



The
**World's Greatest
Building Paper**

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The
**World's Greatest
Building Paper**

American Carpenter and Builder

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ing how building problems have been met and solved—the building plans and designs; all these are just as valuable next year as now. Their helpfulness does not diminish with time.

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Turn to page 100 and see a photograph of one of these binders. You will want several of them. Send for them now. If you are not pleased when you receive them, we want you to return them and get your money back. Complete satisfaction or money back, is our business corner stone.

Index to Vol. XIV Sent You Herewith

IN order that you may refer quickly and easily to any article, item, plan or detail contained in any of the issues of the AMERICAN CARPENTER AND BUILDER of Vol. XIV (Oct. 1912 to March 1913) we have prepared an elaborate and complete Volume Index.

You will find this Volume Index slipped into this issue of the magazine. We recommend that you take this out and paste it into the front of your Vol. XIV when you bind it up. Carefully preserve this Volume Index. It has cost a lot of study and work to prepare this, and considerable money to print it. We want you to save it, and to use it.

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Hunting Down the

Bad Rural and Suburban Housing Urban Housing Menace to Health Morals and Property Values

Based on a Paper Presented Before the Recent National Housing Conference at Philadelphia



Probably some of our Readers have, in the past, been responsible—directly or indirectly—for the building of such work not realizing the terrible results that follow.

IT is very unfortunate that in the public mind housing reform has been identified with tenement house reform. Because of this, if you begin to talk almost anywhere today about better housing you will soon be met with the statement: "Yes, but there is very little interest here in that subject for there are practically no tenement houses in this city, or in this town."

A few months ago a gentleman was showing me



Slum Conditions in the Country

over the beautiful residence district of an attractive small city of the farther Middle West. After an hour or two of this I said, "Now, let me see how the other half lives." "The other half?" he replied, "why, there isn't any to speak of, I don't believe we have got a tenement house in this whole town."

I have no doubt he was right; but for all that in ten minutes we were in a quarter of the city which in some respects was as wretched and miserable as the heart of the tenement house district in New York or Boston. We stood in front of a row of five small, low, two-story, wooden buildings, neatly painted a bright yellow and altogether not a bad looking collection of dwellings, but going behind them there was a different scene. These five houses held about forty people. The only water supply for them all was a single hydrant in the yard; the only convenience for

the disposal of waste was beside the hydrant; and naturally the yard was swimming with slops and dish-water; the only toilets were two or three open privies also in the yard. In fact, the ordinary requirements for decent living were all in the yard, and, as nearly always happens in such cases, the conditions were indescribably filthy.

Here was a well developed housing problem but no tenement houses.

The truth is that except in New England and in the metropolitan districts of some of the larger cities tenement houses are few and far between, and the problems which have their origin in the multiple dwelling do not exist; but there is a housing problem wherever there are houses, as appeared in this western city, whether they are occupied by one family or more, and housing reform is a nation-wide necessity.

What has just been said applies with especial force to housing or housing reform in the country and in suburban towns. It should be clearly understood that for the most part the tenement house problem does not enter into this question at all. In New England it does and I shall have something to say about conditions there in a minute; but outside of



Three Decker, Front View—Three stories in the street, four stories in the rear—Only one means of exit—A dangerous fire hazard, a crime against humanity

the Small-Town Slum

SUBJECT THE REMEDY

By **Elmer S. Forbes**
Chairman Committee on
Housing, Massachusetts
Civic League, Boston,
Mass.



*of cheap, ramshackle "slum" buildings of the sort Mr. Forbes speaks of here. Some have been party to
w. O. Readers can AND WILL do much to improve such housing conditions.*

New England, so far as my own observation goes, the tenement house in country and suburban districts, with the exception mentioned, is practically a negligible quantity.

More or less bad housing is to be found in the country all over the United States; but in some respects it is not so bad nor does it have the same causes as in the cities. The dwellings in question may be fairly built or be miserable shacks or anything between the two; but whatever they are, dirt usually reigns supreme within doors, they are apt to be crowded to the limit, water to be scarce, and sanitary conditions unspeakably vile. On the other hand, there is plenty of space and fresh air and sunlight, at least outside, there is no block nor lot overcrowding, and rooms without windows, while not unknown, are not very common. The essentials of decent living are within reach; and, if the house and the life that goes on within it are wretched, it is not often the fault of the speculative builder or of the grasping landlord.

Neither does the high value of land nor an excessive ground rent account for it, for you find these slum spots where the land is almost worthless.

When we turn to the suburban towns and the

small cities of fifty thousand population or less we face a different proposition. Here we are dealing not alone nor principally with the shack occupied by the decadent family but with the housing accommodations of every class of society; and we run the gamut of housing abominations. As has been said, except in New England there are almost no tenement houses in these towns; but some of the worst living conditions it has ever been my fortune to see have been in small, one-family houses in different parts of the



One of the "Homes" from which Children were recently taken by Social Workers

country, and especially in several western communities. Hundreds of these dwellings may be found crowded together in the most undesirable locations devoid of everything which makes decent living possible. At the moment I can think of one spot, which can be duplicated over and over again, where half a dozen of these miserable dwellings, no one of them more than 10 feet high, stand grouped about a little open space. The one well which supplies water for them all, stands at one side in close proximity to four open, reeking privies, one of which is but 9 feet from the well, and one filthy hen yard. Nothing but the fact that the inhabitants of this district have been rendered immune to the attacks of disease could prevent them from being swept away by an epidemic of typhoid fever or something else equally deadly. Such conditions emphasize the universal need for housing law.



A Double Three Decker—It looks pretty well in the picture, but it is really a disreputable pile. The fire risk is great, and the effect of such a building on surrounding real estate values is almost as bad as it would be if it were a disorderly house

The same thing is indicated by conditions in suburban New England. Here we have a form of tenement house, the wooden, three-family flat, of which I wish to speak because it is spreading like the cholera or the yellow fever. It is already firmly established in the large region of which New York City is the center, and will surely make its appearance in more distant parts of the country unless measures are taken to prevent it. It was first built in New England because, as it does not fall within the local definition of a tenement house, it is not subject to any of the requirements of the tenement house law.

Its rooms may be practically closets; they may be without windows to the outer air if the builder does not choose to put them in; the plumbing can be reduced to the lowest terms; in many places the toilets may be the dangerous yard privy; and unless there are local fire regulations it is possible to build them with only one means of exit and without fire escapes. This type of dwelling is the joint production of the land shark, the shyster architect, and the jerry builder,—and nothing in the way of a tenement house could be worse except another of the same sort but higher. It is usually of the flimsiest construction; and after a few years the owner is likely to ask for an abatement of taxes because of its depreciation in value. It is a dangerous fire hazard, dreaded alike by the fire department and the owners of neighboring property.

It is terribly destructive of real estate values, and the coming of one such building into a residence dis-



What Happens When There Is no Law. If a Three-Decker Is a Good Thing, Why Is Not a Five or Six Decker Still Better?

trict will cut in two the selling price of the nearby properties. Within a month a building company appeared in one of the large suburban towns in the vicinity of Boston and announced that it proposed to put up fifty of these three deckers. The people, rich and poor alike, could almost hear the crashing of property values and at once took steps to ward off the impending danger and to protect themselves against similar attacks in the future.



THE BETTER WAY

Two Views of Street of Twelve Houses Built at Framingham, Mass., by the Framingham Associates. Each House Contains Five Rooms and a Bath. Concrete Cellar and Foundation Walls, Furnace, Well Built and Good Plumbing. Size of Each Lot 50 ft. by 87½ ft. Cost of House and Lot, About \$1,700. Sells for About \$1,900. Could be Rented for \$15 Per Month

These two examples, one from the West and the other from the East, show to what length carelessness and ignorance and unregulated greed will go in their predatory raids upon the welfare of the community. We should all agree that the exploitation of the tenant is a greater injustice than the destruction of property values, but there is no reason why either of these things should be permitted. Both are common in our suburban towns. We have heard much about the injury to the tenant but not much of the other side of the question. One of the serious results of the lack of building regulations is that no property owner, be he large or small, knows what is going to happen to him. The daily newspaper supplies illustrations of this.

"A citizen built a beautiful house within an area of 50,000 square feet of land—and presently found himself confronted by a garage. A gentleman expended \$17,000 on his place, as he called it—and by and by a fellow citizen built a row of seven one-story shacks on the opposite side of the street. A third citizen, whose property cost him \$50,000, awakened one morning to discover a Chinese laundry in the basement adjoining his own, and the selling price of his estate automatically reduced by that master stroke of Fate and an unscrupulous neighbor to \$13,000."

A policeman in a country town which I know well, built himself a comfortable house on a generous lot and adorned it with trees and shrubs to suit his taste. Along came a speculator who planted a flimsy fire-trap of a three decker within 3 feet of his lot line, cutting off his sunlight and robbing him of half the savings of his life time. These are the tragedies of the suburban towns, and they are certainly worthy



HOUSE BUILT BY THE ALBANY HOME BUILDING COMPANY, ALBANY, N. Y.

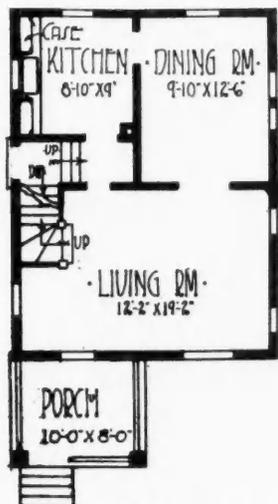
This house was built on a lot 34 x 100 ft., the house itself being only 20 x 26 ft. in size. The living room containing 40% of the entire first floor area to appeal to the rapidly growing class who, however small the house, wish for at least one room large enough to be worthy of the name. The rest of the house affords a Dining room, 9 ft. 10 in. x 12 ft. 6 in., three sleeping rooms, each a trifle over 9 x 12 ft., and with a wardrobe. Bath room is 5 x 7 ft. 6 in. Furnace and plumbing complete, North Carolina floors and finish. This house is sold for \$2,800 and the monthly rental is \$26. This is the smallest two-story house built by the Company.

of the attention of the National Housing Association.

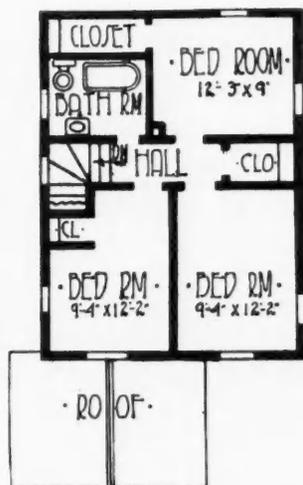
They do things better than this in Germany, as we all know. There you are not allowed to go on your way with no regard whatever for your neighbor. You may not kill him with an unsanitary and unhealthy house if by chance he does not own his own home and has to rent one from you; or if he is so fortunate as to own his own place you cannot rob him of his property by building some unsightly or undesirable structure in his immediate vicinity.

Why should these things be permitted in America? They need not and ought not to be. At the same time that the protection of the law is thrown around the tenant, securing him against oppression and wrong on the part of the owner of his dwelling, something should be done to preserve the beauty and attractiveness of our towns and cities, and to afford a reasonable safeguard for the property values of the homes of their citizens.

As was suggested, between the miserable one-story dwellings of the western river bottoms and the objectionable, cheap, wooden three deckers of New England every form of housing iniquity is to be found. Wet and sodden yards, filthy privies, damp and decaying cellars, dark halls and rooms, dilapidation, dirt, squalor and over-crowding, all are in evidence. The only difference between the evil housing conditions of the small village of a few hundred people and those of the city of as many thousand population is in de-



FIRST FLOOR PLAN.



SECOND FLOOR PLAN.

Interior Arrangement of Desirable Inexpensive House Illustrated Above



BUNGALOW BUILT BY THE ALBANY HOME BUILDING COMPANY, ALBANY, N. Y.

A Bungalow 20 x 28 ft. in size, having a combined Dining Room and Kitchen 11 ft. 2 in. x 13 ft. 6 in., a Sitting Room of the same size and two small sleeping rooms with closets and bath, all opening from a tiny hall 3 x 7 ft., which is not too much to give over to sanitation and privacy even in so small a house. The construction in this case was somewhat unusual, the walls being of concrete slabs cast on the floor and set in position with a derrick, all vertical joints were cast hollow and poured after erection with liquid concrete. The walls were furred and covered with Beaver Board without plastering, and ceilings of the same. The floor construction is tile with steel and concrete joists and a wood top floor laid on strips concreted in. The interior partitions are of fire proof plaster blocks. The whole makes a semi-fire-proof house with small depreciation and commands a low insurance rate. Built on a lot 34 x 100 ft.; sold for \$1,900; rents for \$17.

gree not in kind. In the village there will be only one-family or at the most two-family houses, and in the city there will be hundreds of thousands of multiple tenements; but the same wretched conditions will be found in them all.

There is only one problem in both village and city. It was perfectly natural when we woke up to the evils of bad housing that we should at first direct attention to the tenement houses of the large cities. The evils were concentrated there, we could see the outrages practiced upon tenants and the dangers which threatened the rest of the community, and we said these iniquities must go. But now a clearer and fuller knowledge has shown us that bad housing is quite as much a matter of the one and the two-family house as it is of the dwelling which shelters a much larger number of families, and reform is just as necessary in the one case as in the other.

It makes no difference what kind of a house a man lives in he has a moral right to fresh air and sunlight, to proper sanitary conveniences, to privacy, to protection against fire and to freedom from overcrowding because these things are necessary for health and decent living. If the speculative builder will not recognize this fundamental right or if an owner is so ignorant that he does not know enough to satisfy these moderate requirements, then they should be enforced by law, and this whether the dwelling in question is designed for one family or two or twenty.

I have said it before at another time and place and repeat it here, that I am convinced the only way in which owners, occupants, and community can be assured of adequate protection against bad living conditions is by bringing every kind of dwelling within

the scope of the law, and this is the one point which I wish to make in this paper. A tenement house law is good as a step towards something better, but the general situation demands not a tenement house but a well enforced housing law. Under such a law it will probably be necessary to classify dwelling houses according to the number of families occupying them, but this offers no great difficulty. The great achievement will be the wiping out of the troublesome distinction between tenement houses and private residences and the bringing of them all under one general housing law. The cities of Columbus and Duluth have already done this. In several of the towns of Massachusetts groups are at work upon a similar law.

It is bound to come, nothing can stop it, because it is in the interests of the health, morals and happiness of all the people.



The Three-Decker in a Country Town—A Tinder Box



In this issue will be found several of the Honorable Mention Designs from Our Big Prize Competition. Next month and in every issue thereafter others will be illustrated until all have been presented. All of these Honorable Mention Awards are of very high quality; it is difficult to choose between them. Some will even consider many of them more praiseworthy than the Prize Winners. They show the uniform high quality of the work the American Carpenter and Builder readers are doing.

Third Prize Class E—For Modern and Fully Equipped Residence Planned and Built by a Reader of the "A. C. & B."

Large Well-Designed Dwelling at Paris, Ill.

Planned and Built by Joseph Stephens, Contractor and Builder, Paris Ill.

THIS modernly equipped, substantial and comfortable residence which is awarded third prize was recently completed in Paris, Ill., for Mr. Alfonso Frey—planned and built by Joseph M. Stephens, a charter member of the AMERICAN CARPENTER AND BUILDER. The house is of square design, two stories high, with basement under entire house, the rooms are large, well lighted and well ventilated, and it was built with an eye to comfort, convenience and durability.

The basement consists of boiler and fuel room, cold room, and large laundry room; the latter being equipped with the most sanitary and up-to-date plumbing. The basement rooms are 8 feet high in the clear; cement floors; and the walls and entire foundation of house is built of impervious hard burned brick laid in lime and cement mortar.

The first floor consists of living room of commodious size, with brick fireplace, elegantly paneled



Ten-Room Modern Residence Designed and Built by Joseph Stephens, Contractor and Builder, Paris, Ill., a Hustling Little City of 8,000 People



stairway and built-in seat. A large Colonial opening to the left leads to the library; which is a room of splendid size, and from this room large sliding doors open directly into the dining room, which has a large bay window and splendid china closet built in. These three rooms are finished in red oak, "Early English finish," and

and bath; and a central hall from which entrance is had to all rooms.

The sanitary plumbing is complete and modern in every respect. The heating plant is a hot water system, complete in every detail, as follows: An "Ideal" boiler, "Honeywell" Generator and an abundance of radiation. Every room and closet in the house is lighted with electric lights and every room has its individual switch and cut-off.

A special feature in this house is a vent built from basement to top of large central chimney, which carries off any smoke, odor, vapor or gas from furnace room, laundry, lavatory and closets on first floor, bathroom, second floor, and smoke and odors from kitchen.

The exterior of this house is a brick veneer No. 160 Brazill, Ind., Clay Co., laid in black pecora mortar struck V-shaped joints and anchored every fifth course to lining, which covers the entire outside of frame structure. An air space of 1 inch is left between this lining and the brick work; and before brick work was put up the entire outside of lined surface was covered with "Neponset" water-proof paper.

The roof is likewise lined solid, covered with slaters felt and then roofed with H. W. Johns-Manville Co. asbestos shingles, French method. The porches are roofed the same as the house, and the porch floors are reinforced concrete.

"This house was planned and constructed entirely on my knowledge of the building business obtained through experience and observation, and a careful reading of every number of the AMERICAN CARPENTER AND BUILDER, of which I now have on file in my home a copy of every issue, to which I frequently refer."



FIRST FLOOR PLAN SECOND FLOOR PLAN
Arrangement of Paris, Ill., House Shown on Page 43

hardwood floors; the remainder of first floor is a large kitchen with work room and pantry attached, built in cabinets and closets, and a large rear porch wainscoted and inclosed with storm sash and door in winter and screen sash and door in summer, a lavatory and closet complete this floor.

The second story has four splendid bedrooms and a living room with brick fireplace, finished floors, enam-

HONORABLE MENTION DESIGNS

Bungalow with Special Lighting Features

ARTISTIC 6-ROOM DWELLING AT NILES, MICH.

Design Adapted and Structure Built by

Editor AMERICAN CARPENTER
AND BUILDER:

WE submit herewith, photos showing two views of a bungalow we have just completed for Mr. Leroy Latham of our city. Also drawings and photos of special electric shades for lights.

While the original general design of this house is taken from a bungalow book, and we do not profess to be architects, we believe our work of arrangement and general planning makes us eligible to make this entry in your (Class A) competition.

We started this house in October and completed it February first.

This is a pure example of bungalow. Every detail

Eycleshymer & Snyder
CONTRACTORS
Builders of Good Houses

Niles, Michigan

Live Builders in a Live City of 5,200

is carried out consistently, inside and out. It sits low on a concealed brick foundation and seems to have grown into its environs.

Casement windows, opening out, are arranged with a view of setting every piece of fur-

niture to the best advantage.

It has six rooms and bath, and finished cellar and attic. Inside wood finish is dyed Circassian walnut, with exception of owner's bedroom, bath, and kitchen—the bedroom trim being ivory enamel, and the bath and kitchen white enamel. Bath room has four foot wainscoting of hard plaster, ruled to represent tile. The kitchen has built-in cabinets.

Stairways to cellar and attic are placed on enclosed

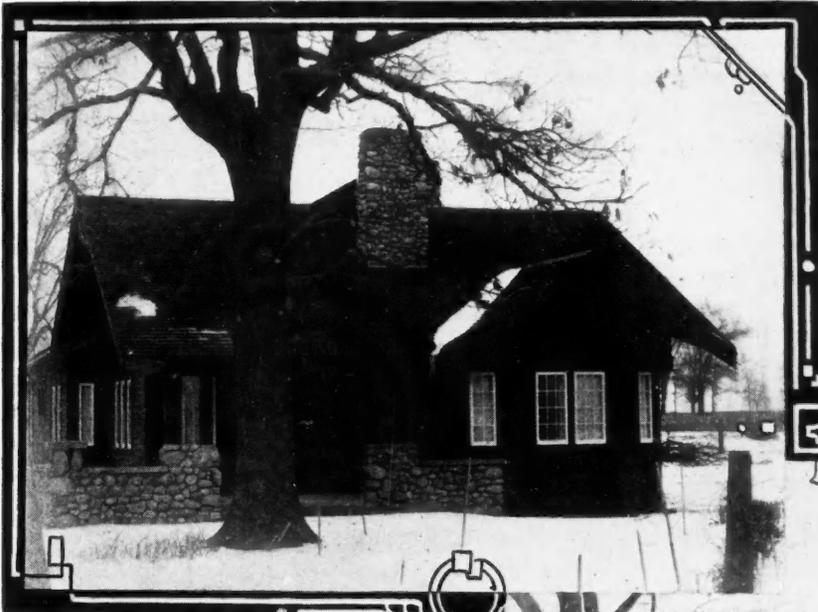
PRIZE WINNING STRUCTURES
PLANNED AND BUILT BY OUR READERS

HONORABLE MENTION DESIGNS

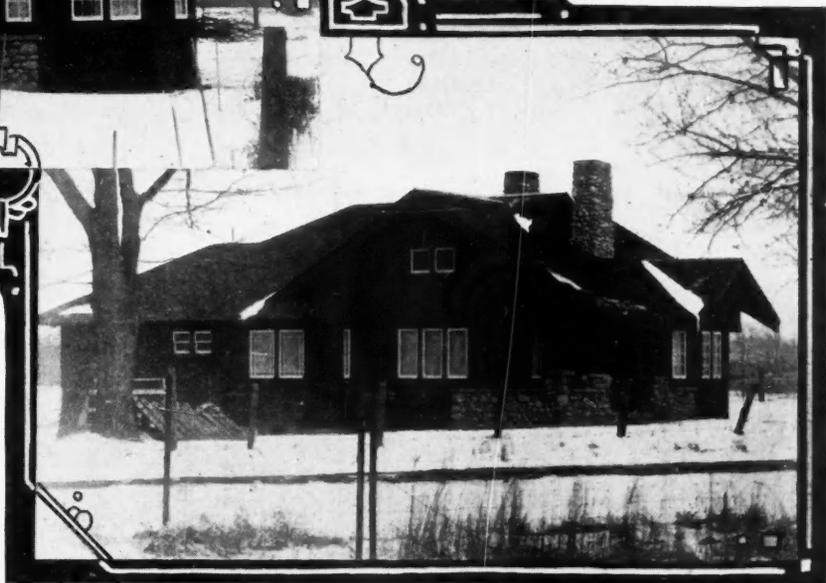
porch, where also is provided space for refrigerator.

Sand finished walls painted with flat oil tints—living room, dining room, hall, and two bed rooms being in olive grey to four inch moulding that runs flush with window and door casings, and slightly lighter tint of same color from moulding to strip running around ceiling, ceiling a still lighter shade of same color.

