishing

There are certain places which are subject to a good deal of wear and tear, to an extra amount of moisture or wet or to the action of liquids, especially wines or alcoholic liquors, that more or less affect the life of varnish, or ordinary hardwood finishes. Such places are table and bar tops, sink shelves, in good houses and similar locations in kitchens and pantries. Unfortunately the average house owner is apt to consider anything good enough, when the house is being built, and is unwilling to spend the money needed for a permanent and durable finish for such places. The hotel man, on the contrary, knows the value of a polished top to his bar that will defy the hard use that such a place is given and is willing to spend the money needed to get it. For such places, there is no finish equal to the old fashioned oil polish, which is obtained by the use of linseed oil and elbow grease. This is a finish that anyone can produce, but it is so tedious and tiresome that the average journeyman dreads it, and the painter who undertakes it on any other basis than by the day is apt to find himself sadly out of pocket. But when an oil polish is properly done, it will stand hot dishes and hot liquids and the continual wetting and slops that are almost unavoidable in such places as those mentioned, and still remain in good condition. And what is more, the polish can always be renewed without any of the troublesome removal of previous coatings that is unavoidable when renewing a varnished surface.

If the surface to be polished is a new one, it should first be stained to the color desired, and then filled with a good silex paste filler that has been stained the color of the wood. When this is thoroughly dry, it is first given a coat of boiled linseed oil—although raw oil will answer—applied with a brush. Care must be taken not to use too much oil, but just about what the wood will absorb and that can be worked in by the

rubber without leaving any surplus on the surface. As soon as the oil is applied, it must be rubbed in well with a rubber made by wrapping a piece of rubbing felt round a square stone, the heavier the better as the weight of the stone relieves the operator's muscles somewhat from the tediousness of the rubbing. It is impossible to rub too much, and the longer the surface is rubbed the higher the polish that will be obtained. After the first rubbing, the work should be allowed to stand for a few days and it should then be given a second rubbing. This should be repeated again and again. It takes fully six weeks to get a satisfactory result, but when it is once obtained it is superior to any other finish. It may be renewed at any time by simply sandpapering the surface smooth, touching up with stain, if required, and again oiling and polishing. If spots only require renewing, it can be done by the application of oil to those spots only, with the necessary rubbing. The process is slow and expensive, and in this country, where people are always in too much of a hurry, it is not used as much as it should be, but where hard usage is to be given there is no other finish that will take the place of oil polish.

One Coat Stain Finish

It sometimes happens that an effective finish is desired which is intended to imitate antique work and where there is no desire to produce a gloss or high finish, and at the same time the expense must be kept down to a minimum. The method given here is particularly applicable to chestnut, though it could probably be effectively used on either straight grained oak or ash. It was used by an architect in Philadelphia in finishing the interior of his own house, which was a quaint building with open beamed ceilings and large paneled wainscots. But in using it, it must be distinctly understood that it will be impossible afterward to change the finish of the wood and substitute a varnished or painted surface.

The proper color was obtained by using pure colors in oil (umber and sienna being employed in this case), and then thinning them with kerosene, with as much liquid driers as in the judgment of the painter would be necessary. Some experimenting will be needed to determine the exact quantity. The color was applied

as a paint and then thoroughly rubbed into the wood with a rag or with burlaps. The effect produced very closely approximates that of the antique chestnut that one sees in the old cathedrals and castles of Europe. The average painter will probably condemn it at once because of the use of kerosene, instead of linseed oil, but in this case the kerosene is used because it serves to carry the pigment into the pores of the wood and stains it deeply.

Scorched Finish

A remarkably effective finish was used on the white pine woodwork of a club house, several years ago, by an architect who was noted for his originality. When the wood was ready for finishing he had it scorched in places, blending from dark to light tones, using the old-fashioned charcoal paint burner. This can be moved back and forth and held closer or further from the wood, producing a great variety of shadings. In the hands of a man of some artistic judgment, very beautiful effects can be produced. To a certain extent, it is the application of the principles of pyrography on a larger scale. The use of the gasoline torch to produce the same effect is of course possible, but would require very much more care to avoid danger from fire and to keep from scorching the wood too deeply. The more intense heat generated by the torch is apt to char the surface instead of merely scorching it, and it is very difficult to produce the artistic blending of colors that can be produced by the charcoal burner. After the wood has been scorched, it is then shellacked and finished with varnish in the usual way.

The above treatment is particularly applicable for old painted woodwork that is to be replaced with a new finish specially appropriate to the Mission or Arts and Crafts styles.

Wiped Stain Effect

A method of producing unusual effects that was not elaborated under the head of stains, is specially adapted to producing striking results on white pine. The nature of this wood is such that a wiped stain of this character develops the grain and its peculiar beauty of marking in a manner that cannot be obtained by any other finish. For some reason this method of work has never obtained the popularity it deserves, partly because it departs too much from the preconceived mechanical notions of the average painter.

A thin paint is made from pure pigment colors, mixed to produce the color that may be desired, and reduced to the proper consistency with raw linseed oil, turpentine and driers. This is then applied to the wood with a brush in the ordinary manner and allowed to partially dry, when it is wiped off with a rag. This wiping has the effect of rubbing the color into the softer portions of the grain, while on the harder parts, the color is either entirely wiped off or almost entirely removed, according to the time given before wiping and the vigor with which this operation was carried on. To bring out the greatest beauty of the grain re-

quires a workman of considerable intelligence and one who is willing to give some thought to his work. This method of staining is not well adapted to other woods.

Care of Hardwood Floors

At the recent convention of the Master Painters' Association of Ohio, it was brought out that most house owners expect a great deal more from a hardwood floor than ought reasonably to be required from it. Varnish or wax finish is condemned because it will not stand wear and tear that would wear away a carpet or even the wood itself. In one case the varnish used on a staircase in a public building was condemned because it wore away so soon, and when the work was examined by an expert it was found that the traffic on that staircase was so severe that not only the varnish was worn away, but the woodwork of the stairs was worn down by the constant friction with heavy shoes. It is practically impossible to produce any finish that will stand without frequent renewal upon any floor that is in constant use. Take, for example, the portion of the dining room floor which is directly in front of the door leading to the kitchen or the pantry, the floor of a hallway where the traffic is along a straight line, or along the aisles of a school room or a church. If the floor is carpeted, it will wear out much faster in such places, and it is unreasonable to expect a varnish or wax finish to last as long as the more elastic surface of a carpet. The sales manager of a prominent varnish manufacturer said that he had contended for many years that varnished floors were not meant to be walked on, but should be protected by rugs or strips of carpet laid down upon those portions where the wear is apt to come. By properly protecting them in this manner and by wiping them clean every day, you have a clean and sanitary floor. The rugs or other coverings should be shaken at frequent intervals, in that way preventing the accumulations of dust or disease germs. Even a brick or stone pavement will wear away if used constantly and surely as much cannot be expected from shellac or varnish as would be looked for from these materials.

Another great cause of the failure of varnished or painted floors is the character of the soap that is used. The ordinary laundry or kitchen soap is full of alkali that is very destructive to varnish or paint and the washing powders that are so much used and so largely advertised are almost as effective in taking the finish off as some of the paint and varnish removers. The only kind of soap that should ever be used on a varnished floor, or indeed on any varnished surface, is a neutral linseed oil soap, such as is used in cleaning railroad cars or fine carriages. Such a soap is expensive and it may take a little more elbow grease to remove the dirt, but it is not nearly so destructive to the varnish as the ordinary soaps. The best method is to use warm water only, for washing a floor, and to wipe it off occasionally with crude petroleum or with rubbing and polishing oil, applied by means of a cloth slightly dampened with the oil, and then wiping the

surface dry with a clean rag. This will keep a floor in good condition for years. The use of ordinary kitchen soaps, washing powders and of sand soaps—even though they may be advertised that they do not scratch—is to be avoided on all painted or varnished surfaces. If builders would make it a point to caution housewives on these matters, they would avoid much trouble for themselves in the future, and could meet complaints about paint or varnish perishing, by asking the question if it had been washed with soap. An affirmative answer could be met with the response: "I cautioned you not to do it, because soap is a paint destroyer."

Painting Cement

The following method of painting a cement wall was described at a recent convention of master painters. The building had become discolored in places and the joints were of a different color from the surface of the blocks. Two parts of Portland cement were mixed with one part of marble dust and mixed with water to the consistency of thin paint or a thick whitewash. The wall must be well wetted before the application of this paint and kept constantly wet while the material is applied, and then must be kept wet for a day longer, in order to make the cement wash adhere to the cement surface. The wash was applied with ordinary whitewash or calcimine brushes, and a man was kept busy playing a hose on it while the work was being done. The whole secret of success lay in keeping the wall constantly wet. A price could not well be quoted on such work, but on a scaffolding job, it should be worth not less than a dollar a yard.

A well-known painter, who is one of the largest contractors in the country, in commenting on this, said that he had frequently been called upon to paint the cement panels in half-timbered houses, and the best material he could find for the purpose was an English material known as Duresco. This comes in paste form and is thinned with water to the consistency of thin cream and to this a little of a so-called "petrifying liquid" made by the manufacturers is added. This material is the same color when it is wet as when it is dry—differing from ordinary water paints in this respect. It can also be used on pressed brick fronts. The results are said to be as durable as oil paint, without the gloss of that material, and consequently well adapted for painting cement work. The same material is sold in this country under the name of Onresco.



A big cottonwood tree recently cut near Greenville, Miss., measured 108 inches across the stump and contained 4,800 feet of lumber.



A great injustice is often done ability by its confinement to a condition which affords no scope for development.

Making a Red Gum Desk

(Continued from page 792.)

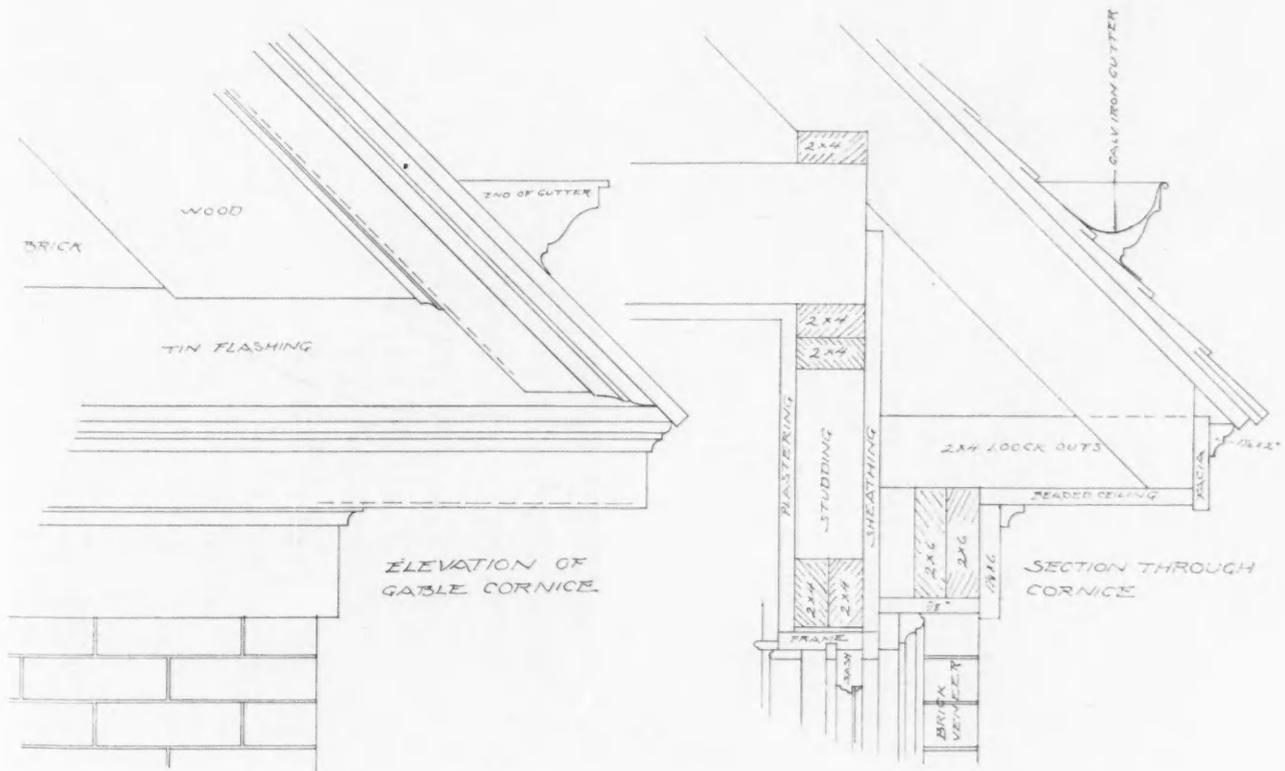
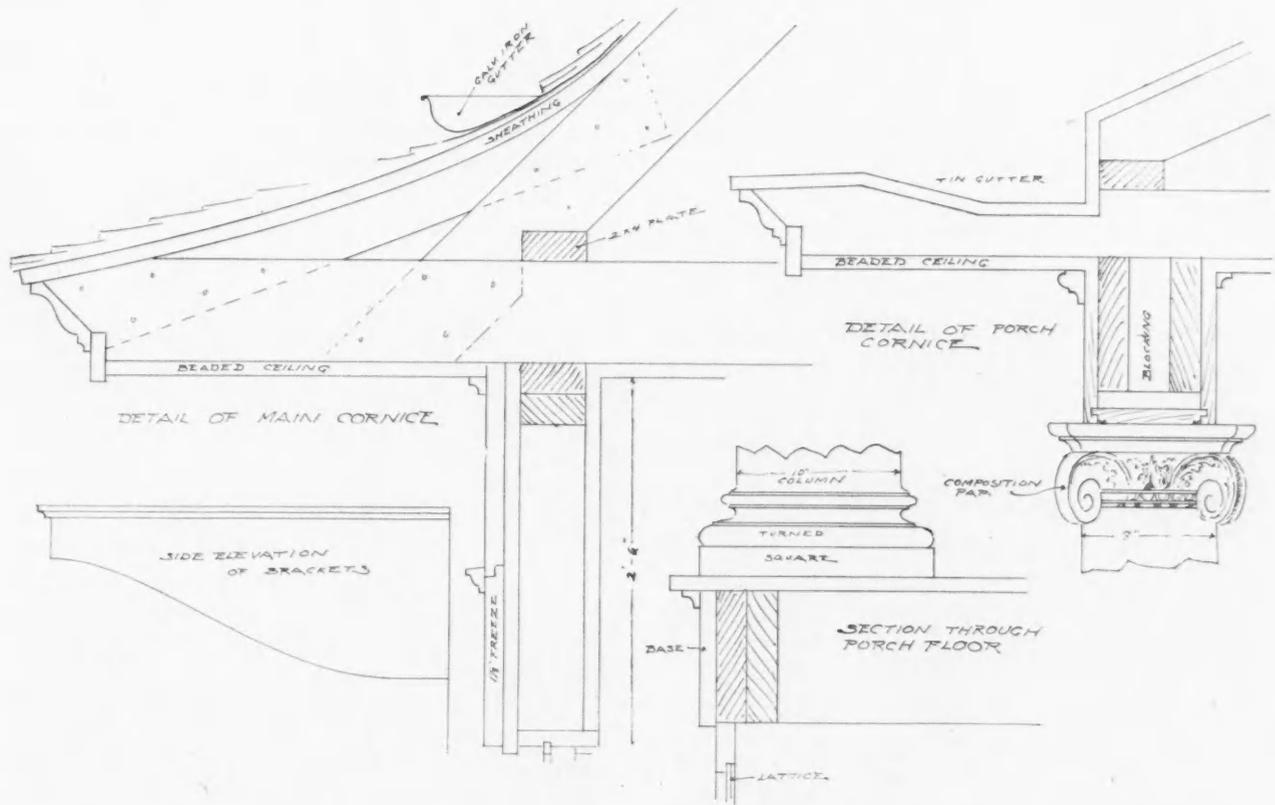
was worth looking at, and to improve the tone just a little more I took a little polishing oil of the kind they sell for renewing polish on furniture and gave the finishing touches by rubbing this oil on and rubbing it off again with a clean soft cloth. As a result there is a polish on the desk that it is a pleasure to look at. It doesn't glare at you like some loud, noisy thing, but has a refined tone softened materially by the nut brown color of the wood, and the polished surface of the top is good enough that you can see yourself in it, and yet it has that subdued tone that makes it wear well on one's nerves.

The great feature about it all is not in the workmanship, for it is a job of work any man competent to handle tools can do by having patience, but it is in the demonstration of the fact that red gum not only takes finish well, but shows up a beautiful figure in its natural color, and if properly put together will give excellent satisfaction in cabinet or furniture work. We have been using gum extensively especially in furniture, but it is because of its cheapness and no one seems to properly appreciate its beauties. It seems difficult to the average mind to separate the idea of value from dollars and cents that a thing costs even though that value may have relation purely to the ability of the thing to please the eye. If this lumber were imported and cost \$150.00 per thousand feet, we would all long ago have raved over its beauties, but because it is plentiful in our native forests and among the cheapest of our woods, it wastes a lot of its beauty unseen. All gum does not show a beautiful figure, nor have an appealing tone, but the Southern red gum from Mississippi and Arkansas and down in that part of the country does furnish some lumber that needs more appreciation than it gets. You need not take my word for it, but go to some factory using Southern gum, select a few good boards to make something for yourself, take the same pains as you would with mahogany, and you will be pleased with it yourself.



Colossal Old Ruins

The oldest architectural ruins in the world are believed to be the rock temples at Ipsampool, on the Nile in Nubia. One of the ancient temples consists of fourteen apartments hewn out of solid stone. The largest single stone used in this work is one which forms a veranda-like projection along one side of the main temple. It is 57 feet long, 52 broad and 17—one account says 19—feet thick. This colossal stone is supported by two rows of massive square pillars, four in each row and each 30 feet high. To each of these pillars is attached a colossal figure of a human being, reaching from floor to roof. In front of the main temple are seated still other colossi, four in number, the two largest being 65 feet high. The ruins are supposed to be four thousand years old.



Modern Picture Friezes

PICTORIAL FRIEZE AN IMPORTANT FACTOR IN ORIGINAL DECORATIONS—COLOR SCHEMES TO USE FOR THE DIFFERENT ROOMS

By Sidney Phillips

ONLY a few years ago, practically all the wall papers manufactured in this country, as well as most of those imported from England, France or Germany, were made in what were known to the trade as "combinations," that is sidewall, ceiling

on the sidewall. The retail dealers and decorators, in town, would quote cut prices on paper by the roll, and often unsuspecting property owners would select a certain combination and have it hung. He would find that when it came to the border, he was charged by the yard. Any criticism was met by the reply that this was the regular trade custom, and it was not difficult to prove that this was the case. Indeed, even now when "combinations" are not so universally used, it is still customary to charge for friezes by the yard and for sidewalls and ceilings by the roll.

Several years ago, people began to adopt the English fashion, especially in rooms with low ceilings, of using a sidewall paper without frieze, running it from the ceiling angle, where the joint with the ceiling paper was usually hidden by a picture moulding, without a break to the baseboard. The manufacturers finding a demand for papers that were particularly adapted for

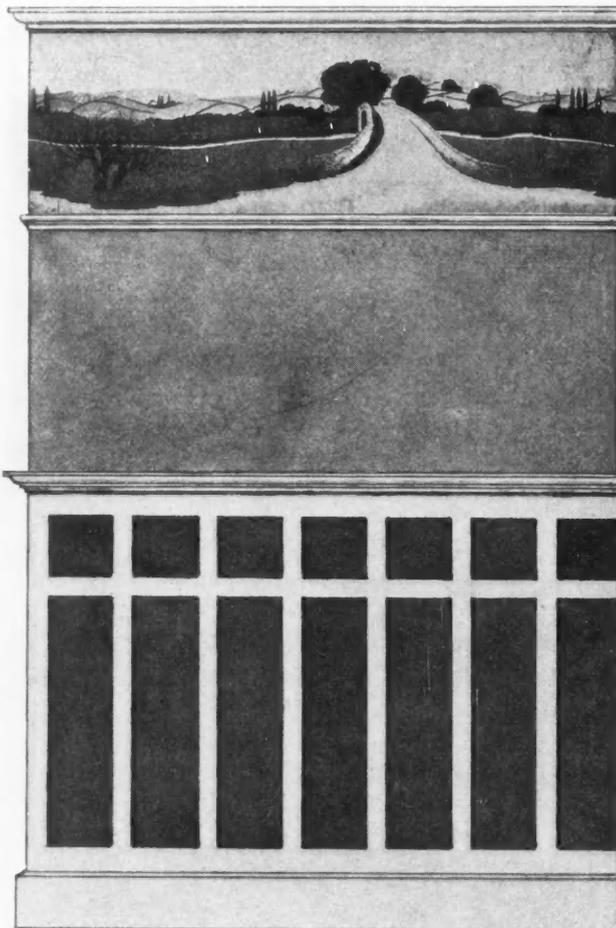


FIG. 1

and frieze or border papers were made to match, or they were so designed that the motive or idea appeared in each of the three papers. The floral or conventional treatments almost invariably being adopted. The retail dealer was expected to buy "combinations," and in fact some manufacturers and jobbers refused to book orders for sidewall paper unless the proper proportion of frieze was included. The reason for this was that competition was very keen, among the manufacturers as well as among the retail dealers, and in an effort to get business, often absurdly low prices were quoted on the "sidewall" papers—frequently below the cost of production. To make themselves even, much higher prices were charged for borders, so that orders for full combinations yielded the manufacturer a profit on the total sale, though he might lose money

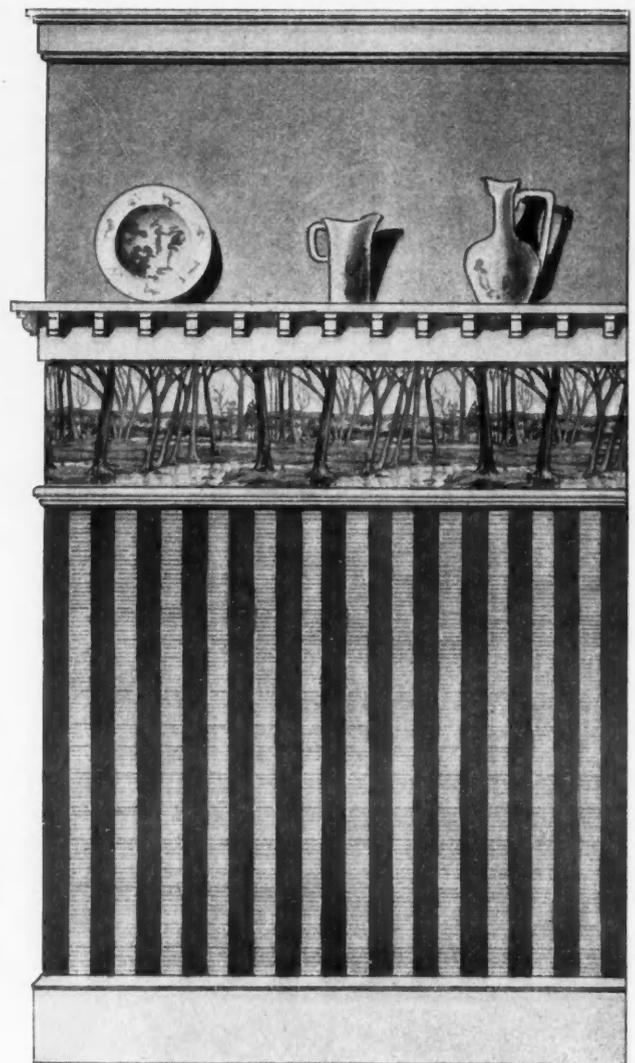


FIG. 2

this treatment have brought out each year, an increasing number of "independent" side wall and ceiling papers. Many of these are designed with regard to what is known as the two-thirds treatment, in which the upper third and the lower two-thirds of the wall are hung with two entirely different wall papers, selected not because the same motive occurs in their designs, but because they give a pleasing harmony or agreeable style.