Owner's bed room walls and bath are of heliotrope, with reduced shade for ceiling. The kitchen walls are of grey tint with lighter grey ceiling.



View from the Front



Bungalow Built by Eycleshymer & Snyder, Contractors, Niles, Mich.



Floor Plan of Bungalow

The lights are specially designed, built of copper and opal glass, and so arranged that a comfortable chair, which has been placed at a window for day

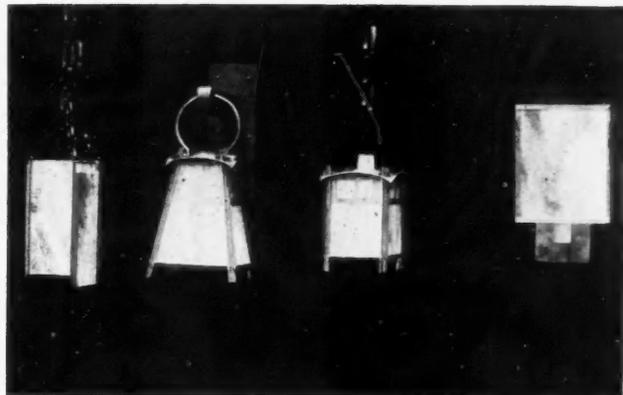
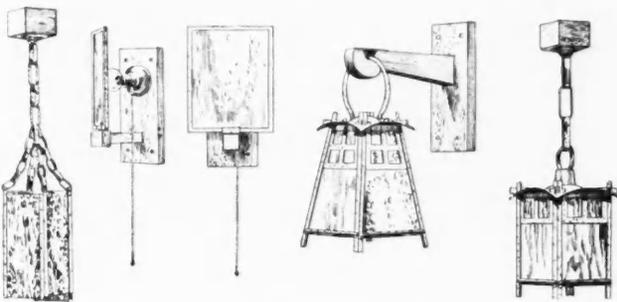


Photo of Special Lighting Fixtures, Made up reading, may have as good light at night without moving. Hardware of old copper with glass knobs. EYCLESHYMER & SNYDER, NILES, MICH.



Drawings from Which Special Bungalow Lighting Fixtures were Made



HONORABLE MENTION DESIGNS

Fine Modern Residence Built under Difficulties

ALL MATERIALS AND EQUIPMENT CARTED 22 MILES BY MULE TEAM TO FORT DAVIS, TEXAS

Work Planned and Executed by Chas. Tyte, Fort Worth, Texas

Editor AMERICAN CARPENTER AND BUILDER:

THIS is a house planned and built for Mr. W. Keeseey of Fort Davis, Texas, situated 22 miles from the Southern Pacific R. R. The house is built of a native gray sand stone layed in rubble work. The porches are of the old Southern Mission



A Fort Davis Freight Train—Which Carted All Building Materials for this House 22 Miles

style, made of reinforced concrete. The roof is 4-inch dimension cedar shingles.

The interior of the house is of a slow burning construction having metal lath and plastered walls, with beautifully designed and decorated metal ceilings.

The house has a hot water heating system, an

acetylene lighting plant, installed in a stone building built for the purpose 10 ft. from the house. A hand elevator runs from the basement to the attic. There is a galvanized iron lined clothes chute and a most complete laundry equipped with three porcelain laundry trays, a four bar clothes dryer, washing machine, mangle, etc. The three bath rooms are equipped with the best plumbing fixtures on the market.

There are six beautiful oak wood mantles. The trim of the first floor is oak with paneled wainscoating in dining room, breakfast room, reception hall and stairway. Special attention being given the parquet floors, which are layed in artistic design in oak, maple, cherry and black walnut.

The trim of the second floor is of native pine with rift-sawed pine floors. The windows are equipped with Venetian blinds on the inside and extra heavy copper bronze wire screens on the outside. An unique feature of this country are the red cedar lined clothes closets.

Owing to the fact that no architect, lumber dealer, mill man, or material man was ever on the job, all the equipments and material were either ordered



THIRTEEN ROOM RESIDENCE OF MR. W. KEESEY, AT FORT DAVIS, TEXAS
Built of Native Gray Sand Stone—Planned and Built by Chas. Tyte, of Fort Worth, Texas



HONORABLE MENTION DESIGNS



Spacious Interior Arrangement of Keesey Residence at Fort Davis

through a reliable firm 450 miles away or direct from the manufacturers.

The AMERICAN CARPENTER AND BUILDER was always on the job and played a very important part as many of the equipments were ordered through its advertising columns, and details of trim were cut from its pages and sent to the planing mill.

This is my seventh year as a reader of the AMERICAN CARPENTER AND BUILDER. I still have my first and every other copy and value them highly. I have many good reference books but none better than the current issue of the AMERICAN CARPENTER AND BUILDER.
 CHAS. TYTE,
 Fort Worth, Texas.

What Reading "A. C. & B." Ads. Did for Me

RECORD OF A FINE CEMENT BRICK AND TILE BUSINESS BUILT UP
 By Alfred Larry, Grafton, Ont.

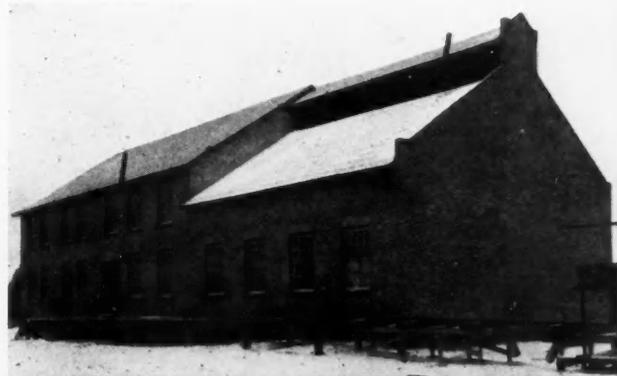
Editor AMERICAN CARPENTER AND BUILDER:

ABOUT two years ago I had a copy of the AMERICAN CARPENTER AND BUILDER shown me; and thinking I should like to take some building paper, I decided to subscribe for it. The first copy or two I was not very well pleased with, as it seemed nearly all ads. But on looking through these ads one day, I saw one about cement brick machines. Being a bricklayer and knowing how scarce clay brick is getting, I thought perhaps there was a good opening for a machine here, although cement brick is quite a new thing in this part. I got several catalogs from some of the firms that advertise in the AMERICAN CARPENTER AND BUILDER and made a dash not only in bricks, but also tiles and sewer pipes, lawn vases, etc. I find a ready market for all I get time to make.

A few months ago I heard of the Frankford Canning and Preserving Co., wanting to locate here, so I got right after them and secured the contract for a building 40 by 90 by 23 ft. walls with cement brick. I got my brick machine on the ground and started making the brick, which

took about 115,000, and when completed gave every satisfaction. I have to erect a building 48 by 200 by 20 feet walls this year for the same firm.

Since doing this job I have shipped several carloads to different places and could not supply the demand. Must say I have had a pretty good year. Thanks to the ads in the AMERICAN CARPENTER AND BUILDER, which I have to put the blame on for starting in this new and money making venture.



Cement Brick Structure Built by Alfred Larry, Grafton, Ont., Out of Cement Brick of His Own Manufacture

I am now erecting a house from the set of plans given in the 1911, September number and have had several offers already. The building is not half finished. It is going to be a very compact and convenient house when completed. ALFRED LARRY.

ALFRED LARRY
 MANUFACTURER OF
CEMENT PRODUCTS
 Grafton, Ont.



HONORABLE MENTION DESIGNS

How We Build Barns in Iowa

DESIGN AND EQUIPMENT OF MODERN FARM BARN

Planned and Built by **George Holt,**

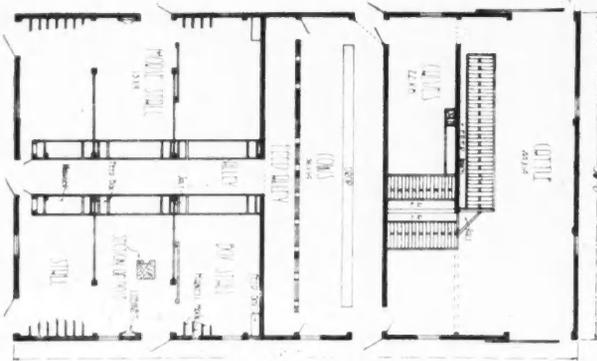
Carpenter and Framer, Ellsworth, Iowa

EDITOR AMERICAN CARPENTER AND BUILDER:

PLEASE enter me in your contest in Class C for this farm barn, which I began June 17 and finished July 20 for Mr. Axel Vold, three miles and a half east of Ellsworth, Ia.

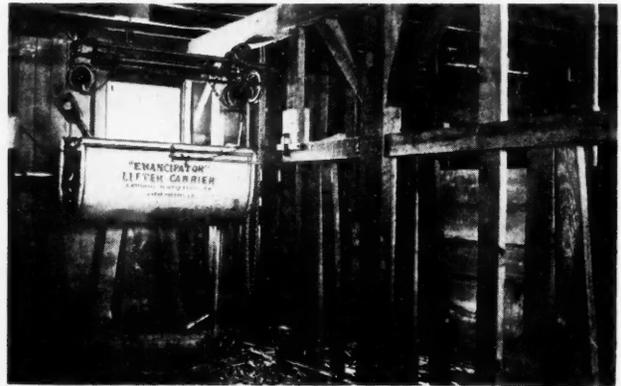
Following is the cost of material:

Lumber	\$1,050.00
Carpenters	362.00
Masons	55.00
Gravel and sand	120.00
Cement	107.00
Hardware	305.00
Painting—labor	20.00
Paint and oil	24.00
Lightning rods	39.00
Total	\$2,082.00



Main Floor Plan

The barn is equipped with Louden litter carrier; the track starts in the box stall on the east, goes north back of horses, turns and goes west on the side of northeast stall, crosses alley between horses' mangers



View of Interior, Showing Litter Carrier on Overhead Track — Barn Built by Geo. Holt, Ellsworth, Ia.

to northwest stall, turns south back of horses, crosses cows' feed alley through door in stanchions down west side of cow section, turns and goes back of cow stall drop, out at east door.



Large Modern Dairy Barn, Built for Mr. Axel Vold by Geo. Holt, Ellsworth, Ia.



HONORABLE MENTION DESIGNS



HORSE STALL CONSTRUCTION

Interior Views of Barn for Mr. Axel Vold, Ellsworth, Iowa



SELF FEEDING RACKS

The photo shows barn with Queen cupalo which was decided on after my plans were drawn for hexigon cupalo.

This barn is also equipped with Peters sliding door locks, opening from either outside or inside. Other doors are equipped with Peters barn door latches.

The barn has a Myers triple hay carrier. Lightning rods are Doods and Struthers.

Being glad to see our paper grow, I remain an interested reader.

GEO. B. HOLT,
Carpenter and Frammer,
Ellsworth, Ia.

A Model Farm House

LARGE CONCRETE BLOCK AND FRAME FARM RESIDENCE NEAR HESPER, N. DAK.

Planned and Built by D. A. Haines, Mabel, Minn.

Editor AMERICAN CARPENTER AND BUILDER:

HERE is a statement of materials and equipment used in the construction of a farm residence I planned and built for Mr. Will Haines near Hesper, N. Dak.

The residence is a combination of cement blocks and fame construction. It has a full basement with a 12 inch concrete foundation walls up to grade, above grade hollow cement blocks are used. Atlas Portland cement was used in all the concrete and cement work. The entire basement floor is cemented; the basement is divided into a laundry, a preserve cellar, two vegetable cellars, a coal bin, a boiler and a work room. The laundry is equipped with stone laundry tubs, a laundry box with a clothes chute extending up to the bath room on the second floor, a laundry stove and all modern plumbing fixtures.

On account of such severe freezing in that country the cistern was placed in the basement, and is supplied with a force pump with which to pump the water into the storage tank in the attic. The vegetable and preserve cellars are partitioned off with 8-inch concrete walls, and have cupboards for storing away canned goods, etc. The coal bin is partitioned off with No. 2 flooring. The dumb waiter pit extends 5 feet below the basement floor and the walls are built of brick, plastered on the inside. It is equipped with a carriage operated with a crank located in the kitchen.

The first story walls are constructed of concrete blocks—a double wall each $3\frac{3}{4}$ inches thick with a continuous $2\frac{1}{2}$ inch air space between. The outer wall is pointed up with dark colored mortar. The water table, caps and sills are cement and white sand mortar, which gives a perfectly white color. All outside cement and concrete work is waterproofed.

The second story is frame construction. The dimension stuff is all No. 1 white pine. The outer walls are sheated with No. 2 fence flooring, lined on the inside with Cabot's sheathing quilt, and on the outside with 35-lb. red rosin paper, and covered with cedar shingles -5 to 2- as is also the roof. The exterior finish is C select white pine and is given three coats plain white paint. The shingles are stained a medium moss green. The porch floors are cypress.

The interior finish in the vestibule, parlor, dining room, sewing room and bed room is plain red oak floors and trim. The rest of the house is finished in yellow pine. The work was all finished with Johnson's Wood dyes, fillers and flat finish. The floors are waxed.

The windows are equipped with Caldwell's sash balances, excepting the basement sash are hung on loose pin butts. The plastering is all two coat work of Climax wood mortar. The hardware trim is all wrought bronze, antique copper finish. Bath room fixtures and sinks are white porcelain lined. The

HONORABLE MENTION DESIGNS



Interior Arrangement of Model Farm House, Containing All Conveniences

heating system is an Andrews hot water plant with a steel vertical boiler. The lighting system is an acetylene gas plant, Birch generator.

Special features and equipment which make this plan a good one for a farm residence.

- 1st—A large dining room.
- 2nd—Sewing room off the dining room.
- 3rd—Large kitchen with built-in sinks, cupboards, and dumb waiter.
- 4th—Men's wash room with built-in mitten cupboard.
- 5th—Bath room off the family bed room.

6th—Bath room on the second floor for the hired help.

7th—Clothes chute.

8th—Six good sized bed rooms with closet for each, also a linen closet.

9th—Room in the attic for 5 or 6 beds.

10th—Balcony off the second floor for airing bedding, etc.

11th—Laundry in basement with complete modern equipment.

D. A. HAINES,
Mabel, Minn.



A Model Farm House of Twelve Rooms, Planned and Built by D. A. Haines, Mabel, Minn.



HONORABLE MENTION DESIGNS

Building a Cobble Stone Chimney

METHOD USED IN NEW MEXICAN ADOBE BUNGALOW

Designed and Built by Mercer Lawing,
Carpenter and Builder, Tucumcari, N. M.

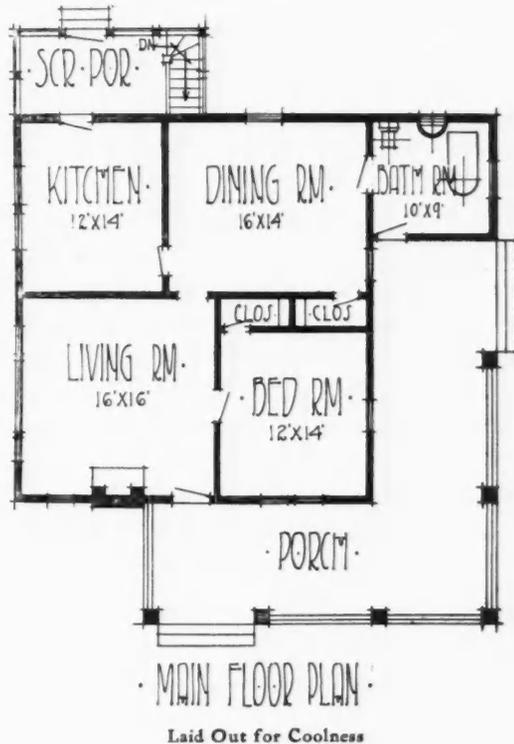
Editor AMERICAN CARPENTER AND BUILDER:

I DESIRE to enter your Prize Competition as advertised in the AMERICAN CARPENTER AND BUILDER, of which I am a reader and think it the greatest building paper published.

I am sending photographs and drawing of the floor plan of Mr. F. Caruthers' bungalow, this town, of which I am architect and builder.

Being a carpenter, and as masonry is supposed to be out of my line, I hope to enter Class G, as I did the masonry on this building. This bungalow is built of adobe—No doubt many of the readers never saw an adobe building. It is pebbledashed. The chimney and piers are cobblestone.

At the time I built this house there wasn't a mason in town that cared to undertake the masonry of this chimney, so I did the work myself, which is easy enough if you do as I did. For the chimney I built a form 2½ ft. high and the proper size. I build the flue of the chimney of brick laid in good lime and cement mortar. In every third course of brick I placed anchors made of wire, to extend out into the cobblestone work. After I built the brick work up



Very Artistic Adobe Bungalow of Four Rooms, Planned and Built by Mercer Lawing, at Tucumcari, N. M.



some 3 or 4 feet high I then set the form and lay the cobblestones in cement mortar mixed two parts clean sharp sand to one part Portland cement. The stones were laid against the form. After the work had time to set up hard enough to stand I took the form down and scratched the joints out with a small trowel.

I made three of these forms 2½ feet high, which enabled me to build 7½ feet at one time. I would let this set up and scratch the joints before I built any higher. This chimney is 23 feet high.

The brick mantle is built of red pressed brick, and is very nice; am sorry I cannot send a photograph

of it. The porch piers are built in the same manner as the chimney, and are not so hard after you get the forms set.

The stone in this building I hauled twelve miles; as this is a prairie country, the stones are found in the creeks and rivers. This building is different from any other in this county, and the owners are entirely satisfied with it. The total cost is \$1,656.00.

Hoping this will benefit some of the boys should they want to build a cobblestone chimney, I close with

best wishes to the AMERICAN CARPENTER AND BUILDER,
MERCER LAWING,
Tucumcari, New Mexico.

HONORABLE MENTION DESIGNS



A New Mexican Bungalow—
Like an Oasis in the Desert

Modern Residence at So. Bend, Ind.

LIVING ROOM FURNISHED WITH "HOME WORKSHOP" PIECES

Structure Designed by Thos. L. Hickey and Built by L. A. Hickey's Sons,

General Contractors and Builders, So. Bend, Ind.

Editor AMERICAN CARPENTER AND BUILDER:

THE exterior of this design shows a stucco finish over galvanized metal lath. The foundation to the first story sill line is of concrete

finished with a water table effect. The structure is sheathed in the usual manner, is then wall-covered with a water-proof building paper, and on this are nailed furring strips ½ by 2 inches, 12 inches on



Living Room in Hickey Residence, Showing Some Fine "Home Workshop" Furniture



centers to which is well stapled the metal lath. This half inch air space precludes all moisture and affords a perfect clinch for the stucco.

The veranda has a 5 inch concrete slab, reinforced with expanded metal, which admits of the basement being continued the full length of the entire building.

The exterior finish is of rough sawed cypress,

HONORABLE MENTION DESIGNS

AND BUILDER. Most of the material consisted of leftovers from our jobs. The wood in the table represents about eight different jobs.

Both table and chair are mortised and tenoned and doweled, and put together in a first-class manner. I

photograph of the living-room, were both made by myself from sketches which appeared in the AMERICAN CARPENTER



Photo and Plans of Modern Style 6-Room Residence at So. Bend, Ind.

stained a warm brown, with the roof shingles a deep green, making a very striking exterior.

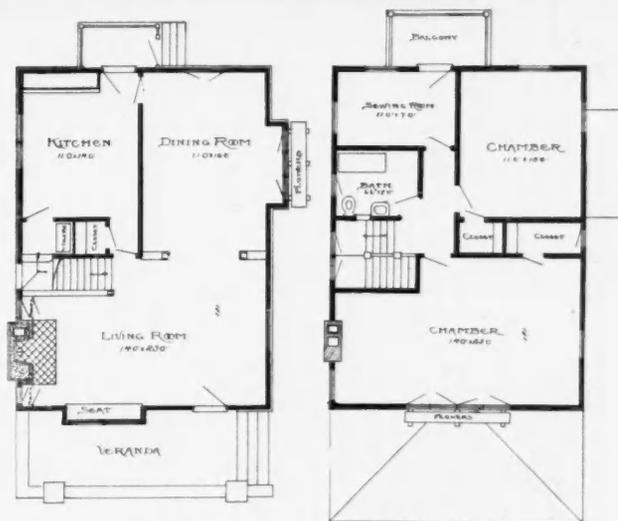
Entering the living-room, we have a very attractive apartment, with its fireplace and hearth of dark unglazed brick laid up with a sunken joint, and the bookcases on either side, with the cozy window seat in close proximity.

Glancing through the panelled column opening we see the dining-room with its deep bay and open in casements.

The second floor is laid off with not an inch of waste room. We have one fine large chamber 23 by 14, with six windows and a roomy, well ventilated closet. Bath is very conveniently located to all rooms.

The living-room and dining-room are finished in weathered oak, the kitchen in southern pine, natural. The second story rooms in white enamel, with birch mahogany doors. Hot air heating plant. Size 24 by 32. Estimated cost \$3,250.00 complete.

The mission table and reclining chair shown in the



finished them by giving them a coat of wood dye, then a coat of paste wood filler, two coats shellac, sanded between coats, and waxed. This work was all done evenings.

THOS. L. HICKEY,
General Contractor and Builder, South Bend, Ind.



HONORABLE MENTION DESIGNS

A Seven-Room Bungalow at Minden, Nebr.

FRONT OF BASEMENT USED AS BILLIARD ROOM

Designed and Built by Nels Olsan, Minden, Nebr.

Editor AMERICAN CARPENTER AND BUILDER:

THIS is a model seven-room bungalow designed and built by me at Minden Nebraska. The building is 28 feet wide by 36 feet long, including porches. On the first floor are four large rooms, living room, dining room, library and kitchen besides a vestibule.

The living room is 12 by 28 feet and has a fine staircase in the north side and a fireplace opposite, which is made of brown pressed brick laid in dark mortar. On each side of the fireplace is a well designed book case. From the living room into the dining room is an opening about six feet wide. The demipartition is panelled with

oak on both sides and supports two massive columns which meet the beams under the ceiling.