Once the manufacturers were willing to break away from "combinations"—and they did so, because the

public buildings, and such friezes were almost always given a pictorial character. For example, there is the celebrated "Frieze of the Prophets," in the Boston Public Library, a noble work of the greatest artistic value. It was but natural then, that in offering independent friezes to the public that the idea of a pictorial frieze should occur to some enterprising manufacturer. The first of this character, so far as we know, were of English make, and great numbers of pictorial friezes are brought out by the leading English manufacturers every year. Our American manu-

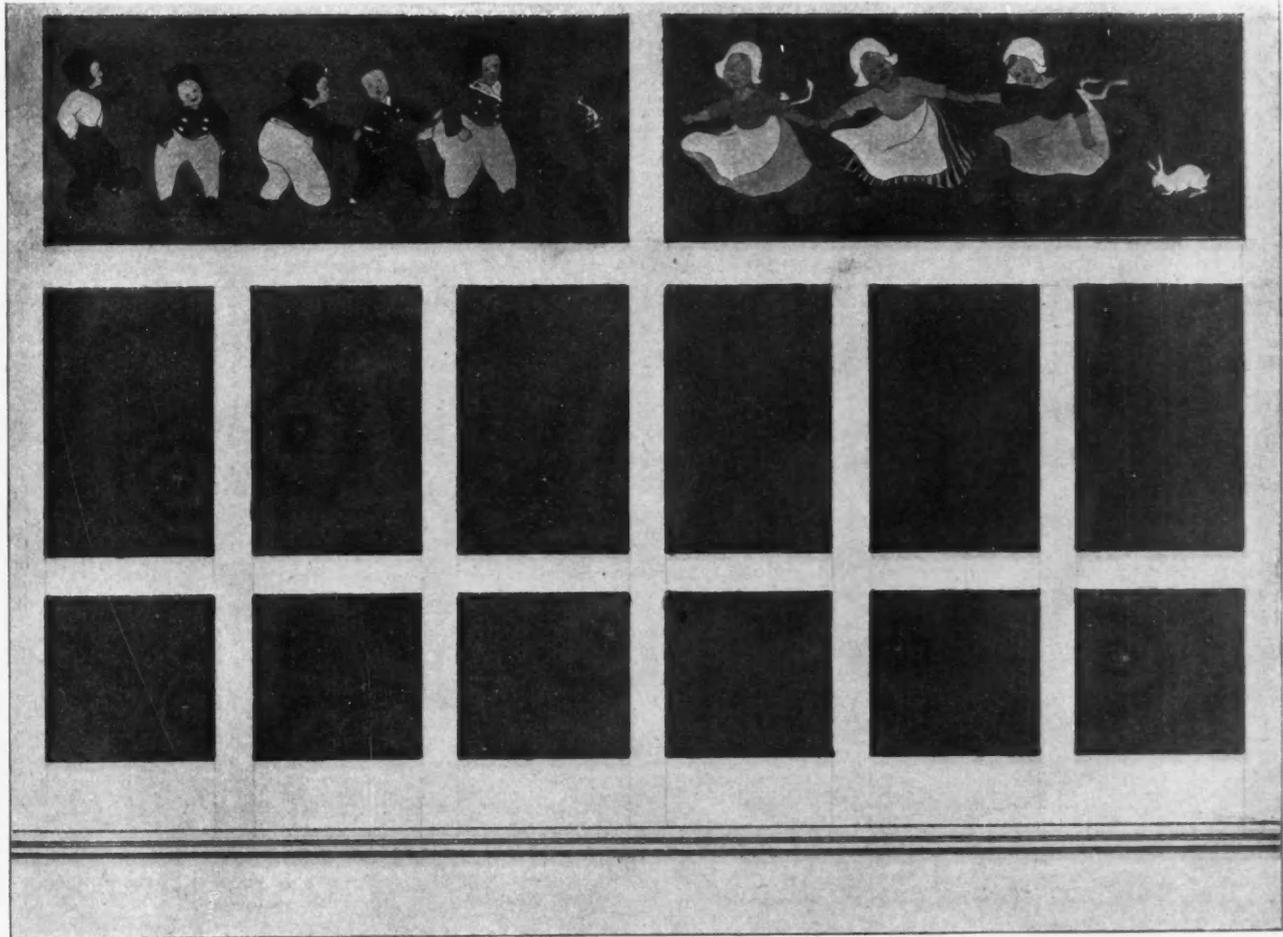


FIG. 3

decorators began to turn toward the imported papers in order to get what they wanted, for English wall paper manufacturers are always quick to respond to their customers' wishes—the decorators began to adopt more originality in hanging wall papers, and to use panel effects and the like, and the manufacturers have produced many original ideas in borders for paneling and similar purposes. Finally they began to introduce independent friezes. Now there is no part of the wall that is more suitable for a certain richness and elaboration in decoration than the frieze. It is not cut into by furniture or hidden by pictures, and except where ceilings are low it runs above the tops of doors and often of windows too. In the older buildings, where painted walls were the rule, eminent artists were often engaged to paint the friezes, especially in

facturers followed the example of their English cousins, and in some respects have improved upon their offering and pictorial friezes have been produced that are truly remarkable in their capabilities in the hands of a skillful decorator. For example a landscape frieze has been shown this season that varies continuously, so that it may be run round an entire room without a single repetition of the pattern. This is done by a peculiar process of double printing by which the trees in the foreground are printed with a different length of repeat from the mountains and distant plains that form the background; probably being printed from rolls or cylinders of different diameters, and although the foreground trees occur regularly at intervals of six or eight feet, they are never seen twice against the same background in any ordinary room, hence the

repetition would be unnoticed. Another device for giving a continuous pictorial effect is the so-called "elastic" frieze, which is practically a combination of two or more designs or patterns. One of these will give, for example a woodland scene, with deer chased by dogs, while the other section will be a continuous forest pattern. A single repeat of the first may be used in the center of the wall, or over the chimney breast, while the remaining space on either side is filled up with the extension pattern. Sometimes there are

middle of the section, and the two side edges when brought together will produce a perfect match. These friezes include Dutch landscapes, barnyard scenes, a remarkably fine Indian picture with distant mountains and many other pictorial designs that are broad in treatment and very decorative.

Of course the original idea of these pictorial papers was that they should be used as friezes, at the top of the wall, but with the desire for originality in decoration, other uses have been found for them and many

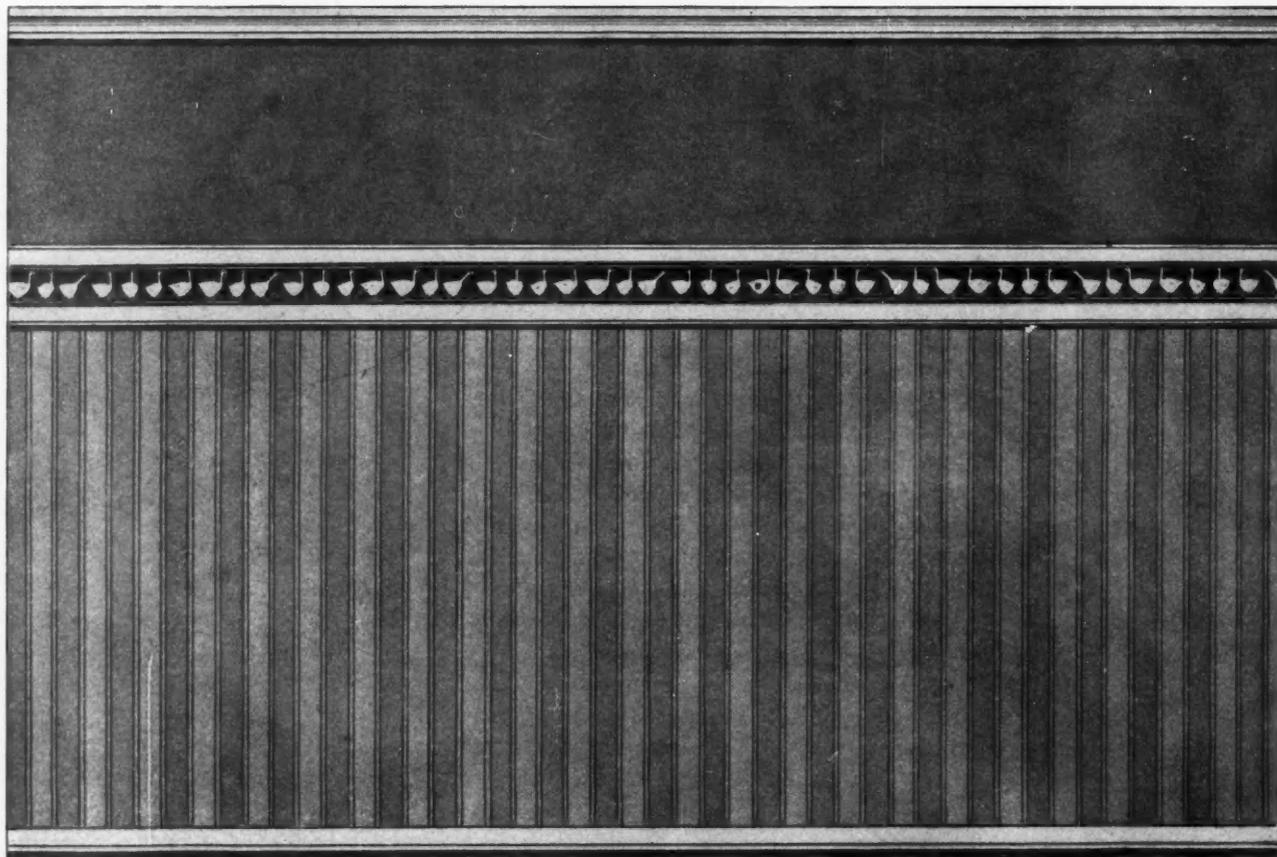


FIG. 4.

from two to four different central sections all matching up with the same extension, so that each side of the room may be differently treated, giving all the effectiveness of a specially painted frieze. One magnificent hand print that was put on the market last year showed the sport of archery, in four different phases, the figures being dressed in quaint mediaeval costumes. Other frieze patterns have been made that are capable, not only of this extension, but that may be trimmed down to varying widths by cutting off a portion of the foreground or of the sky. One firm has made a specialty of friezes and has introduced an entirely new treatment. Their patterns average about thirty feet in length, made up of several sections, each one about five feet long. They are so designed that they can be matched together in any combination or arrangement desired—in other words, the order of arrangement of these sections is not fixed, but is left to the decorator. One section of each set is elastic, and so designed that any length desired can be cut from the

novel ideas have been developed. We will illustrate a few possibilities, more with the idea of suggestion than anything else.

First let us consider the normal use, with the border used as a frieze; a fine English paper being chosen to illustrate the idea. The treatment shown in Fig. 1 would be well adapted for a dining room or hall. The picture is naturally the key note of the color scheme, and as this is painted in a number of different colorings the room will be varied according to the one selected. We will choose, for example, a picture printed in soft browns and greens, with a gray sky. The wall immediately below may either be brown or green, of harmonizing shade while the dado panels may be filled in with burlap of a much darker tone of the same color. The side wall may be either a plain ingrain paper or one of those indistinct fabric effects that are so effective.

The next suggestion shown in Fig. 2, introduces the idea of a pictorial border capping a high dado, with

plain upper wall, serving as a background for the objects displayed on a bric-a-brac shelf. Here we have used a beautiful woodland frieze, made by a well known American manufacturer for the coming season's trade. This is particularly pleasing in a soft gray coloring. Using this as the key, we will hang the upper wall with a plain gray ingrain paper or a silver gray buckram, while the dado will be hung with a two-toned stripe in a gray green, using either a grass cloth or fabric effect of some kind.

The third suggestion (Fig. 3) makes use of some imported nursery panels, printed in poster effects on plain ingrain grounds. Let us choose a dark green coloring, and set these pictures in the upper panels of a wainscot, the lower panels of which are filled in with dark green painted and varnished burlap. The upper wall is a two-toned stripe in lighter shades of green,

or a clothly pattern might be used. Then comes a broad moulding with a row of geese stenciled on it against a band of bright red. A plain color red or green, is used for the frieze section. A somewhat similar treatment might be adopted for a den, using some of the English poster effects, sporting or coaching frieze.

The illustrations, as we have said, are mere suggestions and show the possibilities for artistic and original decoration that may be found in the use of these modern pictorial friezes. They are made in a great variety of widths from nine inches up to thirty or even more, and in all classes of design, from quaint poster effects to classic figures and from flowers to the most elaborate landscapes. The decorator who uses good judgment cannot fail to find something suitable for the particular room to be treated.

Some Frost Problems

WHAT MUST BE CONTENDED WITH IN COLD CLIMATES—METHODS USED TO OVERCOME THIS DIFFICULTY—
PRACTICAL ILLUSTRATIONS OF THE EFFECT OF FROST

By T. B. Kidner

THE difficulties attendant on the erection of brick, stone and concrete structures during cold weather are well known, and certain precautions are very generally adopted to prevent failure of the work from the freezing of the mortar or other cementing material during the progress of the construction.

But it may not be generally known, at least among

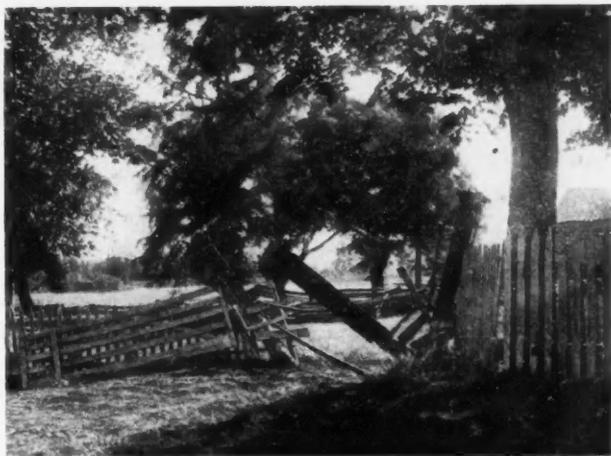


FIG. 1.

the Southern readers of the "American Carpenter and Builder," that in the colder portions of North America the intense cold plays curious pranks with some forms of wooden structures, and offers some problems for the engineer and carpenter which are of some interest.

The expansive power of frozen water is well known, and has been used, experimentally at least, in some heavy quarrying operations. This property of water of increasing in bulk when frozen is responsible for some curious and annoying occurrences, examples of which are common everywhere throughout the more frigid portions of the United States and Canada.

Fig. 1 of the illustrations shows an entrance gateway to a farm in New Brunswick, Canada. It will be seen that the posts are lying in various attitudes, one being almost prone on the ground. Less than three years ago the owner of the farm erected these posts, burying them four and a half feet in the ground, and well ramming the earth and stones around them. Their present position is entirely the result of the lifting action of the frost, which in this part of the continent penetrates the ground generally to a depth of four or five feet, and an even greater distance in exposed situations. Water finds its way down the sides of the post during the autumn and saturates the earth under its bottom. The heavy frosts follow and expand this water-charged earth, the effect being to lift the post sometimes as much as eight or ten inches in a single winter.

Fig. 2 is a photograph of another instance of this power of frost, and is perhaps even more curious



FIG. 2.

than the other case. The structure shown in the photo is a rough woodshed, abutting at one end

against a dwelling-house, and at the other against a substantial barn or coachhouse.

The house and barn were properly constructed with sills and foundation walls, but the woodshed was erected on a number of cedar posts, placed upright at intervals, their butts being buried several feet in the ground. Some ten heavy winters, the temperature sometimes going as low at 40 degrees (F.) below zero, have produced the curious "hog's back" arrangement shown in the photo at the ridge and eaves of the woodshed. The ends of the ridges, being fixed to the house and barn respectively, did not move, but the middle portion, carried on the posts stuck into the ground, has been gradually lifted up as shown. During the last winter the writer made some measurements and found that, approximately, the ridge had been raised some two inches between December, 1905, and May, 1906.

What remedies or precautions, then, may be adopted to prevent this sort of thing?

In the case of a structure like the woodshed the remedy is obvious, namely, to put proper sills under the building in the first place, framing the building into and upon them.

But it is not such a simple matter in the case of isolated posts, although two or three methods are in use. A friend of the writer, a railroad engineer of long experience in cold climates, adopts the plan of pointing the lower ends of all fence posts used alongside his railroad tracks. This appears to have but a slight effect in preventing the rising of the posts, but it enables the section men to drive the posts down into the earth again when the frost has disappeared in the spring. Of course, in an open soil which drains itself, the lifting is very slight, but in close marl or clayey soil, every post will have risen from four to eight inches in a heavy winter.

Telegraph and telephone poles are always, where it is practicable, sunk below the frost line. Where this is not possible a good bed of stone is placed at the bottom of the excavation to provide a drainage for the water.

There may be among the many readers of this journal in the Northern states and Canada some persons who may be able to give their experiences along this line, and to add something to the foregoing remarks. If so, the writer trusts that they will communicate their views for the benefit of himself and other readers, many of whom must have been confronted with the difficulties mentioned.



The man who trusts solely to brute strength to see him through the world must naturally expect to get a little brutal treatment now and then.



The boat built to carry another man's cargo may capsize under yours.



The Ideal Concrete Machinery Co., of South Bend, Ind., has just secured an order for a carload of Ideal Hollow Concrete Block machines, to be sent to the City of Mexico.

Among the many fine exhibits at the Michigan State Fair held at Detroit, Mich., were those of the Grand Rapids Plaster Co., of Grand Rapids, Mich., who had an entire house constructed of Sackett's Plaster Board.

The Concrete Machinery Co., of Jackson, Mich., had one of the largest and most complete exhibits. They displayed their block machine, brick machine, mixer and ornamental molds. Mr. Sid L. Wiltse was so busy demonstrating the fine points of the various machines that he barely had time to watch the horse races, which speaks well for his self-control.

The Detroit White Lead Works, Detroit, Mich., have an excellent system of having the various department heads meet informally once a week when all topics of interest to the company are discussed. This results in a co-operation of all the departments, which otherwise could not be obtained.

One of the best equipped plants in the country is that of the Acme White Lead Works, Detroit, Mich. The grounds are kept in splendid condition and several tennis courts are kept up for the use of the employes.

The J. A. Fay and Egan Co., Cincinnati, Ohio, has given the sale of its machines to Herron, Richard and McCone in San Francisco, Cal. E. C. Eckstein is their new agent in the Railway Exchange Building, in Chicago.

Among the exhibitors at the Ohio State Fair, held at Columbus, Ohio, were the Winget Concrete Machinery Co., Jaeger Machine Co., Francisco Adjustable Block Machine Co., International F. and Fireproofing Co., and the Blakeslee Concrete Machine Co. Messrs. Frederick and Green of the Blakeslee Concrete Machine Co. must have winning ways and a good machine, for they had a crowd around their exhibit in spite of the airship which was circling in the air.

The Edwards Manufacturing Co., Cincinnati, Ohio, has just put in a new power break machine for making metal windows. It weighs 28,000 lbs., and makes nine bends in the sheet metal at one operation.

The Harmon S. Palmer Building Block Co., of Washington, D. C., who recently purchased the Cement Machinery Mfg. Co., Burlington, Iowa, has just purchased the Winget Concrete Machine Co., Columbus, Ohio. The new company will be known as the United Concrete Machinery Co., and is capitalized for \$1,000,000, of which Harmon S. Palmer has controlling interest.



Something the Boys Can Make

HOW TO CONSTRUCT A SIX AND EIGHT SIDED TABOURET—KINDS OF WOOD TO USE AND PROPER FINISH TO GIVE THEM

AN extremely simple piece of furniture construction is that of the tabourets shown this month. Two styles are described; one of eight sides with four legs, and one of six sides with three legs. The square butt joint fastened by means of lag screws is used on each one.

For the hexagonal, or six sided tabouret, Fig. 1., two pieces each twelve and one-half inches in width by fourteen and one-half inches in length well planed to three-quarters of an inch in thickness will be needed out of which to make the top and the shelf. Oak will answer nicely. Plane the surface and scrape them with the steel-scraper until they are smooth.

The legs will require three pieces of three-quarter inch mill-planed oak, seven and one-half inches wide by twenty and one-half inches long. Plane off the marks using the smooth plane set very shallow.

Fig. 2 shows the manner of constructing the hexagon. Unless the top and shelf are alike there will be trouble when the legs are attached. The greatest care, therefore, should be taken in laying out the hexagons as the slightest variation in placing the divided points will make sides of different lengths.

Find the center of the board by drawing the diagonals; that is, the lines from corner to opposite corner. The point of crossing of the lines gives the center. Set the dividers to seven inches between the points and describe a circle using the center of the board as the center of the circle.

It will be found impossible to get the entire circle on the board, the board being but twelve and one-half inches wide while the circle has a diameter of fourteen inches. This will make no difference.

Draw a line parallel to the edge of the board passing through the center. Using the seven-inch radius, set one point of the dividers successively, at the points this line cuts the circle and cut the circle on each side of the straight line. Fig. 2 connects the six points of the circle and the hexagon is completed.

To test the accuracy of the construction, take the dividers and see if the sides of the hexagon are of equal length and each equal to the radius of the circle.

Saw close to the lines and plane the edges smooth and square. Watch in both planing and sawing that the tools are not worked against the grain of the wood. Where the edge to be planed is at an angle to the grain, plane in the general direction of the grain.

Prepare the legs by straightening and squaring up one edge of each, then gauge to seven inches and plane the remaining edges.

The top end is rounded. Find the middle of the

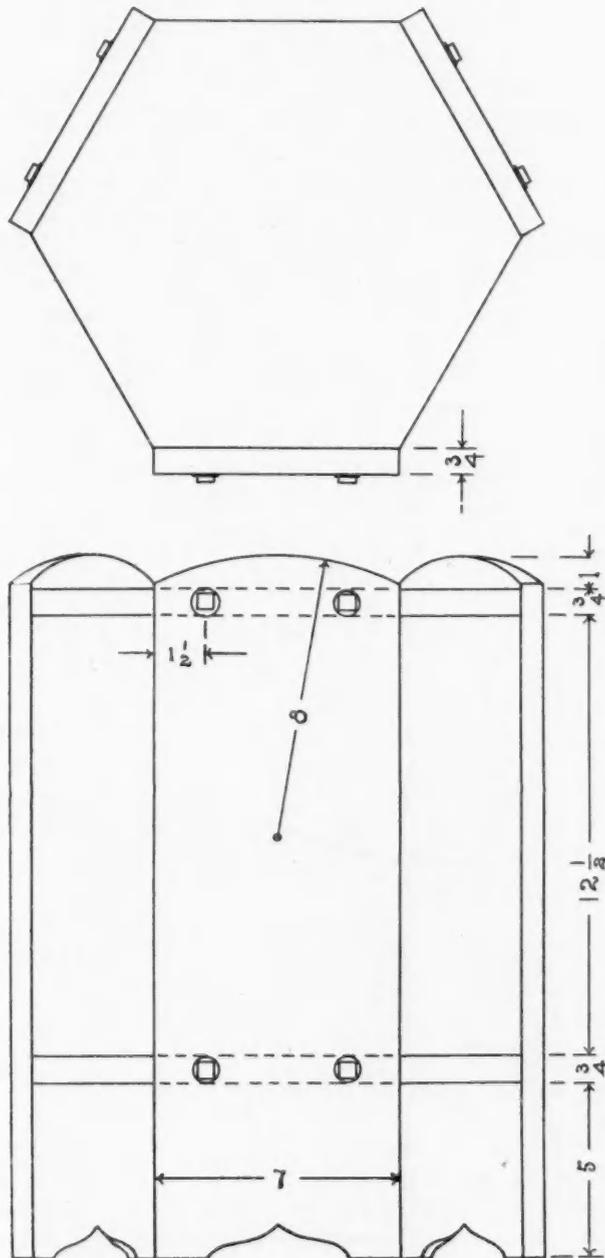
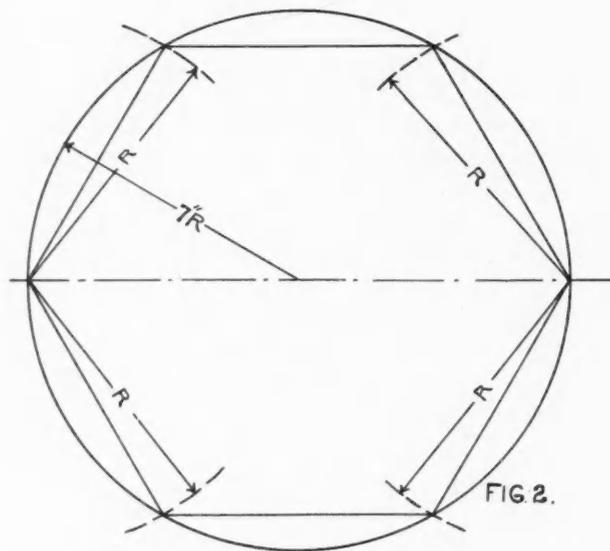
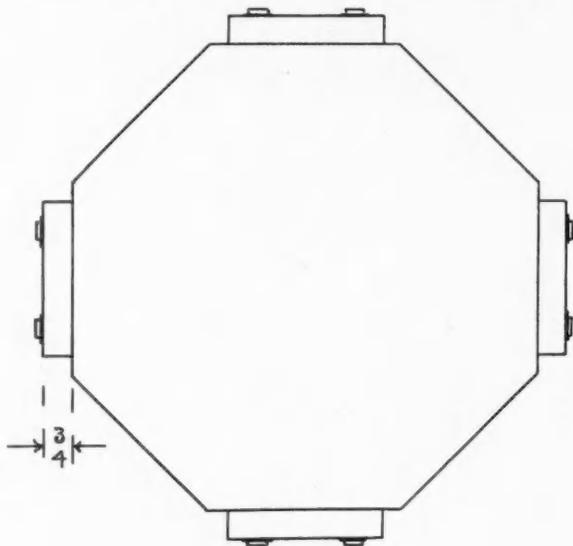


FIG. 1

leg, drawing a light pencil line along it about eight inches from the top. Set the dividers to an eight-inch radius and, with one point almost touching the top of



the leg and the other on the center line, describe an arc of a circle.

The bottom of the leg is laid out by measuring from the highest point of the arc at the top of the leg twenty inches, squaring across with trysquare and pencil. Saw off along this line and plane smooth and square.

Suggestions for designs suitable for the bottom of the legs will be found in last months' journal in the description of the making of a piano bench.

The holes at the bottom of the legs through which the lag-screws enter are laid off by measuring from the bottom five and three-eighths inches and squaring a light pencil line across. On this line measure one and one-half inches from each edge. The intersections give the center of the holes.

For those at the top of the leg measure one and three-eighths inches from the top of the curve and square a light line across. Measure from each edge

along this line one and one-half inches. Bore the holes with a one-quarter of an inch bit.

Sandpaper all of the pieces well and give them a coat of filler. Directions for the use of filler will be found upon the can.

If a dark finish is desired, it will be necessary to stain the wood, allowing it to dry thoroughly, before applying the filler. It is much easier to stain and fill the wood before the pieces are fastened together and the result is more satisfactory.

In assembling the parts, place a leg in position with reference to the top and mark through the holes with a divider point. Take away the leg and with ruler measure so as to locate the hole in the middle of the edge of the top. Bore these holes with a three-sixteenths of an inch bit to a depth of about two inches.

Next locate and bore the holes in the shelf. It will be found just as convenient and will save time to fasten each leg in place as soon as the holes in the shelves are bored rather than to mark and bore all the holes before placing any.

Apply two coats of wax, polish in the usual manner and the tabouret may be considered finished.

The eight sided tabouret, Fig. 3, will require two pieces twelve and one-half by twelve and one-half inches for the top and shelf; and four pieces four and one-half by eighteen and one-half inches for the legs. Three-quarter inch mill planed oak is to be used. Prepare the surface as described for the first tabouret.

The top and shelf may now be laid out. Square up in the usual manner the two pieces to twelve by twelve

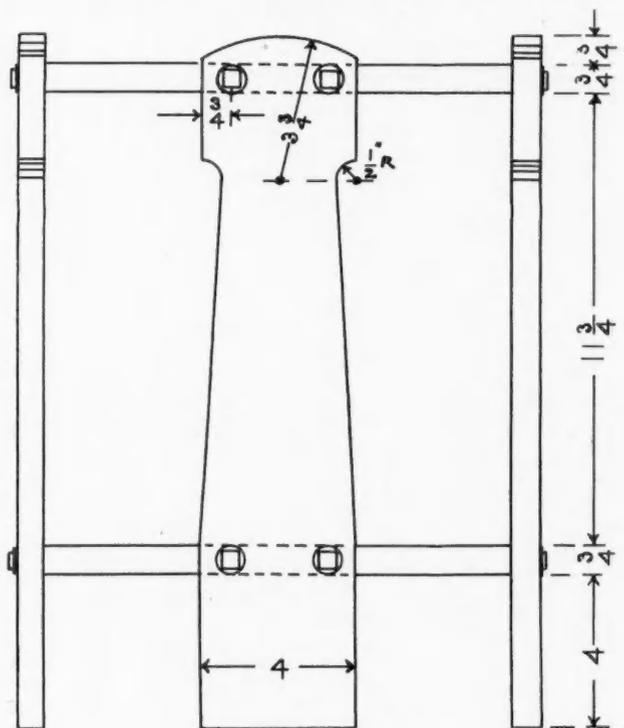
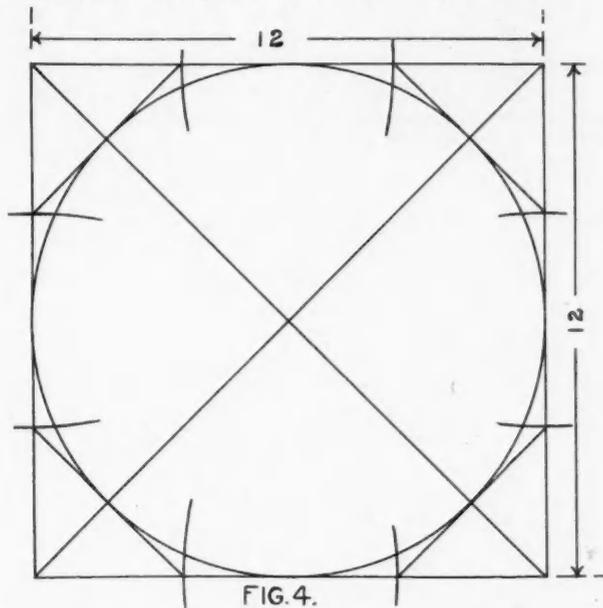


FIG. 3.

inches. Draw light lines from corner to opposite corner to locate at the center, Fig. 4. Next set the dividers so that the distance between the points shall be

equal to one-half that of the diagonal; or equal to the distance from the center of the square to one of its corners. Set successively one point of the dividers on each corner of the square and with the other cut the sides of the square. Connect the points at which



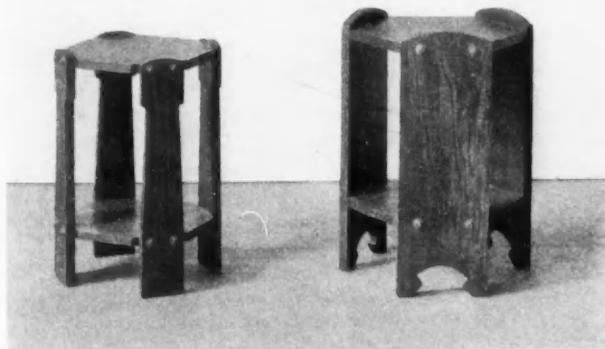
the sides of the square were cut and the octagon is formed.

The circle, Fig. 4, suggests another way in which tangents to an incircled circle complete the sides of the octagon.

For the legs, plane one edge of each straight and square; gauge to four inches and plane the remaining edge to these gauge lines.

Having located the middle of the leg with a straight line near the top, set the dividers to three and three-quarter inches and with one point on this center line describe an arc of a circle which shall reach almost to the end of the piece.

From the top of this arc, measure eighteen inches and square a line across for the bottom of the leg.



To lay out the sides of the leg, measure from the bottom four and three-quarter inches and square a light pencil line across the face. At the top of the leg square another light line across at the point from which the arc at the top of the leg was described. Set

the dividers to one-half an inch radius and with one leg of it centered on the intersection of the pencil line last drawn and the edge of the leg describe an arc of a circle on each of the sides successively. Connect these arcs by straight lines to the points where the light pencil line squared across three and three-quarter inches from the bottom intersects the edges of the leg.

Cut out the curves with the turning saw and the straight lines with rip or cross cut saws. Smooth with spokeshave and scrape.

The staining, filling and finishing is to be done as described for the preceding tabouret. The parts also are assembled in a similar manner, lag screws one-quarter by two and one-quarter inches being used in each case.



Woods of New South Wales

It is said that the forests of New South Wales have an abundant supply of woods which are so varied in nature as to supply practically the requirements of the markets of the world. The hardwoods especially are said by experts to be particularly valuable. The colony engages to a considerable extent in the exportation of its forest products, which may be taken as proof of the foregoing statements.

A wood which has lately aroused a great deal of comment is mountain ash, which is admirably adapted for the making of handles, for wagon and carriage building, boat oars and sweeps and numerous similar purposes, as it is light, tough and very elastic. For these reasons it is claimed that it should make a very satisfactory substitute for American ash, which is used almost universally for the purposes named, but which as is only too well known here, is rapidly becoming exhausted.

Mountain ash, as the name implies, is essentially a timber indigenous to mountain ranges, and grows in abundance in the higher levels of the southern tablelands, more particularly within the snow belt of the country of Selwyn (Tumut district), where one large forest reserve known as "Bago" exists, containing an area of upwards of 72,500 acres, densely covered with this valuable timber. This reserve is situated about thirty-five miles by road from Tumut, and will in the near future prove a source of great value to the state.



Of the various chemical substances that have been used with a view of rendering wood fireproof a solution of silicate of soda has been proved to be the best. Wood painted properly with the solution has been found not even charred after long exposure to fierce flames.



A man may aim at perfection in foremanship and never get there, but if he keeps it up he will get nearer to it than the man without high aims.



The Carpenter Trade

To the Editor: Indianapolis, Ind.
 I wish to congratulate the AMERICAN CARPENTER AND BUILDER on the grand paper they are giving us and congratulate the carpenters of our land of being able to secure such a valuable help to us, which is not only valuable to us every thirty days, but every day of the year.

Some learned men come out in our daily press, very often with an argument that the day is at hand when the apprentice is having a hard time, and some go so far as to lead us to believe that it is almost impossible for him to learn the carpenter's trade. They claim that the carpenter himself is getting selfish and does not care to have any more learn his trade and that when they do try, the carpenter will take no interest in them, and all the interest that the contractor takes in them is to get all the work he possibly can and give them just as little for it as possible. While there is perhaps much truth in these claims, I wish to here just drop one word, and that is, that there never was a time in the history of the world when the apprentice boy could learn so much in so short a time as he can to-day, and that the world is full of kind carpenters, who are willing to do all they can to help along a deserving boy.

One great trouble with the boy of to-day is, that he is above too many kinds of work. He should remember all work is honorable and all kinds must be done by some one and he should be willing to do his share. The boy of to-day who does his share and does it as well as he knows how and observes all the little matters as they come along, and who does not get too impatient to take up the big and difficult matters, and who reads some of the many good works on the subject of carpentry, will soon be able not only to do the work as the architect has planned it, but he will soon be able to plan the work himself.

There is perhaps no trade or calling where a boy can start at the very bottom and work himself up to practically as high as a man can go as readily as in the carpenter trade, and what could be greater or more honorable than the planning of an ideal home?

What would the great financiers and business men of the world do if some one did not plan and build their business blocks and office buildings? I wish to say to the boy who has to shingle and do it day after day until he thinks he will never learn anything else: Do not get discouraged, but make as good a roof as you can, for it will get you into the habit of mastering the thing at hand thoroughly.

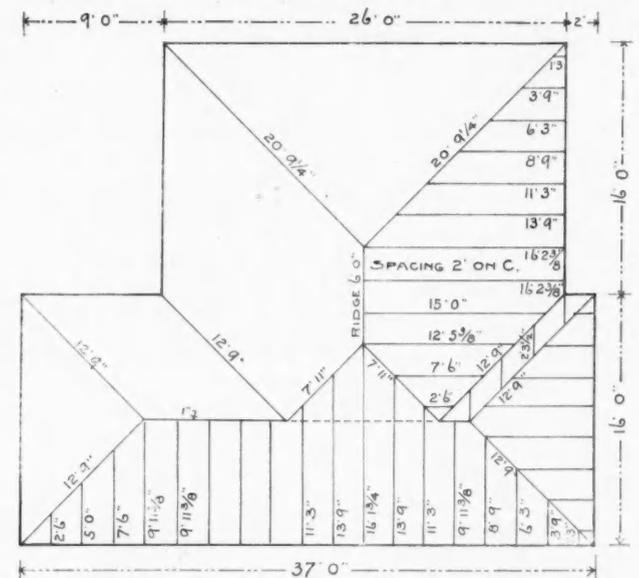
There are too many carpenters in this world to-day who just hammer away and who never read a publication, published especially for their interests, and it is not to be wondered at that they think it is a poor trade and get disgusted with it. But who is at fault? Is it the trade or the man? To the young man of to-day who chooses the carpenter trade and makes the very best he possibly can of it, and keeps his tools in good order and learns how to sharpen them, and studies his trade in general and especially his steel square,

will never regret that he chose the noblest and best trade in the world for his life's work. I would do anything in the world to help the carpenters of our land, but know of nothing I could do which would do them more good than to get them all to read the AMERICAN CARPENTER AND BUILDER.
 DWIGHT L. STODDARD.

How to Frame a Roof

To the Editor: Point Eastern, Va.
 I am sending you a plan of a two-story house. Will you give me in the October number of the A. C. & B. a plan of a hip roof for this building? The cornice will project 1 foot 6 inches from the plate. Give lengths of the hip, valley and common rafter.
 J. E. CHRISTIAN.

Answer: As Mr. C. does not state the pitch desired we will assume it is a 9-inch rise to the foot. The accom-



panying plan gives the length of the various rafters, and, by referring back to Figs. 66 to 71 of our regular articles found in the June number of this magazine, will show how to place the steel square to obtain the cuts and bevels. Also see Fig. 77 for cutting the hips and valleys. Care should be taken to see that the dimensions of the building are correct and the angles perfectly square. The net lengths of the rafters are given so that it is not necessary to make deductions for the ridge piece. The measurement for the jacks is given for the long side.
 A. W. WOODS.

Proper Moulding to Use

To the Editor: Brattleboro, Vt.
 I would like to have your opinion as to what would be the proper kind of plate rail and picture moulding to use in a dining room finished in quartered oak, finished natural. There is a dark green paper two-thirds from base up, and a grape-

vine design from plate rail to ceiling. The painter suggests a white enamel plate rail and picture moulding, regardless of the woodwork.

GEORGE CROLL.

Answer: While white enamel plate rails and picture mouldings are undoubtedly a good deal used, they are, as a rule, suitable with dark paper only, when all the woodwork of the room is finished in white. If the paper is light then the plate rail may be white entirely, irrespective of the woodwork. In the present case, I should suggest using either an oak picture rail, or else to paint it in flat color (thinned with turpentine only) to match the green of the lower wall, or some shade of green in the upper-third. Another treatment would be to use a flat black picture rail. The green, however, is most harmonious.

EDWARD HURST BROWN.

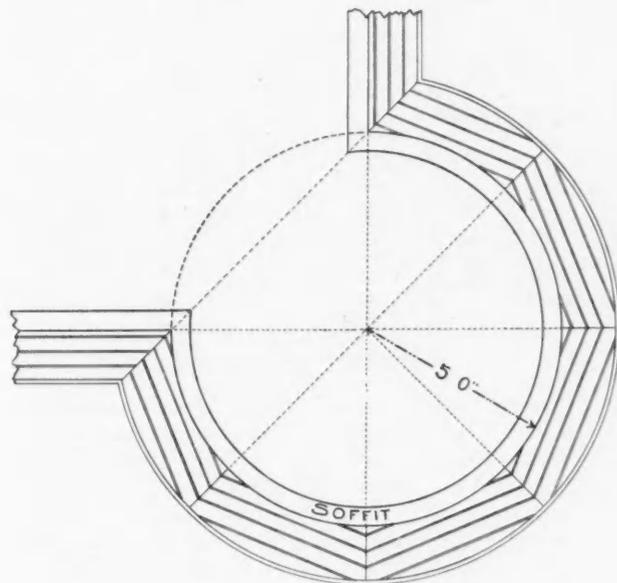


How to Ceil a Circular Plancier

To the Editor:

Scottville, Ind.

I inclose sketch of porch that I intend running a plancier of 5 1/2 by 4-inch ceiling. I have a 3/4 circle on one corner



and want to carry the ceiling around the circle. Could I divide it into an octagon or would the pieces be too long?

A. L. PALMER.

Answer: We herewith reproduce Mr. Palmer's sketch showing the 3/4 part of the circle divided up into octagonal parts, which is all right, but would look better if divided

into twelve parts. This would show nine parts instead of six in the 3/4 circle.

EDITOR.



Intersecting Gable with the Eave

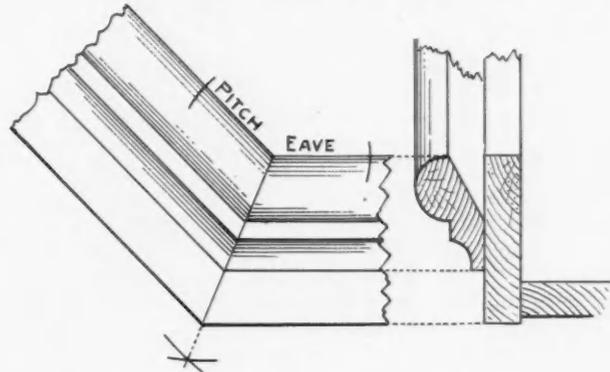
To the Editor:

St. James, La.

Please give a rule for cutting and adjusting rafters when gable and eave cornice intersect in order to have the fascia come same width.

B. P. TINEAND.

Answer: Frame the rafters and valley just the same as for an internal angle. In cases of this kind, the plancier



should be level with plumb facia. Then the miter would stand at the half way point between the pitch and the level line of the eave as shown in the illustration. The different pieces will number and be of the same width.

EDITOR.



Constructing Cement Cistern

To the Editor:

Stratton, Neb.

What is the necessary thickness of cement or concrete in a cistern which is placed in the solid clay soil and will withstand a pressure of 50 to 60 lbs. per square inch?

JUDSON POST.

Answer: Make walls of cistern 1 inch thick of one part Portland cement to two parts sand and three parts gravel, after which cover inside surface with wire netting (1 1/2-inch mesh or smaller made of No. 16 wire), and cover same with 1/2 to 1 inch cement plaster made of one part Portland cement and three parts sand. Let harden for three weeks and then paint with a thin lead and oil paint, and after several days' drying the cistern, if not over forty pounds capacity, will hold an air pressure of sixty to seventy pounds per square inch.

EDITOR.

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PRACTICAL TRADE APPLIANCES

Front Rank Steel Furnaces

Steel furnaces are not a passing fad. The fact that at the present time two-thirds of the furnaces used in the majority of large cities, where furnaces have been in use for the past fifty years, are steel, is a pretty safe indication of their efficiency. This condition has been a steady growth for the past few years.

The Front Rank Steel Furnace, manufactured by the Haynes-Langenberg Manufacturing Co. of St. Louis, has been on the market nearly twenty years, and at present is sold in every State in the Union where furnaces are used. This extensive growth of business is founded on merit and a further proof of merit is the number of imitations that are now made.

The Front Rank Furnace has large double or single doors, as desired, and is made in six sizes, for portable casing or brick setting, and is guaranteed to burn hard or soft coal, wood or coke. It can also be easily fitted with a gas ring where natural gas is in use. Any hot water combination can be used in the Front Rank.

This company has always done a large installing business locally, and have about ten thousand furnaces in use in St. Louis alone. This personal contact with the actual working condition has been of inestimable value in teaching them when changes were desirable, and from time to time they have made them, until they believe they have as nearly a perfect furnace as can be made.

To be an economical heater a furnace must have a large amount of radiating surface in comparison with the size of the fire pot and this surface must be arranged so that the air in passing upward must come in close touch with every part of it.

It will be observed that the Front Rank Furnace is built on straight vertical lines, thus causing the air in its ascent to come in direct contact with the entire surface. This principle is essential in a successful heater and is one of the strongest features in the construction of our furnace.

The front rank has no direct draft to warp out of place and let the heat escape straight up the chimney. In this furnace the products of combustion have to pass through the two radiators and the dust box before making their exit into the chimney.

The Front Rank drum or fire chamber is made of a solid sheet of heavy armor plate, with but a single seam, closely riveted like a boiler, and is absolutely gas tight. Heavy cast flanges are placed around the openings where the smoke passes from the drum into the radiators to protect the steel. The circular shape of the drums and radiators is an absolute safeguard against buckling.

The Haynes-Langenberg Mfg. Co., 2309 Lucas street, St. Louis, Mo., will be pleased to send our readers any information they desire.

A School of Practical Plumbing

It is absolutely necessary for the modern carpenter and builder, particularly in the smaller cities and towns, to be well posted in every detail that enters into the construction of a house, school house or other building. In order to be-

come entire master of the trade of construction a modern carpenter must be able to not only lay out, frame and roof a house, but must also be able to equip it with sanitary appliances. Of course, this is not so necessary in the great cities, where the trade is subdivided into many divisions, but in the smaller places it is almost imperative.

For this reason the announcement of the St. Louis Trade School of Practical Plumbing on another page should meet with the response of all of our readers who have not as yet mastered the intricacies of the installation of modern sanitary plumbing. It is the purpose of this school to equip its students with such practical knowledge and skill that they may be able to enter upon the work of the plumber's trade immediately upon the completion of their courses in the school. It is a special aim and design of the faculty and managers to make the knowledge and training useful. Not only is the technical and manual training side emphasized, but likewise the business side. Suggestions covering the whole scope of the plumbers' interests and affairs are freely made by the instructors, who have had thorough experience in every branch of the plumbing trade and know where advice is needed. The student is given a practical knowledge of the principles that govern the planning and construction of plumbing.

The special advantages of the plumber's trade are numerous. In the first place, employment is always at hand and the supply of workmen is not equal to the demand. With the journeyman the tendency is for the number of hours required in a day to become shorter and the wages to increase. There is plenty of room and the competition is not strong. The master plumber's business is very profitable. Any ambitious person with good common sense can acquire the trade and become a skilled artisan.

A large number of our subscribers who have strong ambitions for their boys are unable to decide for their future. They hesitate to have them follow their own trade, partly on account of the accidents that occasionally happen to the builder and partly on account of the fact that there are many idle days when the wages stop on account of weather conditions. The plumbing trade is one that the weather does not influence, excepting that the worse the weather the better it is for the trade. It would be well for these hesitating fathers to write the St. Louis School of Practical Plumbing for one of their catalogues, covering their complete course of instruction.

When the young man learns a trade like this he has in his own hands the means of supporting himself and is not dependent upon good luck and friends. He has that which makes him a useful member of society and he has ability, with his skill and knowledge, to add to the wealth of the world. He always has a competency and may acquire independence.

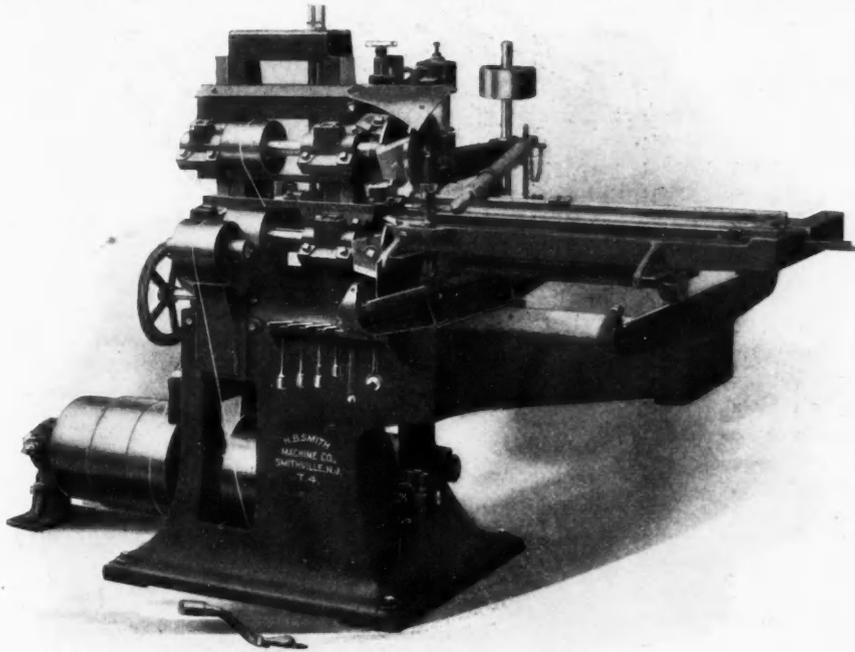
The Goshen Engine

The extraordinary demand for gasoline engines has prompted many new manufacturers to enter this field. In another column will be found the announcement of the Goshen Motor Works of Goshen, Ind. They have perfected an engine that is simple in construction, has few working

parts and produces the maximum of power. Their engine is guaranteed free from defects and breakage for one year. Its construction is simple, there being no valves, cams, gears or springs in its working parts. As the pistons pass up and down in the cylinder they open and close the ports of the engine, thus exhausting the burnt gases and admitting the new charge. All sets of rings in the Goshen engine are guaranteed by its manufacturers to run three to four years under hard service without leaking.

A New Tenoning Machine

The H. B. Smith Machine Co., Smithville, N. J., have placed on the market a new single-end tenoning machine,



No. 225 Ce—Single End Tenoner.

which fact should interest all of our readers who use wood-working machinery or handle its product. It is made in several modifications to meet the various requirements to which such machines are applied.

This Tenoner is the result of nearly sixty years' experience in the manufacture and construction of thousands of machines of its class, and is the culmination of all known valuable principles suggested by such an extended experience. The company's previous No. 2 Tenoning Machine, so well known to the trade, and which was complimented by being copied by so many manufacturers, has been displaced; but all of the valuable features of that machine have been retained and many improvements added. Like its predecessor, this improved machine is especially adapted for tenoning door, sash and blind work, for use in the cabinet department of car shops, and for all general cabinet and joinery framing.

The framing is of iron, massive and pedestal in form, cast whole and with base wide enough (30x34) to firmly support all projecting parts; the extension for supporting the table being curved from the operator so as to admit of following the work through the cutters. A chute is cast within the frame for directing the shavings to the outside.

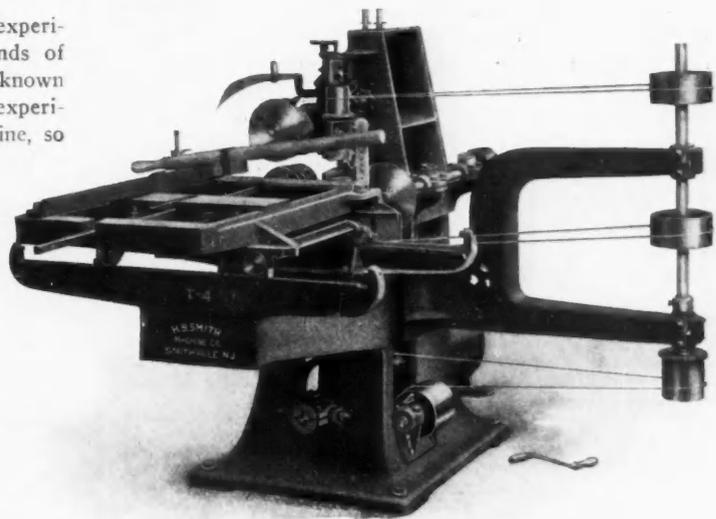
The table is a radical improvement over any hitherto made, and in this lies the chief value of this machine as compared with others. The principal improvement is, of course, the roller bearing, which is constructed on principles thoroughly tested. The table must always move square across

the ways, because the rollers are connected together and kept square or parallel by a guiding or riding frame. Therefore, if the rolls move at one end, they must also move at the other, and hence the whole carriage must move, no matter where you take hold of it or how much weight is upon it. For instance, a man can sit on the table and the operator could take hold of the outer end of the gaugebar, and with two fingers move the table in either direction, perfectly square the entire length of the ways. The rolls next to the cutter heads are grooved to prevent end motion, and all are protected perfectly from shavings, likewise provided with leather scrapers for removing any accumulating dust.

The headstocks are substantial and are adjustably gibbed to the upright framing. They are movable up and down by two screws, so arranged that they may be moved in either direction, both at one time, or separately, as desired, thus perfectly controlling the size and position of the tenon. The upper headstock, with its spindle, has a horizontal or longitudinal adjustment for regulating the position of the shoulders of the tenon.

The cutter spindles are all made of high carbon steel, turned and ground accurately to size and to perfect roundness. The driving shaft in the base which carries the tight, loose and driving pulleys is of 1½ inch special quality drawn steel. The bearings are all compensating and self lubricating, and lined with best Babbitt Metal. The belt compensating tightener of the spindles is also self adjusting to all positions of the belt. The copes are attached to the main headstocks, and of course adjust with them, but have both vertical and lateral adjustments independent of the headstock movements, these independent adjustments being controlled by suitable

screws with hand wheels, and the spindles are driven by a vertical countershaft with longer belts than usual on such machines.



Rear End View Showing Carriage, Copes, Cope Countershaft and Application of Cut-off-Saw.

The tenon heads may be used double or single and have 7½ inch cutting circle. When machine is fitted with double heads it will cut tenons as long as 6 inches; when fitted

with single heads it will cut tenons only $3\frac{1}{2}$ inches long. The upper and lower heads expand or separate to take in stock as thick as 5 inches, and the table movement will admit to cut tenons on stock as wide as 20 inches by 1 inch thick. By passing material through twice tenons may be cut as long as 8 inches. The knives are placed on the heads so as to make a smooth drawing cut, and are readily ground to the required shape. Improved spurs are used to cut the shoulders square and rarely require attention.

For further information subscribers should address the H. B. Smith Machine Co., Smithville, N. J., stating they are readers of the AMERICAN CARPENTER AND BUILDER.

Sheet Metal in Building Construction

Sheet metal has gained a prominence in building construction and house equipment that is perhaps hardly realized. With the increasing cost of materials formerly employed, with the more rigorous exactions of the insurance authorities and with the general willingness to adopt the promising improvements of these fast moving times, sheet metal has come to be largely used for outside protection, for interior embellishment, for sanitary wall coverings, etc.