The dining room is panelled as high as the plate rail on all sides not taken with the leaded glass

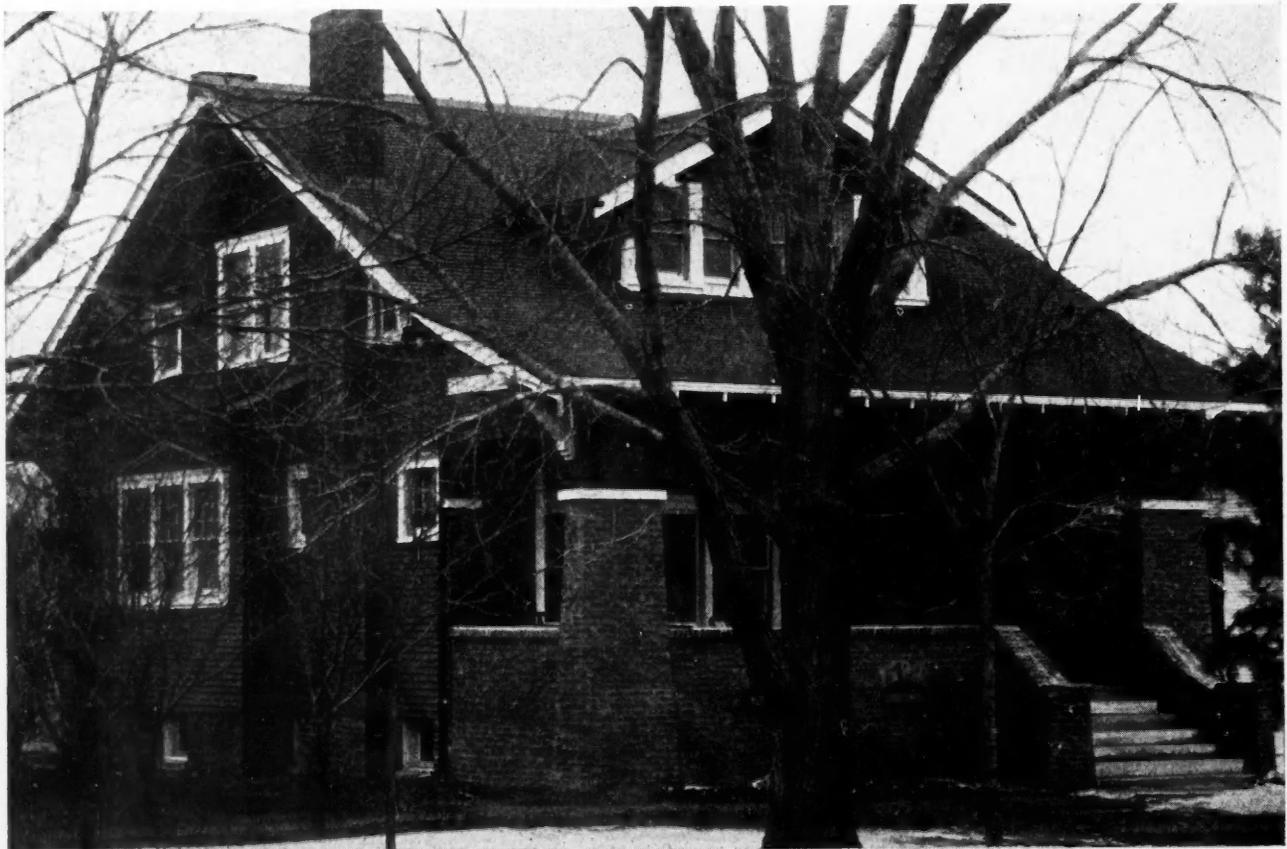
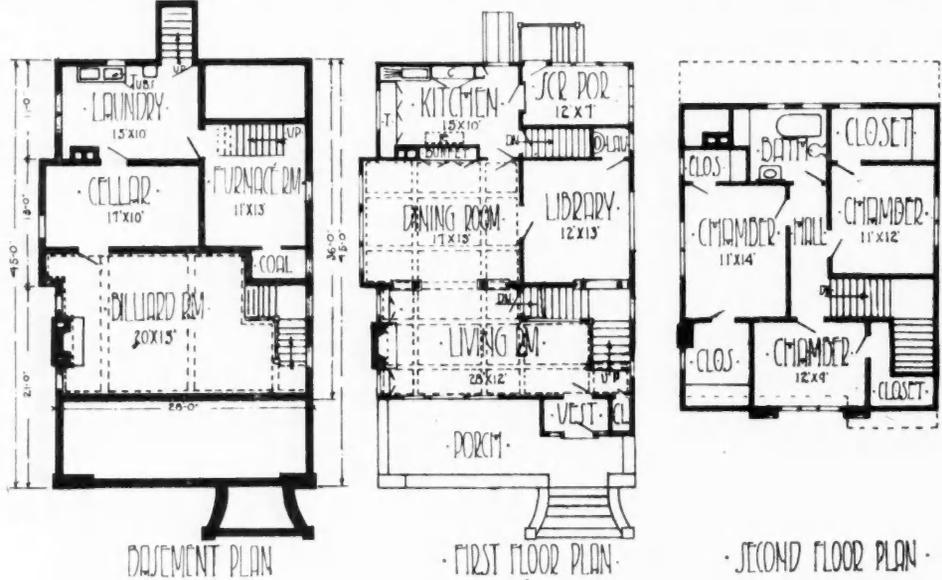


Photo and Plans of Well-Designed Bungalow Style Residence at Minden, Neb., a Growing Town of 1,600



closets for china and glassware opposite the colonnade. A built-in serving table is provided under the windows. The walls of both the living room and dining room are tinted a pale yellow.

The special feature of the library is a colonnade opening from it to the first landing of the staircase. The library is tinted in red. The living room, dining room, and library are finished in oak in the early English.

The kitchen is well provided with built-in cupboards, kitchen sinks, and drainboards well placed with regard to convenience.

On the second floor are three bed rooms and a bath room. The guest room, which is to the front, is tinted blue with white enameled woodwork. The

south bed room is tinted gray with white enameled wood work and the north room is pale yellow with a finishing of oak woodwork. Each room is fitted with a large closet, which is ventilated and lighted by a small window. The bath room is enameled white.

In the basement are billiard room, laundry room, furnace room, and vegetable cellar. The billiard room has a beam ceiling and an open stairway leads from it to the living room.

A feature which makes the exterior especially attractive is the klinker brick used in the front porch balustrade and piers as well as the chimney. The material of the outside walls is three inch red cedar siding painted in a dark brown and trimmed in white.
NELS OLSAN, Minden, Nebr.

Weil Planned Residence for \$4,000

SIX-ROOM, TWO-STORY, STUCCO HOUSE AT PLEASANTVILLE STATION, N. Y.

DESIGNED AND BUILT BY

Editor AMERICAN CARPENTER AND BUILDER:

HERE is a photo, plan and statement of material and equipment, of the last house I have finished building and designed myself.

I have been in business here six years. The house herewith enclosed is number twelve, of which I have built for myself, and I have built double that number for others. I design all my own houses, and also furnish plans for others. The houses are all built differently, but about same size, and sell for about \$4,000, and rent for about \$30.00 a month.

Foundation of this building is of local stone with



All Space Used to Good Advantage

a slapdash finish. Cellar floors are concrete. The building is balloon frame, sheathed with hemlock. Studding 2 by 4, floor timber 2 by 8, ceiling beams 2 by 4, rafters 2 by 4 covered with N. C. sheathing, black Neponset paper and Edwards Spanish metal tile. Outside is covered with galvanized metal lath and stucco, finish same as number two sandpaper, with white Atlas cement.

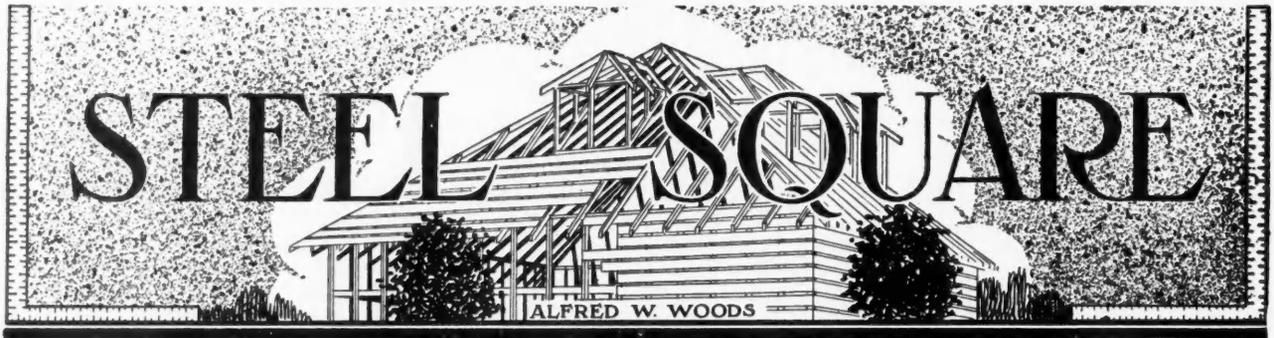
MICHAEL MIKKELSEN
BUILDER AND CONTRACTOR
ALL WORK HAS MY PERSONAL ATTENTION
PLEASANTVILLE STATION, N. Y.

First floor is 1 by 6 inches N. C. pine with a 3/8 inch oak finish; second floor is number one flat grain. Partition between hall and dining room, and between hall and living room is only 5 feet 6 inches high; there is a girder over each partition, 8 by 12, cased in the same as beam ceiling in dining room. The plate shelf comes at same height as top of partition. There is a seat in the hall which does not show on the plans. The bath room has tile floor and imitated tile wall 4 feet high. The kitchen has sink, wash tub, range and hot water boiler. The ashes drop from the range to the cellar. The house is lighted by electricity and heated by steam. The inside trim is cypress and stained dark brown in main rooms down stairs and upper hall; balance of upper floor is painted white. Kitchen is finished in natural wood.

MICHAEL MIKKELSEN.



One of Several \$4,000 Houses being Built by Michael Mikkelsen at Pleasantville Station, N. Y.



Woods Evolves a Master Key

THE PRINCIPLES OF RAFTER FRAMING BY MEANS OF THE STEEL SQUARE CLEARLY ELUCIDATED

JUST as we were casting about for something to say to the AMERICAN CARPENTER AND BUILDER readers, the office boy handed us a memorandum from the Editor with a reminder that the April number would be the birthday number, or rather the eighth anniversary number and that it would be necessary to take cognizance of same and celebrate, as it were, by giving something appropriate for the occasion. But Oh! what a reminder; seems but yesterday since that first birthday. How the years have crowded in between then and now and are numbered with the past. They are gone, never to return and the only hope left in them, is that we may have said something that will last longer than eight years.

Eight is the number, so for the occasion we have selected a subject pertaining to eight and for this we have prepared twelve figures, one for each month, when another anniversary will be ushered in upon the readers; but this is the one that claims attention.

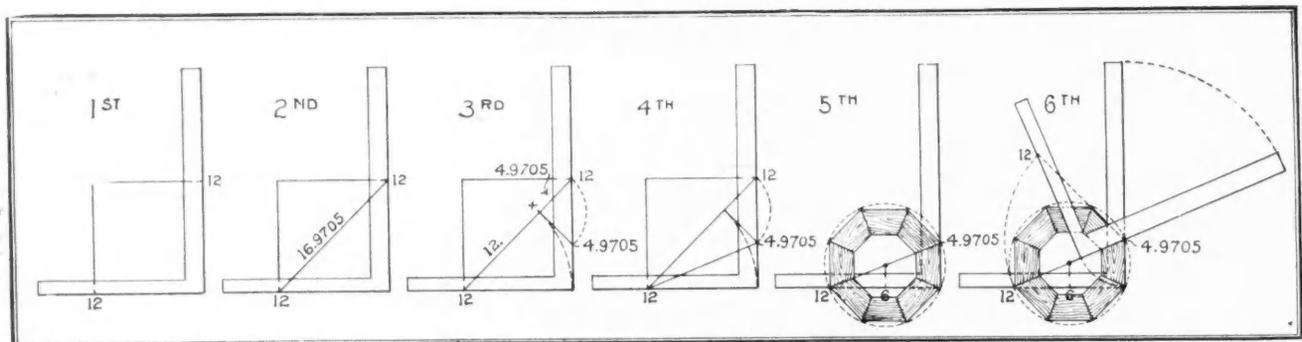
To begin with, we will start out on the square; twelve-inch square as shown in the first illustration. This is a simple illustration. Now let us see what we can do with it. If we draw a line diagonally through it, as shown in the second illustration, we find its length by extracting the square root of the number of squares contained in two sides to be 16.9705 inches. Now, this is so nearly 17 inches, it may be used for working purposes on the steel square, but the fact remains that it lacks a little less than three hundredths part of an inch of being 17 inches. We call attention to this simply for the purpose of dis-

tinguishing between absolutely and practically correct.

Now let us pass on to the 3rd illustration. If we take a pair of dividers and set one leg at 12 on the tongue as center and the other at the heel and swing to the diagonal, it will cut it in two parts 12 and 4.9705 inches. The first represents the length of the side of a square with an inscribed diameter of one foot and the latter represents the same thing for the octagon under like conditions. This is proven by setting the dividers at the intersecting point on the diagonal line as center and with the pencil point at 12 on the blade and swing downward until the same intersects the blade. It will be found that the point is at 4.9705 inches. This is so nearly 5, that this figure is used for working purposes on the steel square, but it lacks identically the same amount as in the case of the diagonal of the square, as before mentioned. By drawing a line from the intersecting point on the diagonal to 4.97+ we will have one-eighth part of an octagon with an inscribed radius of 12 inches.

Passing on the 4th illustration, we have the same as shown in the preceding illustration, with the addition of a line from 12 to 5, but as we said before, it is not 5. If it was, this line would be exactly 13 inches long, but the difference is so little that it is discarded.

We trust this fully explains why 13 and the rise of the roof for one foot run give the seat and plumb cuts of the octagon hip. There are other things we would like to mention, but cannot stop to enumerate them now,—save this one.



Diagrams Explaining the Principles of the Steel Square

The line from 12 to 5 represents the miter line and 12 and 5 will give it as shown in the 5th and 6th illustrations. In the first case, it shows the relation of the angle taken on the steel square to its inscribed diameter and the length of the side of the polygon. In the second case (6th illustration) it is made to reveal the miter in all of its simplicity. Now, if there is a single doubting Thomas in all of the readers of the AMERICAN CARPENTER AND BUILDER Family, we want him to at least set up and take notice, while we demonstrate this fact.

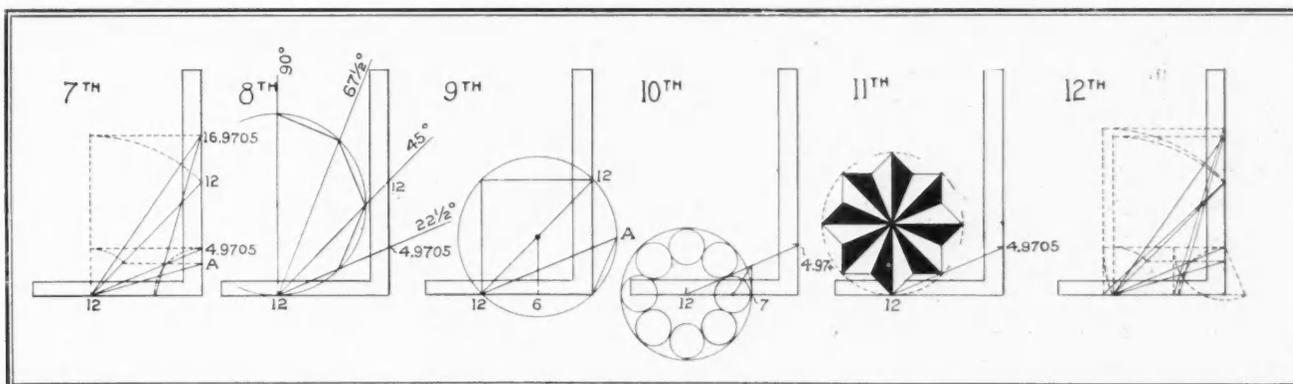
Just suppose 4.97+ is a pivotal point and we take hold of the blade and swing it back until its edge rests parallel on the line from 12 to 4.97+ in the first instance and see how the 12 on the tongue is transferred to a point in a direct line with one of the sides and see how nicely the blade is lying over the miter.

The above pertains to level miters but should there be used for an incline to the sides; then it is another

and the distance from the heel of the steel square to the intersecting point, as at A is equal to one-eighth of the circumference.

We will now pass on to the 10th illustration. Here we have a circle 14 inches in diameter, though it could be any size desired; we want to put eight circles inside of it so that they will just touch each other. We use the same proportion on the steel square that we would to obtain the miter, and by bisecting the angle formed by it on the steel square as shown, and where the bisecting line intersects the base line will be the center for one of the circles; and from this point to the given circle, will be the radius of the circle, eight of which will just fill the large circle, as shown.

Now, we have been going some in circles, we want to go up higher and see what there is above all of this we have gone over. So we will hitch our angle line to an octagon star, as shown in the 11th illustration.



Diagrams Explaining the Principle of the Steel Square

kind of a miter,—a hopper miter, and it may be obtained as shown in the 7th illustration. Suppose the incline is one-half pitch; then we lay off the 4.97+ on the pitch line as shown and the rise for this length taken on the blade, as at A, and 12 on the tongue will give the required angle for the octagon hopper miter, the blade giving the cut. For the cut across the face of the board, take 4.97+ (5) on the tongue and 16.97+ (17) and cut on the former.

Passing to the 8th illustration, we show what determines the miter which is found by dividing the number of degrees in a half circle. Thus $180 \div 8 = 22\frac{1}{2}$, and this falls at 4.97+ on the blade. Another interesting thing about this is that each time that the degrees increase $22\frac{1}{2}$, the degree line will intersect a circle of any radius struck from the 90-degree line into one-eighth part, as shown at $22\frac{1}{2}$; 45; $67\frac{1}{2}$ and 90 degrees respectively.

Here is another interesting thing about the division of the circle, as shown in the 9th illustration. Here are shown the miter lines for the square and octagon. By squaring up from 6 to the square miter line, will give the center of a circle to catch the four corners of the square while the octagon miter line intersects the circle at the center of one of these parts, as shown;

Ah! here it is. We have it in the 12th and last illustration. Here is the climax of all that is contained in the eleven that precede it and more. We cannot take up more space to tell it all, but in brief here are shown the transformation of the angles that enter into the true octagon in all of its phases in frame work.

It contains the master key to unlock the problems that enter into frame work of any angle or pitch and he that possesses that key, if he should get in a seemingly close corner, can frame his way out and do it on the square.



Wood Floors on the Ground

It is difficult to get a satisfactory wood floor on the ground—almost impossible. After five years' use, the Aberthaw Construction Company of Boston have taken up a floor laid with plank driven into tar, with hardwood above this, and the plank came out as powder. It is obvious that fermentation will set up wherever air is kept from timber that has any sap in it. The wood top is very nearly airtight. The tar is absolutely so. The result is, this disintegration of the plank will occur, as might be expected. For ground floors use either cement, asphalt, or tar concrete if possible.



What Every Architect and Builder Should Know About Strength of Materials and the Design of Safe Construction

Noon Hour Talks by the Boss Carpenter

Talk No. 9

THE BOSS CONTINUES HIS TALK ON THE ECCENTRIC LOADING OF SHORT COLUMNS—HE SOLVES SOME PROBLEMS

AS we were closing our talk yesterday," said the Boss, "one of you fellows asked me in regard to the stress conditions in the material at the side *B* in Fig. 15, which we used in Talk No. 8. Supposing that we look at this figure in the log book again. You remember that we saw that the values of p_1 and p_2 in Fig. 16 pointed in the same direction on the right-hand side of Fig. 16, and in opposite directions on the left-hand side, or on the side away from the load. Now, if we added p_1 and p_2 on the right-hand side, or on the loaded side, we would expect to subtract them on the side away from the load. That is just what should be done. In other words, if we wish to see what the internal stress is in the material on the side of the short column which is away from the load, we should place a subtraction sign in FORMULA NO. 6 instead of an addition sign. Then this formula would

read $C = \frac{W_2}{A} - \frac{W_2 a e}{I}$ (Formula No. 6a).

"If the value of $\left[\frac{W_2 a e}{I}\right]$ is greater than that of $\left[\frac{W_2}{A}\right]$, you must be careful that the difference between the two values is not greater than a safe value for the tensile or pulling strength of the material which is used. In timber or steel, this condition is not likely to give trouble, but in the case of cast-iron columns, you should see that the value of $\left[\frac{W_2 a e}{I}\right]$ is not more than 2500 greater than $\left[\frac{W_2}{A}\right]$.

"In the case of brick-work or stone-work, the value of $\left[\frac{W_2 a e}{I}\right]$ should never be greater than that of $\left[\frac{W_2}{A}\right]$ for if it is it means that the tensile or pulling arrow in Fig. 16 is greater than the compressive or pushing arrow, and the tendency will be for the joints in the brickwork or stonework to open up near the top of

the pier where the weight of the pier itself does not aid in holding the joints together.

"There may be cases where the position of the load to be carried with safety by a cast-iron column will be governed by the tensile strength of the material rather than the compressive strength, since the breaking tensile strength of cast-iron is only 20,000 pounds per square inch, while the breaking compressive strength is 80,000 pounds per square inch. If we were using Formula No. 6, for a factor of safety of 8 on the compression side, or on the side nearest the load,

we would use $\frac{80,000}{8}$ or 10,000 pounds per square inch,

as shown by the table in Talk No. 7.

"I wish that you would use this hour," said one of the men, "in showing us just how this matter works out for cast-iron columns and brick work."

"Very well," said the Boss, "as long as we started with brick work piers and understand that the mortar should not be subjected to pulling or tensile stresses at any place on the side of the pier which is away from the load, let us see what the conditions are on the side of the pier which is away from the load, and then find out how far towards the right-hand side of the pier the loaded beam could be carried without any tendency towards opening up of the joints in the upper part of the pier.

"Why not figure conditions down at the pier

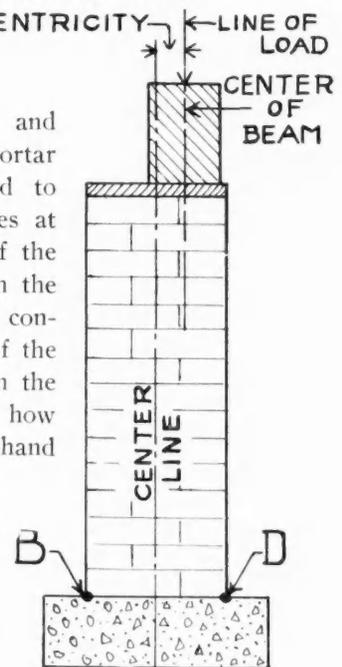


Fig. 15. Brick Pier with Eccentric Load Due to Weight on Floor Beams

footing as we did on the compression side," asked one of the men?

"Because," said the Boss, "we do not have the weight of the brick work itself to help hold the top joints together, and we do have this additional weight at the bottom joints. Therefore, if we based our calculations on this added weight of pier, some of the joints at the top might open up when those at the bottom still would be safe. That is why I changed the $\left(\frac{W_1}{A}\right)$ of Formula No. 6 to $\left(\frac{W_2}{A}\right)$ when I wrote Formula No. 6a. You must remember that the weight of the pier itself in this case is always a central load and is distributed evenly over the whole bottom end of the pier. This will make the compressive conditions worse and the tensile conditions less at the base of the pier."

In order to investigate the stresses in the side of the pier of Talk No. 8 away from the line of action of the load, the Boss wrote Formula No. 6a as follows:

$$C = \frac{12,000}{13 \times 13} - \frac{12,000 \times 2 \times 6\frac{1}{2}}{\frac{1}{2} \times 13 \times 13 \times 13 \times 13} = 71 - 65\frac{1}{2} = 5\frac{1}{2} \text{ lbs. per square inch.}$$

"This shows," said the Boss, "that the farther side of the pier is in compression also, since $\left(\frac{W_2}{A}\right)$ is larger than $\left(\frac{W_2 ae}{I}\right)$ "

"Now let us apply Formula No. 6a to the same problem, and work the problem with the object in view of finding out the greatest value a can have, as we just spoke of, without any joints opening up. This condition would be met if we put C in Formula No. 6a equal to zero, and after filling in all known values, solve for a ."

The Boss then turned to the problem in the "log book" under Talk No. 8, and filled in Formula No. 6a as follows:

$$0 = \frac{12,000}{13 \times 13} - \frac{12,000 \times a \times 6\frac{1}{2}}{\frac{1}{2} \times 13 \times 13 \times 13 \times 13} = 71 - 33a.$$

Then $33a = 71$, or $a = 2\frac{1}{3}$ inches (nearly).

"You see," said the Boss, "that if the loaded beam on the pier in Fig. 15 had been about $\frac{5}{32}$ of an inch farther to the right, not only would the compressive stresses in the lime mortar been of too high a value, but also the tension side of the pier would have been in danger for any kind of mortar."

"It is a good rule to keep the line of action of the center of gravity of the load always within the middle third of the top of a pier of square or rectangular cross-section, and within the middle fourth of the top of a solid circular pier. Fig. 18 will show these locations."

"Now," said the Boss, "take a piece of cast-iron column which is 3 feet long, 6 inches outside diameter, and $\frac{3}{4}$ inch thick. Since length divided by diameter is less than 10, apply Formulas No. 6 and 6a to this cast-iron member when used as a short pier with a

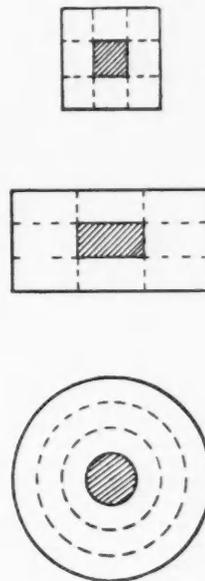


Fig. 18. Boundaries of Line of Action of Load.

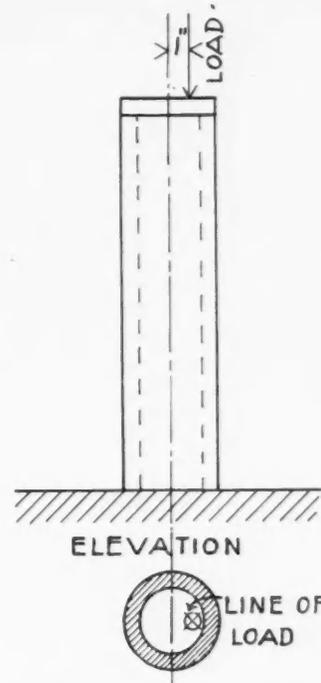


Fig. 19. Cast Iron Strut with Eccentric Load.

load which is 1 inch off-center, and see what is the greatest load the material will carry with a factor of safety of 8. Fig. 19 shows the general condition.

"First, fill in Formula No. 6 and solve for W_2 , omitting the weight of the pipe in this preliminary calculation, thus making W_1 and W_2 the same. From the table in Talk No. 7, C will be $\frac{80,000}{8}$ for the compression or near side, and taking values of A , e , and I from Talk No. 4, (Fig. 8, F.),

$$\frac{80,000}{8} = \frac{W_2}{2 \times \frac{1}{4} (6 \times 6 - 4 \frac{1}{2} \times 4 \frac{1}{2})} + \frac{W_2 \times 1 \times 6^2}{(6 \times 6 \times 6 \times 6) - (4 \frac{1}{2} \times 4 \frac{1}{2} \times 4 \frac{1}{2} \times 4 \frac{1}{2})}$$

$$10,000 = \frac{W_2}{173} + \frac{3W_2}{886} = \frac{W_2}{12.4} + \frac{3W_2}{44.3}$$

$$10,000 \times 12.4 \times 44.3 = 44.3 W_2 + 3 \times 12.4 W_2$$

$$5,493,200 = 81.5 W_2$$

$$W_2 = 67,400 \text{ pounds.}$$

"Now fill in Formula No. 6a with this value of W_2 , and solve back for C to see if the stress on the near side is compression or tension. If the $\left(\frac{W_2}{A}\right)$ part is larger than the $\left(\frac{W_2 ae}{I}\right)$ part, we do not need to investigate further, as all parts of the pier are under compression. Otherwise, we must see that $\left(\frac{W_2 ae}{I}\right)$

is not $\frac{20,000}{8}$ greater than $\left(\frac{W_2}{A}\right)$

$$C = \frac{67,400}{173} - \frac{3 \times 67,400}{886} = \left(\frac{14}{173} \times 67,400\right) - \left(\frac{60}{886} \times 67,400\right)$$

$$= \frac{14}{20}$$

"From this equation, we can easily tell by inspection that $\frac{14}{173}$ is greater than $\frac{60}{886}$, therefore the far side of the column will be in compression also, and we do not need to fear a tension failure. The unit compression on the side away from the load is not as large as that on the side near the load, as we have seen in the brick pier problem."

PLANING MILL WORK

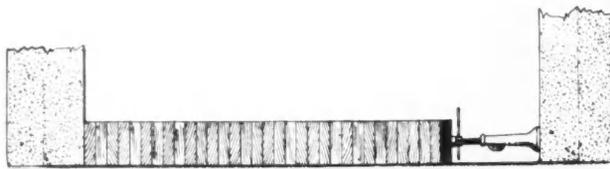
More Shop Kinks

HELPFUL IDEAS AND SUGGESTIONS FOR CARPENTERS, CABINET MAKERS AND MACHINE WOODWORKERS

By Wm. C. Jasbury

IT seems to me as though I cultivated or rather nature has thrust upon me, a desire to write articles for the AMERICAN CARPENTER AND BUILDER. The foregoing is all quite true, but does not sound like the ordinary language of a mill man (an old one) as the Editor calls me; however, that may be true, but I am still not eligible to membership in Dr. Osler's class of Dips, as I arrived in America in 1872. Now that "Arrived in America" sounds as though I was an ex-emigrant, alien, or hottentot; but alas! I am merely a reinforced type of Jerseyman, i. e., a native of the State that furnishes the world's market with Apple Jack and Mosquitoes. But say,—I started off to write an article on wood working, well, here goes.

A GIANT GLUE CLAMP. I saw an improvised clamp some time ago, that not only appealed to me, but to others in the factory; and the stunt was pulled off by a man whom the boys said did not have brains enough to last him over night. He was gluing up pieces of oak, $\frac{7}{8}$ inches thick, 6 by 6 inches square.



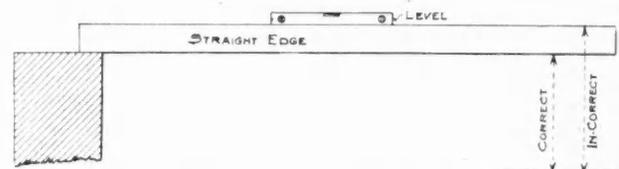
Row of Blocks to be Glued; 2 Concrete Columns and a Jack Screw

He applied the glue on the blocks and laid them on the floor with a paper underneath to keep the glue from running on the floor. He started from one concrete pillar or column and placed the blocks in a row in line with the next post, then he used an ordinary jack screw against the post and blocks. When he took up on the jack, it made the juice (glue) run like sweat off of the brow of a Halsted Street saloon man in July.

SOMETHING ABOUT EDGED TOOLS. Speaking about carpenters' and cabinet makers' edge tools; I know personally that a chisel, gauge, or plane bit will get so that it will not work well. I have discussed and cursed this freekish thing more than once, but later have learned that all finely tempered edge tools,

even a razor, will do the same thing. The reason is this—the steel gets tired, and if it is laid aside for a week or more and tried again, it will be found to be as sharp as ever. Now, this may sound fishy to some of the more skeptical readers, but I believe it—and that is sufficient proof for me.

A COMMON MISTAKE. I have made and seen made by other mechanics this unpardonable mistake, in making a level measurement with a straight edge



How a Leveling Mistake is Made

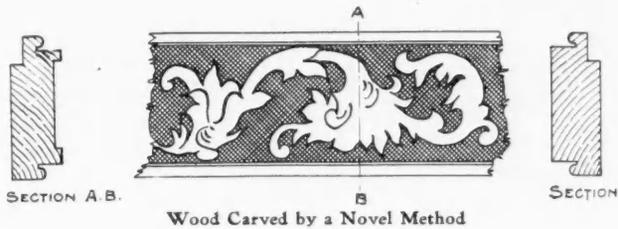
and level. The mistake comes in when Mr. Measurer takes his dimension from the top of the straight edge, instead of the bottom. This may look like a fools trick; but it has been done by thousands of men and will be pulled off as many more times. So much for Mr. Blunder.

A TRICK BETWEEN BROTHERS. Working in a mill some years ago as a turner, my brother who is a cracker-jack sash and blind maker, worked on the second floor directly over me. He had the habit of pouring water through a hole in the floor down on me; finally I turned a plug, put some glue on it, stood up on the lathe and stopped up the hole. That did the trick all right for a few days. One noon, I was sitting on the lathe eating my hay, when I heard a boring noise over my head. Mr. Brother was making another hole. I picked up a machine hammer, got up on the lathe and when the one inch bit came through the floor, I commenced operations with the hammer. He evidently could not get the bit up through the floor again, because I had beat it up like a fish hook as I was certainly doing some hammering. He released the bit from his brace and let go of it. I pulled the bit through and went up stairs; the following conversation took place:

"Say Kid, that trick cost you a new bit that time."

He said, "No it didn't because I took it out of your chest this morning."

SPEAKING ABOUT WOOD CARVING. Some years ago I had occasion to make a picture frame; the order was an odd frame something out of the ordinary. I used mahogany $\frac{7}{8}$ inch thick by $2\frac{1}{2}$ inches wide, size of glass 24 by 36 inches. Here is the way I did it; I have never seen one since. Lay out a scroll on the face of each piece, keeping $\frac{1}{4}$ inch away from the edge, where a bead was to be worked on



later. Line out the carving design with a parting tool, V or small gauge U, then take a prick punch, such as carvers use and punch the background down as far as the wood will permit without breaking it. When this is done, take a plane and plane down the design to the level of the now punched background. Then put the four pieces in water, face down; leave them a couple of days and when taken out the punched or pricked background has swollen out past the smooth scroll design. Then let this dry, work a bead on each edge of the frame, miter together and the thing is done.

THE MISTAKES OF A MECHANIC. Mechanics getting out of mistakes is one of the most pitiful sights on a job; the expression on his face when he first discovers a large juicy mistake is enough to make a dog strike his mother. And *believe me*, if the foreman is not at hand, Mr. Mistakist will get out another lot of stuff in about one-fifth of the time, and sweat drops as large as a New England doughnut. Although I have heard it said that a man who will make a mistake and gracefully get out of it, is smarter than the man who does not make them (a scarce specimen), because he does the double shuffle in producing twice, one bad and one good. Then again, the fellow who does not make mistakes is the one who gads around the shop and never takes any chances. Some bosses will make a noise like the bursting of a Paris sewer when they discover a mistake; others will immediately start off to rectify it, because there is no use bemoaning over the cow juice that has been unfortunately disorganized. While all the worn fabric masticating is being done, that time could be put in on the new job. "To error is but human; to repeat it becomes force of habit."—Shakespeare.

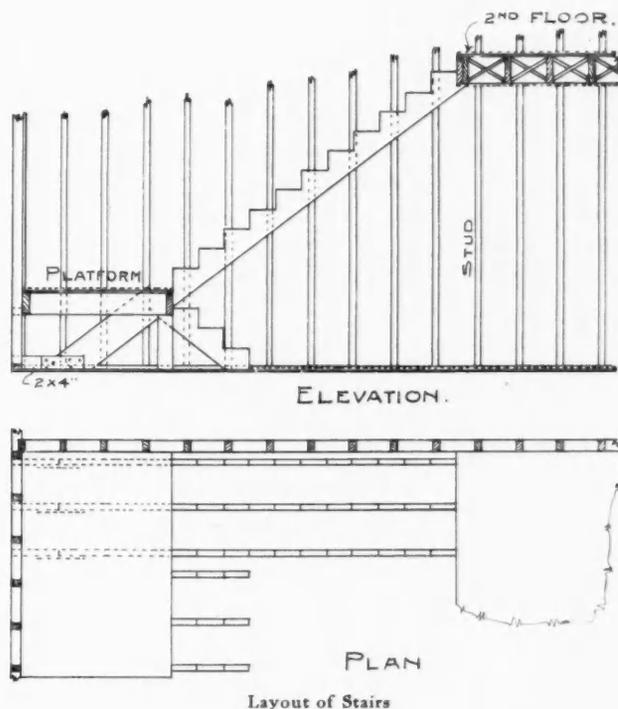
Now then, as to making mistakes on wood working jobs, it makes a big difference who makes them. I have seen foremen give orders that would cost a contractor many dollars and would make a noise at some poor jer. later that might happen to make a miss-cut,

that would vibrate the rafters of the Pacific Ocean's roof,—and that's some roof. I once knew a cabinet maker who was making a long elaborate counter and was given a man to help him. No. 1 was jealous of the man given him, and during the day discovered the counter 7 inches too short. He went to the shop at 6:30 next morning and changed the layout rod, so that his helper would go wrong, but a sash man who was in the shop early that morning, saw the quick change act, and later told Mr. Helper. Well, say,—the noise sounded like a Big Four passenger engine running amuck through a 5 and 10-cent store.

I have seen some very fancy mistakes made, and have, myself, made some very cute ones; in fact, I think I have gone all the way through the Book of Errors and now have a relapse.

Some Stair Construction

I recently measured up a job of stairs where a long flight landed down on a half space platform. Instead of the rough horses cutting against the header of the rough platform, which was five risers high, Mr. Foreman Carpenter, let them run down to the first floor, then put a piece of 2 by 4 inches from there to the outside wall. He nailed the rough horses to the first



floor,—the rough platform, to the studs under rough horses and to the second floor header; this was to help stiffen the stair and help hold up the center of the joist on second floor. I think this a good stunt; here is an illustration.

CHEAP TOOLS. I have seen wood turners with chisels and gauges made of files, the temper drawn, ground and shaped properly, then retempered to edge temper. These were cheap and good, because I have used them. This is a hint for apprentices.



MAKING POWER

Watching Jimmie Part V.

MR. RIVAL BOBS UP AND I CONSOLE JIMMIE WITH SEVERAL GOOD WOODWORKING POINTERS

By W. D. Graves

SOMETHING seems to have come between Jimmie and me and I'm worried about him. I'm afraid he's speculating. He is making preparations to erect a building on a lot near ours, and won't tell me for whom. Every time I approach the subject he asks some fool question about that alarm clock. I didn't think Jimmie was so picayunish. The man who used to own the lot, however, tells me that he sold it to Jimmie, and there is no record of another transfer. I don't at all like the idea of Jimmie building speculatively—especially without consulting me—but am somewhat consoled by the interest which Lorna seems to be taking in architecture. She seems to be studying it quite diligently, under Jimmie's tuition. Harriet would never allow her to work steadily in the shop with me, though she wields a rolling pin of her own turning; but I think that we can compromise very nicely if the child inclines to become an architect.

Good Stunt for Cutting Bridging

Speaking of Jimmie's picayunishness, he is showing a spirit of economy in some things which pleases me very much. I noticed a few days ago that he had hauled to the shop a lot of the short pieces of joists and timbers such as collect around any building job—and are usually used for fire wood. These he ripped into 2 by 2's, approximately, and cut to such various

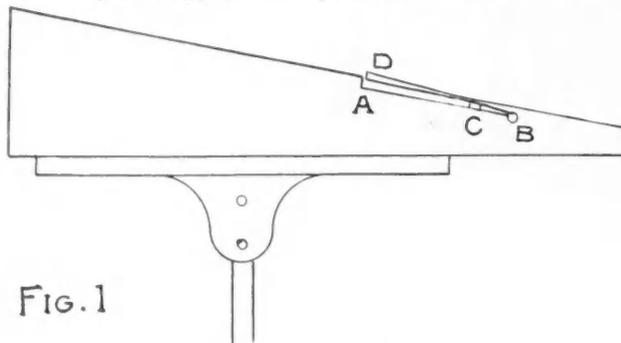


FIG. 1

Gage for Sawing Bridging

lengths and bevels as are most apt to be required for bridging between floor joists. He thus not only saved quite a bit of lumber but made quite a saving in the cost of cutting. His machine hasn't a swinging cut-off gage, so he got the desired bevel by screwing a wedge-shaped block to the front of the square one he has.

Because of the lack of proper length gage he was

handling each piece twice, first cutting off one end of all then putting on a stop and cutting the other; so I showed him how to make the sort of gage we used to use forty years ago. Fastening his beveled block to the gage with the straight grained edge to the front we made a mark on it, as at A in figure 1, at a distance from the saw equal to the length he wanted. We then took it off, bored a small hole at B and, with a key-hole saw, made a cut from B to A, parallel with the edge about a quarter of an inch from it. We then inserted a small wedge at C, planed off the bulge thus made, and drove a couple of small brads to hold the wedge in place. Sawing square in at A now allowed the sliver, D, which sprung outward sufficiently so that its end might form the desired stop against which to rest the end of the stock to be cut to length. When cutting the first end the other was allowed to run by and it took but slight pressure to force the stop back; yet it was out and ready for service instantly when the piece was lifted to be turned around. Cutting only a few pieces saved as much time as it had taken to make the device; and, when this job was done, Jimmie bored a hole in it and hung it up for possible future use.

Sawing Gutters from the Solid

Jimmie called last night, as usual; and, as Lorna was entertaining a very bright young lawyer whom she recently met, he and I had a long chat together. It seemed quite like old times except for a degree of constraint and reserve not at all like the old time Jimmie. There's certainly something wrong with the boy. Our talk was mainly about the most practical way of making eaves troughs, or gutters, for cheap work.

"I find it almost impossible," said he, "to nail up a trough of boards so that it will remain reasonably tight; and I have been wondering if I couldn't saw something out of the solid that would be about as cheap and a good deal better.

"You sure can," said I, "get them out even more cheaply and much better. I used to make a good many out of four by fours. It is merely a matter of surfacing, or sawing, them to size, then cutting out the corner like this"—and I made the sketch which is reproduced here as figure 2.

WOOD WORKERS PAY



"Your four by four and the work will not cost as much as the lumber and work in a well made board trough, while you will have a much more durable job, and will have a piece of three by three left. It is true that three by three is not a commercial size, but one can always get some value out of it. You can do the job readily on your buzz saw, without any special jigs or adjustments, and there is nothing about the job which you do not already know; unless, possibly, it is a little trick in selecting the stock.

Cut Each Piece Right Considering the Grain and it Won't Warp

"You of course know that the more nearly straight grained and sound your stick is the better it will stay in place; but there is another point about the grain which is much more likely to be overlooked and which is nearly, if not quite, as important. You know

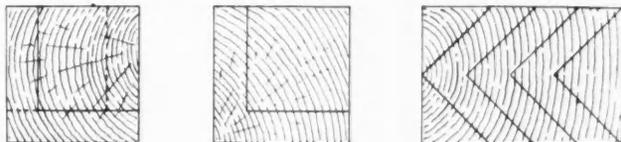


FIG 2 FIG 3 FIG 4
Ways to Cut V Trough

from the experiments which your father and I tried some years ago that wood shrinks and swells a great deal more in the direction of the circumference of the tree than in that of its diameter. This, and the fact that the grain is always more or less curved, accounts for most of the warping and twisting which is the chief bugbear of wood workers; and, in order to secure the greatest possible degree of stability we must so select our piece of wood that the grain will run as nearly as possible at right angles with its width. In selecting a piece of four by four for a V-shaped trough I should choose one with the grain running in the relative direction indicated by these broken curved lines in figure 3; and would cut the trough as indicated by the heavy lines. If cut from the left and upper sides it would be nearly as stable, but not quite. You see that, either way, you will get the two sides practically "quarter sawed" or with "edge grain." A trough selected and cut in this way will shrink and swell comparatively little, will not warp materially, and will be very unlikely to check; for such change of volume as there may be will be comparatively uniform. If you cut one from a piece as shown in figure 2, the side on the left, the one with the "flat grain" would shrink and swell much more than the other, would warp outward, and eventually crack.

"Yes," said Jimmie, "I see."

He did seem absorbed in thought, but it somehow didn't appear like wood working thought. What can have gotten into the boy?

"I've thought of the four by four scheme," said he after meditating a while, "but it seems rather wasteful of lumber. Of course one can work up the three by three somehow, but it is only rarely that you can get full value out of it. Isn't there some way to get out practically the same thing with less waste?"

"Yes. You can get three troughs about three-quarters of an inch thick, and only a trifle smaller, out of a four by six (three times the product out of fifty per cent more lumber) or get them with even less comparative waste from a wide four-inch plank; but that would require a special jig.

"Well, let's have the jig then."

Now right here happened a curious thing which, though it relates more to psycho-physics than to wood work, seems worthy of note. Lorna, who had been playing something low and soft on the piano, immediately struck up something loud and quick. I don't know the names of such things, but it sounded like a buzz saw out of balance and a power mortiser with a hot box. Jimmie immediately seemed to brace up and take more notice of what I was saying; but whether it was the resemblance of the music to the sound of wood working machinery, or whether purely the effect of the music itself, is a matter for psychologists to determine.