It was our pleasure to recently visit the new and extensive plant of The Edwards Manufacturing Co., "The Sheet Metal Folks," Eggleston Ave., 4th to 5th Sts., Cincinnati, O., manufacturers of the most extensive line of sheet metal building material in the world. They are building a new addition of 137 by 200 feet which will make their new plant 287 by 200 feet. Having a practical experience covering a period of over twenty years, a modernly equipped factory, with every known device for turning out perfect work, and using none but the best grade of steel with first-class mechanics for working same, the company and their product have a reputation that is world wide. They manufacture the Edwards Metal Ceilings and Side Walls, which are made of standard gauge soft steel sheets, shipping weight about 70 pounds per 100 square feet.

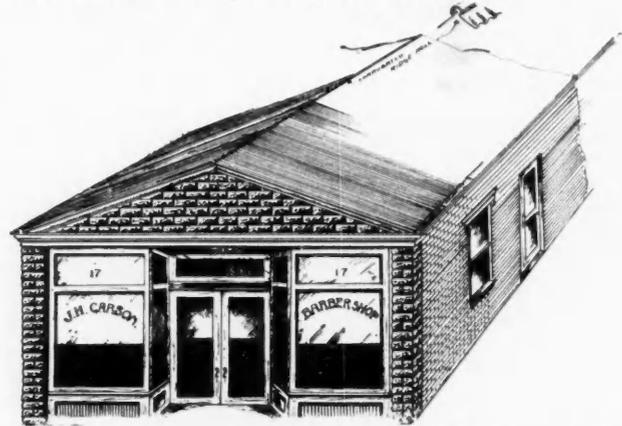
Their durability has never been questioned, and as to ordinary wear and tear will last a lifetime. They are particularly adapted for use in public buildings, churches, schools, stores, halls, theaters, hospitals and are being installed in private dwellings owing to their cleanliness and adaptability of ornamentation.

Being incombustible and almost air tight, they protect floors and woodwork in case of fire and have prevented the spread of flames and saved buildings from total destruction. Being waterproof, a valuable feature in favor of steel ceilings, they cannot be injured by water in case of fire or by leaks of roofs or pipe. They are light in weight, thus reducing the strain on trusses or joists to a minimum. They do not crack or fall like plaster or dry out and shrink like wood. They do not hold disease germs or vermin and can be easily cleaned with a sponge and water.

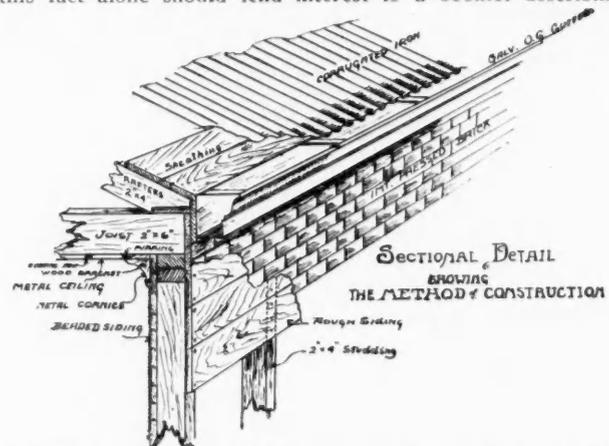
The Edwards Metal Shingles are made in three sizes, 7 by 10, 10 by 14, 14 by 20 inches, of pure sheet copper and the best grade Worcester terne tin, painted or galvanized (galvanized after being formed). The shingle is stamped and then galvanized, each and every one separately, by hand, consequently there are no raw edges, cracks or abrasions of the zinc coating. They can be applied to a roof of any type and are guaranteed to be an absolute protection against fire and the elements, taking a very low rate of insurance.

The Edwards "Perfect" hip shingles are an example of the latest and best in the roofing art. They not only protect the roof, but give it a finish and ornamentation which cannot otherwise be secured, except by the use of expensive tiling. They are absolutely impervious to rain or snow and when used in connection with the Edwards Metal Shingles produce a roof covering that will last a lifetime, and having no soldered joints, can be readily taken off of one

building and placed on another without injury if desired. They are far superior to the ordinary wood or metal rolls and the work of laying them is considerably less. No trouble to lay them even and straight owing to the offset or shoulder fitting snugly against the butts of the shingles forming a gauge and a protection against driving showers of rain and drifting snow. The Hip Shingles are put on after the roof is laid, starting at the bottom.



It is only necessary to point out that statistics show that one-third of the fire losses is chargeable to what is known as the exposure hazard; that is, fire communicated from one building into another through windows or roofs, to indicate the importance of fire resisting construction in the exterior of buildings. Experts know that wire glazed hollow metal window frames afford an effective and reliable fire stop and this fact alone should lend interest to a booklet describing



"The Edwards" Metal Windows recently issued by the Edwards Manufacturing Co., "The Sheet Metal Folks," recently installed in their new and commodious office and factory building, No. 401 to No. 417 Eggleston avenue, Cincinnati, O., devoted entirely to the production of everything in sheet metal building material, including "The Edwards" Metal Ceilings, metal shingles, metal fireproof windows, cornice, skylights, corrugated iron or steel roofing, steel imitation brick and stone siding, galvanized roof crestings, finials, etc. The company have just issued a new catalogue of metal ceiling and side wall designs of the different periods, which they will be pleased to forward to parties interested in interior sheet metal decoration. They have also in preparation their large general catalogue, comprising 160 pages, showing complete line, which will be ready for distribution about October 15th.

Ideal Concrete Machinery Co.

"The conception of a thing in the most perfect state." This, we are told by the dictionary, is the correct definition of the word ideal. Certain it is that a more appropriate name could not have been hit upon in searching for a trade title

for the time-tried and well-known concrete block machine patented, manufactured and sold by the Ideal Concrete Machinery Co., of South Bend, Ind.

From its inception this company has been in the front rank of those manufacturers whose first aim and object was to place the concrete machinery business on a clean-cut, legitimate basis. To that end they have spent thousands



F. A. BORST



G. B. PULFER

of dollars, not only for machinery necessary to produce the best product possible, but also in the various channels which conditions and circumstances created that required vast expenditures for educational purposes, that the real merits of the great concrete block industry might be properly understood, its value fully recognized and reputation established. How well they have succeeded may be judged from the fact that theirs is the largest exclusive cement block machinery plant in the United States, and they have recently found it necessary to build a plant at London, Canada, which is now in full operation. At a recent visit to the plant of this company, evidence of growth and activity were found on every hand, both in the factory and executive departments.

The plant is of very solid construction, and embraces 16,000 square feet of floor space. The basement is given over to storage purposes, where were observed great piles of "pallets," or "off-bearing plates." Here, too, are demonstrated examples of the various shapes and sizes of block made by the Ideal



M. WETZSTEIN



J. A. SMITH

machine. The machine shop is very interesting from the fact that it contains some ten special machines of complicated character which were designed and built by the company for the special purpose of finishing the various parts of the Ideal machine with such acute exactness that each finished machine is as perfect in action as in the model from which the patterns were made. In this department are several devices for testing castings, in order that no defective piece enters any machine. The assembling room and shipping departments are of great interest because of the various systems in vogue that prevent errors in the filling of orders.

The officers of the Ideal Concrete Machinery Company are:

F. A. Borst, president; G. B. Pulfer, vice-president and general manager; M. Wetzstein, secretary and treasurer, and J. Augustine Smith, general sales manager. The executive department embraces one large general office and a suite of two private offices. The offices are equipped with the latest filing system and handsome furniture. One feature is an unique system of state map records showing at a glance every town where Ideal machines have been sold. The office force consists of seven stenographers, accountants, and mails clerks, shipping clerks and office manager.

The growth of the business made it necessary for the company to secure the services of an expert sales manager to take charge of the selling and of the business, and they were fortunate in securing the services of Mr. J. Augustine Smith of Detroit, Mich., in this capacity. Mr. Smith is also financially interested in the company.

Four Practical Trade Books

The latest addition to the list of books devoted to the building trades are the four books published by the Coyne Trade School of St. Louis, Mo. They are no doubt the most up-to-date, complete and practical books on the plumbing and gas-fitting trades ever written. The following is the list of the four volumes:

- "Practical Plumbing by Questions and Answers."
- "Practical Leadworker and Jointwiper."
- "Modern Gasfitting Plans and Rules."
- "Modern Plumbing Plans."

The books are of convenient size and fully illustrated with plans, elevations, details and half-tones. A detailed description of them will be found on another page.

Anniversary of a Unique Institution

Students of the International Correspondence Schools are much interested in the celebration of the fifteenth anniversary of the schools, which is to be held in Scranton on Oct. 16.

It has been nearly fifteen years since Thomas J. Foster, then editor of a newspaper in Shenandoah, Pa., introduced a method of teaching through the mails by means of special home-study textbooks and a system of direction and correction of students' work, the object of which was to enable the coal miners of Pennsylvania to pass the required examination for mine foreman. Although the enterprise was of great interest in the mining communities, not even the founder then dreamed that his plan was the creation of a new educational system that was to turn the world into a vast class room and afford the means by which practical, money-earning knowledge in almost every line could be carried to the thousands that could not give up work or leave home to secure education.

The International Correspondence Schools now have more than two hundred courses of instruction, covering almost every branch of nearly all of the well-known trades and professions. Up to the present time, 85,000 students have either completed the courses for which they enrolled or substantial portions thereof; 225,000 other students have completed the study of mathematical, physical, and drawing subjects. One hundred and fifty-three railroads, including some of the largest systems in the world, have made contracts with the schools for the instruction of their engineers, firemen, machinists, inspectors and other employees.

The wide-spread practical results of the work of this great "home-study" university is demonstrated by the fact that during the last 12 months upwards of 4,000 reports of increased salary or advancement in position have been received from students.

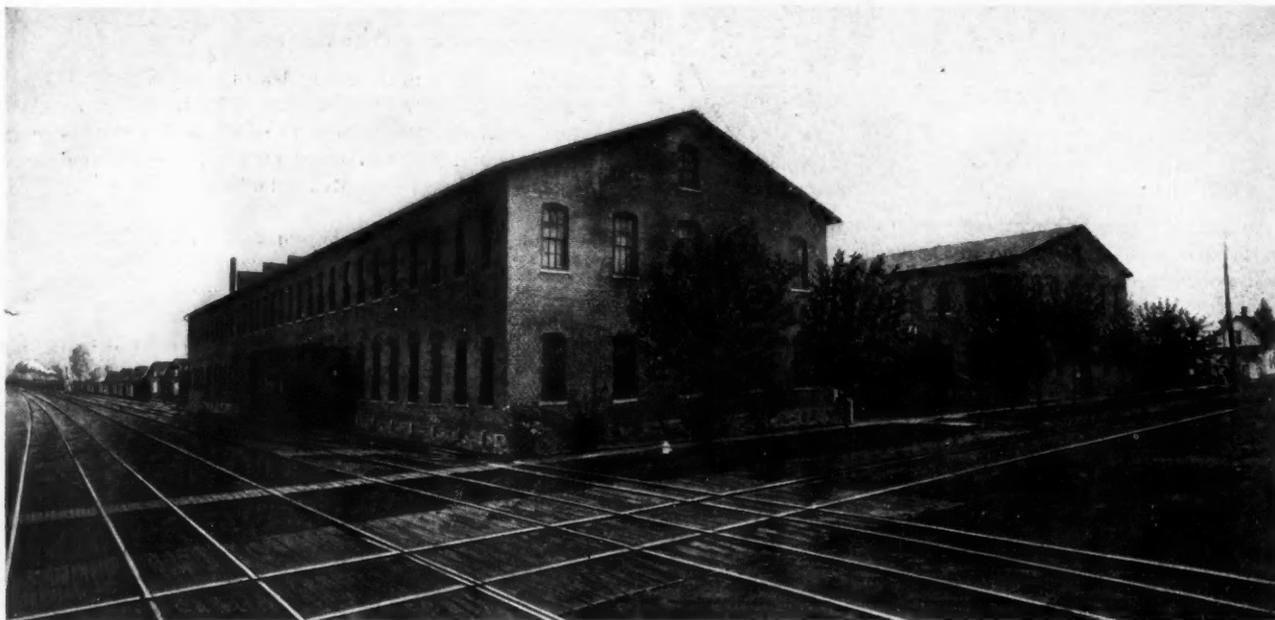
The foregoing figures are all the more wonderful when it is remembered that the largest number of students graduated by any one American resident school is 28,000, and this is the record of Harvard University, an institution more than

200 years old. The International Correspondence Schools are filling a great need that before was not met by any educational system.

The day will be taken up with appropriate exercises and an interesting exhibit of the schools at work preparing and printing home-study textbooks and correcting the recitations of students sent in from every part of the civilized world. A banquet to the guests will be given by the schools in the evening.

Goshen Sash and Door Co.

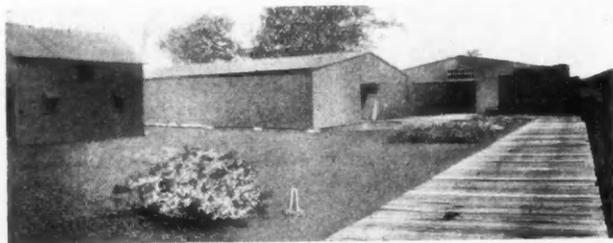
One of the pioneer manufacturers of sash, doors and interior finish in the north central states is located at Goshen, Ind. The founder of the Goshen Sash and Door Co. was R. W. Whitmer, who established a small carpenter shop



Plant of the Goshen Sash & Door Co.

and planing mill at Goshen in 1869, at which time northern Indiana was nearly a wilderness. From the first the Whitmer motto has been: "Not how cheap, but how good." In the production of all work this has been the foundation rock upon which the business has been built. Another principle leading to success was the bending of every energy to make prompt shipments of all orders whether for stock or special work. The success of the company in this direction has gained for them the reputation of being "America's Quickest Shipping House" and forms an important factor in their advertising.

Upon the death of the elder Whitmer in 1883, the responsibility of the management fell to his sons, S. H. and T. E. Whitmer, both of whom were early given an education in the business by working first as apprentices and then as journeymen in every department of the plant. This practical education enabled them to follow their father's success



Corner of Storage Yard

and they have ever maintained the standard established. It has been under their successful management that the plant and business have experienced such remarkable growth.

From time to time the plant and equipment have been added to until it now occupies about four acres. The main plant is a brick and stone structure 56x160 feet, two stories, while the warehouse is 50x210 feet, has three floors and every convenience for storing and handling. In connection is a very extensive series of sheds 40x110 feet. The entire plant is equipped with all modern labor saving machinery known to the trade and every effort made to keep the business not only up to but a little ahead of the times.

The advertising and literature sent out by the company contains very positive statements of three facts which they have firmly established in the minds of the trade, to wit: "We positively ship all odd work in four to seven days," "America's only quick shipping house" and "Goods of highest grade." These announcements are as persistently lived

up to as they are made and both new and old customers can rely on them being fulfilled. The location of Goshen is such that trunk line connections are afforded both north, east, south and west, hence no delays occur in transportation.

Burrell Guaranteed Block Machine

The giant strides made and to be made in cement construction from building blocks offer rare opportunities for profit. The south and southwest the coming winter and spring will see this industry firmly established. Those who "take time by the forelock" and place their orders for block machines now will be sure to receive them, whereas delay will probably see many manufacturers obliged to reject late orders. The Burrell Guaranteed Block Machine manufactured by the Burrell Mfg. Co., Bradley, Ill., is sold under conditions that show the manufacturers ready to stand behind it. It has



no complicated parts and has proven satisfactory to all who have purchased it.

Melon Thoughts—By a Furnace Man

MR. CARPENTER AND BUILDER:

Dear Sir—We had a Georgia watermelon for dinner the other night. A little flat and stale, perhaps, for it came a long way: and the corner fruit store man charged us sixty cents for it. He bought it from a Chicago distributor, who



The Roofing Tin Experience of a Firm of Kansas Merchants

"Target and Arrow Old Style" tin still giving good service after many years' wear, while a cheap imitation "old style" gave out in a few years' time.

This building of M. E. Yost & Sons, of Hiawatha, Kansas, was built in two parts. One part was roofed with genuine "Target and Arrow Old Style" tin and the other with an imitation "old style." The "Target and Arrow Old Style" tin has given splendid service for many years without costing a dollar for repairs, while the so-called "old style" has been a constant trouble and expense.

Messrs. Yost & Sons are now building a cement block building of three stories and basement, and the builder has bought "Target and Arrow Old Style" tin for the roof.

The experience of Messrs. Yost & Sons with tins which are called "old style" for the purpose of trading on the reputation of the genuine "Target and Arrow Old Style" tin is being duplicated all over the country. Our booklet, "A Guide to Good Roofs," has kept many out of expensive mistakes of this kind. Would you like to read it?



Note that we now use the old name for the brand—"Target and Arrow Old Style"—rather than the words "Taylor Old Style," which have been imitated in every possible way by other tinplate houses.

N. & G. TAYLOR COMPANY

ESTABLISHED 1810

Philadelphia

bought it from a South Water street dealer, who bought it from a shippers' association. The shippers' association probably paid the grower ten cents for it. The difference is represented by the freight and the profits of three or four middlemen. Had I been in touch with the grower he would gladly have sold me the melon for fifteen cents. I would have been forty-five cents ahead and the grower would be richer by the 50 per cent greater price.

The transaction impressed me as a shining example of the positive advantages of direct dealing, between producer and consumer.

I am selling Hess Furnaces direct from shop to user, at factory prices, and the question is many times put to me, "How can you afford to sell your product at a price so low? Where do you 'skimp,' in order to make a profit?"

I don't have to "skimp." I am in the position of the melon grower. If the consumer comes to me I can give him a much better price than he can obtain otherwise, and still treat myself a little better than the jobber would treat me, if I depended on jobbers for business. And I can do still better for both of us, in this: that I know my goods better than any jobber or dealer can know them, and with such knowledge I can plan and advise as to their use better than anyone else, and this means more satisfaction for the purchaser.

And again, I want to keep on making and selling Hess Furnaces. It's my living, and I would naturally take more pains to please my patrons, than any middleman, to whom Hess Furnaces are merely an incident and not "the whole thing."

I got this idea five or six years ago and started such selling in a small way. It grew and grew. Now it's the biggest part of our furnace business and growing faster than ever. Recent orders have been received from New York, Boston, Vermont and other far east points where you would hardly look for buyers of Chicago-made goods. From all other sections North, South and West, and even from Japan, orders are coming a-plenty, and the many letters of approval from pleased customers add not a little to the satisfaction of successfully carrying out a plan, which, at first, seemed almost impracticable.

Yours very truly,

GEO. H. HESS, JR.

Secy. Hess Warming & Ventilating Co., Chicago.

All Steel Corner Posts

Our readers, no doubt, are deeply interested in the erection of modern plate glass store fronts and show windows, and their attention is called to the advertisement of C. H. Shultz of "All Steel" Cork-Bedded Corner Posts, Mullions and Transom Bars. The posts and bars are made from $\frac{3}{8}$ x2-inch steel bars and $\frac{3}{4}$ x $\frac{3}{4}$ steel angle bars; are adjustable to any thickness of glass, insuring the most substantial and handsome bar made. No putty or rubber used. The bearing of the glass is all on Spanish cork, the best known backing for plate glass. It provides for expansion and contraction of the glass and for the shrinkage and settling of the building; is absolutely water, wind, dust and snow proof. The glass is put in from the outside; the bars are neatly finished on inside, and takes up but two inches of space. The outside finish is polished brass, making a very handsome appearance. The bars are all accurately fitted before shipment, and ready to erect.

The bars are put up when desired, and the manufacturers would be pleased to mail you samples of bars and quote prices on application. Address C. H. Shultz, St. Joseph, Mo.

Automatic Sash Holder

The Automatic Sash Holder Company, 277 Broadway, New York, has just placed on the market the automatic sash holder here shown. It is designed to automatically hold in any position required both upper and lower window

sash, without using sash cord, weights or pulleys. The idea grew out of the necessities of portable house construction, where large window frames with weight pockets were impossible and superfluous material was discarded, the above company being practically identical with the Ducker Company, at same address, which manufactures portable houses of all kinds. The principle of this holder has been thoroughly tried out for several years in portable house construction, and now, greatly improved in every detail to satisfy more exacting conditions, is offered for permanent structures. The body of the holder requires only an easily made mortise in the stile of sash, about $\frac{3}{4}$ x $\frac{7}{8}$ x1 $\frac{5}{16}$ inches, all of which

Classified Advertisements.

Advertisements under this heading will be inserted at the following rates:

One month.....\$0.45 per line

Three months..... 1.25 per line

Six months..... 2.25 per line

One year..... 4.25 per line

Count 10 words to the line. Situations wanted one-half above rates. Replies may be addressed in our care and will be promptly forwarded.

For Sale.

STEEL SQUARE POCKET FOLDER, with booklet, in leather case. Third edition. Gives roof framing, degrees, polygons, ellipses, etc. 25 cents. Dwight L. Stoddard, 328 West Raymond St., Indianapolis, Ind.

Wanted.

WANTED experienced all-round planing mill foreman for mill doing odd work principally; good estimator, detailer, etc., capable of making cutting bills from plans; best of references required. Address Z, American Carpenter and Builder.

WANTED men with money to invest in the concrete block and machinery business; have a two-piece system; also a power press of 100 tons pressure. Send \$1.00 for blue prints. Chas. A. Meyers, 2202 Locust St., Toledo, Ohio.

Miscellaneous.

NOW IS THE TIME. Eden Hot Springs absolutely cures rheumatism, eczema, stomach, liver and kidney troubles. Rates \$9.00 to \$12.00 per week. Surrey leaves Redlands, California every Wednesday and Saturday for the springs. Come. S-3

WATCH TACOMA GROW. Population in 1880, 1098; in 1900, 37,714; January 1, 1906, 85,000. Send ten cents in postage for illustrated booklet descriptive of the Electric City of the Pacific Coast to Secretary Chamber of Commerce and Board of Trade, Tacoma, Washington.

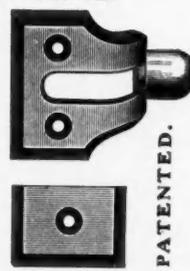
SPECIAL OFFER TO CARPENTERS

BUILDERS AND OWNERS OF HOMES



Ives Patent Window Ventilating Lock, a Safe-guard for Ventilating Rooms, Pure Air, Good Health and Rest Assured.

To introduce this article, Four Ventilating Locks in Genuine Bronze, Brass or Antique Copper Finish will be mailed to any address prepaid for One Dollar. Will include a fifty page Hardware Catalogue and Working Model to Carpenters who wish the agency to canvass for its sale. Address,



PATENTED.

THE H. B. IVES CO.
NEW HAVEN, CONN., U. S. A.

SLATE WE HAVE WHAT YOU WANT

*In Roofing Slate, Slate Blackboards
Structural and Plumbers' Slate*

SATISFACTION GUARANTEED IN QUALITY AND PRICE

ASK FOR DELIVERED PRICES

J. K. HOWER, Station C., Slatington, Pa.

H. J. KICHLINE, Sales Agent

The Barrett Specification Roof

WHEN we make the statement that a great majority of all the important buildings and manufacturing plants of the country are roofed with Coal Tar. Pitch and Felt along the lines advocated in the Barrett Specification, it would seem as if no higher commendation could be secured.

Yet added evidence of its value is the fact that the foundation walls and cellars in most of these structures are also waterproofed with the same materials. The famous Trinity Building, New York, illustrated herewith, is an example of this.

THE BARRETT SPECIFICATION ROOF is the most suitable, satisfactory and economical known. The practical application of this fact is daily demonstrated by every reputable roofing contractor in that he will guarantee such a roof *absolutely* for at least ten years, as against the *qualified and provisional guarantee* given with other roofings.

Metal, and most "ready roofings" require coating or painting every two or three years. Failure to do this, either through oversight or false economy, causes such roofs to quickly rust or rot out, and leak. Thousands of dollars worth of merchandise are destroyed annually through leaky roofs.

The Barrett Hand Book, covering the subjects of roofing and waterproofing, will be mailed free on application.

Barrett Manufacturing Company

New York Philadelphia New Orleans Allegheny
Cleveland Chicago St. Louis Cincinnati
Kansas City Minneapolis Boston



can be done with a 7/8-inch auger bit and chisel, mortises for new work being machine mortised at the mill. When in position the wheel runs up and down on the jamb of window frame and the holder is absolutely out of sight. The two portions of the frame are formed by special machinery from

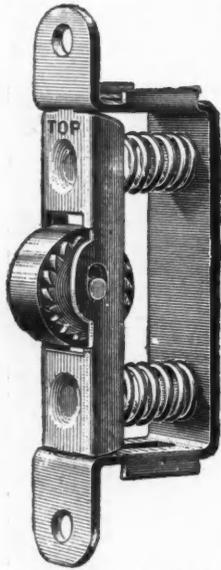


Fig. 1—Automatic Sash Holder, Nearly Two-Thirds Size.

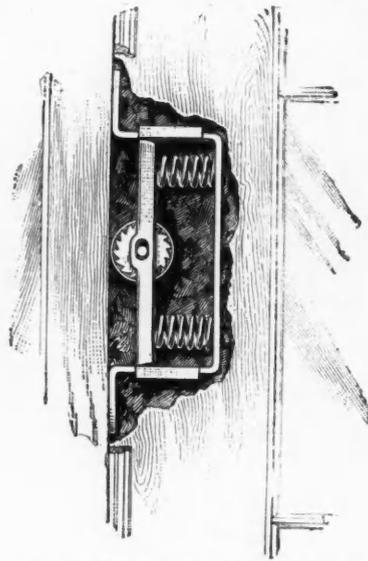


Fig. 2—Holder in Position, with Part of Stile Cut Away.