A Jig for Sawing V Troughs

"If I wanted to get V-shaped troughs out of four by six," I continued as Jimmie's eyes took to them-

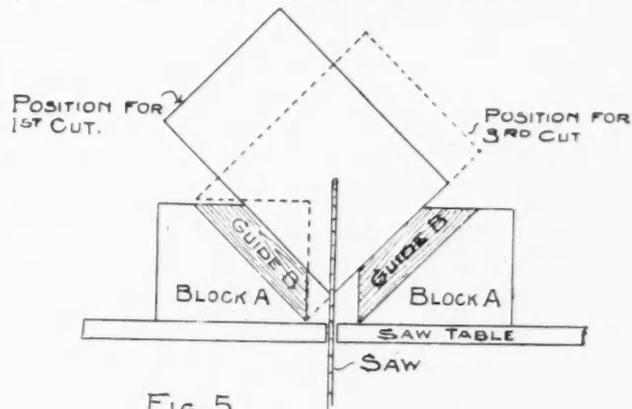


FIG 5.
Saw Table Jig for Cutting V Trough

selves some of their old time snap, "I would cut them as shown in this sketch, figure 4. To do this you will have to use a saw which will cut four inches above the table, and some arrangement which will tilt your plank, or four by six, at an angle of 45 degrees with the table. If you have this device on only one side of the saw—and the same if you use a tilting table—you will have to turn your stock end for end after each cut. For this reason it is better to have the tilted rest on both sides, which will void the necessity of swinging the plank around and make it necessary only to turn it over. I would build something similar to this of which I will show you an end view (figure 5).

"The two guide pieces, B, B, are supported on either side of the saw by the blocks, A, A. It will require two of the blocks for each guide, though of course only one shows in the end view. The inner, vertical, edges of the guides must be as far from the saw as the desired thickness of the gutter; and must be high enough so that the corner of the stock after the second cut, will barely touch the saw table. This height, by the way, will be just twice the thickness, as you will see by reference to the diagram.

"The position of the stock during the first cut is shown by the solid lines. The second cut, removing the first triangular piece, is made by turning the stock

over and running it on the other side. The third cut is made in the position shown by the dotted lines; while the fourth one, removing the first finished trough, is made on the same side as the first. After this a trough is removed at every alternate cut until the stock is used up."

"But how about selecting the stock for this job—I suppose that the way the grain runs makes just as much difference as when the other method is used?"

"Sure. I would try to get a plank with the grain running, as nearly as possible, as indicated in figure 4. One cut directly through the middle of the log would be ideal."

We were interrupted here by the young lawyer taking his leave; and I had barely time to tell Jimmie I'd be down tomorrow to help him, when he went too.

"What in the world is the matter with Jimmie?" I asked.

"There isn't anything the matter with him," said Lorna.

The child appeared fretful and flushed, so I suggested to Harriet that she give her some whiskey and quinine; but she simply looked wisely contemptuous, as is a woman's way, and asked me if I had locked the back door. So I locked the back door—and kicked it too—and went to bed.

Slate Roofs—Ideas Both Old and New

By C. R. Lippmann

IN no other line of building material is there such a variety offered to the builder as in the matter of roofings. On considering the various kinds, a set of roofing standards will be found a valuable "yard stick of merit."

Let us gauge slate in this manner. A witty philosopher said that in getting an automobile or a wife, it is not the first cost that counts, but the upkeep.

Same way in roofs. The cost of the roof is *not* only the outlay required to put it on the building, but the total expense of *keeping the building under roof* as long as the structure stands; for the roof is the one part of the house that must be kept intact.

Naturally that roofing is the cheapest, which lasts the longest without painting or coating, provided of course that the first cost is not prohibitive or excessive. Under such a cost test, slate shows up very favorably.

Being non-metallic it does not rust and requires no

painting. Being non-porous, it does not absorb anything; cannot decay. Being a homogeneous sheet of stone, it does not peel off in layers.

Which explains why in Europe, where the slate industry is older than in America, slate roofs are found



Slaters' Tools



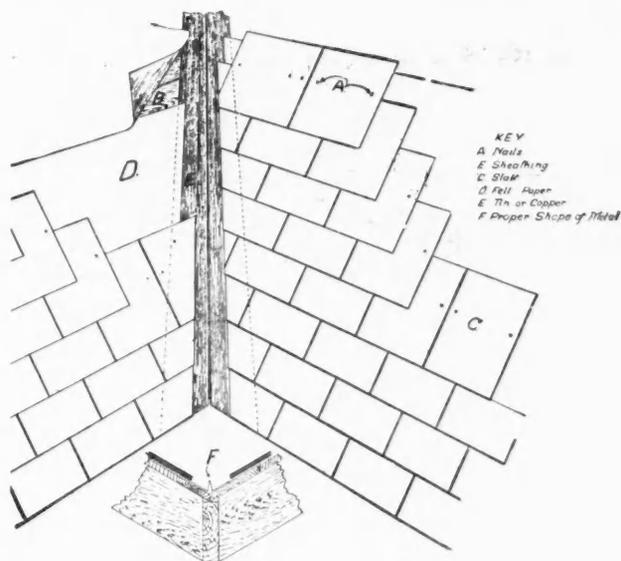
Slate Laid Over Shingles

centuries old. In this country there are slate roofs in good condition today that were put on when the Indians were still swarming through the valleys of the East.

Being stone, and therefore, noncombustible, a slate roof will turn even a frame house into a semi-stone structure so far as fire danger is concerned. Sparks glancing against the frame walls do no damage, because they slide off immediately. The fire danger is on the roof where the sparks lodge, unless it is covered with a fire-resisting material such as slate.

The desirability of slate having been established, next comes the matter of cost. Slate is mined along the Blue Ridge Mountains in Pennsylvania, Virginia, Maryland, also in Vermont, and New York. By far the bulk of the output comes from these regions. Naturally the cost of slate varies in different parts of the country according to the freight rate.

As a general principle it may be said that since the advance in the price of lumber and shingles, a slate



Method of Slating in Open Valley

roof can be put on for about the same as, or a little more, than a first class shingle roof.

There is a further similarity between the two; slate is laid about the same way as shingles. Any one who can put on the latter, can lay slate. But it requires less slate per square of roofing surface than shingles—therefore less time and labor.

Rafters or sheathing boards for a slate roof are put on in the same manner as for a shingle roof. The better the roof sheathing, the better looking will be the slate roof. For the best class of work sheathing boards should be tongued and grooved, and covered with sheathing paper.

Slating is started at the eaves, working upward, and laid with a 3-inch lap. That is, the top slate of the third course above, will overlap by 3 inches the slate of the first course below, as shown by the accompanying sketch. For this reason the eave course is only a little longer than half the length of the slate put on the rest of the roof. This is frequently accomplished by laying the slate in the eave course lengthwise. The lower end of this eave course slate should extend about one and a half inches or so beyond the eaves, and the course of slate should end flush with this edge, thus producing a double layer.

In this manner there is a double layer of slate all over the roof, and a threefold layer near and over the horizontal joints. As to vertical joints, the rows always break bonds.

A good practice is to trace out with a carpenter's pencil or chalk the lines along the roof surface where the various courses are to be nailed to the rafters or the sheathing, as shown by the accompanying diagram.

In order to allow the second course, the one above the eave course, and naturally all the following courses to lie right, it is well to nail a cant strip along the eave before starting to slate.

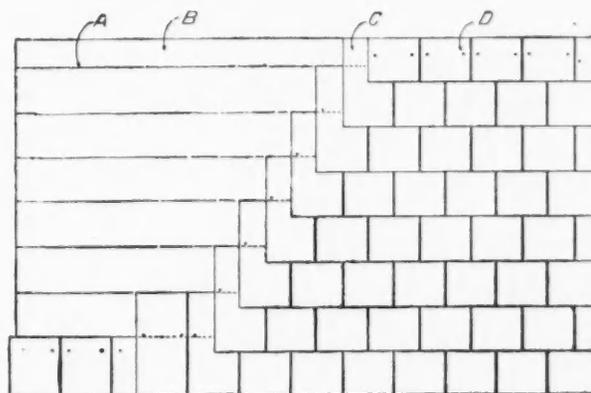
Each slate is fastened with two nails; the holes therefor being punched by the roofer on the premises or else at the quarry. The holes are naturally so located as to allow for the 3-inch lap, no matter what the size of the slate, and placed about 1 inch from the side edges.

The nails should not be driven perfectly tight; this is so as not to interfere with the elasticity of the slate roof. Owing to its many small component pieces, it adapts itself readily to the vibrations of the wind, the sagging of the building, etc.

Of course the nail must not be allowed to project above the surface of the slate; in which case it would damage the overlying slate. Galvanized or copper nails are preferable owing to their weather resistance.

As the courses of slate approach the ridge, a slight variation in lap is permissible so as to finish at the ridge without cresting.

The ridges and valleys of a slate roof are generally of metal. Flashings should extend well in under the slate to keep out the possible "backflow" of water from heavy rains.



Usual Method of Marking Headlines, Previous to Laying Slate

Slate comes in various colors, generally classified under the trade terms, Black, Sea Green, Mottled, Unfading Green, Unfading Red. The latter two are mined in rather limited quantities and naturally the highest in price.

Where it is desired to produce a fancy effect, sometimes green or red slate or both, are used in black slate roofs to produce more or less geometrical patterns. Ornamental effects are also produced with slate of the same color by trimming the exposed corners, either in every layer, or in layers at certain intervals.

One of the most popular styles of this ornamentation is to cut off the lower corners so that the exposed

part of the slate will form the lower part of a hexagon (an "equal-sided" six-cornered surface). This is called "cut Washington."

However, as we are more and more coming to the advanced view that simplicity is beauty, "fancy slating" is becoming a thing of the past.

Slate is also used as a top layer on flat roofs, where it is embedded in plastic cement—and of course laid without lap. Such a roof is in principle the same as a gravel roof, except that unlike the latter, the flat slate roof is permanent—since there is no gravel that can wash out or come out, leaving the underpart thus unprotected.

The slate used for this purpose is the same exactly as slate used for peaked roofs; no increase in thickness being necessary even when there is considerable walking done on the roof. The average thickness of roofing slate is 1/5 inch.

Old shingle roofs are frequently re-slatted without removing the shingles—quite a saving in the cost of the job. Of course this is not possible where shingles are too curled or too rotted. The accompanying photograph shows such a job in process.

Slating requires few and simple tools. The slater's hammer is a combination tool, a hammer at one end, a pick at the other for punching holes in the slate, and a sharp edge between the sharp point and the center. At the latter is also a claw for pulling nails. In punching or trimming slate while roofing, the "stake" is used. This is practically a straight edge, having at its center a short, pointed leg. The latter is thrust into the sheathing boards, and thus easily moved from place to place as the roofer progresses.

The ripper is a long tool whose peculiarly shaped point is well shown by the illustration. This tool is slipped in under the overlying slate to "rip" out the nails of the under-slate in repair work.

A foot-power slate punching machine will punch the nail holes and at the same time trim the corners. These machines are easily portable and frequently carried around to the various building premises by the slater.



Ultra-Modern Slate Users Reverting to Mediaeval Styles

Illustrations by Courtesy of E. J. Johnson

Several of the architects in New York, among them the well known firm of Cram, Goodhue & Ferguson, are bringing out some new ideas in slate roofing. One of these methods has been brought about in a desire to follow old time European methods and to emphasize the "ancient and antique," which is so much a part of modern life. When slate quarries were first known in Europe, the slater would go to the quarry and take away as much slate as he could handle, in all sizes and shapes, just as it was quarried. He put it on the roof without much change and consequently there are in Europe, even today, on some of the older buildings,



All-Slate Valley Construction. No Tin in Sight

slate roofs of odd and uneven design.

The ultra-modern slate roof therefore follows old European methods. This consists of slates of graduated lengths and thicknesses and random widths. No attempt at uniformity is made in the width of the slate; all colors can be used, at the option of the owner. On a large roof the bottom slate may be 1½ inches thick and 3 feet long. For the next course slate slightly thinner and shorter is used, until the slate at the top does not measure more

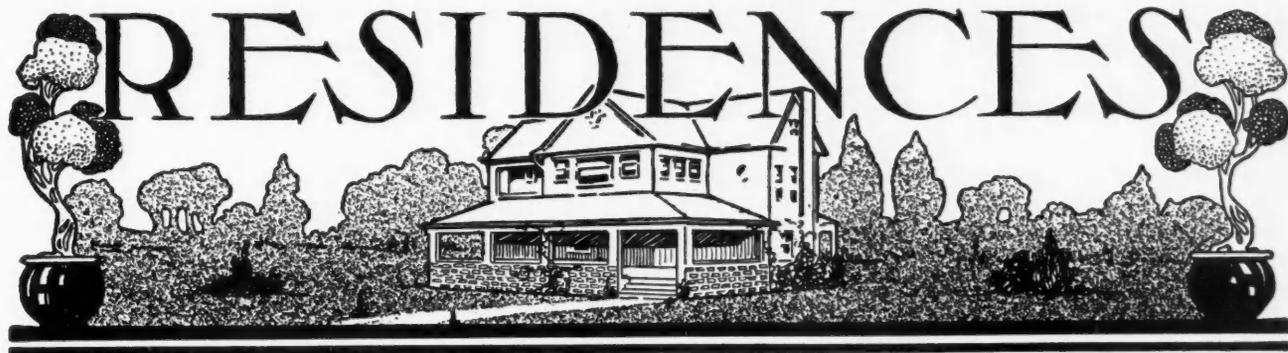
than 12 to 14 inches in length. Colors in mottled purple and green are used to produce artistic effects and the bottoms of the slate, as well as the sides are broken and left in the rough.

A slate roof of this kind is necessarily heavy and is designed for large residences, public buildings, churches, etc. This method was used for Howard Gould's new residence at Sands Point, L. I., and the total weight of the slate roof on Mr. Gould's house alone is 330 tons.

The illustrations show a straight roof laid with this method and a new treatment for valleys. The ordinary valley is of tin and the tin always shows. That entire valleys can be made of slate is shown by the photograph and the work so done is surely more artistic than an unsightly piece of tin. This method of all-slate valley construction is now being used by many of the best architects. Such work of course requires considerable extra time and care.



Heavy Large Slate at Eaves, Growing Thinner and Smaller Toward Ridge



Plans for an Eight Room Brick House

FULL SET OF ARCHITECT'S WORKING PLANS TOGETHER WITH PERSPECTIVE DRAWINGS SHOWING
A VERY NEAT AND COMPACT MODERN HOME

THE house illustrated below, for which plans are given in the pages following, is a practical example of how such a building may be put up, utilizing every bit of space to good advantage, at the same time giving many modern touches not usually found in a building of this size or type.

As can be seen from a glance at the plans, two means of entrance are provided; either through the side door directly into the vestibule and reception hall or from the front porch through the French doors into the spacious living room. Besides the living room and reception hall the first floor contains dining room,

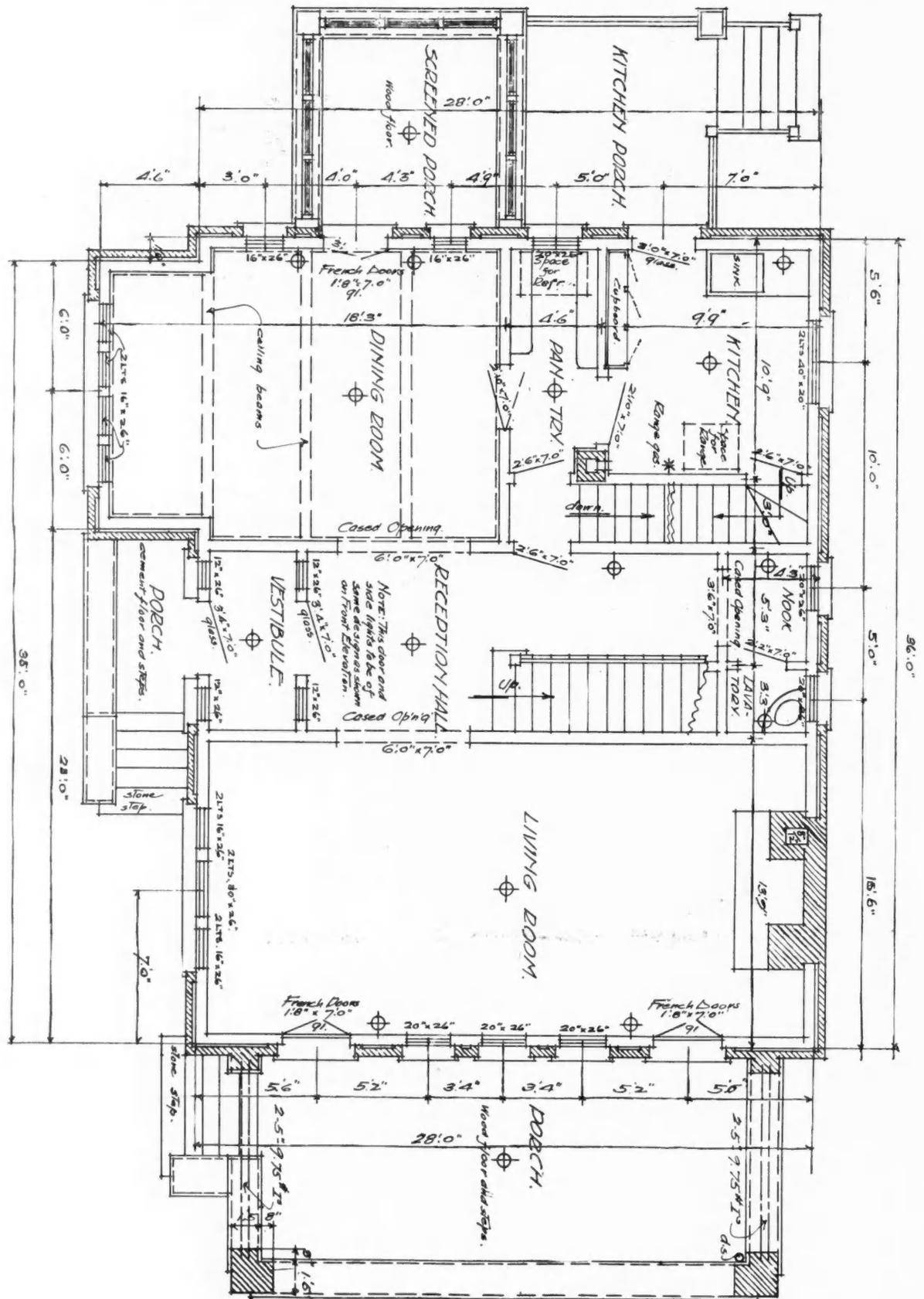
kitchen, a large pantry and a screened breakfast porch. At the rear of the hall there is a nook and lavatory—a most convenient arrangement. Upstairs there are four large bedrooms with roomy closets. There is a good-sized bath room, easily accessible from any of the bedrooms. The screened sleeping porch at the rear is also an excellent feature of this arrangement. The third or attic floor contains space that can, with a little ingenuity, be converted into a cozy bedroom or a billiard room.

A building of this kind proves a model for the man of moderate means, and is well worth serious consideration.



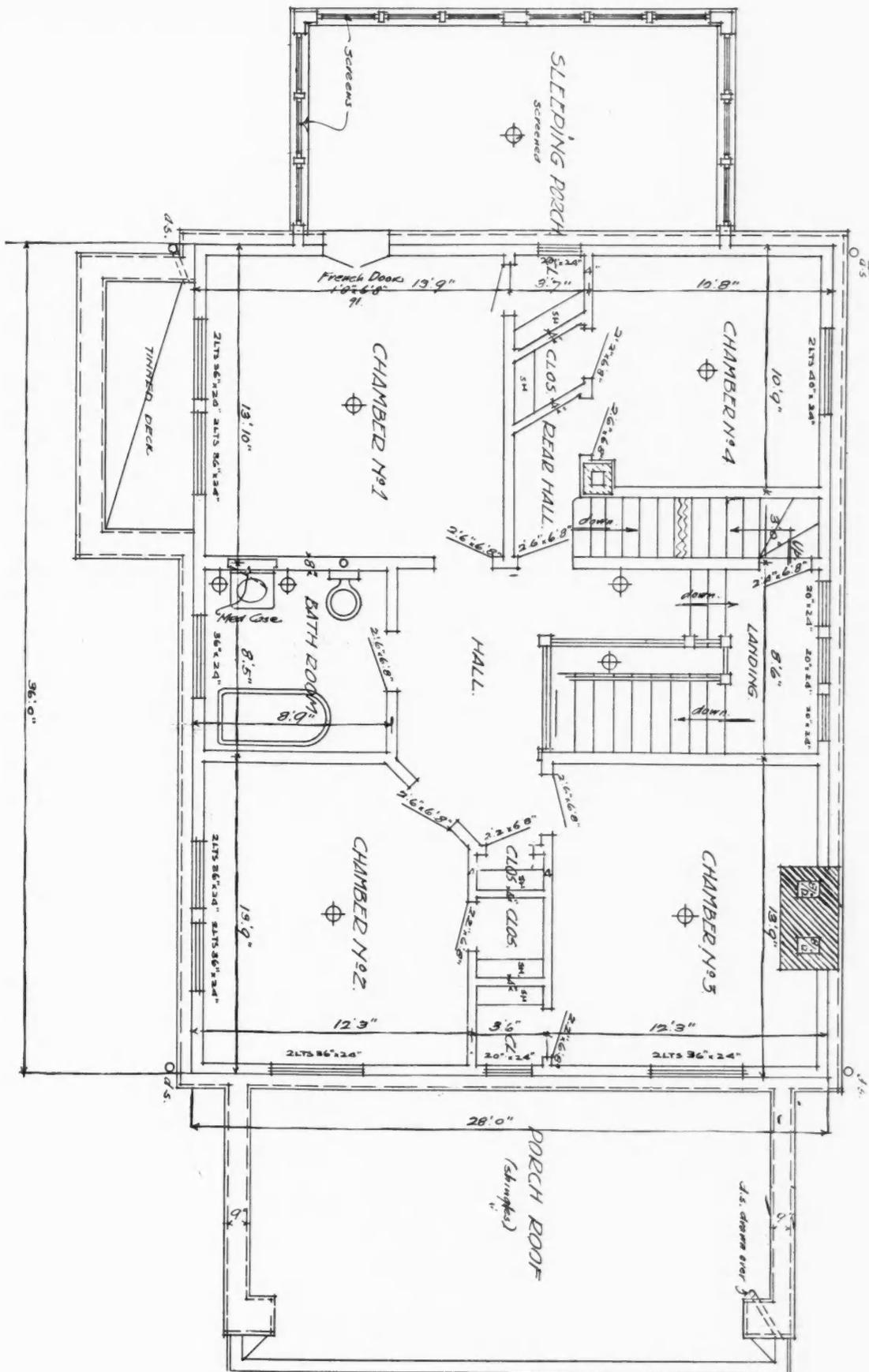
Beautifully Designed Eight Room Brick and Stucco Residence of Mr. W. F. Waller, Berwyn, Ill.

COMPLETE WORKING DRAWINGS FOR THIS HOUSE ARE PRESENTED ON THE 7 PAGES FOLLOWING



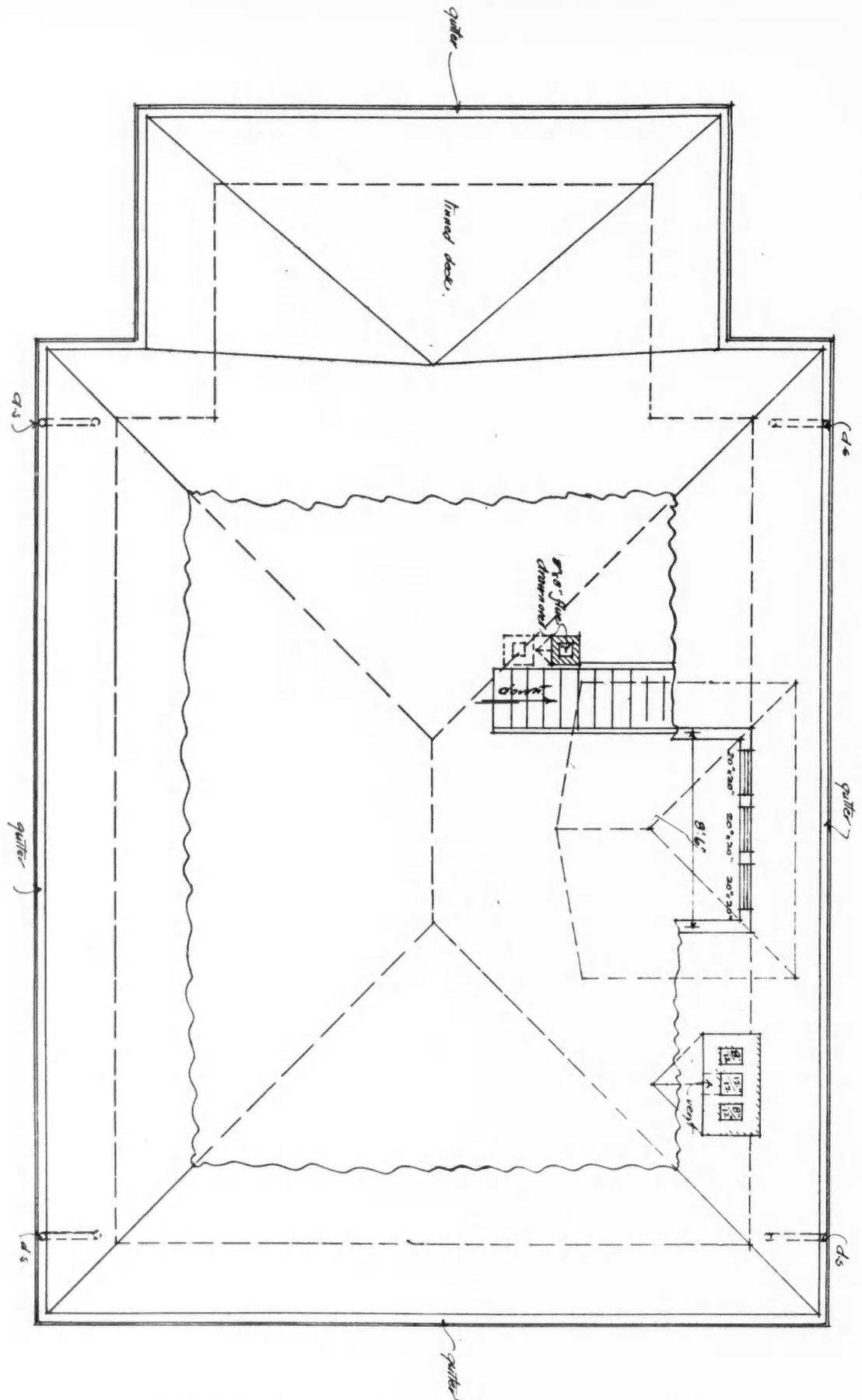
MAIN FLOOR PLAN

(House Shown on Page 67)



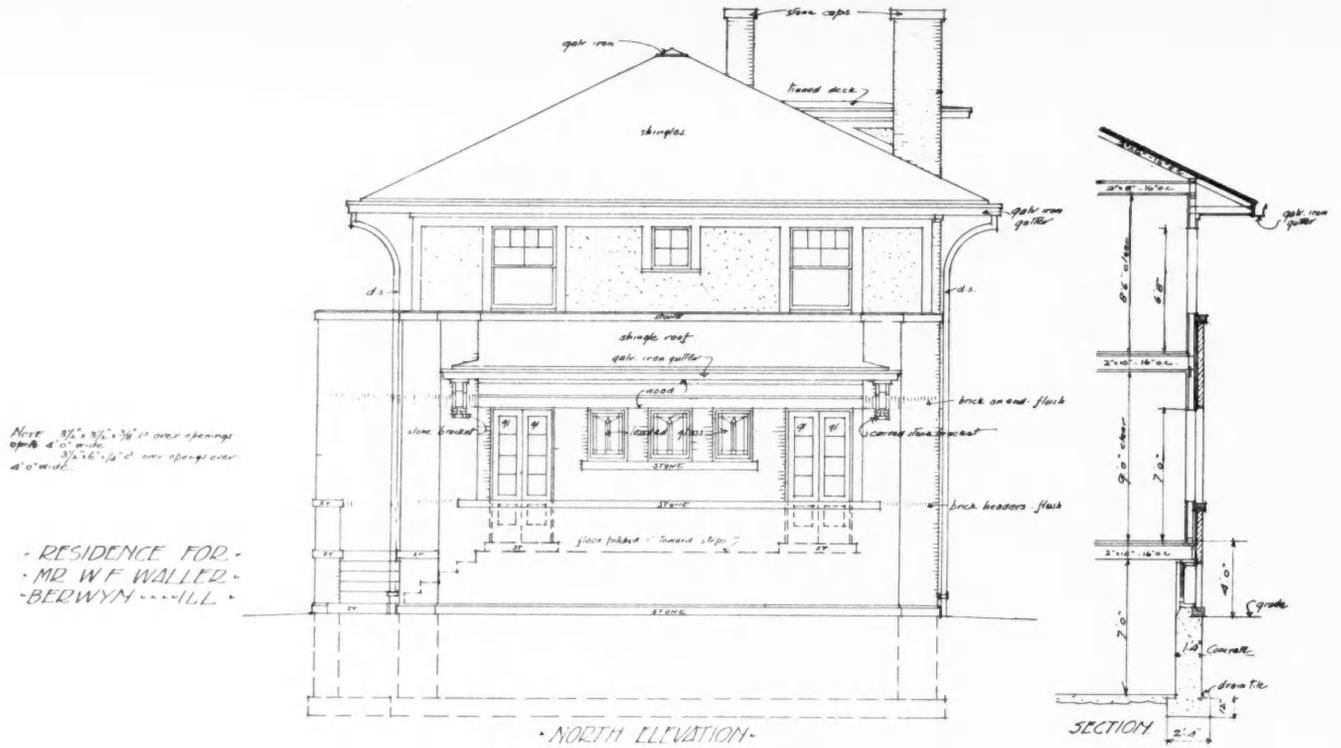
SECOND FLOOR PLAN

(House Shown on Page 67)

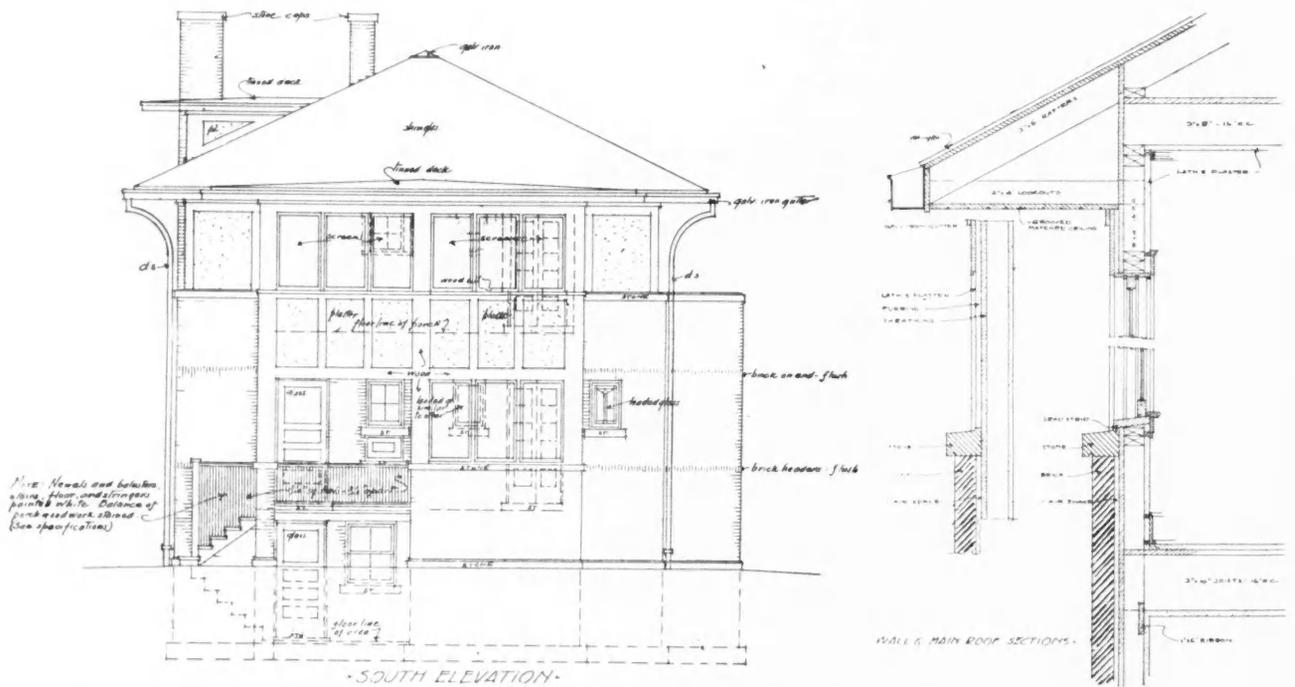


ROOF PLAN—HOUSE ON PAGE 67

Note that Dormer was Changed to Opposite Side When House was Built



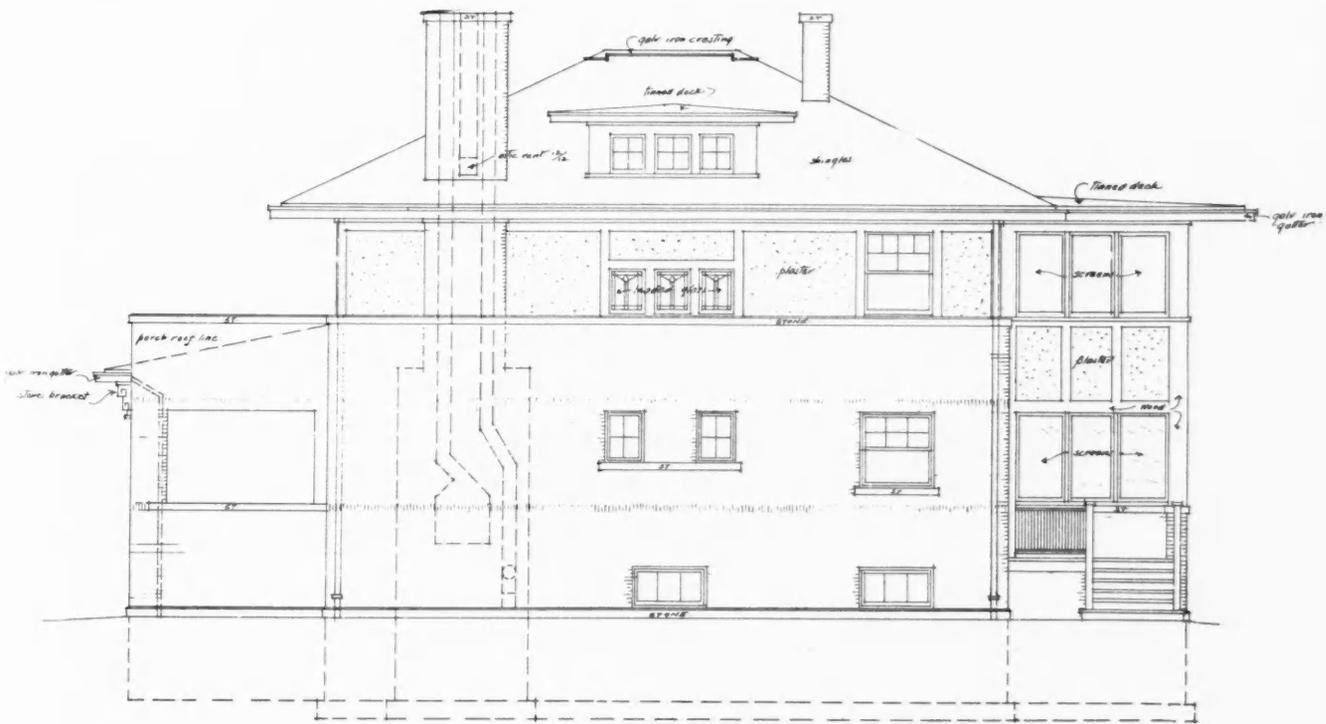
FRONT ELEVATION AND WALL SECTION



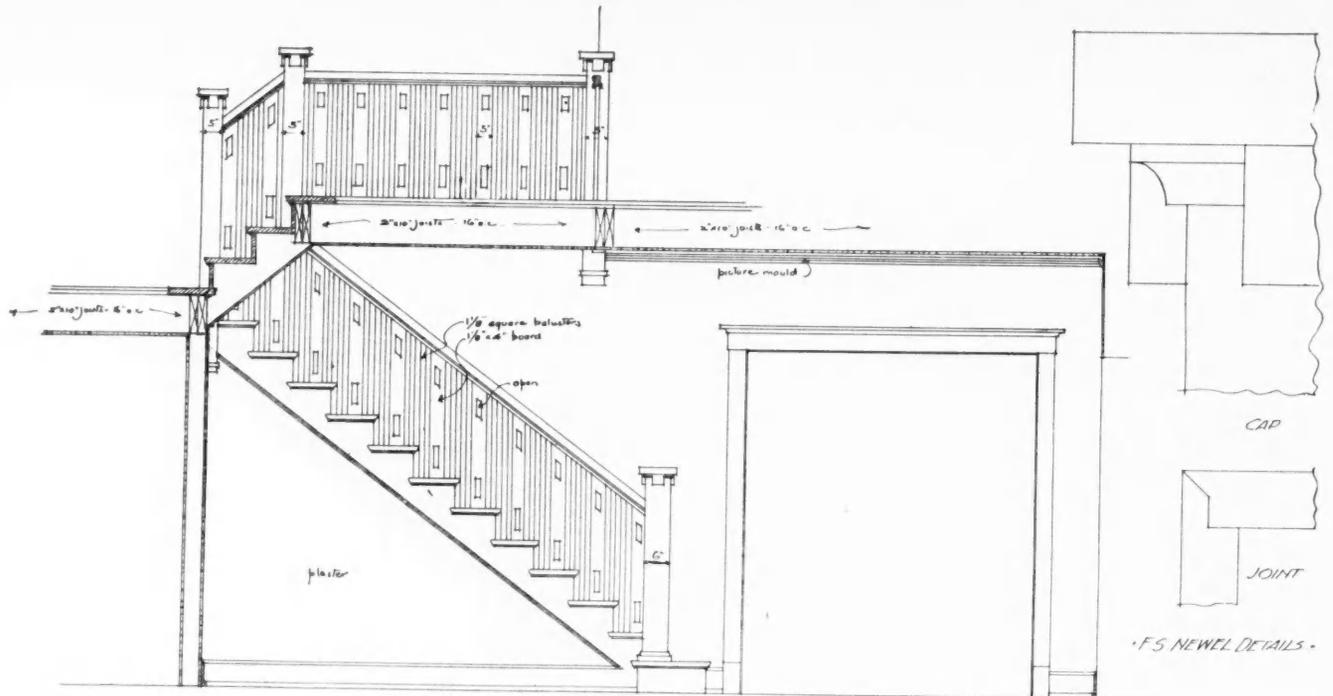
REAR ELEVATION AND MAIN ROOF AND WALL SECTION
(House Shown on Page 67)



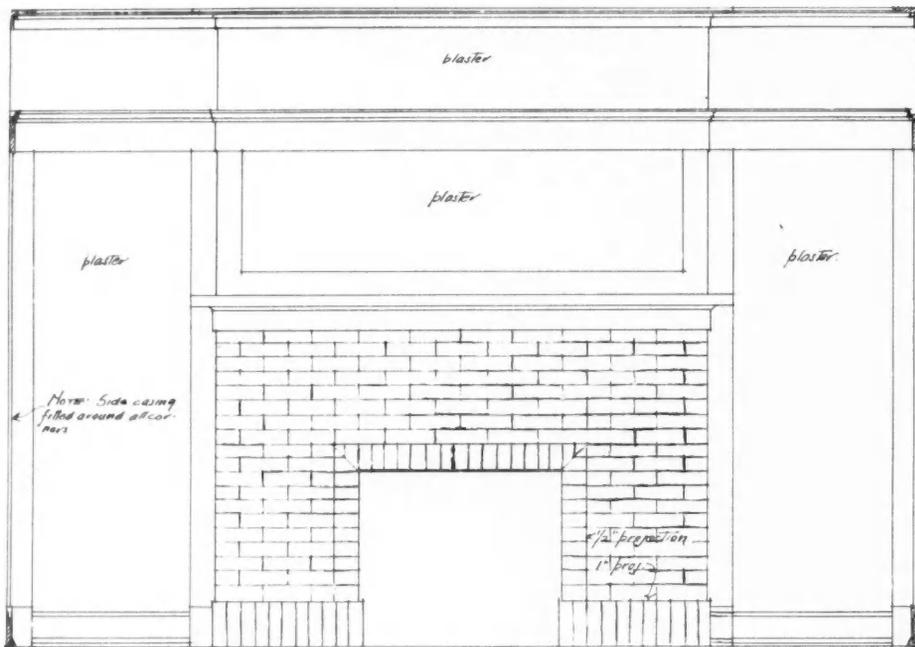
- EAST ELEVATION -
RIGHT SIDE ELEVATION



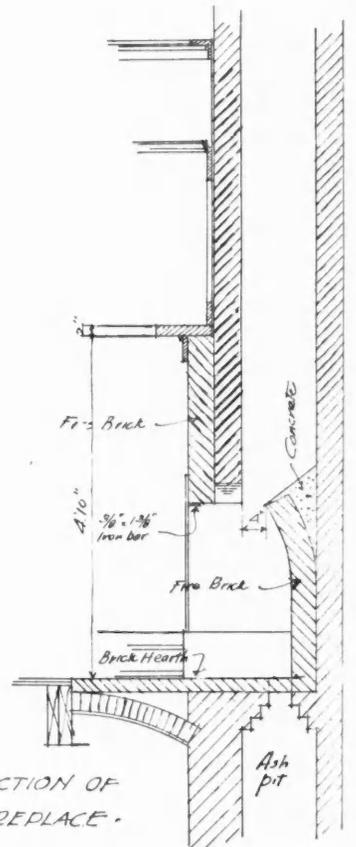
WEST ELEVATION
LEFT SIDE ELEVATION
 (House Shown on Page 67)



• DESIGN OF FRONT STAIRWAY •



• ELEVATION OF END OF LIVING ROOM •
 • SHOWING FIREPLACE AND CONTINUOUS TRIM •



• SECTION OF FIREPLACE •

DETAILS OF INTERIOR FINISH

(House Shown on Page 67)

Our New Home

We believe that every subscriber, advertiser and customer of the RADFORD PUBLICATIONS will be interested to know that we have purchased a home of our own.

On page 77 we print a half-tone engraving of a photograph of our new building. We have had our eye on this magnificent property for a long time. On March 20, 1913, we bought it after negotiations extending over a period of nearly three years.

More than \$200,000.00 has been spent on the property. It will be occupied and used exclusively by the associated companies of the RADFORD PUBLICATIONS—American Carpenter and Builder, Radford Architectural Company, Cement World and Dealer's Record—in extending and caring for its great business and promoting the interests and welfare of the entire building industry and its allied branches.

When equipped and arranged for our occupancy and use the new home of the RADFORD PUBLICATIONS will be the finest and largest building in the world devoted exclusively to publishing trade magazines, building books and selling building plans.

We most cordially invite our legion of customers, subscribers and advertisers to make our new home their headquarters. Complete and ample facilities for their comfort and accommodation will be at their disposal. The transaction of their own special affairs with the utmost convenience and dispatch will be provided for.

We want our subscribers and customers to meet our advertisers—the responsible manufacturers and dealers of the country—not only through the columns of our publications, as suggested in our front cover design this month, but also face to face and hand to hand. In our new home we will be in a position to further their mutual interests to a still greater extent than we have in the past.

On page 82 we tell our subscribers of a Special "House-Warming Subscription" Offer. We respectfully urge them to read this offer and to tell their friends about it and to invite them to join our "Big Family."

Yours very truly,



President and Editor-in-Chief of the Radford Publications.

A Home of Our Own

To Be Used and Occupied Exclusively by the

Radford Publications

On March 20, 1913, the RADFORD PUBLICATIONS bought for its exclusive use and occupancy the large, substantial and beautiful building at 1827-1829-1831-1833 Prairie Avenue, Chicago. Our new home will be at once equipped and arranged to handle the immense and marvelously increasing business of the

World's Largest Publishers

For the Building Industry.

The new home of the RADFORD PUBLICATIONS—American Carpenter and Builder, Cement World and Dealers Record, with which is associated the Radford Architectural Co.—has a frontage of 81 feet and a depth of 177 feet in the center of Chicago's new publishing district. It is located half a mile from the new Illinois Central Railroad station, half a mile from the proposed new Union railroad terminals, quarter of a mile from the site of the new Field Museum, one block from the new South Parkway systems, and one block from Lake Michigan. Our new business building has three stories and basement. The grounds and improvements represent an expenditure of over \$200,000. There are about 25,000 square feet of floor space, which will all be used exclusively for the business of the Radford Publications. It will be the finest publishing building in the world. A picture of our new home is shown on the opposite page.

Our Own New Home

To Be Used and Occupied Exclusively by the

Radford Publications

American Carpenter and Builder—Cement World—Dealer's Record—Radford Architectural Co.