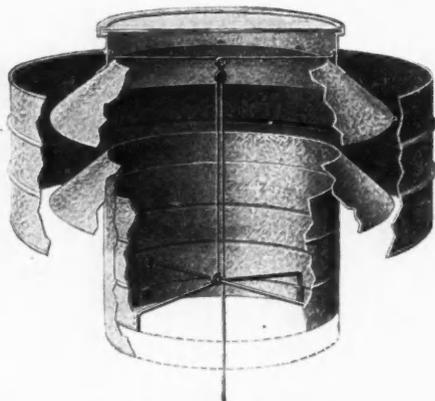
5/64 inch sheet steel. A binding or holding friction pressure is obtained by means of two electro galvanized piano wire steel springs, which are 9/16 inches in diameter and held securely in place by large bosses stamped top and bottom in both plates. The wheel pinions, it will be seen, revolve in two elongated or oval holes, with a play of about 3/32 inch, so that as the sash is raised the wheel revolves, but when

lifting ceases the wheel axles move upward in the slot, and the ratchets engage with each side of the upper plate sufficiently to hold the sash at any desired point. The company emphasizes some of the following advantages, viz.: that hardware men and others can buy them in sets of four, so as to retail profitably for less than the cost of weights, cords and pulleys; that while equally suitable for old or new construction, in the latter case there can be a great saving both in material and freight, as well as bulk, by having window frames made without weight pockets; that owing to constant side pressure, windows, regardless of swellings or shrinkings, will always fit snugly and thus not rattle. For the average window a holder on each side of each sash up to twenty pounds will answer every purpose, they being especially suitable for residences in town or country, apartment houses, factories, cottages or any of the innumerable structures requiring windows. The holders, it may be said, have been successfully used on sash as heavy as thirty-five pounds each, the only objection to using them on very heavy sash being the greater strength needed to raise and lower the sash. For sash weighing eight pounds each or less one holder on a sash is sufficient, thereby reducing the cost one-half, and for sash heavier than the average four holders could be used on each sash instead of two, if necessary.

White Cement Stone

White stone made under the "Berlin System" is a revolution in stone making; it is artificial only in the sense that machine-made ice is artificial. It is an improvement on natural stone not only in appearance (does not become streaked with age) but in strength and uniform texture, and it makes a dry wall. Rain and cold days can be turned into profit; stone can be made under cover, and no skilled labor is required.

The Abel machine is easy to operate and puts the cheap-



Notice Sliding Sleeve Damper.

IDEAL VENTILATION

for a private residence is to install one or more of our "Burt" Glass Top Ventilators. Every contractor knows that the average attic is hot and poorly lighted, and by a small expenditure this part of the home is made comfortable as well as habitable. If you are building private residences it would be well to receive a copy of our 20-page booklet illustrating and describing the "Burt." We have furnished a large number of Ventilators for private residences and the re-

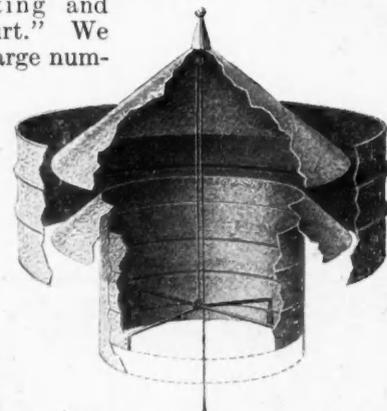
sults have been more than satisfactory to the owner. Last week we received an order for 3 20 in. and 1 24 in. Glass Top Ventilators to be used on the new residence of C. P. Taft, Cincinnati, Ohio.

If you are erecting any building where ventilators are specified, show our booklet to the architect or owner and we are confident they can easily see the superior advantages of the "Burt."

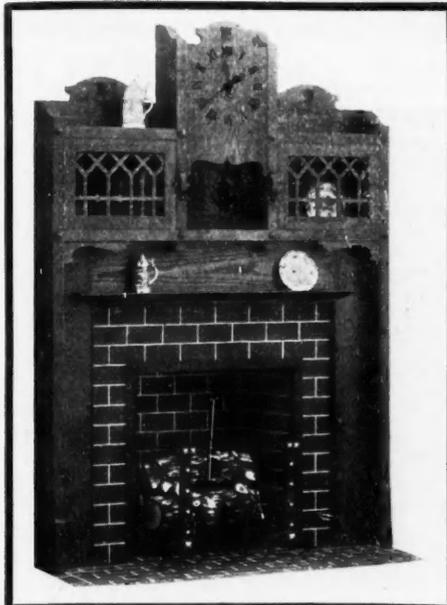
Made in all sizes, glass and metal tops.

THE BURT MANUFACTURING CO.

Largest Manufacturers of Oil Filters in the World. 500 Main St., AKRON, OHIO, U. S. A.



Notice Sliding-Sleeve Damper.



If We Weren't Sure About the Quality of the
Burritt Mantels

We Wouldn't Advertise Them so Extensively

*Possessing Every Essential Feature, They
 Never Fail to Give SATISFACTION*

And having pleased thousands of others we are positive they will please you. We want to hear from you if you are interested and shall be glad to send you our large catalogue of handsome

Designs. We solicit especially the business of *Carpenters and Builders, Real Estate Men, etc.*, who use a large number of mantels in the course of a year.

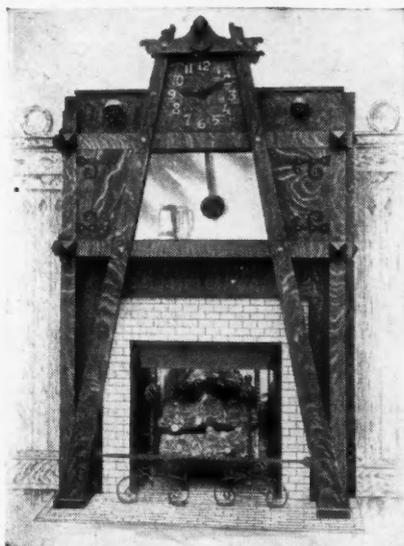
If we can save you money, you want to know it. Don't you?

THE A. W. BURRITT COMPANY

"The Mantel Folks"

450 KNOWLTON STREET

BRIDGEPORT, CONN.



Artistic Wood Mantels

Grates, Tiling and Fireplace Fixtures of All Kinds

The best and MOST COMPLETE line on the market.
 Sold to Carpenters and Contractors at Wholesale Prices.
 All shipments made direct from the factory, Knoxville, Tenn.

THE GEO. W. CLARK CO.,

91 Dearborn St., Chicago.

306 Main St., Jacksonville, Fla.

FRESH AIR *and* HEAT

INSURED BY THE USE OF THE
 HEITLAND RETURN-DRAFT GRATE

It burns wood, coal or gas. In the majority of cases it can be installed without any tearing out of your rooms. It will heat two floors if desired and is a constant and perfect ventilator.

It gives to your rooms all the advantages of the old-fashioned open fireplace with none of its disadvantages. Costs less to maintain and is more satisfactory than any other grate on the market.

Guarantee—If after one winter's use our grates fail to give you satisfaction return same at our expense and we will refund your money.

Send for our special catalogue. It also includes a full line of Wood Mantels, Fireplace Furnishings, etc. Free on request.

Heitland Grate & Mantel Co.
 827 Maine Street, Quincy, Ill.

Note in the diagram the thorough circulation of heat. Not only throws out into the room its own heat but heats air in chamber directly over bed of fire. Uses smallest amount of fuel, gives off greatest amount of heat.



ness of producing cement stone beyond competition and the stone is adapted to use in the highest class of buildings. This machine is made for the use of the laboring man with no knowledge of machinery. It does not require the services of a machinist to operate, keep clean, or overlook its working parts, and requires no pallets.

It is a machine that will turn out more blocks, handsomer, and stronger, blocks that are absolutely damp-proof. A machine too simple to get out of order, too strong to break, no hinges, wheels, levers, cogs, gears, thumb-screws or latches; in fact, nothing to be tamped out of place. One block is turned out just like the other, and always with true, sharp corners and perfectly square blocks all day long.

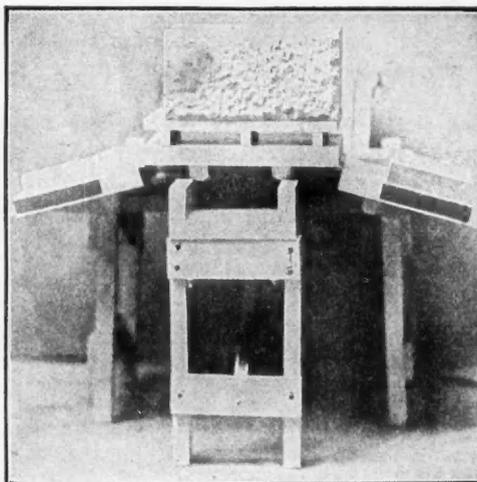
Ignorance of many men in the correct working properties of Portland cement is responsible for failures in making cement blocks. Perfect crystallization is necessary to the proper formation of stone. The Francis Machinery Co., 806 Chestnut Street, St. Louis, who manufacture the Abel machine, will be pleased to send any information desired to our readers.

The Nurock Cement Stone Machine

The accompanying illustration is an inside view of the Nurock Cement Block Machine which is being manufactured at Delevan, New York. This new cement block machine is certainly a wonder in its line, as the machine will make anything in the stone line required in the way of a hollow block. It will make plain face, rock face and corner blocks and is easily operated and not complicated. This machine has been examined by a representative of this publication and found to be all that the manufacturers represent it.

As shown in the illustration it is capable of many changes in making various styles and sizes and giving the largest variety of block products for the least outlay of capital. It can be operated by one or two men, and will

turn out easily thirty blocks or over per hour. The machine complete with all necessities for making blocks as above stated is being sold at an extremely low price. The concern manufacturing this block has a nicely illustrated



catalogue with full information, which will be furnished for the asking if, when writing, the AMERICAN CARPENTER AND BUILDER is mentioned. The manufacturers are the Nurock Cement Machine Company, Delevan, N. Y.

Now Have Their Own Plant

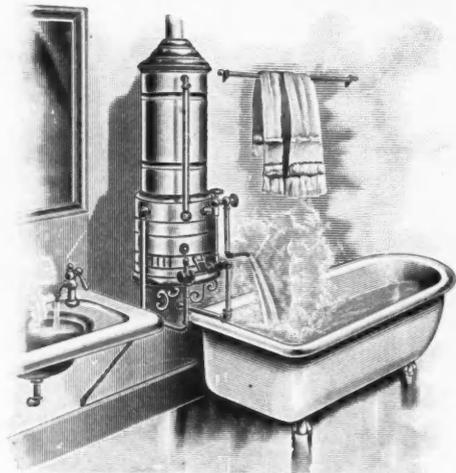
We are greatly pleased to note and comment upon the rapid growth of The Duby and Shinn Manufacturing Co., Inc., of New York. This company is now branching out as manufacturers of a general line of mechanic's fine tools, with "The New Universal Square" as its leader.

This tool comprises the try square, bevel square, pitch-cut square, hip and valley square. It is also a correct rule,

INSTANTLY

that is how soon you can get hot water at any time of day or night, in summer or winter, by merely lighting the gas, if you use a

Humphrey Crescent Instantaneous Water Heater



In the bath room — will supply a hot bath while you undress, at the lowest possible cost.

**NO WASTE HEAT OR WATER
NO LOSS OF TIME**

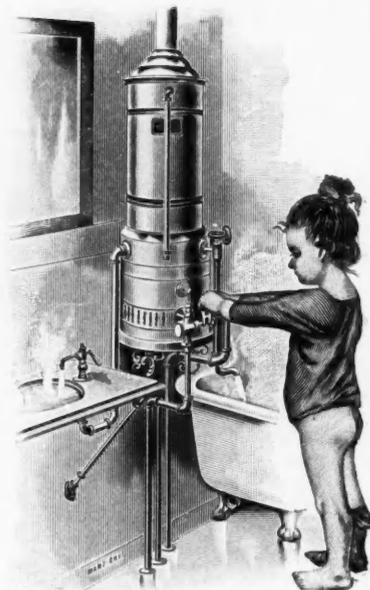
Made of copper, nickel plated and highly polished. Occupies little space.
Handsome, Efficient, Durable.

No Expense for Repairs

**A Big Hot Bath Costs
Only Two Cents**

Will Save its Cost in a Short Time

We have water heaters for every purpose. We are the largest manufacturers in the world of water heaters only. Shall we send you our handsomely illustrated, complete catalogue? Its free for the asking.



No. Heater	Price	Gas Supply from Meter	Heats Gals. per Min. 50° in Temperature	Height '	Diameter	Shipping Weight
Non-Contact . . 2	\$40.00	3-inch	2½	34½ inches	12 inches	70 pounds
Non-Contact . . 1	34.00	2-inch	2	31 inches	10½ inches	62 pounds
Contact 6	29.00	2-inch	3	29½ inches	12 inches	60 pounds
Contact 8	23.50	1½-inch	2½	28½ inches	10¼ inches	48 pounds

HUMPHREY CO., Kalamazoo, Mich., U. S. A., 800 N. Rose St.

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER



LORENZEN MANTELS

A Mantel in the home is useful as well as artistic and decorative. It saves you furnace heat on chill spring and autumn days, and diffuses cheer and comfort like no other piece of furniture in the house.

Lorenzen Mantels \$10 to \$250

In Colonial, Craftsman, Modern Mission and numerous other styles, and all woods and finishes. Our modern factory, large stock of air-seasoned lumber and expert, skilled-workmen all mean beautiful mantels, far above the ordinary. We are at all times prepared to furnish designs of Mantels and Fireplaces in the historic periods of architecture, such as Louis XIV, Louis XV, Louis XVI, Renaissance, Gothic, Rococo, Empire, Early English, Colonial, Chippendale, Sheraton, Adam, etc.

CATALOGUE FREE—Our new Book of Mantels, full of fascinating designs, reproduced from photographs, is now ready. It contains also illustrations in color, suggesting harmonious interior arrangements and decorations. Write for it today.

No. 468.—Modern Mission Style, 5 feet 11 inches high and 5 feet wide; heavy plain shelves, recessed leather panels; the brackets supporting main shelf are carved with Spanish Insignia. Forian-Vitrea tile hearth and facing. Hand-wrought Andirons of Romanesque design.

CHAS. F. LORENZEN & CO., Inc., 275 N. Ashland Avenue, Chicago



BRICK FIRE-PLACE MANTELS



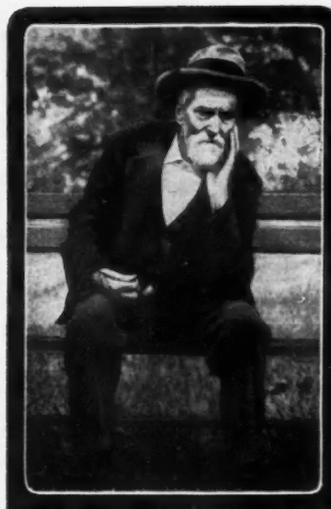
**Beautiful Colors
Rich Carvings
Fine Designs**

Only a sample of our Brick Fireplaces need be seen for anyone to appreciate the above facts. Can be built from our plans by any good mason. Send for our illustrated Catalogue containing 67 half-tones with prices.

**PHILADELPHIA & BOSTON FACE
BRICK CO.**

DEPARTMENT 42

Office and Showroom,
165 Milk St. **BOSTON, MASS.**



**He
Never Had
YOUR
Chance**

In this man's day there was little chance for the chap who started out in life as a workman with no special education. He

was foredoomed to work for small wages until finally disqualified by old age. With **YOU** it is different. If you are not getting ahead as fast as you should in your chosen occupation, the **International Correspondence Schools** will help you either to gain advancement, or to change to an occupation where there is advancement.

Hundreds of building tradesmen have taken advantage of this opportunity to become foremen, superintendents, contractors and builders, or architects, and to double, triple, and quadruple their earnings. We can help **YOU** to do the same in your spare time, at your own home, and on terms to suit your present income no matter how small it may be.

Do you want to secure a better position? Are you willing to investigate the surest and quickest way on earth to secure one? Then send us a postal card today asking how we can help you and stating the occupation you wish to rise in.

INTERNATIONAL CORRESPONDENCE SCHOOLS

Box 910, SCRANTON, PA.

lumber gauge, straight edge, plumb and level, depth gauge; and draws circles, lays out mortise and tenons, octagonal cuts, etc., etc. It requires no adjustment for all these uses, and is guaranteed in every particular, consequently the mechanics are ready customers, and the leading jobbers of hardware and tools are enabled to make large sales of the article.

This company has purchased a large parcel of land with a two-story building at Branchport station, Long Branch, N. J., and have been for eight weeks getting under operations in their country quarters. The President announces the completion of preparations, and that the plant is now running with a full force, and hopes that the trade will not feel put out with them for their recent delay in making shipments.

This company also announces that they would like to have submitted to them any small mechanical tool that is not on the market, or an improvement on present tools, and they will consider the manufacture of the same, after due examination by their tool experts.

Dry Walls Without Cost

This is practically what is offered by the Walton Stone Machine Co. of Kansas City, whose advertisement will be found in another column. The peculiar features of this machine merit close and careful consideration, because if claims made by them are sustained by investigation, this machine marks another long step in the advance of the cement stone industry. Theirs is a two-piece machine, which permits the separation of the inside from the outside wall, leaving no point of contact between the two, and by taking advantage of this separation they are enabled to make a wall so certainly and safely dry that they do not plaster their walls—instead they finish with simply a white coat on the stone itself. This saves cost of all furring, lathing and brown coat of mortar, and for this reason they claim justification in saying that dry walls cost nothing—that is, nothing

in addition to what wet walls cost. Their catalogue gives all particulars of construction and the principles involved, and is a very neat and instructive book which should be in the hands of all persons contemplating building with cement stone. It is free, and they invite correspondence on any and all topics of interest to the cement user. It should also be borne in mind that the Walton people are not merely building a machine to sell—they build especially to use—as they are practical builders of wide general experience, and especially in cement work.

Latest Type of Block Machine

We have, by invention, found innumerable uses through which cement can be applied. It is now molded into shapes not thought of years ago. The wonderful plastic nature of cement makes it possible to mold many different designs, which can be produced very cheaply.

One of the most important uses to which cement has been adapted, is the making of hollow building blocks. The use of these blocks has become general. Buildings erected by them do not require continual painting and repairing, as do those built of brick or wood.

To fully realize the advantages of cement, it has become necessary to mold it in the most convenient forms for practical and economical use; thus, it depends upon the invention or machine that is the most practical and adjustable to the largest range, to cheaply produce this work. We realize that there are many extravagant claims made for machines of this class. To investigate these claims would reveal the fact that they are not the ones desired for the manufacturing of this class of material. We desire to say a few words in regard to the Hoosier C Machine, which is manufactured at Auburn, Ind., by the Hoosier Manufacturing Co. It is of the face down type, forming the face of the block in the bottom of the mold. It is adjustable to make blocks of



Learn PLUMBING

A PROFITABLE TRADE

Steady work
at good wages



HAVE you ever paid a plumber's bill? Then you know that he is a mechanic who certainly receives a good price for every hour of his work.

Have you ever stopped to consider why plumbers' wages are so high?

There are two reasons.

First.—

Until the starting of our school there was only one way that a young man could learn the plumbing trade—by serving four or five years as an apprentice, carrying tools and looking on, at starvation wages.

Second.—

A few years ago the house equipped with modern plumbing was the exception—to-day the house without is the exception.

The time is not far off when no one will think of putting up a building without a modern plumbing system.

There is no trade that you could learn that has such a bright prospect for the future as plumbing.

There is no trade that will pay you as high wages.

There is no trade that could give you steadier work—the plumber is busy every day in the year.

There is no trade that will enable you to find work at such good wages in any town or city.

Is not this just the kind of a trade you want to learn—good wages and steady work?

Why not start in right now to learn plumbing?

A few months at our school under the supervision of practical plumbers will enable you to master every detail of the trade and earn regular plumbers' wages.

You come here to learn. Every moment of your time is spent in studying. Every moment is put on actual work under the careful watching of men who have spent their lives at the plumbing trade. It makes no difference to us how long it takes you to graduate. We will teach you until you master every detail, no matter how long it takes.

Some of our students have satisfactorily held good paying positions after being with us only three months.

No doubt you can do the same.

Better send for a copy of our illustrated catalog (FREE). It fully explains just how we teach, our terms and how we help our students to get positions.

Send for the catalog and make up your mind to learn a good trade. Do it to-day.

St. Louis Trade School 3988 Olive St.,
ST. LOUIS, Missouri.

SEND FOR OUR CATALOG, "HOME HEATING"

HOT-WATER HEATED \$198

by **ANDREWS SYSTEM** EACH



14 ANDREWS HEATERS IN ONE BLOCK AVERAGE PRICE \$198⁰⁰

IT IS WELL WORTH READING

1906 CATALOG Of Hot Water and Steam Heating

Our new catalog explains fully the principles and advantages of hot water heating, based on 18 years' experience in the cold Northwest, and describes how any carpenter or mechanic can erect the Andrews System in any building from complete plans and directions which we send with each heating plant, saving plumbers' charges.

This book should be in the hands of every contractor and builder. Send your address and names and addresses of two other people who expect to buy heating plants, and we will send our catalog postpaid.

WE DO IT RIGHT IN 44 STATES, CANADA AND ALASKA. Our catalog contains a partial list of our customers from all parts of the country. Look them up and examine the Andrews System in your vicinity.

PRICES. We will sell you the plant with all material complete pipe cut to fit so you can erect it yourself. The cost of each heating plant here shown is based on Minnesota climate and includes an Andrews Steel Boiler, richly ornamented radiators, for every room except the kitchen, pipe cut to fit, fittings, valves, gold bronze, brushes and all other material ready for use, with diagrams and directions so plain and simple that any man handy with tools can erect the plant and save money. You can in this way include the heating plant in your general contract for the building.

FACTORY TO USER. We design, manufacture, guarantee and sell each plant direct from Factory to User, giving you the lowest price for the value. Estimates free. **ALL PLANTS GUARANTEED AND SOLD ON 360 DAYS' TRIAL FREE.** Freight rates equalized. **Old Houses Easily Heated.**

ANDREWS HEATING CO. 97 LaSalle Building, Chicago
397 Hennepin Ave., Minneapolis

MANUFACTURERS CONTRACTORS CONSULTING ENGINEERS

UNITED STATES

ALASKA

NEW FOUNDLAND

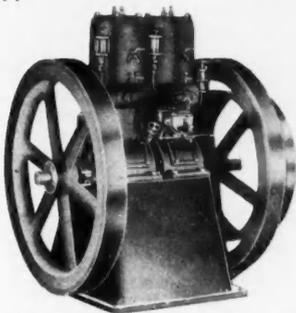
CANADA

POWER THAT PAYS

WE MAKE IT!
YOU WANT IT!

Gasoline Engines from 6 to 50 H. P.

A Goshen Engine furnishes more actual power for the money invested than any other engine on the market. Its advantages are:



Few Parts. Well made and guaranteed free from defects and breakage for one year.

In the working parts of a Goshen Engine there are no valves, cams, gears or springs. As the pistons pass up and down in the cylinder they open and close the ports of the engine, thus exhausting the burnt gases and admitting the new charge. We make better rings than are found in other makes of gasoline en-

gines and guarantee a set of rings to run three to four years under hard service without leaking.

We build a special line of Marine Engines from 4 to 50 H. P. which are superior to any. Write today for catalogue.

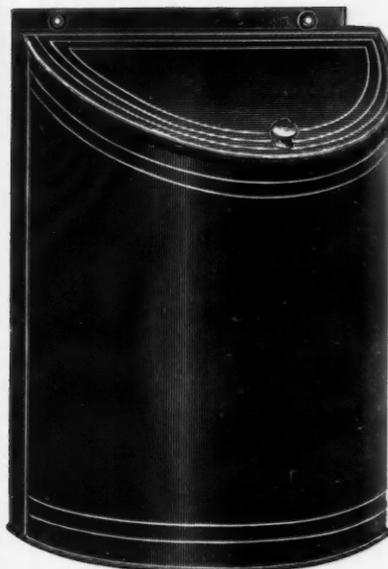
Goshen Motor Works

GOSHEN, IND.

The "Manest"

Flour Box

Better and Cheaper than Wood Bins



Made of Tinned Metal, Black Japanned on Outside. Fasten on Inside of Cupboard Door. Proof against Mice, Vermin, Mould and Dust.

Made in Three Sizes

Send for Descriptive Circular and Prices

The Mannen & Esterly Company
Cleveland, Ohio

different widths and lengths, using the same face plates and iron pallets for either size of blocks. The adjustments are positive and require no measurement in changing from one size to another. The simplicity and ease of operation, together with the automatic delivery of the block and the cores being operated by lever, make it one of the most rapid machines in use. The Hoosier, having no intricate mechanism, enables the operator to produce blocks with great rapidity. Any man with ordinary ability, with a little practice, will be enabled to produce the highest grade of blocks on this machine.

It is the most complete block machine in use. The outfit is priced complete, including iron pallets that enable the operator to make blocks geometrically true. We would advise prospective buyers to address the manufacturers for catalogue and price.

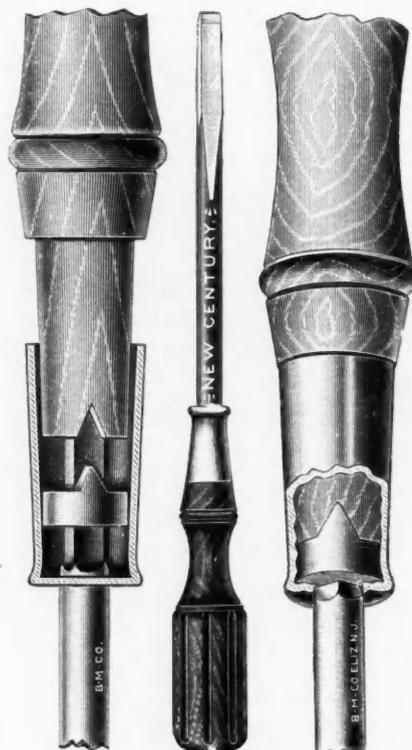
Gentzen Art Glass Co.

Art glass is becoming more of a factor in building construction each year. Where its use was formerly confined to larger public buildings such as churches and schools it has gained a firm place in adding to the decorative and ornamental possibilities of modern home construction. The Gentzen Art Glass Co. of Anderson, Ind., make a specialty of special designs in art glass for windows, doors, etc. They also do mirror and furniture work for the trade and sell glass of all descriptions. Simpson W. Day is secretary and treasurer of the company and Wm. O. Mathews is manager. Both have had years of experience in the line and thoroughly understand the business. In the company's ad on another page will be found a handsome window design, which they are offering at \$1.50 per square foot.

The "New Century" Screw Driver

The Braunsdorf-Mueller Company, Elizabeth, N. J., makers

of the highest grade of mechanic's tools, have just placed on the market an important addition to their line. The "New



Century" screw driver, as illustrated herewith, is designed to give the carpenter a tool that he can absolutely depend upon. By means of the sliding toothed bolster two things are accomplished most effectively. First: the joining and locking of the blade to the handle so no amount of abuse will make them let go; second, the transmission of a hammer blow to the blade from the bottom of the handle, same as, for instance, a tanged carpenter's chisel, thus preventing the handle from splitting. In manufacturing these

screw drivers it takes heavy blows to join them, but when they are "put" they everlastingly stay so. There are three

Get This Gold Pair Free



LISTEN! I want to prove to every spectacle wearer on earth that the Dr. Haux famous Perfect Vision spectacles are really and truly the very finest and best in the world today beyond the shadow of a doubt—and that is the reason why I am making the following very extraordinary, but honest proposition, whereby you can get a handsome pair of Rolled Gold spectacles absolutely free of charge.



HERE IS MY SPECIAL ADVERTISING OFFER.

SEND me your name and address and I will mail you my Perfect Home Eye Tester, free.

Then when you return me the Eye Tester with your test, I will send you a complete five dollar family set of the Dr. Haux famous Perfect Vision spectacles for only \$1 (which is barely enough to pay for this announcement), and this will include a handsome pair of Rolled Gold spectacles absolutely free of charge.

With these famous Perfect Vision spectacles of mine you will be able to read the finest

print just as easy as you ever did in your life, and I will return you your dollar willingly if you yourself don't find them to be the finest you have ever bought anywhere, at any price.

Send for my free Eye Tester today, and address my company as follows:—

DR. HAUX SPECTACLE COMPANY,
Haux Building, St. Louis, Mo.

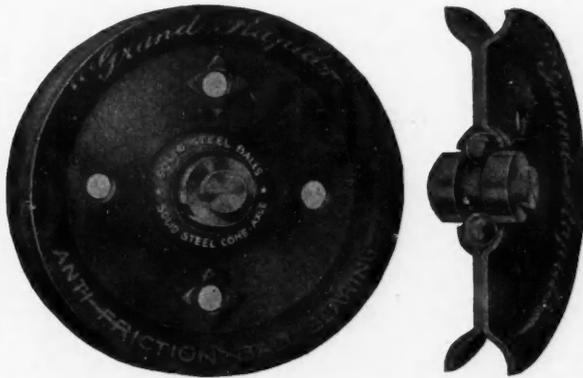
I Want Agents Also

And any one can easily earn as high as \$100 weekly, fitting spectacles with my Improved Eye Tester. My agents need no license anywhere in the country, as I furnish necessary documents with agent's outfit.

**"BALL-BEARING" GRAND RAPIDS
All-Steel Sash Pulleys**

Are sold **DIRECT** to Builders, Contractors and Mills at prices under the common ordinary goods

PATENT PENDING



If you make ten or ten thousand window frames, we can save you money and give you a superior sash pulley. We are the largest sash pulley makers in the world. We ship direct, or through dealers and jobbers everywhere. Write for catalog and free samples and prices on half-gross, gross, barrel, or any quantity. Direct from the makers to you. Inquiries welcome.

Grand Rapids Hardware Co.
33 Pearl Street Grand Rapids, Mich.

FREE 600 PAGE CATALOG

Why Not Buy at Wholesale Prices?

Over 30,000 labor-saving, money-saving articles for the shop, home or farm, fully illustrated, described and priced in our new 600-page catalog No. 91. Also a larger variety of mechanic's tools and builder's hardware of all kinds at lower prices than hitherto shown in any catalog ever published.

No mechanic should be without this valuable book. If you have not received our catalog, write us to-day and it will be sent to you free of charge.

Send for our new premium list, containing 100 useful and valuable articles given away free. Most wonderful offer ever made. Send for it to-day.

Freight Rates are lower from New York than elsewhere. **BUY IN NEW YORK**

WHITE, VAN GLAHN & CO.
DEALERS IN RELIABLE MERCHANDISE
SINCE 1816

3 Chatham Square NEW YORK CITY

OLDEST MAIL ORDER HOUSE IN AMERICA



You don't have to waste Spot Cord by cutting out rough places

SAMSON SPOT CORD

will wear so much longer than ordinary rough cords that it is by far the most economical



SEND FOR TESTS, CATALOG "A," AND SAMPLES

SAMSON CORDAGE WORKS, BOSTON, MASS.

"Pullman" New Sash Balance Catalog

Mr. Carpenter, you should have one

We want every carpenter and contractor to have one. It contains illustrations and dimensions of the various kinds and styles of Sash Balances we are making.



The majority of the Balances shown are new. We are now making Balances to handle sash with twice the length run ever before made. Send for Catalog A.

PULLMAN MFG. COMPANY

Pullman St. " Rochester, N. Y., U. S. A.

Don't ask the Dealer for Sash Cord. Ask for

"SILVER LAKE"

and see that he gives it to you. It is impossible to



substitute, as our name is stamped in red on the cord. Silver Lake Sash Cord is the Original Solid Braided Cotton Sash Cord and has been the standard since 1868. No other is just as good.

styles of these screw drivers. No. 100 is for general use and consists of highly finished hardwood handles, red-fibre finish, polished tool-steel blades tested and warranted perfect, with finished points ready for use. No. 115 is the same as No. 100, but the tangs go clear through handles to the extreme ends of which steel caps are riveted to take hammer blows without injury to the handles. No. 120 is also the same as No. 100, but has slim blades for cabinet makers, piano makers, etc. The manufacturers advise carpenters to apply to the dealers for the "New Century" screw drivers, but say if the dealers cannot supply them to write direct to the makers.

The Best is the Cheapest

A machine should increase and regulate force and motion to that extent that its product will be made better, or the cost lessened, or both, as compared with hand work. If not, is it a machine? A machine should be adjustable to make all shapes, widths and lengths. If not, it is not practical. A machine should work automatically; if not it lacks economy. The greatest speed and therefore economy has been reached in the Walton Machine because of the automatic opening and closing of the mould box with one movement, delivering the block in the shortest possible time.

The Walton Stone Machine is the most practical and economical, as one man can operate it and make from 100 to 150 blocks per day; one man can lay the blocks. It needs but one day's run of off-bearing pallets, as all sizes, shapes, lengths and widths of walls are made on the same pallets. It does away with wood pallets. Iron will not warp or swell while damp and thereby cause imperfect blocks. The L block fits to all sized walls, corners and openings and but the one shaped block need be carried in stock. It makes a saving of 8c per cubic foot in material over hollow blocks. Above

all, it makes a water-proof wall. The time required for laying the Walton block is about one-third of that of laying brick, and but one-fifth of the mortar is needed—hence economy in both material and labor.

Concrete has become one of the most important building materials used in modern construction, and its use insures an absolute hardness and strength that will not deteriorate, provided the necessary care is taken in its manufacture. Read the advertisement of the Walton Stone Machine Co., Kansas City, Mo., and write them if you desire further information.

The Snell Mixer

The Snell Mixer, No. 1, is very simple, durable, easy to keep clean, and at a very reasonable price. It is just the mixer for a small block or brick plant. It will mix the finest of sand and cement together, any moisture desired, from a mealy dry to a sloppy wet, without balling.

The mechanism is simple, the mixer throughout is strong and solidly built, there being no parts to get out of gear, and no skilled engineer required to operate. All machines are equipped with either steam or gasoline engine, to suit purchaser, or if desired, will furnish mixers fitted with pulley for electric power.

The mixing drum revolves on ball bearings, making it light running, and requiring less horse power to the yard of concrete than any other mixer on the market. The entire drum is open to view, and is quickly and easily cleaned, there being no blades or deflectors to gather the concrete. The mixing drum makes from twenty-five to thirty revolutions every minute, turning the mass of concrete two and one-half times each and every revolution. Each grain of sand and gravel is thoroughly coated, thereby making a finished concrete thoroughly uniform.

For further information the reader is directed to write R. Z. Snell, South Bend, Ind.



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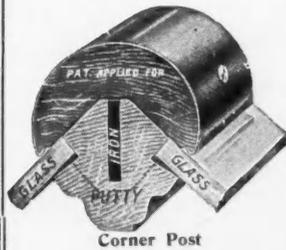
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Architects who know the Petz Corner Post and Transom Bar know that it is the strongest, most durable and best finished Bar in the market. We will send you practical evidence on these points if you write



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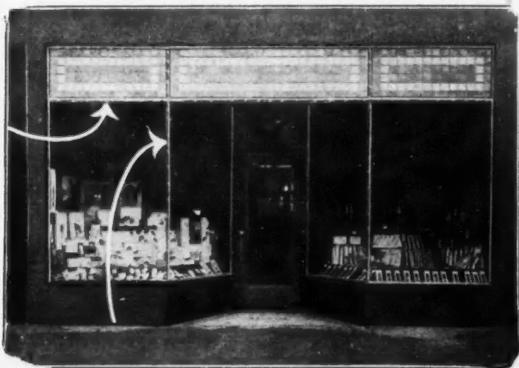
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Lets in every ray of light and holds the largest and heaviest lights of glass securely. Will support awnings. Impervious to the weather because metal covered by our special process. Can be had in any finish. Pleases progressive merchants and is endorsed by plate glass insurance companies.



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Store of LOW BROS., La Porte, Ind.

No matter how large or how small the store

The Petz Corner Post and Transom Bar

will improve the display windows. Notice the neat, trim effect of the windows in this store.

“LISTEN TO PETZ”

is the title of a practical pointed pamphlet, which completely describes the Petz Bar. Send for free copy, and ask for copy of Circular No. 71.

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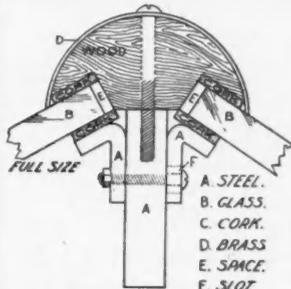
PATENT

All Steel, Cork Bedded Corner Posts, Mullions and Transom Bars

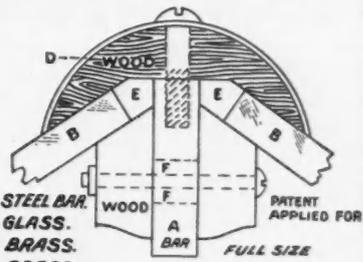
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All Steel Cork Bedded



Acme No. 2 Wood Bedded

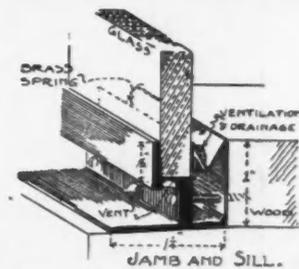
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Insurance 400% less than certain other fronts.
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Gives the greatest glass width.
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No delay in shipment, orders filled from stock made up.



(This setting goes all around the glass.)

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U. S. PATENT MAY 15, 1906. OTHER PATENTS PENDING

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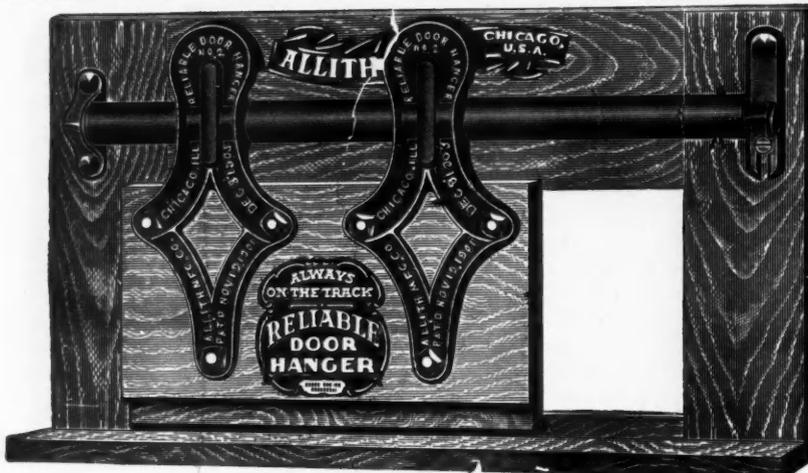
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Building Blocks
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Reinforced Buildings
Roofs and Floors
Bridges

Are all treated in this work. Price \$1.50
A postal will bring descriptive circular

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RELIABLE ROUND TRACK DOOR HANGERS

Impossible to Derail
Easy Running, Great Strength

FOR
BARN, WAREHOUSE and FIRE DOORS

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Showing Machine Open With Two Blocks Made at Once Ready for Removal

and nine inches high. Will make two piece blocks, staggered air space, two or more at one time if so ordered. We do not claim our machines are the cheaper only in the long run.

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The patent laws have shown us that not only the maker, but the seller and user are liable for infringement. We sell the Standard and New Multiple Automatic. The automatic machines are either twenty-four or thirty-two inches in length,

OUTPUT!

OUTPUT!

OUTPUT!

A Combination That is Revolutionary

Multiple Makes any size or number of blocks within its capacity. **Automatic** One operation opens the machine and removes all cores, dividing plates, etc. A reverse movement again closes the machine and locks it completely.

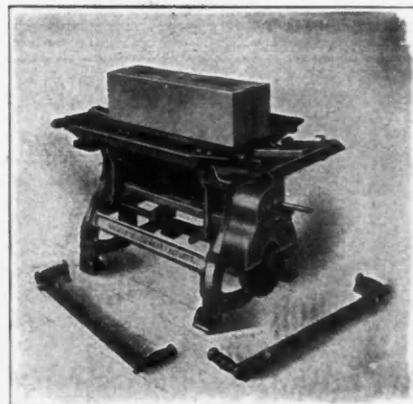
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The original inventor's latest production in Hollow Concrete Building Block Machines; advancing the industry one hundred per cent

Harmon S. Palmer's Self-Closing-Automatic-Adjustable

The crystallization of every merit in the industry to date. Blocks of every size, length, angle, height and contour produced with astonishing ease and rapidity.

Two Highest Awards at St. Louis Exposition. Adopted by the U. S. Government and Panama Canal Commissioners



STANDARD

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Live Agents, Good Factories and Local Lawyers

We agree to prosecute infringers. Many already enjoined. Many suits pending. Write for Catalogue "A" **WASHINGTON, D. C.**



An Irish Contractor in Ireland

bought a Hercules early in 1905. Later he bought two more and a few months ago he ordered four more.

What does this prove? It proves that the Hercules delivers the goods—that it makes absolutely perfect blocks. You can fool an Irishman but once, and if the first Hercules was not satisfactory the other orders would not have followed.

Why did the Contractor who is building the immense power station for the N. Y., N. H. & H. Railroad at Cos Cob, Conn., order Hercules Machines to do the work with?

Because after a thorough study of every other Concrete Block Machine he convinced himself that the Machine that would make the most perfect blocks and make them the most economically was the

HERCULES CONCRETE BLOCK MACHINE.

If you are going to buy a Concrete Block Machine and you want the very best to be had you've got to buy the simple Hercules—the machine that makes two blocks at one time—the machine that an unskilled laborer can easily operate.

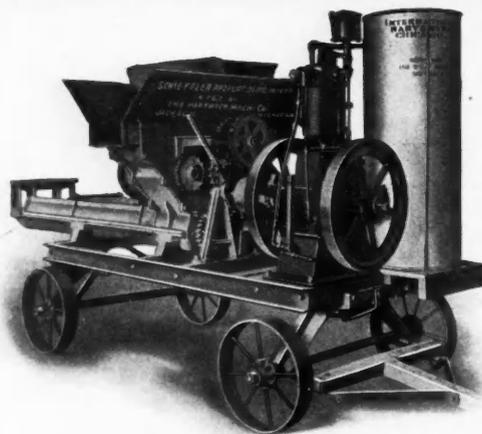
The Hercules can produce more blocks, a larger variety of blocks and better blocks in one day than any other machine and produce them for less money.

Isn't that the kind of a machine you want? If it isn't, your competitors will have a walk-over.

Send for our beautifully illustrated catalogue. Be sure and ask for Catalogue XX.

CENTURY CEMENT MACHINE CO.

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Schieffler Proportioning Continuous Mixer

Automatically proportions any three different materials crushed rock and coarse aggregates for large contract work. Made in all sizes, fitted with any kind of power For Street Paving; Sidewalk; Reinforced Construction, Block and Brick plants there is no Mixer to equal it. A greater capacity and better mix with exact proportions and requires less amount of power than any other Mixer. All parts made extra heavy, strong and lasting.

HARTWICK MACHINERY CO.

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GET A MACHINE THAT WILL DO THE BUSINESS

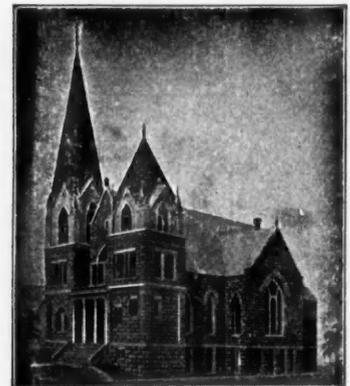
The cut of the church shows what can be done with the Stewart Machine, as this church was erected of blocks made on a Stewart. You can make blocks in any old box, but if you want to make good blocks,

GET A STEWART

Write for catalogue to the
STEWART CEMENT BLOCK MACHINE CO.

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The OHIO CERAMIC ENGINEERING CO., Cleveland, Ohio
Agents east of Wisconsin, Illinois and the Mississippi River.





THE "WINNER"

SOMETHING NEW

A Hollow Brick Machine

Adjustable to All Sizes of Brick Now on the Market
The Only One of its Kind Manufactured

It will pay you to investigate the merits of this machine before placing your order elsewhere. A marvel in speed and simplicity. A perfect one man machine. Capacity from 3,000 to 5,000 perfect brick in 10 hours. It does so many things impossible on other machines.

A Few of Its Exclusive Features:

- It makes all regulation and special sizes up to 12 inches in length and 3 inches in thickness.
- Makes solid, all hollow, or part hollow with flat surface on top for mortar. By using part hollow it saves one-seventh of the material or more than the wages of the operator.
- Makes all brick with polished surfaces, both sides and ends. Let us tell you all about it.

Manufactured by the

WINNER BLOCK MACHINE CO.

No. 3 West 29th Street

:::

MINNEAPOLIS, MINN.

Write for Catalogue, price list and full information.
We manufacture a full line of concrete machinery.

The Emery Cement Brick Machine

THE "TAMPING" PROCESS

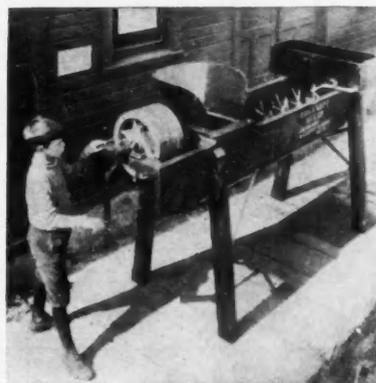
There is but one way to make a perfectly sound Cement Brick, and that way is by the tamping process. Tamping excludes the air, leaving the Brick Solid to the core. Tamping is our process. Results: Solid Brick, Sound Brick, Brick that are perfectly square and all of exactly the same size. No material handled the second time. Each mold holds just enough material to make a perfect brick, no more, no less. Every moment with our machine accomplishes something.

Three men 10 hours 6,280 perfect Brick. Ordinary daily output 5,000. We prove our claim. Positively no machine on earth is as well adapted for making cement Brick. Cement Brick are the most durable that can be made. You probably would like our catalogue.

Emery
Cement
Brick
Machine

Emery & McKerlie
301 E. Jane St., Bay City, Mich.

Emery
Mixer



THE FRANCISCO BLOCK MACHINE IS A WONDER

Note What It Makes. Two 24 in. blocks at one operation or one 32 in. and one 16 in. or two 20 in. and one 8 in. or three 16 in., all made on one pallet and off beared at once. By placing in extension, makes caps, sills, lintels and waterable, any length up to 5 ft. 6 in. long. 8, 9, 10 and 12 in. blocks for width of wall. All made from the adjustments on the machine. No additional parts required, which means a big saving in the cost of your equipment, also makes circles, octagons, angles, chimney blocks, porch columns, veneered slabs, sidewalk block and sectional blocks, is a face down machine, using crushed stone, gravel or sand, wet process and wood pallets. MACHINE ON TEN DAYS' TRIAL. Send for catalogue G showing six different sizes of machine, prices ranging from \$25.00 up. Also fence post machine. Agents wanted. Don't delay.

FRANCISCO BLOCK MACHINE COMPANY

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COLUMBUS, OHIO



Antihydrine

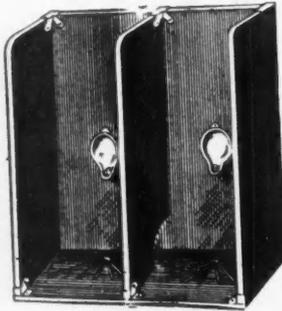
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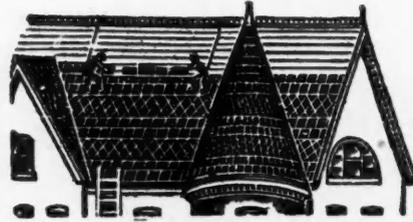
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THE BANGOR STRUCTURAL SLATE CO.
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Blackboards
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Write us
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Universal Portland Cement Co.,

Successor to

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Daily Output, 6,500 Barrels
Being Increased to 17,000 Barrels
Plants at Pittsburg and Chicago

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GUARANTEED BLOCK MACHINES



Guaranteed to make perfect blocks. Making them face down. Handy and rapid. This machine has no complicated parts. Makes many styles of blocks. Face can be removed instantly without removing bolts or pins.

We also manufacture CONCRETE MIXERS and ELEVATING MACHINERY also machinery for making chimneys and flues. Get full particulars of our machines and prices before purchasing. It will pay you.

BURRELL MFG. CO.
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The DUNN HOLLOW BLOCK MACHINE



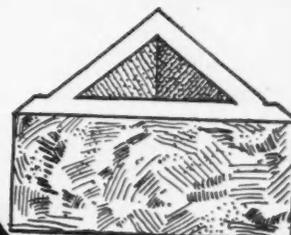
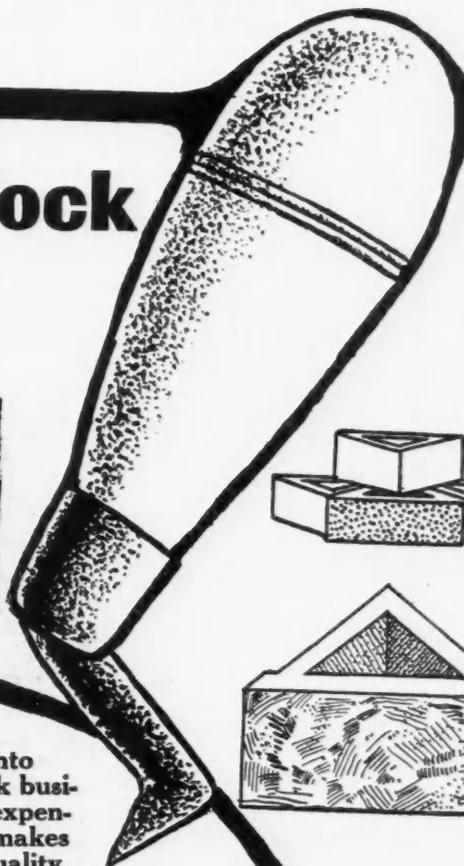
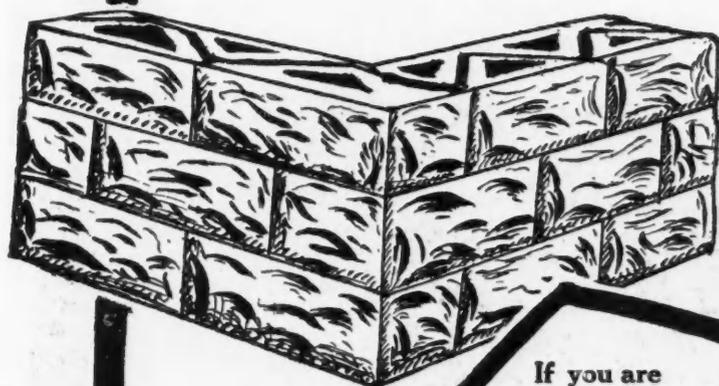
COMPLETE in every detail. Especially adapted to the use of the Block manufacturer. Making blocks in all widths, lengths and many designs, including Sills, Lintels, Pier Blocks etc. PRICE \$100

Masons & Builders Block Machine

MAKES blocks from 2 to 12 inches in width, up to 20 inches long in different designs. No expensive iron pallets required. A practical, rapid and economical machine for the Mason & Builder. No machine at any price makes better blocks or makes them more rapidly or economically. PRICE \$40

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The Cement Block For You



If you are planning to go into the concrete block business, don't buy an expensive machine that makes blocks of questionable quality. Don't do it, because you can make more blocks, better blocks and cheaper blocks with

The Mandt Hand Tamping Outfit.

We can't tell you all about it here—you must send for the catalogue to learn of its many points of excellence and superiority. But look at the blocks that it makes. See how one block binds three others. See the continuous air-space throughout the wall and in addition note that the blocks themselves are hollow, making a TRIPLE AIR-SPACE.

With this outfit you can make blocks for every possible use, in Smooth, Rock, Chiseled, Paneled and Corrugated faces. Every size, too—all fractions of an inch from the regular mold

Write for the catalogue today—now. Learn more about this system which is heartily endorsed by Architects and Contractors everywhere. Remember our outfit costs about one-fourth of what others do. Your name on a postal will bring booklet by return mail. Send today and learn the best way to make blocks---

and
Money.

MANDT- POWELL

Concrete Machinery
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"Sound to the Core"

The "U. S. Standard" Machine

The "U. S. Standard" Block

Sound Because There's no use denying the fact that to attain a permanent success you must sell a good article. If you are selling, or going to sell, concrete blocks, you must sell good ones. The right machine is the first essential. To be right a machine must be easy of operation and designed on "right" principles,—“U. S. Standard principles.”

Sound Because The five plunger cores of the "U. S. Standard" are operated by one pull of the lever—simple in operation. The various parts are easily and quickly adjusted or changed.

The five cores give six cross bonds to your block—strength—and allow you to *tamp on the entire face even when the cores are inserted.*

Sound Because Our big illustrated catalog "A" contains a fund of information on the block industry. Send today, it's free.

There Are More
Reasons

Ashland Steel Range & Mfg. Co., Ashland, Ohio



NOTICE!

Hollow Concrete Block Machines leased or rented with the privilege of buying. No better Blocks, Lintels, Sills, etc., can be made by any method, wet or dry system. We also make built-up Steel Girders, Beams, Columns, etc., for Reinforced Concrete Construction Buildings. No better or cheaper floors can be made than by our Hollow Reinforced Concrete System.

Write us for full particulars.

The National Hollow Concrete Machine Co.