1827-1829-1831-1833 PRAIRIE AVE., CHICAGO

Executive, Editorial, Technical and Business Staff of

The Radford Publications

The portraits on this and the opposite page will give our readers and customers an idea of the immense staff of the Radford Publications. In this face-to-face glimpse an informal introduction is afforded of men whose names are familiar to the Building Industry in every section of America. These men are ready to help our customers at any and all times with practical, reliable information and to give advice that can be safely followed in all lines of work of building construction.



E. L. Hatfield
General Manager
Radford Publications



WILLIAM A. RADFORD
President and Editor-in-Chief
Radford Publications

and Editor "Cyclopedia of Construction, Carpentry, Building and Architecture," (12 volumes), "Cyclopedia of Cement Construction" (5 volumes), "Steel Square and Its Uses," "Practical Carpentry," "Details of Construction," "Framing," "Cement and How to Use It," "Artistic Homes," "Ideal Homes," "Brick Houses and How to Build Them," and many other well-known Building and Plan Books.



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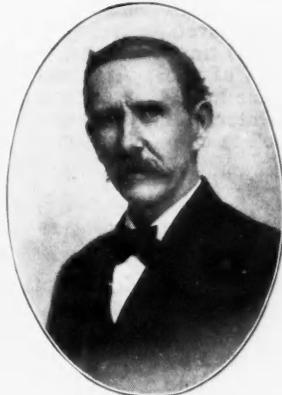
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I. P. Hicks
Architect
and Contractor

What Ten Years Have Wrought

Brief Historical Sketch of the Radford Publications

About ten years ago the Radford Architectural Company, the first of the associated companies of the Radford Publications, was organized and began a business of selling plans and specifications by mail to contractors and builders. This pioneer concern started in a small way in the lower portion of a building in West Twenty-second street, Chicago. A view of our first offices is shown herewith. In less than two years the business had grown so rapidly that larger quarters had to be obtained, and one floor at 198 Fifth avenue was leased on Jan. 1, 1905, containing about 4,000 square feet of floor space. On April 15, the publication of the American Carpenter and Builder was begun at that address. The addition of this company and the aggressive methods employed to bring it to the front at the very start soon made it necessary to have additional room, and the fifth floor of 198 Fifth avenue was secured. Even this additional space proved inadequate in a very short time, and on Jan. 1, 1907, the entire eleventh and twelfth floors of the Medinah Building, one of Chicago's modern, fire-proof office buildings, were leased and occupied, giving the Radford Architectural Co. and the American Carpenter and Builder a working office containing about 11,000 square feet.

The Radford Architectural Company's first book was "Ideal Homes," a collection of 100 moderate-cost, artistic views of residences. This was shortly followed by "American Homes" and "Modern Homes," and then by "Radford's Library of Carpentry, Building and Architecture" in five volumes, over 50,000 sets of the Library being sold in about a year. Since then nearly sixty books pertaining to the building industry have been published by this company, consisting of building cyclopedias, cement cyclopedias, building books, plan books, etc. In addition the Radford Architectural Company has a tremendous business of selling plans of homes, school houses, churches, club houses, and other private and public structures throughout the world.



The First Office of the Radford Publications. Occupying Lower Floor 188 West 22nd St., Chicago

Second Member of the Group

The first number of the American Carpenter and Builder was published on April 15, 1905, just eight years ago. Its first edition went to 16,000 subscribers, each of whom had paid for it for one year in advance. This was the largest circulation ever enjoyed by any building publication up to that time. It was a remarkable achievement for a brand-new paper entering a field already occupied by a number of publications, some of which had been established for over a quarter of a century. The first number of the American Carpenter and Builder consisted of 64 pages and contained the advertising of 28 firms occupying seven pages. Eighteen of these pioneer advertisers are still advertising with us. Contrast our first number with this one—our Eighth Anniversary Number—of nearly 200 pages, and 110 pages of advertising, representing 335 responsible concerns.

The circulation of the American Carpenter and Builder has tripled during these eight years, but we cannot forget the 16,000 "Charter Members" who helped us to win a glorious success and whose confidence in our ability to carry out our promises to them placed this publication at the front from its first number. A very

large percentage of our "Charter Members" are still on our mailing lists. We distinguish the "Charter Members" from those whose subscriptions came to us later by placing their names on a separate, distinct list and affectionately refer to this list as our "Blue Card" or "Honor" list.

The advertising rates of the American Carpenter and Builder have been raised five times in eight years. Yet each month sees an increasing number of advertising pages and a larger number of advertisers as compared with the same months in previous years. This is chiefly due to the unswerving loyalty of our subscribers, the greater proportion of whom take a personal interest in our success and make it a point, whenever possible, to buy their machinery, tools, materials, equipment and supplies from firms using our advertising columns.

The American Carpenter and Builder enters its ninth year recognized not only as the "world's greatest building paper," but also as the leading monthly trade publication in any line. In our new home, with increased facilities and ample room for expansion, it will continue to develop along the same broad lines that have already made it such a power in the building industry.

Developing An Infant Industry

The third member of the associated companies known as the Radford Publications was the Cement World, the first number of which was published in April, 1907. Like its sister publication, the American Carpenter and Builder, the Cement World began its existence with a greater number of paid subscribers than had ever before been on the mailing lists of any publication in its field. Over 9,000 general contractors, cement manufacturers and users, engineers, and sidewalk and paving men believed the assurances made in the prospectus of this paper and forwarded their subscriptions before the first number went to press.

The growth of the Cement World has been a remarkable achievement. Its special field is more restricted than that of the

average trade publication, and during the six years it has been published the cement industry has been undergoing an evolution. It was practically a new industry insofar as machinery and tools were concerned and a great many concerns that entered the field were not built on a substantial basis. The industry also had to encounter determined opposition from antagonistic industries whose prosperity was threatened. The troubles that were in existence six years ago have gradually been eliminated. As the cement industry has progressed and developed and grown into one of the leading and most prosperous industries of the country, the Cement World has kept pace, and fittingly represents it as a substantial and responsible publication.

Only Paper in an Important Field

The first issue of the Dealers Record was published in July 1907. The publication was started with a view of getting the manufacturers and dealers of building materials in closer touch with each other.

The first subscription was received the early part of June, 1907, from Kansas City, Mo. Beginning with the first issue the paper had in the neighborhood of 1500 subscribers, and it has built up its circulation until today it has in the neighborhood of 7,000 subscribers and reaches building material dealers in every state in the union. Since its first issue it has been made the official organ of the National Builders Supply Association, The Ohio Builders

Supply Association, and a number of other masons supply associations, which is a good indication that the Dealers Record is recognized by the building material dealers of the country as their mouthpiece. It has always followed the policy of building up and of co-operating with the dealer and the manufacturer in every way, and today is the only magazine published which in every issue devotes space editorially to the promotion of brick and clay products, cement and cement products, lime, plaster, roofing, builders hardware, etc. There is not a building material dealer today in the country that has not heard of the Dealers Building Material Record.

Expert Information

By Experienced, Practical Men

The Radford Publications receive many requests daily for information from its customers and subscribers. Some of them want help on work that is new or unusual. Others want to buy machinery, tools, equipment, supplies and materials and ask us to recommend what is best suited for

the purpose and to give them advice where to buy it. They also ask the Editorial, Business and Technical Departments of the Radford Publications to help them solve problems of various kinds and on all sort of subjects.

Free Assistance for Our Readers and Customers

It is a pleasure for us to render this assistance. We welcome every opportunity to help them. We have a splendidly organized Information Department which takes care of these matters. This department is called "Radford's Ex-

pert Service," and is composed of a staff of practical builders, architects, draftsmen and writers, who can answer all questions on matters relating to construction.

We Bring Buyers and Sellers Together

This Expert Service has a completely indexed reference department, consisting of the names and addresses of manufacturers and dealers in everything that is bought or used

by contractors, builders, carpenters, architects, draftsmen, engineers, or any one engaged in any branch of the building industry.

Market Place of the Building Field

Immediately upon receipt of a communication asking where the writer can obtain a certain tool, machine, equipment, materials, supplies or any article, whether it is or is not advertised in our magazine, we write to manufacturers or sellers whom we know to be reliable and can furnish

goods promptly. Letters are sent out the same day the request is received and in each case care is taken to write to firms near the intending buyer, as to make carrying charges as light as possible.

Our Complete and Substantial Equipment

We want more of our friends to avail themselves of this "Expert Service." It is absolutely free to those who use it. Our facilities for gathering and furnishing information are unequalled by any other publishing company in the building field. The American Carpenter and Builder is affiliated with the Cement World and the Dealers Building Material Record (the three magazines comprising the Radford Publications), as well as with the Radford Architectural Co.,

which sells many thousands of building books, building cyclopedias and building plans in all sections of the United States and Canada. The Radford Publications have their own drafting rooms, architectural department, blue printing machinery, and a large staff of experienced, practical writers and artists. It has a reference library (second to none in the world) of books, pamphlets, periodicals and catalogs covering the entire construction field.

Prompt and Practical Help

Expense is not considered and the most painstaking care and attention is given to any request sent to our Expert Service Department. We most cordially invite our readers to make full use of it at any and all times.

If you want to get expert service on any problem of building, engineering or paving, or if you want information about work that you do not understand, state such particulars and we will help us to give you an intelligent answer to

your questions.

If you want to buy anything, or if you want information about something that is not advertised in any of the Radford Publications, or if you want to know more about something that is advertised, just write to us. We will place you in immediate touch with manufacturers or dealers who will furnish you with just what you want and at the best prices.

We Want To Celebrate Our "House Warming"

The American Carpenter and Builder now has the largest subscription list of any building publication. We are not satisfied. We want at least twice our present circulation. In order to accomplish our object in the shortest possible time we ask our readers to give us their assistance. Every one of them has friends who could be induced to send their subscriptions to us if our subscribers would tell them how well pleased they are with the magazine, how valuable it is to them and ask them to accept our generous offer on this page. Help us celebrate our removal into our new home by sending us at least one "House Warming Subscription." Read our Special Offer below and get your friends in touch with us at once.

The books named in combination with this offer are all sold regularly at \$1.00 a copy. They are cloth-bound, with art covers, printed from large, clear type, on high-grade enamel, super-calendared or antique book papers, and every one of them is the best book published on its respective subject. Lack of space prevents a detailed description of each book, but we unhesitatingly back up every purchase you make from us with an iron-clad guarantee of "ABSOLUTE SATISFACTION OR MONEY RETURNED."

We Will Send the Book Selected, Absolutely Free, Express Prepaid

DETAILS OF BUILDING CONSTRUCTION.—200 pages, size 9x12. A complete manual of building practice, consisting of full-page plates reproduced to exact scale, making plain the construction and framing of buildings of every type. Interior trim is fully detailed, as well as all modern and up-to-date methods of "built-in" mantels, book-cases, fireplaces, etc.

CEMENT WORLD.—A monthly publication of 100 to 140 pages each issue, with many illustrations and a greater quantity of reading matter than any paper in its field. Its editors and contributors are men who are foremost authorities on the subject of cement, and carpenters and builders will find many pages of information that will be of great benefit to them.

BUNGALOWS.—224 pages, 8x11 inches, illustrating the best ideas in Bungalow architecture. The largest and most complete Bungalow book ever published. A book every carpenter and builder should have. Contains the perspective views and floor plans of 208 bungalows, suitable for any climate.

FRAMING.—356 pages, 6x9 inches. Illustrated with over 100 pages of detail drawings, diagrams, etc., reproducing architects' original designs and also details of building in all stages of construction. Covers thoroughly all problems of house, barn and roof framing.

ARTISTIC HOMES.—280 pages, 8x11 inches. Largest single book of house designs ever published, showing 250 designs of houses, together with complete floor plans and the arrangement and dimensions of all rooms. All designs are made with reference to comfort and economy of construction.

CEMENT HOUSES AND HOW TO BUILD THEM.—176 pages, 8x11 inches. Complete information for the cement worker, contractor and home builder. Over 200 illustrations, in addition to perspective views and floor plans of 87 cement, stucco and cement block houses, besides illustrated details of concrete construction of all kinds.

CEMENT AND HOW TO USE IT.—370 pages, 6x9 inches. Largest book about cement ever published. Splendidly illustrated, showing each step to be taken and the easiest and most common-sense way in the construction of buildings of all descriptions, paving, bridgework, engineering, and all kinds of large and small jobs in which cement is used.

PRACTICAL BARN PLANS.—160 pages, 8x11 inches. Contains drawings, pictures, plans, specifications and everything necessary and up-to-date to be taken and the easiest and most common-sense way in the construction of buildings of all descriptions, pig house, horse barn, smoke house, ice house, silo, dairy barn, or any other out building on or about the farm.

STEEL SQUARE AND ITS USES.—Two volumes, 300 pages each, 6x9 inches. 300 illustrations. Treats of the laying of rafters, finding the length of jacks, securing bevels, laying out hopper bevels, how to measure solids, surfaces and distances; roof framing, pitches, polygons and mitres, etc.

STORES AND FLAT BUILDINGS.—104 pages, 8x11 inches. Illustrates the perspective views and floor plans of two, four, six and nine flat buildings, bank buildings, and double houses in cement plaster, concrete block, brick, stone and frame, suitable for city or country.

BRICK HOUSES AND HOW TO BUILD THEM.—232 pages, 8x11 inches. Complete manual of brick construction, designs and details, giving the classification and measurements of brickwork, as well as the miscellaneous uses of brick. Tells the carpenter and builder everything he should know about brickwork in connection with framing.

GARAGES AND HOW TO BUILD THEM.—138 pages, 8x11 inches, illustrating frame, brick, stone and cement garages, together with estimates of cost and valuable data concerning garage construction, garage equipment and accessories, turntables, work benches and how to make them, tool cabinets, lockers, etc.

PRACTICAL CARPENTRY.—Two volumes, 300 pages each, 6x9 inches, 400 illustrations. Describes best and quickest methods for laying roofs, rafters, stairs, flooring, mitering, coping, splayed work, circular work and all kinds of joinery and carpenter work. Complete information from foundation to roof.

IDEAL HOMES.—Perspective views and floor plans of 100 moderate-priced homes. 124 pages, 8x11 inches. Best selling book of home designs published. 300,000 sold in all parts of the world.

AMERICAN HOMES.—256 pages, 6x9 inches. Contains 100 designs of low and medium-priced homes, besides many useful tables of measurements and dimensions. Plans all drawn by licensed architects.

MODERN HOMES.—224 pages, 6x9 inches. Contains 200 modern house plans, showing perspective views and floor plans. A collection of artistic, original and handsome, but inexpensive homes, originally designed for the use of lumbermen to show prospective customers.

USE THIS COUPON, CHECK THE BOOK YOU WANT—CUT HERE—MAIL AT ONCE

"House Warming" Subscription

AMERICAN CARPENTER AND BUILDER, 178 W. Jackson Boul., Chicago.

Enclosed please find \$2.00, for which send to below address, one year's subscription to the American Carpenter and Builder beginning with 191 and in addition, send the book I have checked below, absolutely free, express prepaid

<input type="checkbox"/>	"Details of Building Construction"	<input type="checkbox"/>	"Cement and How to Use It"	<input type="checkbox"/>	"Garages and How to Build Them"
<input type="checkbox"/>	Cement World (1 year's subscription)	<input type="checkbox"/>	"Practical Barn Plans"	<input type="checkbox"/>	"Practical Carpentry," Vol. I
<input type="checkbox"/>	"Bungalows"	<input type="checkbox"/>	"Steel Square and Its Uses" Vol. I	<input type="checkbox"/>	"Practical Carpentry," Vol. II
<input type="checkbox"/>	"Framing" (House, Barn and Roof)	<input type="checkbox"/>	"Steel Square and Its Uses," Vol. II	<input type="checkbox"/>	"Ideal Homes"
<input type="checkbox"/>	"Artistic Homes"	<input type="checkbox"/>	"Stores and Flat Buildings"	<input type="checkbox"/>	"American Homes"
<input type="checkbox"/>	"Cement Houses and How to Build Them"	<input type="checkbox"/>	"Brick Houses and How to Build Them"	<input type="checkbox"/>	"Modern Homes"

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How I Build the Cold Air Box and Figure Proper Size of Furnace

By Cecil F. Herington

WHEN the Old Builder got to talking on his most successful furnace heating that he ever put in, there was considerable attention accorded to him, for it was a subject pregnant with many pointers.

"Now, the other evening," began the Old Builder, "you will remember I spoke of the cold air box, and you may be surprised to know that this is one of the most important items on the furnace; for this reason—a box that is too big will cause an over-dose of cool air which will be more than the furnace can properly handle and a box too small will cause overheating at the furnace because the cold air is not supplied fast enough to carry off the heat. So in laying out my furnace system I started in at the beginning or the cold air box. Now, here is a little note to put down and always remember—make the cold air box of a cross sectional area equal to about $\frac{3}{4}$ of the combined areas of all the hot air pipes.

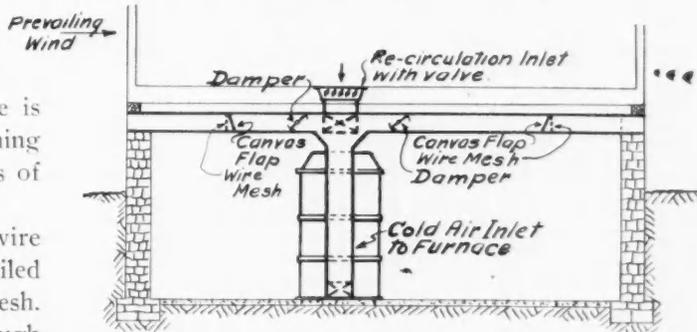
"This box may be built of wood, although galvanized iron is better and in some localities you have to use metal of some sort. And no matter to what window you run, it is bound some time or other to be on the wrong side of the house when the wind blows opposite to its usual direction. There is only one way to overcome this; which is by running your cold air box to two outlets on opposite sides of the house with a flap valve in each branch.

"This flap valve I made by tacking a piece of wire mesh across the box with a piece of canvas nailed only at the top located just back of the wire mesh. When the wind blew in one outlet it passed through the wire mesh and forced back the canvas flap so as to pass in under its raised edge. Now the flap valve in the other inlet is set with the wire mesh nearest the second inlet so that any air coming into the box through the first inlet and flap will pass on towards the second inlet, but striking the canvas flap first on the second inlet it is forced back from the inside tightly against the mesh, making it impossible for a single bit of air to get through. With a rig like this

you get a good air supply regardless of the wind; and in this house I am speaking of they always did.

"And now there is only one thing more in regard to these boxes; there should always be re-circulation connection so that an air supply can be taken from some desirable point in the house and re-circulated through the furnace in times of sand storms or excessive dust.

"Having effectually disposed of the cold air box and set the furnace so as to favor the registers on the normally windy side of the house I did not forget to try and arrange the chimney to land somewhere near the furnace location in the cellar. A long horizontal smoke pipe on a furnace is a sure means of cutting down the draft and therefore the effectiveness of your furnace, meaning either more money for one of larger size or the installation of an inadequate apparatus. Even when these smoke pipes are cleaned yearly (which is seldom done) the deposit of soot in the lower half of the pipe becomes quite heavy and reduces the smoke pipe area accordingly.



Method Advocated by the Old Builder to Prevent Reverse Currents in the Cold Air Box, also a Re-circulation Inlet for Use During Dust or Sand Storms, and the Furnace set so as to Favor the Registers on the Windy Side

"Next, I got down to finding out how large a furnace I needed and the method used to obtain this helps with the hot air pipe sizes later. In figuring heat there is a unit of measurement used which is simply for the purpose of expressing quantities of heat the same as the board foot is used to express the

quantities of lumber. The unit of heat measurement is what is known as the British Thermal Unit by rightful title (but I always call them simply heat units) and is actually about the amount of heat required to raise one pound of water one degree Fahr.

"Of course no one knows just what the heat loss from any house will be; but it can be approximated by losses on buildings of similar construction under nearly similar conditions, and it has been found that the frame houses lose about 21 heat units per square foot of surface when the inside temperature is 70 degrees and the outside temperature zero; which is the usual basis of heat calculation. This is also assuming the exposed wall faces south—if it faces north it loses heat more rapidly (about 28 heat units per hour), if facing east about 23 heat units and west 25 heat units. A house exposed on all four sides takes the average of these four or about 24 heat units.

"This does not include the windows which should be figured separately at 93 heat units for Southern exposure, 123 for Northern exposure, 104 for Eastern exposure and 112 for Western, or an average of 108 for windows all around a structure. This only applies to 'very good construction' and 'fair buildings' should have the losses increased 10 per cent and 'poorly built structures' 20 per cent, while all buildings with cold attics above add 10 per cent and cold cellars below another 10 per cent.

"To figure out the heat loss on the house I am speaking of it is necessary to know that it is 30 by 25 feet with two stories of 10 feet height between floor lines, twenty windows 2 feet 6 inches by 5 feet and a cold attic above but warm cellar with the furnace in it and, with due modesty on my part, say medium construction.

"Then the perimeter about the building is (25 plus 30) times 2 or 110 lineal feet and two stories at 10 feet each, give a height of 20 feet, so that the total wall surface is about 110 x 20 or 2200 square feet. Then if there are twenty windows each 2 feet 6 inches by 5 feet, the window area in square feet is 20 x 2½ x 5 equals 250. This subtracted from the total wall area is 2200 minus 250 or 1950 square feet actual wall surface and 250 square feet window surface.

"For total exposure the wall loss will be 24 heat units per square foot per hour or 1950 x 24 equals 46,800 wall loss and 108 heat unit loss for the windows per square foot gives 250 x 108 equals 27,000 window loss. Then the sum of the two is 46,800 plus 27,000 equals.....73,800 heat units.

For a cold attic above 10 per cent is added, or 7,400 heat units.
 For only medium good construction 10 per cent more, or..... 7,400 heat units.
 Making a total loss per hour of...88,600 heat units.

"This gives us something definite on which to base the calculations as to the size of furnace. It has been proven by experience that it is good practice to heat

the air up to about 120 degrees Fahr. and on this basis when running in zero weather the heat supplied to each cubic foot of incoming air may be considered in two parts—first, the amount required to raise the air to the temperature of the room (70 degrees) and second, the additional amount required to raise the air to 120 degrees. As it takes one heat unit to raise about 50 cubic feet of air one degree it takes 120 heat units to raise 50 cubic feet 120 degrees, which is equivalent to saying 1 cubic foot will require 1/50 of 120 units or 2.4 heat units.

"This 2.4 units per cubic foot is divided into the 70/120 required to raise the air to 70 degrees and which does not assist to heat, and 50/120 to raise the air from 70 degrees to 120 degrees, which is available for heating. Then for every cubic foot of air entering at 120 degrees we have 50/120 of 2.4 heat units, or about one heat unit available to supply the loss of heat which you just figured out.