921 F Street, N. W.
Washington, D. C.

Waterloo Concrete Brick & Block Machine Co.

ONE movement of the lever operates the ENTIRE machine, consuming the least time for operation of any machine. Two men will make 250 blocks per day.

Our block is patented. Has double, a vertical and horizontal air space.

The brick attachment makes 18 brick as easily as a block.

No gears or chain to clog or break.

Write for catalogue "B." Agents wanted.

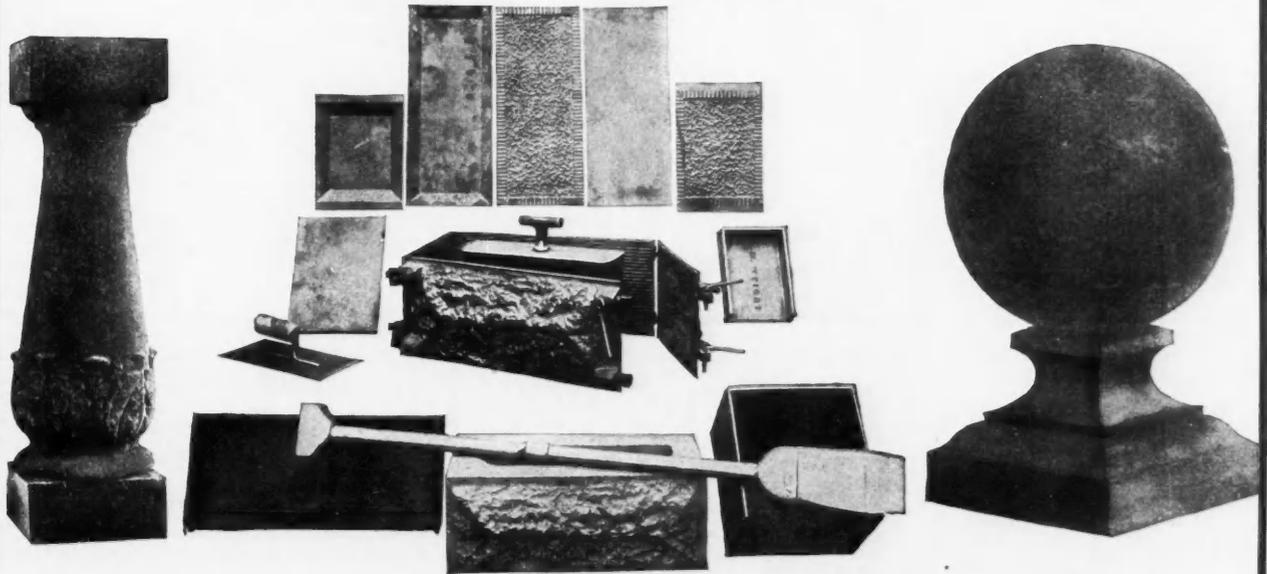
O. H. SWEENEY, Secretary

101 East 4th Street, Waterloo, Iowa.

Southern Agts., SILVERA & GADSDEN, Savannah, Ga.

Agents for the the Pacific Coast, C. J. TALLON & CO.,
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**Most Contractors Know a Good Thing
WHEN THEY SEE IT**



Write for our 1907 Catalog. We have a proposition that is out of the ordinary on a stone outfit that make five styles of stone. :: :: :: ::

CEMENT WORKING MACHINERY CO.

105 Catherine St.

DETROIT, MICH.



**We Move the Machine
NOT THE BLOCKS**

or while it is setting, but this is the only machine by which this is possible. The blocks cost 6 cents to make—sell for 18 cents. One man can make 200 blocks per day. Whole outfit costs \$125.00. Figure the profits.

Competition simply demonstrates the superiority of the Pettyjohn machine. Unlimited guarantee. SENT ON TRIAL.

THE PETTYJOHN COMPANY

634 No. 6th Street, TERRE HAUTE, IND.



The Latest in Concrete Stone Machinery

These three great labor saving machines are unequalled in economy, practicability and efficiency

The X-L Stone Machine can be operated by a boy. None speedier. Makes a variety of over 1000 blocks, which form all width walls over 2 inches four thickness of veneer blocks. 3-4-6 and 9 inch heights. 2-3-4-5-6-7-8-9-10-11-12-14-16-18-20 and 24 inch lengths. Circles, Panels, and from 20 to 64 degree angles.

Outfit furnished will make more than any four other machine outfits of same price.

Our Off-Bearing Car saves one-half of time and labor in removing blocks.

Our Automatic Truck (lever movement) a boy can handle, unload and load 8 to 12 blocks in one-eighth of the time required by two men in the old way.

Dry Inner Wall without the use of expensive facings or washes.

THE X-L CONCRETE STONE MACHINE COMPANY

111 and 113 West 18th St. KANSAS CITY, MO.



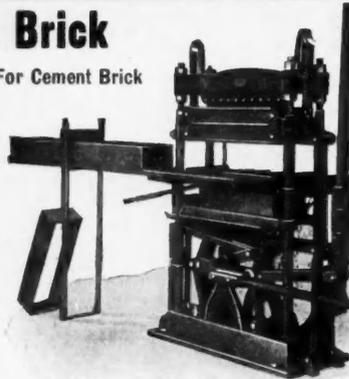
THERE'S LOGIC IN BUYING

You buy a brick machine to make money, you want to make the most possible while producing brick that create and maintain an enviable reputation. That calls for the Helm Press. It produces a brick of quality—a uniform pressed face, uniform density, strong and even corners and edges—the brick that attracts the eye. But it takes price to clinch your sales, the deciding advantage of this press. The material cost and labor cost is lower than any other machine—this means increased profit and defeated competition.

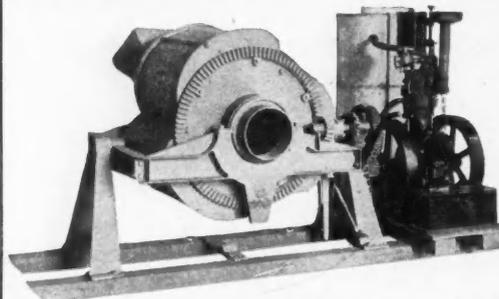
Can you treat your purse and reason fairly in buying elsewhere without asking about this machine?

IT TURNS SAND BANKS INTO BANK ACCOUNTS
Ask for Folder "M"

The Helm Brick Machine For Cement Brick



QUEEN CITY
BRICK MACHINE
COMPANY
Traverse City,
Michigan



THE CLOVER LEAF MIXER

Is fast, saves time; is simple, saves labor; is thorough, saves material

These Things Mean Success===and More Profit

In considering the purchase of a concrete mixer you should look carefully into the merits of the **CLOVER LEAF**. It ranks first in simplicity. Simplicity of design and operation means the lowest possible repair bills and makes skilled labor unnecessary. That means low cost of maintenance. **Speed**—The Clover Leaf is charged and discharged without stopping the machine, and its mixing principle, as shown clearly, gives a rapid mix. **Strength**—The Clover Leaf is built in the strongest manner possible and of the best materials obtainable. Result—A GOOD MIXER. Send for the Clover Leaf Catalog.

OUR MIDSUMMER OFFER—A \$320.00 POWER MIXER FOR \$265.00 WHILE THEY LAST.

THE WILLIAMS-FORREST MACHINE COMPANY, SOUTH BEND, INDIANA
Station 15



The
"RUNYAN"

Is the only machine that is an absolute success in making blocks face down or vertical—also brick. It can be changed from one form to the other in less than ONE Minute. It can be changed from a block machine into a brick machine in FIVE Minutes. One lever does all the work. THREE machines in one—for one price—Cheapest and best machine on the market.

Write for catalog and prices to

The Runyan Concrete Machinery Co.
75-77 Canal Street :: CLEVELAND, OHIO



"Best" Cement Sidewalk Tools



Brass Rollers, Bronze Edge Groovers and Center Groovers, Spring Tempered Edge Groovers and Center Groovers, Step Finishing Tools, Iron Tampers, etc.

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The Most Satisfactory CEMENT SIDEWALK TOOLS in the World
THE WOODHOUSE HARDWARE MFG. CO.
2618 So. 13th Street, St. Louis, Mo.

None Better

Cement & Concrete Workers', Contractors' Asphalt and Pavement : : :



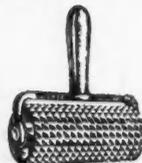
Steel Blade Jointer

TOOLS

Rollers, Jointers, Groovers Concrete Knives, Tampers, Name Plates Stamps, Shovels, Picks, Etc. Etc. Complete line and low prices

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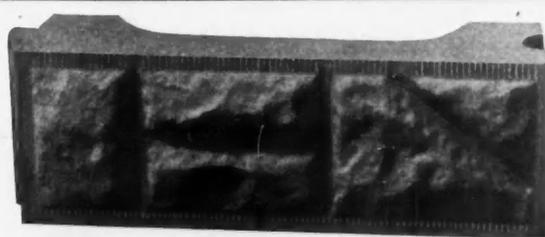
Right
ON
TOP

Where they are seen and admired by everyone

Made of Cement and in DIFFERENT COLORS

Absolutely Waterproof. Our **Roofing Tile Machine** will manufacture enough roofing in one day to make it pay you to go into the **Cement Tile Roofing Business.** Write for our illustrated catalogue and be ready for business.

The Leusch Manufacturing Company
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THE BEAVERS FAST BUILDING MACHINE

The outfit includes twenty-four different molds, each ranging in length from 10 to 24 inches and 8 inches wide. We have 30 other molds in stock. We have the facilities for casting any design you desire. Write us your wants. We will gladly give you any information about our machine or the concrete business in general. This machine has a capacity of 900 blocks per day.

OLSON & RICHARDSON
Stoughton, Wis., U. S. A.

THE HOOSIER

Makes
All
Blocks
Face
Down

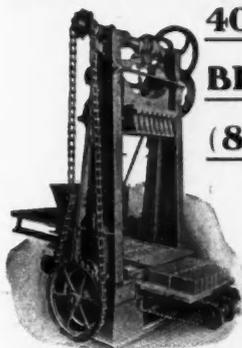


Adjustable
to Different
Widths
and Lengths
Investigate

Using the same face plates and pallets for all sizes of blocks, makes any angle perfect from 15 to 90 degrees. Priced complete, including iron pallets that do not warp or wear out.

PRICE \$..... This is attractive for the complete outfit.

Address **HOOSIER MFG. CO.,** Auburn, Indiana, U. S. A.



**40,000 SAND-CEMENT
BRICK or 5,000 BLOCK
(8 x 24) PER DAY**

Only **TAMPING** principle power machine made.

We also make an up-to-date mixer.

Write for our Catalogue of power machines, also of our perfect bond-damp-proof block wall. (Hand moulds).

CONCRETE MACHINERY CO.
950 Majestic Building, DETROIT, MICH.

Bedford Stone

BUFF AND BLUE

Sawed, Planed, Turned
Cut Ready to Set

Estimates promptly made for stone delivered to any point. Plans sent for estimate, promptly returned.

Bedford Steam Stone Works
Bedford : : Indiana

SUPERIOR
THE BEST CONCRETE BLOCK MACHINE



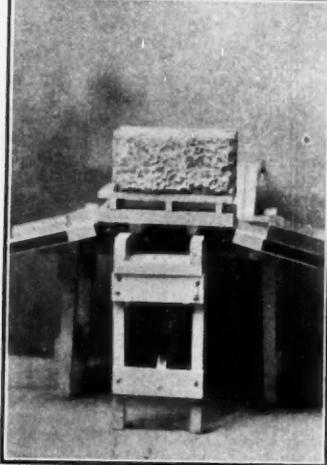
The **SUPERIOR** makes the stone with the face down or in the bottom of the flask, which permits of the use of fine rich material for the face and coarser, cheaper material for the main body of the block.

It is manufactured by
T. O. EICHELBERGER COMPANY
MIAMISBURG, OHIO

who will gladly tell you all about it. Write them.
ADAMS & CO., General Agents. Room 604 115 Dearborn St
CHICAGO, ILL.

LOOK! \$35⁰⁰ Complete

Nurock Cement Stone Machine



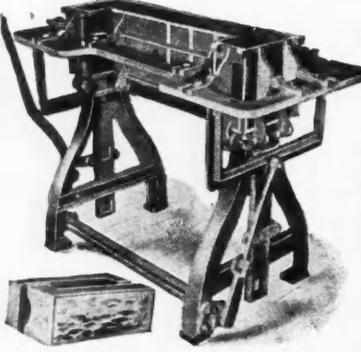
Guaranteed for
RAPIDITY
AND
EASE OF
OPERATION
EQUAL
TO ANY
MACHINE
ON THE
MARKET
AT
ANY PRICE

Everything Furnished With This Machine
Complete for Making Hollow Building Blocks....

— Makes —
ROCK FACE
PLAIN FACE
CORNER BLOCKS

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Nurock Cement Machine Co.
DELEVAN, N. Y.

THE WALTON
Stone Machine



Two-piece wall system makes
DRY WALLS

Makes lengths from 4 to 32 in-
and 3, 4 1-2, 6 and 9 in-
heights. 10, 12, 14 and 16 ft.
circles. 30 and 45 degree
angles.

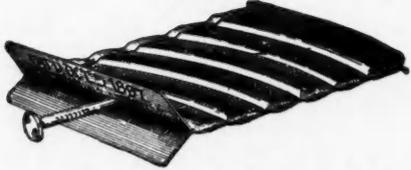
All widths by lapping blocks
All shapes, lengths and widths
made on the same pallet. Red-
ucing cores save material.

LET US TELL YOU
how we save labor, save ma-
terial, save pallets, save expen-
sive facings, save 3c. per cubic
foot over other machines by
our method. Send for illus-
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2502 East 18th Street, - - - KANSAS CITY, MO.

Concrete Construction
is Incomplete

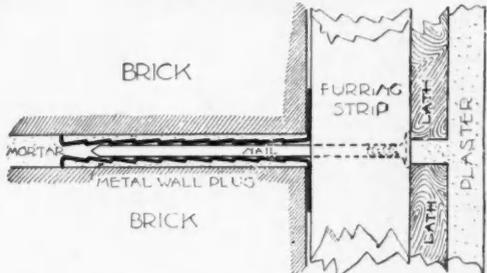
Without Our



RUTTY METAL WALL PLUGS

They are laid instantly, are indestructible, yet cost less than any other method. Previous difficulties of securing interior finish are entirely overcome by the use of the Ruddy Plug.

We make also Morse Steel Wall Ties and Prescott Steel Corner Beads



Furring Out on Brick or Concrete

Send for Samples and Catalog

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Waterproofing

That makes all kinds of Cement and Concrete Work impervious to water or dampness

It is a liquid and is applied to the finished work with a brush
Does not discolor, nor make the work look dauby
Makes cement tanks and cisterns water tight
Makes dry walls out of solid concrete walls
Does not hurt cement, but makes it better
Just what every block and brick maker and concrete worker wants
Costs 15 to 25 cents a gallon to make

Formula for making, \$1.00

Mould Wash That positively prevents concrete sticking to mould
Prevents sticking to wooden moulds or forms as well as iron [moulds]
Prevents wooden moulds from warping
The best mould wash made. Costs 25 cents a gallon to make
Formula for making, \$1.00; both formulas, \$1.50

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Hollow Concrete Walls and Partitions—Two Piece System

WHEN YOU FIND—That one piece hand tamped blocks make wet walls,
That such walls are not stone but cemented sand,
That damp sand and cement will not make true concrete,
That tamping damp sand displaces that already tamped adjoining,
That this produces a block lacking in density,
That you cannot safely plaster on such a wall without expense of furring,
That you have a soggy wet wall for days succeeding every storm,
That you have a wall with only thirty per cent of air space,
That you have no continuous horizontal air space,
That you have a wall with no cross bond,
That you have a system, requiring two men to handle a block and a derrick to put it in the wall,
That you have a system slow and laborious in manufacture and laying,
That you have no way of facing your work :
Then write to—



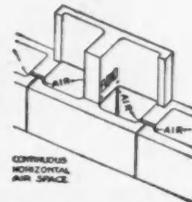
THE AMERICAN HYDRAULIC STONE CO., Century Building. Denver, Colo.

Ask for a prospectus describing the two piece wall containing the header bond, made of True Concrete, stronger in a 1 to 10 mixture than hand tamped damp sand and cement is in a 1 to 3 mixture. Every block made under heavy pressure, in steel moulds, in one set of which all the different widths of wall from 2 1/2" to 17" can be made by simply changing the adjustment, making a wall 50% hollow containing an air chamber both in the horizontal and perpendicular, through which moisture, heat and cold cannot penetrate—a block easily handled by one man—to which any facing desired 1/2" thick is applied before the block is pressed; one thousand square feet of wall per ten hour day made, cured, and cared for with nine men—three times the daily product possible under any other system.



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Gentlemen:— * * * I have, I believe, investigated all the principal systems of hollow concrete wall and partition construction now on the market, and have no hesitation in saying that your system of manufacturing is the only one I know of that obtains perfectly satisfactory results both in the block and in the finished wall.
Very truly yours, (Signed) JAMES M. WHITE,
Professor of Architectural Engineering.



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You've heard them say: "Almost as good as the Hayden." There's a reason for that. The Hayden Concrete Block Machine is designed and built for the man who wants to lead in the business. It's built for the man who wants to get the big contract as well as the small; the difficult specification as well as the simple.

The Hayden Down Face machine makes every style and shape of block and is built as strong as a safe. The Haydens have been in the manufacturing business for 75 years and the success of the Hayden Block Machine is partly due to this fact.

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HAYDEN AUTOMATIC BLOCK MACHINE CO., Columbus Ohio
N.Y. and Foreign Office: Hayden Automatic & Equipment Co., 26 Courtland St., N.Y.



Favorite Bricks Are Standard

When contractors and architects the world over adopt the product of the

Favorite Brick Machines

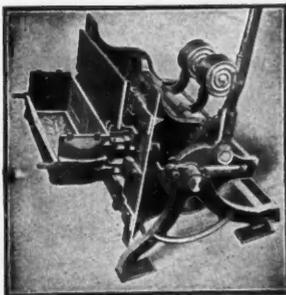
it means that the machines are leaders. Patents protect their efficient methods of tamping, and of raising and lowering the division blades. The bricks are clear cut and flawless.

CEMENT MACHINERY CO.,

JACKSON, MICH.



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Showing Face-Down Position

THE LATEST 4 CONCRETE MACHINES IN 1

1. A Face-Down Machine
None equal it in advantages.
2. An Upright Machine
A marvel of speed, economy and wide range of adjustments.
3. A Two-Piece Block Machine
Exceedingly practical and makes two blocks at once.
4. A Cement Brick Machine
Meets all requirements.

So perfect and convenient is each phase that it operates as though made for each type alone. **WONDERFUL** in its **AUTOMATIC FEATURES**—ALL phases operated by **ONE SIMPLE LEVER**. THIS MACHINE received the **GOLD MEDAL** at the Portland Exposition over ALL competitors.

ANOTHER VALUABLE FEATURE

Its product makes the only triple air space wall. The latest and best thing out. Absolutely moisture proof.

The Winget Company furnishes all necessary machinery for a complete up-to-date Concrete Block Plant, including mixers and tampers. For full information address

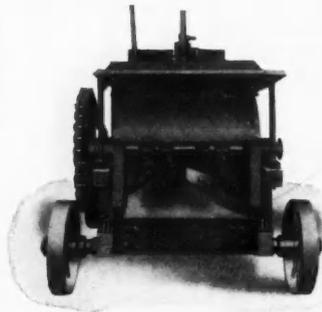
The Winget Concrete Machine Company, Columbus, Ohio

We're From Ohio — We'll Show You

if you are in the Missourian's
frame of mind on the Mixer subject

First: We build a mixer, not a tumbler. If you put dough in a barrel and roll it down hill, do you suppose it would be kneaded?

Hardly! Well, it's the same principle with concretmixers. You want the cement to fill the sand voids, and you want the sand to fill the gravel voids. To do this thoroughly you must divide them, subdivide them, cut them up, turn them over—that's **MIXING**. Our revolving plows do that—



and you can see them and the mixture too, all the time while running.

The American Mixer Mixes

Send for Catalog "O"
The International F. & Fireproofing Co.
Columbus, O.

THE SNELL MIXERS

Easy to **LOAD
OPERATE
DISCHARGE
CLEAN**



PUTTING CONCRETE FLOOR ON OUR OWN BUILDING

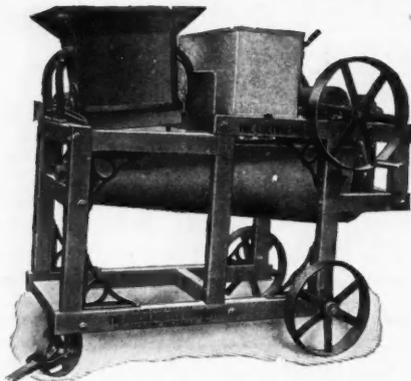
The Snell Mixers are Adapted
For all Classes of Concrete. For Wet or Dry Mixture.
For Heavy Concrete Construction.
For Sidewalk and Curb Work.
For Cement Blocks. For Cement Brick.

† It will mix the finest of sand and cement together, any moisture desired, from a mealy dry to a sloppy wet, **without balling.**

The R. Z. Snell Mfg. Company
SOUTH BEND - - INDIANA

The Man Who Buys Says---What?

READ BELOW WHAT HE KNOWS



Cement Machinery Supply Co.
Denver, Colo.

Greeley, Colo., Aug. 10, 1906.

Gentlemen: We are pleased to advise you that the No. 5 Coltrin Mixer purchased of you some time ago, is giving us the best of satisfaction. It makes a perfect mix and in perfect proportions, whether for coarse concrete or for top dressing in sidewalk work. Two men can turn it very easily. Three of our men have mixed one half yard in four minutes. The Mixer is more than was claimed for it by your representatives and we do not hesitate to say it is the most perfect Mixer we have ever used and freely recommend it to any one wishing a Mixer, and we believe no one doing concrete work can afford to be without one. You are at liberty to use this letter as you may see fit and can refer any one you wish to us.

Yours truly,
MINER & FAIRCHILDS.
General Cement Contractors

THE KNICKERBOCKER CO.,
JACKSON, MICHIGAN



THE IMPROVED "MILES"

CONCRETE BUILDING BLOCK MACHINE

MOLDS ALL BLOCKS FACE DOWN

Makes circles, octagons, gables
and water table blocks for hollow, solid or veneer walls.

Write us today for circulars and descriptive matter

THE P. B. MILES MFG. CO.
214 S. Mechanic St.
JACKSON, MICH.

Standard Concrete Machinery



Made in Four Sizes—5, 10, 20 and 40
 THE STANDARD CEMENT BRICK MACHINE is the fastest hand brick machine on the market; will make plain, veneered, and ornamental face and shape; all perfect, smooth brick, true to size and design.

THE STANDARD GAS AND GASOLINE ENGINE is made in all sizes. Especially adapted to running concrete machinery.
 THE STANDARD PORTABLE MIXER AND ENGINE are mounted on suitable truck; well designed; convenient to operate.



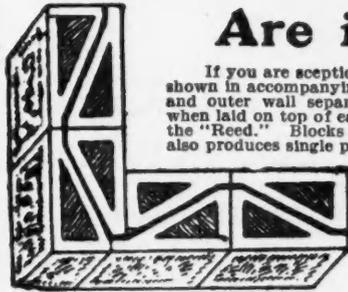
Made in Three Sizes—One-Eighth, One-Quarter and One-Third Yard
 THE STANDARD CONCRETE MIXER handles wet or dry mix; requires little power to operate; mixes batch perfectly in one minute; self-cleaning; easily charged and dumped.

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SOUTH BEND MACHINE MANUFACTURING CO.

1803 South Franklin Street : : SOUTH BEND, IND.

The Reed Machines Are in the Lead



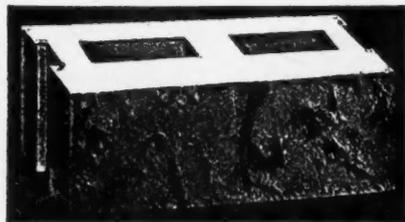
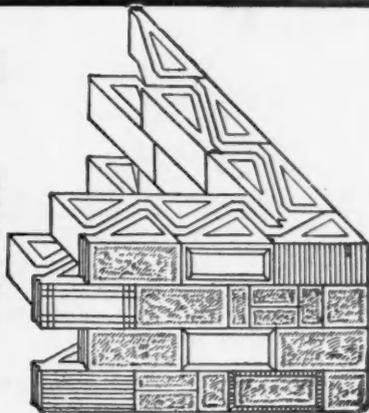
Triple Hollow Wall

If you are sceptical as to dry walls from concrete blocks, examine the wall shown in accompanying cut; it settles the question. Continuous air space, inner and outer wall separate. Look at the bondage, stronger than any other blocks when laid on top of each other. Two blocks produced at the same operation on the "Reed." Blocks are hollow which lays up a triple hollow wall. The "Reed" also produces single piece blocks. All machines adjustable.

The "Reed" has the advantage of a stationary mould box which admits of the use of a wetter mixture of material. All other machines are taken away from the blocks and brick.

Let us tell you more about it. If interested write us at once as others are doing.

The Wichita Coal and Material Co.
Wichita, Kansas



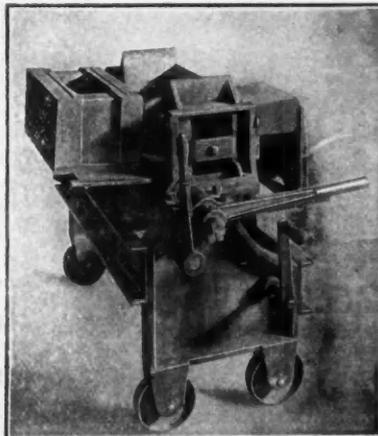
**CEMENT
BUILDING
STONE**

The Finest Grade
Ever Produced

"LAKE PATENTS" A WET SYSTEM

Easily, cheaply, and readily made with crushed stone and cement, WITHOUT A MACHINE. Thoroughly tested and now extensively used. Waterproof Territorial rights for sale.

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NEWARK, N. J.



**The Wonder
Of the "Age"**

Being a face down machine produces neater and necessarily cheaper blocks. Makes blocks 4 in. up to 24 in. in length, 8 in. to 12 in. in width. Machine is adjustable, positive in action, guaranteed in every respect. Write for catalog.

**Keystone Cement
Block Machine Co.**
PHOENIXVILLE, PA

For FIRE PROTECTION

— USE —

Refractory Concrete

So called because it is worked the same as cement or plaster, and will endure heat equal to fire clay products.

For flue linings, chimney blocks and tops, floor and partition blocks, conduits for electric wires, fire proof plaster for wood and metal lath, or as a scratch coat for stucco, this is the ideal material.

A finished product of this composition can always be had in less than twenty-four hours, this permits the formation of the product on the job, and to fit any requirement.

A ventilated flue or chimney from this composition is positively fire proof, and at the same time ventilates all rooms which it enters. Cheap to construct, and will meet the requirement of any size buildings.

Refractory Concrete will prove a profitable proposition for any concrete worker, contractor or builder.

For full information address

E. R. STOWELL : New Corydon, Ind.

\$25⁰⁰ Will Start You



in a
new way
to
make
money



THERE is an increasing demand for Artistic Concrete Lawn Vases and Concrete Hitching Posts. Wherever one is sold other sales quickly follow. If you are strong enough to mix three cubic feet of sand with one sack of cement, you can make a vase 30 inches high, 22 inches across top, with 14 inch base that will sell for \$10 or more. Our booklet, "Special Concrete Molds," will tell you all about Medina Special Molds and gives all the information necessary to establish yourself in a *paying* business on a very small investment. As a money maker on the side the Medina Special Molds are winners. The right man to make the money is the man who starts first. Are you that man? If you are write at once for free booklet and get first chance in your territory.

Medina Concrete Company
30 Court Street, MEDINA, OHIO



"Berlin System" is recommended for damp climates, as concrete blocks made by this system are **Absolutely Damp-Proof**. A license to use the "Berlin System" goes with every **Masons and Builders \$75 Abel Machine**, which is especially built to use the "Berlin System," making Smooth, Rock-face and Tooled Blocks 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22 and 24 inches long. Corner and Octagon Blocks both the inside and the outside angles. The Window Sill and Fence Post equipment cost \$25 in addition to the above.

Francis Machinery Company
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The Stokoe Cement Brick Machine

Makes ten perfect brick a minute. Each brick has two perfect edges and ends without the use of a trowel.

\$25.00

Buy the best cement fence and vineyard post machine made. It is adjustable to different lengths and sizes of posts. It also makes steel posts with cement bases.

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Buy a hollow concrete block machine that makes either hollow, solid or veneer blocks with three different styles of faces—rock, bevel and plain face. Write for catalogue. Get our prices on sidewalk tools.

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BUY A COMPLETE MACHINE

EXTRAS SPLIT THE PROFITS

THE NATIONAL CONCRETE BUILDING-BLOCK MACHINE

comes to you complete for making all sizes, angles, etc., that are required in building—all made on one pallet and makes them with as little work and time as any machine sold.

OUR CATALOG

gives some good, substantial reasons why you should buy a **NATIONAL** in preference to other machines and besides contains a fund of information on the business. Send for Catalogue "E."

National Cement Machine Co.
BAY CITY, MICH.

Complete Stairways

NEWELS, RAILS, BALUSTERS

NOTE THE PRICES



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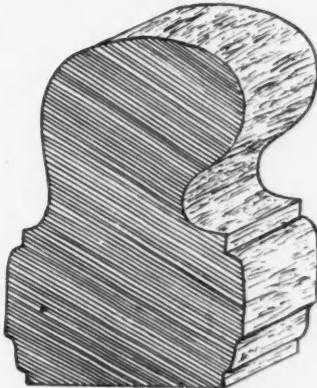
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THAT TELL YOU HOW TO DO IT BY UP-TO-DATE METHODS

50 CENT BOOKS NEAT CLOTH BINDING

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This is a book of 164 closely printed pages, forming a dictionary of practical information for mechanics, amateurs, housekeepers, farmers—everybody. It is not a mere collection of newspaper clippings, but a series of original treatises on various subjects, such as alloys, cements, inks, steel, signal lights, polishing materials and the art of polishing wood, metals, etc., varnishes, gilding, silvering, bronzing, lacquering and the working of brass, ivory, alabaster, iron, steel, etc.

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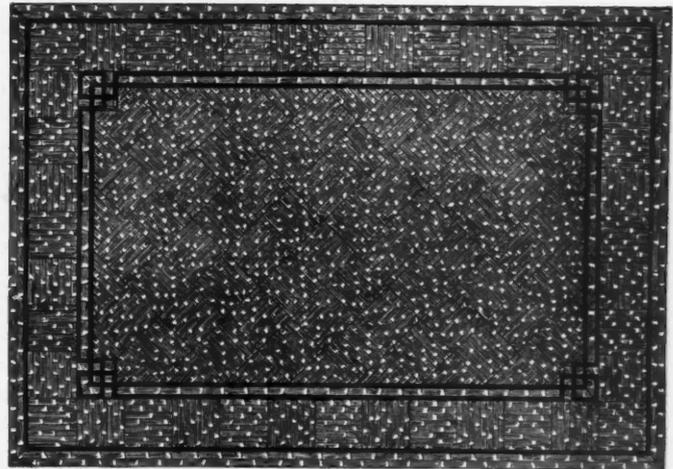


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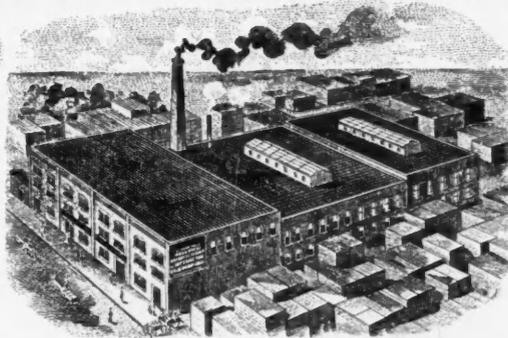
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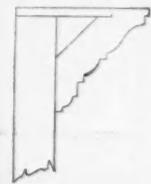
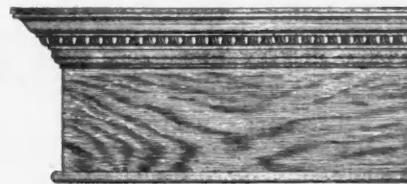
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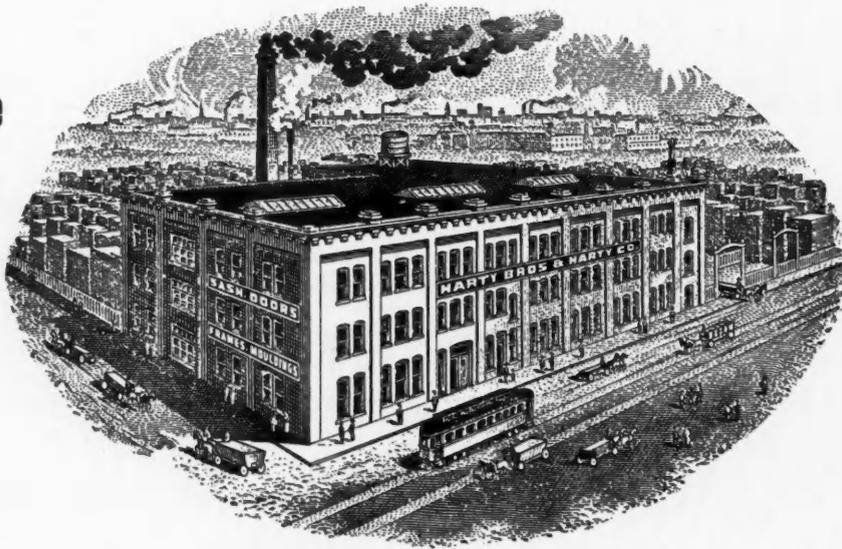
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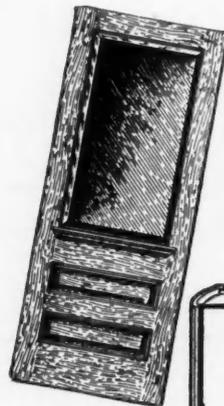
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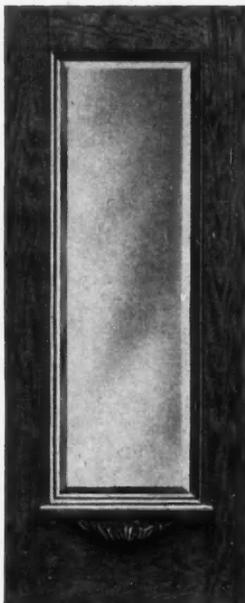
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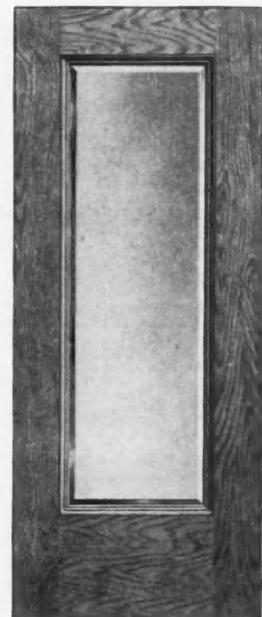
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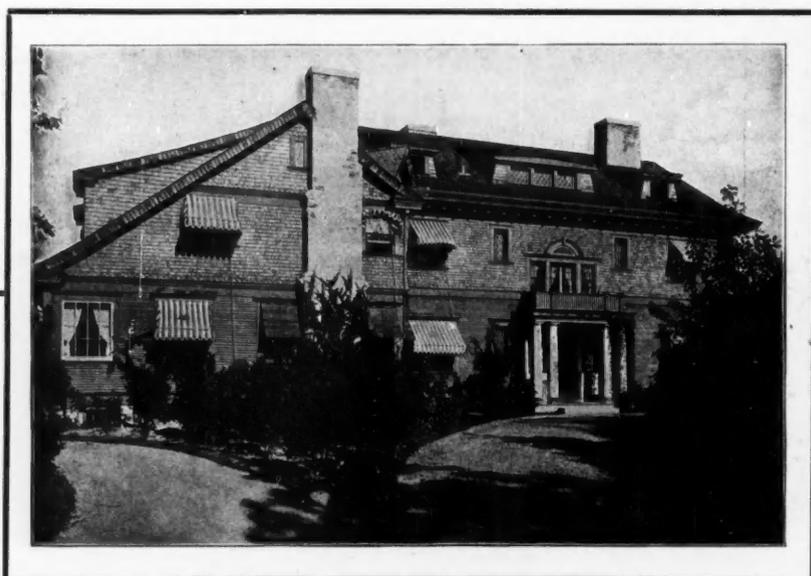
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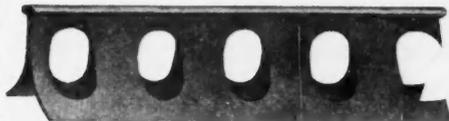
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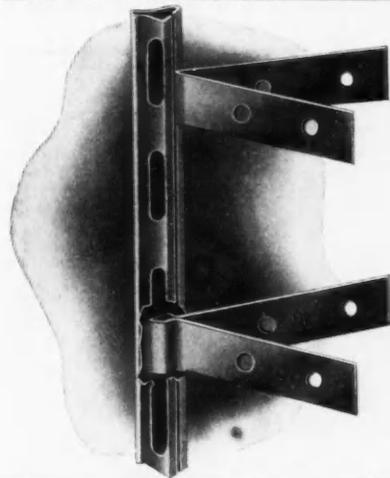
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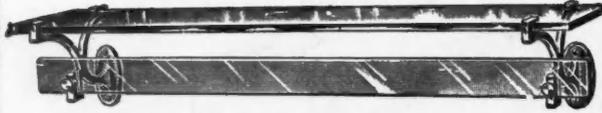
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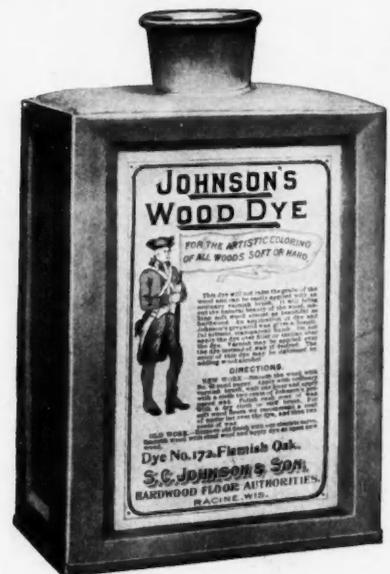
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prepaid one Johnson Polishing
Mitt and copy of your New Book
"The Proper Treatment for Floors,
Woodwork and Furniture," as per
your offer.

My name is

Address

JOHNSON'S WOOD DYE

"For the Artistic Coloring of Woods."

Johnson's Wood Dye is the result of years of experimentation. Because of its acknowledged superiority it has met with wonderful sale. Don't confound Johnson's Wood Dye with various "stains" now on sale. Water "stains" and spirit "stains" raise the grain of the wood. Oil "stains" do not sink

deep into the wood, nor do they bring out the beauty of the grain. Varnish stains do not properly color the wood—the color being only in the finish. When varnish finish is marred or scratched it shows the natural color of wood—revealing the sham. Johnson's Dye is a dye. It penetrates the wood, does not raise the grain; retains the high lights and brings out the beauty of the wood. Johnson's Dye is the best for use on floors, interior wood-work and furniture.

Don't buy "stains," but be sure to get Johnson's Dyes if you desire best results.

Johnson's Wood Dye, any desired shade, is sold by the best paint dealers. Insist on getting the genuine—don't take a substitute.

Johnson's Dyes are Prepared in All Shades, as Follows:

No. 131, Brown Weathered Oak; No. 129, Dark Mahogany; No. 172, Flemish Oak; No. 140, Manila Oak; No. 126, Light Oak; No. 110, Bog Oak; No. 123, Dark Oak; No. 128, Light Mahogany; No. 121, Moss Green; No. 125, Mission Oak; No. 178, Brown Flemish Oak; No. 130, Weathered Oak.



One-half pint cans,	30 cents	Quart cans	- - -	85 cents
Pint cans - - - -	50 cents	Gallon cans	- - -	\$3.00

One gallon covers 700 square feet upon hard wood, 400 square feet upon soft wood. It is very easily applied with an ordinary paint brush.

SPECIAL FREE OFFER. We will send you a sample any shade, absolutely free, for your paint dealer's name.

SEND FOR FREE BOOK. We have just published a new edition of the interesting, practical book, "The Proper Treatment for Floors, Woodwork and Furniture," that we will send you free on request. This is illustrated from life and written by a wood-finishing authority with over 23 years' experience in this line of work. Contains many ideas for your business. Write us now. Mention edition A. C. B. 10.

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

"The Wood-Finishing Authorities."

Have You Ever Tried Johnson's Prepared Wax

For Polishing Furniture?



If not you surely ought to. You are familiar with Johnson's Wax for floors and woodwork. It is equally as good for furniture. You apply the wax with a cloth over varnish, shellac, or any other finish, or to bare wood and polish with Johnson's Polishing Mitt or dry cloth. You immediately obtain a beautiful, artistic and lasting polish to which dirt and dust will not adhere. It will not blister, crack, peel off or show scratches. It is a complete finish and polish.

Johnson's Polishing Mitt is our latest invention. While it is not necessary to use it when polishing furniture and woodwork it is advisable to do so because it saves time and labor and produces the best work. It is made of sheepskin with the wool on; is open across the back and slips on the hand; is far ahead of cloth, brushes or anything for similar use and will last for years. When dirty it may be cleansed with benzine or gasoline.

Read FREE Mitt Offer Below

Always use

Johnson's Prepared Wax

"A Complete Finish and Polish for all Wood"

FOR FURNITURE, WOODWORK AND FLOORS

with Johnson's Polishing Mitt on Furniture and Woodwork and with Johnson's Weighted Brush on Floors and you will always obtain the best results. Johnson's Wax is far superior to any other—one reason is that it contains the most polishing wax to the pound. Johnson's Prepared Wax is **sold by all dealers in paint**—Universal size 1½ oz. 10 cents; Household size, 4 oz. 25 cents; 1 and 2 lb. cans 60 cents per pound; 4, 5, and 8 lb. cans 50 cents per pound.

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S. C. JOHNSON & SON
Racine, Wis.

"The Wood-Finishing Authorities"

Coupon
A.B.C. 10
S. C. Johnson & Son,
Racine, Wis.
Gentlemen: My
paint dealer's
name is

His address is

for which please send me Free prepaid one Johnson Polishing Mitt and copy of your New Book "The Proper Treatment for Floors, Woodwork and Furniture," as per your offer.

My name is

Address

AD-EL-ITE

Fillers and Stains

Fast Colors

Always Uniform

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Send for Standard Fillers and Stains booklet. Real wood panels showing twenty-one Fillers and Stains. Finest booklet ever supplied.

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Chicago

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EXTRA PALE COACH

VARNISH

IS NOT an ordinary Varnish, but an improved Interior Varnish of full body, very easy working, great spreading capacity, and drying hard within 15 hours, with a rich, lasting gloss, and it will cover six hundred square feet to the gallon. One coat of this Varnish and one coat of our Light Shel-lite, an improved liquid wood filler, will produce a finish equal to 3 or 4 coats of ordinary varnish and filler.

Price, \$1.25 a gallon. Terms, 6 months, 4% off 30 days; freight paid to your depot; quality to prove as represented or returnable at our expense.

A practical test will convince you that these goods are unequalled in both price and quality.

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OFFICE, 381 PEARL STREET, NEW YORK

No Branch Houses

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The Very Best
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\$1.00 per Dozen Pairs Complete with
Screws

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Everyone
Should
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The
Housewife's
Greatest
Joy

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Get the best quality at lowest possible price.

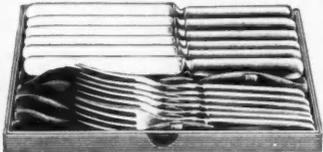


This handsome English Steel Carving Set, with Genuine Welch stag handles, 7-inch knife blade. Satisfaction guaranteed or money refunded. Complete with case delivered free anywhere, price only, **\$2.50**

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FROM AMERICA'S BEST HARDWARE HOUSE
WHERE THE GOOD KNIVES COME FROM



We make this extraordinary offer of a handsome sample silverware set as an inducement for your acquaintance with the quality of our goods. This set is triple silver plate on a base metal of nickel silver; knife blades are 5 1/4 inches long, forks are four tine, the handles of both are solid, oval shape, either polished or Satin finished. 6 knives, 6 forks, guaranteed for 10 years, complete with case, satisfaction guaranteed or money refunded. Price **\$3.50**

Send postal for Catalogue No. 374. It's FREE.

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A Form of Contract
BETWEEN BUILDERS

BASED UPON THE REQUIREMENTS OF THE "UNIFORM CONTRACT" APPROVED BY THE

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AND THE
NATIONAL ASSOCIATION OF BUILDERS

AGREEMENT BETWEEN

No other Building Contract should be used, as the Uniform Contract represents the combined practical knowledge and experience of the best architectural, building and legal talent of the U. S.

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Enough to Make Anyone Hot

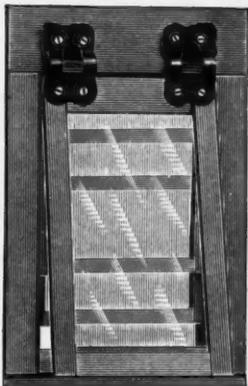
When you pay a good price for a Furnace and then have to pay the Repair Man again as much to make it work properly.

And then there's the waste of fuel, too—big coal bills—ever stop to consider that?

These are just two of the many disagreeable "other furnace" features you do away with when you buy a **Front Rank Steel Furnace**.

There are over ten thousand **Front Rank Steel Furnaces** used in St. Louis alone—pretty good testimonial in itself—and we have others. Our catalogue contains photos of some of the largest and handsomest residences in St. Louis heated by **Front Rank Steel Furnaces**. It's yours for the asking if you'll mention your dealer. It contains practical suggestions and other furnace information that is worth your requesting it.

Address, **HAYNES-LANGENBERG MFG. CO.**
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It's no trouble to secure orders for Storm Windows if you fit them with Gossett Hinges and Fasteners—they're worth more to your customers than if attached in the ordinary way. They'll be glad to pay more for them.

IF YOU DON'T USE

Gossett Detachable Suspension Hinges

FOR STORM WINDOWS
 WE BOTH LOSE MONEY

Storm sash hung in this way can be opened for ventilation—our No. 2 Fastener locks it securely when opened or closed. Does not interfere with the windows, which can be raised or lowered as desired. No tools or ladder needed to put the storm sash in place or remove it. Notice the guide flanges on the upper halves of the hinges. These bring the frame into proper place. No other hanger has this feature. If your hardware dealer don't keep them send for free sample pair.

Prices, express prepaid: Hinges per dozen pairs \$1.20; Fasteners per dozen \$0.60. Mention American Carpenter and Builder.

F. D. KEES MFG. CO. **Box 552** **BEATRICE, NEBRASKA.**

Soldiers' Home, Calif., P. O. Box 85, March 5, 1906.
 Ready Mfg. Company, Rochester, N. Y.
 The Ready Draughting Instrument came to hand today and I am delighted with it. "Multum in parvo"—great.

Utica, N. Y., P. O. Box 87, Feb. 2, 1906.
 Ready Mfg. Company, Rochester, N. Y.
 Enclosed please find M. O. for which please send one combination protractor, rule, etc., same as I bought some two weeks since, as advertised in the "Technical World Magazine."
 Yours very truly, F. W. Simond.



The Ready Draughting Instrument

Can be carried in the pocket, and accurately performs all the services of Compass, T-Square, Triangles, and Protractor combined. Never in your life have you seen such wonderful efficiency in a single tool. Sent prepaid on receipt of \$1.00, and your money back if you want it.

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ELEVATOR CABS, ENCLOSURES, BANK GRILLES AND CAGES
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Write for Catalogue

DOW IRON AND WIRE WORKS, Louisville, Ky.

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NOTICE TO ADVERTISERS.

New copy, changes and corrections for advertisements must reach office of American Carpenter and Builder, 196 Fifth Ave., Chicago, not later than October 20 in order to insure insertion in the November number.

TURN A SAND BANK INTO MONEY IN THE BANK

MANUFACTURE *Miracle* CONCRETE



Opportunities of this kind are scarce. \$250.00 will start a business which will net you \$2,000.00 to \$10,000.00 per year.

The best way to get rich is to manufacture necessities. Concrete is a necessary building material. It is fast becoming indispensable and those who get started in its manufacture early will make the most money.

A poor start is worse than no start. A good start means a fortune ahead. The cost of a poor start comes high at the cheapest price. The cost of a good start is cheap at any price.

We can give you a good start at the cheapest price. Why?

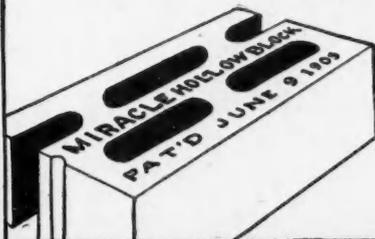
Because the machine we offer for making concrete building blocks is of the first quality. It is complete in every way and is built to last a life-time.

Because the block it produces is the Miracle Double Staggered Air Space Block.

Because the Miracle Block offers your customers many features and advantages they can not get except through you. It defeats all competition and builds up trade.

Because there is only one Double Staggered Air Space Block; only one with the same principles. That one is the MIRACLE and we own the patents.

Sand, Water and Cement are the only materials required. Small space, a reliable workman, very little capital and a Miracle outfit does the work.



Send for our big book on concrete. It contains 84 pages and over 800 illustrations. The most complete book of its kind ever published. It tells the WHY and WHEREFORE of every claim we make. It means dollars to you. It covers the manufacture of Cement Brick, Cement Sewerpipe and Tile, Cement Sidewalk Tile, Etc. Send for it. Ask for Catalogue K.

Miracle Pressed Stone Co.
MINNEAPOLIS, U.S.A.

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— TO —

Contractors and Builders

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We don't want to brag, but we are absolutely the only firm in the United States taking the lumber from our own trees and delivering it, in its finished form, to the consumer. We own our timber lands. We saw our logs. We manufacture our own Millwork. In short it's "From Tree to You."

If you could save, say 25 per cent to 50 per cent, and get the highest grade of goods, wouldn't you be a dodger not to do it? Well, we can save you that much and more.

Isn't it a fact that your greatest trial is DELAY. We can and will save you this trouble. We ship all our goods in stock in 48 hours.

Storm Sash and Storm Doors

70 SIZES ALWAYS IN STOCK

Storm Sash as Low as 64 Cents

DOORS

Modern Front Doors as low as \$1.55 each. Interior Doors furnished in White Pine, Yellow Pine, Cypress and Yellow Pine Panels; you can buy a good door at 74 cents.

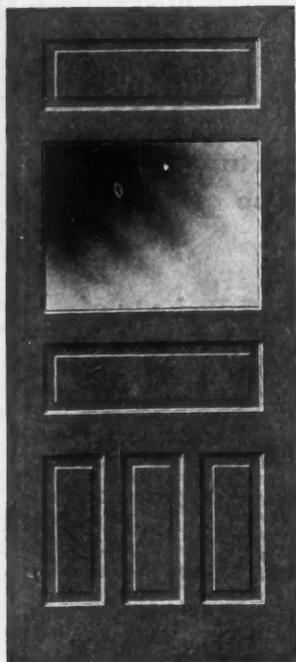
WINDOWS

Glazed, Best American Glass, as low as 50 cents.

MOULDINGS

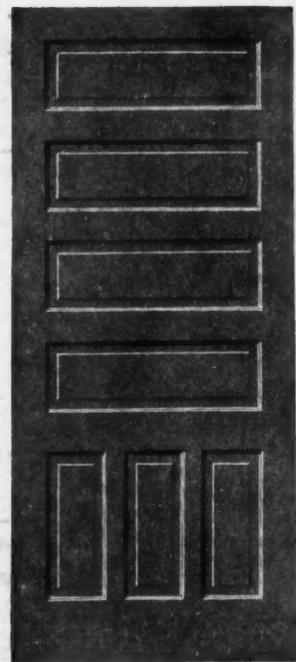
Everything you need in White Pine, Yellow Pine and Cypress.

Porch Work, Stairs, Glass and everything you need in construction of your house.



STORM DOOR
Glazed Clear Glass, Painted

\$1.72



STORM DOOR
Painted

\$1.19

EVERYTHING IN MILLWORK

SEND FOR OUR LARGE NEW CATALOG TODAY—FREE

GORDON, VAN TINE CO.

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Davenport, Iowa