"So the total loss (88,600 heat units) divided by 1 heat unit will give you the number of cubic feet of air required per hour at 120 degrees to keep the temperature at 70 degrees.

"As each cubic foot required 2.4 heat units to raise it from zero to 120 degrees, you have a total furnace capacity required of 88,600 x 2.4 or 212,640 heat units.

"Of course, there are furnaces and furnaces, but tests show that most good average types will transmit about 8,000 heat units for each pound of coal they consume so that to furnish the total of 212,640 heat units I require, it is necessary to burn 212,640 divided by 8,000 or 26 pounds of coal required per hour to keep up heat under the worst conditions.

"So far I have obtained the estimated heat loss on structure, the number of cubic feet of air at 120 degrees to offset this heat loss and to maintain an inside temperature of 70 degrees, and the maximum number of pounds of coal to be burned to heat this air supply to 120 degrees. These successive steps were all necessary, to get down to the size of the furnace, so now if we find out how many pounds of coal per hour we can burn on a square foot of furnace grate it's only a matter of division to get the required grate area.

"Careful trials by people of reliability have demonstrated that with hard coal you can't burn much beyond 5 pounds per hour per square foot of grate unless you force the fire more than you should. If I take this as a maximum figure (although I know some furnace men who figure as low as 3 pounds in order to be amply safe) I find that the furnace grate area must be 26 divided by 5 or 5.2 square feet, and as most furnaces have circular fire pots and grates I keep a little table to help me out, and here it is:

Diameter of Grate, In.	Area of Grate, Sq. Ft.	Diameter of Grate, In.	Area of Grate, Sq. Ft.
18	1.77	26	3.69
20	2.18	28	4.27
22	2.64	30	4.91
24	3.14	32	5.58

"From this list I saw that I needed either a 30-inch or 32-inch diameter fire pot. As I used 5 pounds of coal per hour I was conservative and took the larger size."

**HEATING QUESTIONS
 ASKED AND ANSWERED**

Builder Herington Has Had Wide Experience with All Types of Heating. He Will Gladly Answer All Questions. Tell Us YOUR Heating Troubles.—Editor.

Two Heating Questions

To the Editor: New York City.
 Being a subscriber of the AMERICAN CARPENTER AND BUILDER, I shall certainly take advantage of your kind offer

to answer all questions appertaining to heating.

One—Briefly, what is the best method of arriving at an approximate cost of the different kinds of heating—hot air, steam, and hot water?

Two—What per cent of the entire cost of the house does heating usually consume?

A. B. GREENBERG

Answer: In regard to the first question we might say that the best way to estimate the cost of heating is to lay the heating system out completely on paper and figure up the amount of material from such a layout, allowing a certain percentage of the material for the labor lost. In fact, figure it the same as any other estimate from the actual requirements necessary for each individual job.

Concerning question (2) the correspondent can readily see that a house built in New York City under the New York Building Code is going to cost considerably more than a house of the same size and arrangement built in the country. Also the same heating equipment at the same cost will heat either the most moderate priced house with common wood floors, soft wood trim, and other equipment of the cheaper grade or a house with parquet floors, tiled bathroom walls, oak trim and porcelain bath fixtures.

Therefore, the relation between the cost of construction and a given type of heating is at best a variable one.

From various sources figures on the cost of heating run as low as 3 per cent for plain steam in a large building up to 7½ per cent in a church supplying warmed air for ventilation purposes with the hot blast system.

The correspondent would probably be interested to know that the cost on a two-family house steam heating system—the house being of distinctly the better class and built within New York City limits—was \$500.00. Stated in percentage of the total cost (\$8,000.00) this is 6¼ per cent. This house could have been constructed using the cheaper grade of materials and eliminating the extras for about \$7,000.00, in which case the percentage would have been 7 1/7 per cent.

This house has a cubic capacity of about 50,000 cubic feet, so that the heating cost is close to 1 per cent per cubic foot. As nearly as could be ascertained furnace heating would have cost about 75 to 80 per cent of steam, and hot water or vapor about 20 per cent more than steam. These conditions however are only local and doubtless would vary considerably in any other location.

One authority gives costs of heating in percentages as follows:

- Hot Air..... 6 to 7 per cent.
 - Steam 8 to 10 per cent.
 - Vapor or Hot Water.....10 to 12 per cent.
- but the writer thinks these figures are a trifle high.

CECIL F. HERINGTON.

Best Heat for this Man

To the Editor: Prairie du Chien, Wis.

Your article on "Heating" in March issue of AMERICAN CARPENTER AND BUILDER came to my notice; and, as I am particularly interested in that subject at present, I am taking the liberty of asking you for advice.

I am building a frame bungalow, plans enclosed, and would like to know what kind of heating plant is suitable and would give best satisfaction. It is a difficult question for one who has no experience to decide. Dealers, of course, push their own particular system. One says Hot water; the next says Hot Air Furnace; another the Vacuum System; so what is the inexperienced man to pick for his own particular needs, without unbiased opinion.

As I mentioned before, the building is of frame construction; first story 4-inch siding 3 inches to weather; paper used throughout; shingled gables to roof. Building will face west but is protected from winds on north and west by

heavy growth of pines. Winter temperature goes as low as 25 degrees, but this is seldom. H. C. CLARK.

Answer: In reply to Dr. Clark's inquiry (which, by the way, is most complete and contains all the necessary information from which to get an intelligent grasp of the conditions) we would like to recommend a vacuum steam heating system which should cost at the outside no more than hot water and probably a little less.

This conclusion is arrived at from the following reasons: *First*, the extremely low temperature occasionally reached would raise havoc with a hot water system by freezing and bursting the radiators, pipes, etc., if the fire should ever be allowed to go out during the night by accident when such weather was being experienced.

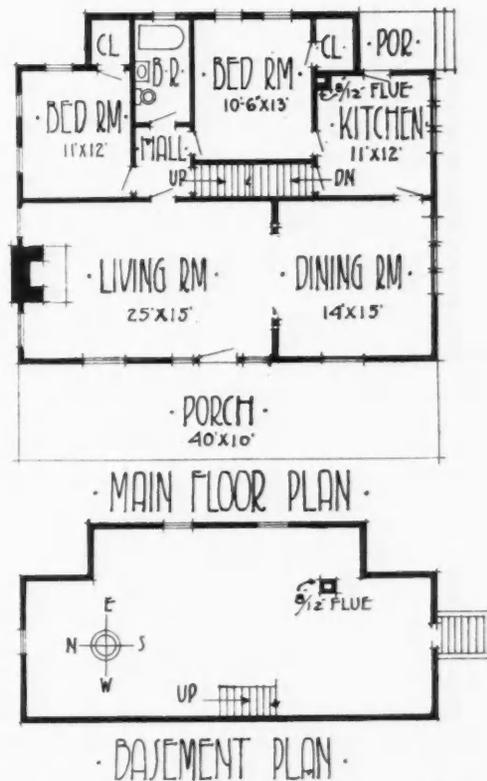
Second, during mild weather the vapor systems operate about as economically and just as satisfactorily as hot water.

Third, during cold weather a pressure can be maintained in them just as in the ordinary steam systems.

Fourth, any steam system responds to the opening or closing of the boiler draughts much more quickly than the hot water.

Fifth, a vapor system eliminates the radiator air valve, avoiding the danger of leakage there and also permits the use of a graduated supply valve which permits as much of the radiator to be kept hot as desired in each particular room.

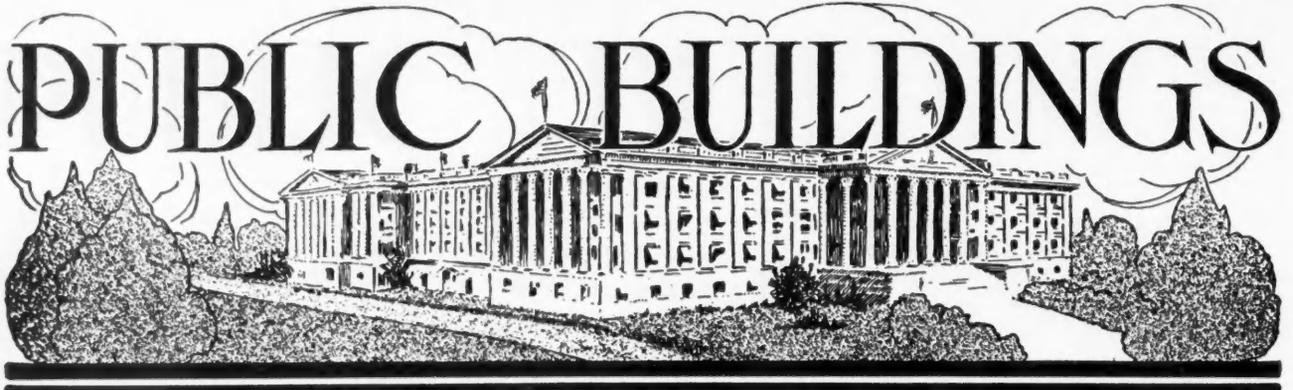
While the furnace is cheaper to install and requires pos-



Bungalow to be Heated—Basement Under Rear Half Only

sibly not quite so much attention, any side of the house exposed to the wind is liable to be subject to back draughts down the registers. In other words a furnace is unreliable in windy weather and if cost is not the most important item by all means put in a vacuum system.

Just one word more—on the sketch submitted we note a single 8 by 12-inch flue running up through the kitchen and from the size it looks as though it were intended to hook the heater and the kitchen stove onto the same flue. Don't do it! Put in two 8 by 8-inch flues and put your heater on one and your stove on the other. CECIL F. HERINGTON.



Public Hospital for the City of Sterling, Illinois

THE plans of this three-story and basement hospital show an ideal arrangement for a comparatively small building, which has been planned with the economic as well as the hygienic side in view. Compact and convenient, each part is easily and quickly accessible from every other part, which is essential where a small staff is employed.

The building is constructed of brick with cut stone trimmings. The exterior walls, instead of being furred off with strips as in ordinary construction, leaving a space between the wall and the plaster for the collecting of vermin, are treated with a heavy coat of damp-proof plaster bond, to which the plaster is directly applied. All interior partitions are of gypsum tile.

All interior finish is perfectly plain, without mouldings or projections to catch dust. Floors throughout are one panel, with simple panel moulds. Rock maple floors are used in wards, private rooms, and corridors; sanitary composition floors in toilet, service, and bathrooms, while the Operating Department, including anaesthetic and sterilizing rooms, is floored throughout with ceramic tile. Sanitary cove bases are used in all parts of the building of the same material as the floors in the respective rooms.

On the main floor are located reception room, office, wards, and private rooms, together with a small suite consisting of sitting room, bedroom, and bath for the superintendent.

The second floor is given over to private rooms and

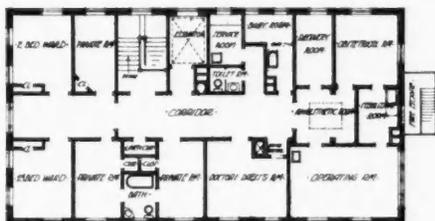


New Modern Hospital Building for Sterling, Ill. Designed by G. W. Ashby, Architect, Chicago

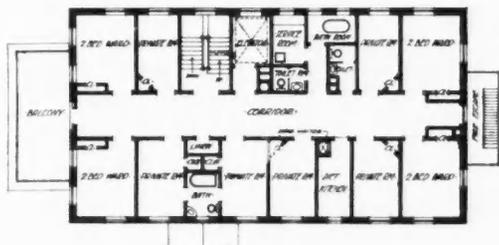
small two-bed wards.

On the third floor, beside private rooms and wards, are located the Operating and Obstetrical departments, which occupy an isolated position at the north end of the building. This arrangement permits of flood of north light to enter the Operating Room at all times of the day through a large skylight which continues over the windows.

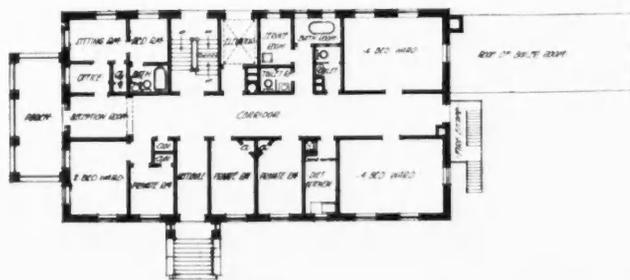
The basement contains X-Ray and drug rooms, laundry, dining room, and a large kitchen which is connected by a dumb-waiter with the small diet kitchen



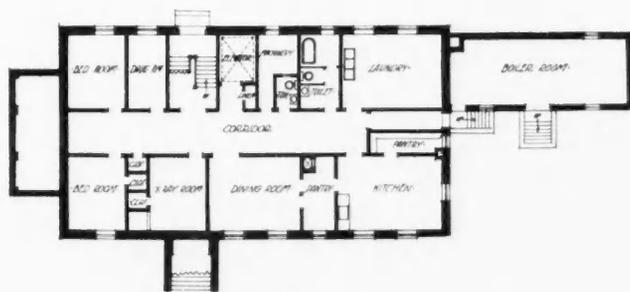
Third Floor



Second Floor



First Floor



Basement

Interior Arrangement of Sterling, Ill., Hospital

ens on the floors above. Two bedrooms are also provided for employees of the hospital.

The elevator is separated from the main corridors by a double set of doors, which prevents the noise of the elevator machinery being heard by the patients in their rooms. A separate boiler house outside the building contains the heating plant and fuel room.



BRING in a friend for our House Warming—we want to serve 40,000 more builders when we get into Our New Home. You will help us—won't you?—by showing one friend the special subscription offer on page 82.

Reminder

It was midnight. "Wow-wow-wow-wow!" wailed the baby.

"Four bawls and I walk," responded the ball-player daddy.—*Amherst Four-Leaf Clover.*

Way Out

Knicker—"A judge has ruled that a woman shouldn't spend more on clothes than on rent."

Mrs. Knicker—"Well, then, we shall have to pay a bigger rent."—*New York Sun.*

An Ingenious Profession

"Why do you want a new trial?"

"On the ground of newly discovered evidence, your honor. My client dug up four hundred dollars that I didn't know he had."—*Louisville Courier-Journal.*

Duty Held Him

The traveling salesman had three minutes in which to catch his train.

"Can't you go any faster than this?" he asked the street car conductor.

"Yes," the bell-ringer answered, "but I have to stay with my car."—*Life.*

He Won

"How's your brother, Tommy?"

"Ill in bed, miss. He's hurt himself."

"How did he do that?"

"We were playing at who could lean farthest out of the window, and he won."

Easier

Elsie—"After I wash my face I look in the mirror to see if it's clean. Don't you?"

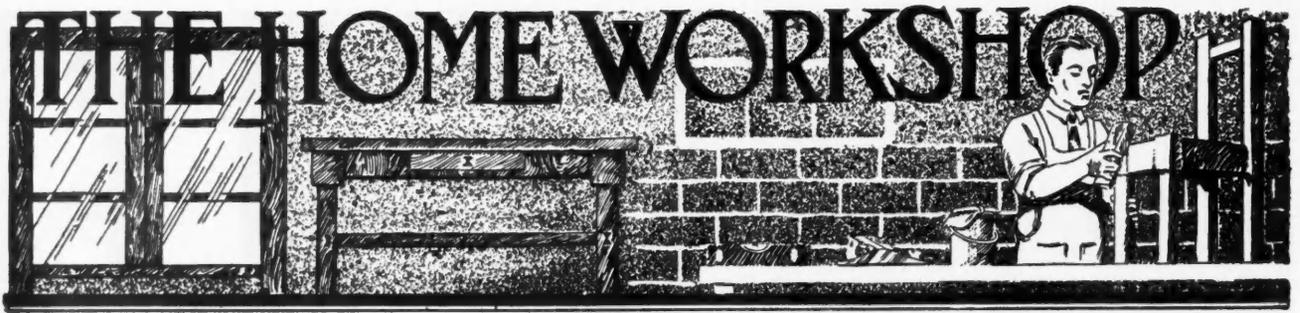
Bobby—"Don't have to. I look at the towel."—*Boston Transcript.*

Embarrassing

"Do you ever see the President?" asked Willie of his uncle who lived in Washington.

"Yes; nearly every day," was the reply.

"And does he ever see you?" queried the little fellow.—*Chicago News.*



How to Make a Blue Print Frame

COMPLETE ILLUSTRATION DIRECTIONS FOR MAKING THIS NECESSARY PIECE OF DRAFTING ROOM EQUIPMENT

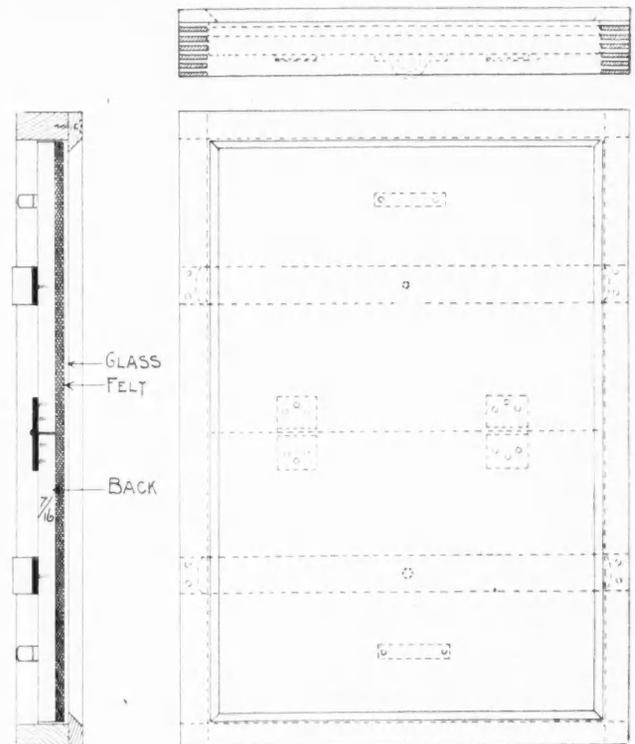
By Ira S. Griffith

THE blue print frame, the drawing of which is shown in the accompanying illustration is of good size for small prints. The same construction may be used and the frame made larger if desired, of course. The backing should be light and may be made of white pine. The frame proper should be strong and may be made of some hard wood such as maple or birch. The hardware, such as hinges and lifts, may be got at any hardware store. The brass springs and clips may have to be made by the amateur himself. In addition to these things there will need to be a glass of good strength, light plate, and also a pad of rather heavy soft felt of the same size as the glass.

STOCK BILL FOR BLUE PRINT FRAME.

Main frame, 2 pieces, $\frac{3}{4}$ by $1\frac{1}{2}$ by 18 inches, S-4-S.
 Main frame, 2 pieces, $\frac{3}{4}$ by $1\frac{1}{2}$ by 13 inches, S-4-S.
 Facings, 2 pieces, $\frac{3}{8}$ by 1 by 18 inches, S-4-S.
 Facings, 2 pieces, $\frac{3}{8}$ by 1 by 13 inches, S-4-S.
 Backing, 4 pieces, $\frac{1}{2}$ by $1\frac{1}{4}$ by $8\frac{1}{4}$ inches, S-2-S. Pine.
 Backing, 2 pieces, $\frac{1}{2}$ by $8\frac{1}{4}$ by 11 inches, S-2-S. Pine.

Begin the work by sawing the pieces for the main frame to length, or rather almost to length. Allow about $\frac{1}{8}$ inch for smoothing off after the joints have been glued. Lay off the required distance between the shoulder lines and then work the box dovetails. Rabbet the inner back edges sufficiently to allow the ends of the brass springs to pass as indicated in the photograph. After this, these parts may be glued and

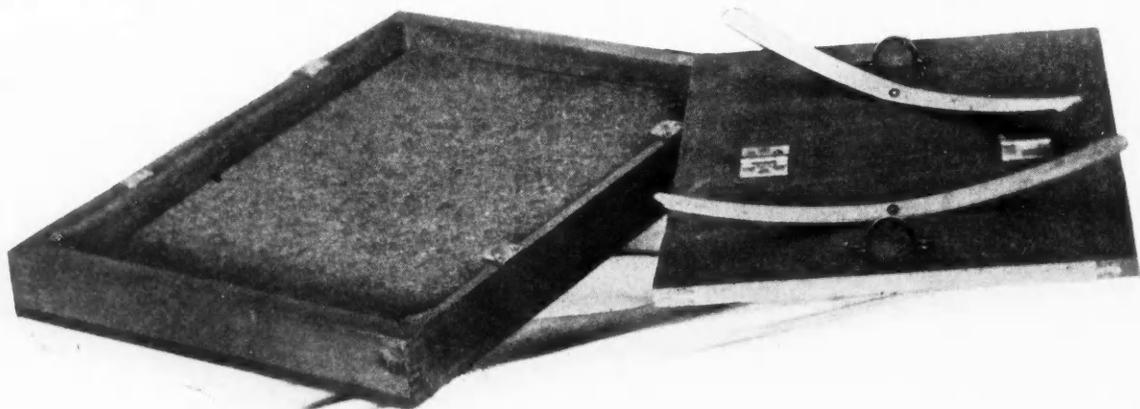


SECTION

A BLUE PRINT FRAME.

assembled, care being taken to leave the frame square and out of wind.

While the glue is hardening upon these pieces the



A Blue Printing Frame Built From Above Specifications

facings may be prepared. These are specified the correct thickness and width so that all that is necessary it to lay out and work a quarter of an inch chamfer upon the one arris and then miter and fit them to the main frame. These facings are to be attached to the main frame by means of flat headed screws.

The backing is composed of two parts hinged together. This hinging and the double springs make it

possible for the operator to take a look at his prints, or rather at one half of the prints, without disturbing the relative position of paper and tracing. Each end of each of these two parts should be reinforced by tonguing and grooving cleats thereon.

Several coats of shellac will give a suitable finish to this piece of work. The placing of the hinges and lifts and springs is indicated clearly in the photograph and drawing.

Design for Umbrella Stand

HOW TO MAKE AND FINISH THIS INTERESTING HOME WORK SHOP PROJECT IN BLACK WALNUT

THE umbrella stand shown in the accompanying illustration was made of black walnut and was finished in the natural color. In the bottom was placed a copper pan colored so as to harmonize nicely with the color of the walnut. The following stock will be needed for this piece of furniture:

STOCK BILL FOR UMBRELLA STAND.

- Posts, 4 pieces, $1\frac{1}{2}$ by $1\frac{1}{2}$ by $28\frac{1}{2}$ inches, S-4-S.
- Upper rails, 4 pieces, $\frac{7}{8}$ by $2\frac{1}{4}$ by 12 inches, S-2-S.
- Lower rails, 4 pieces, $\frac{7}{8}$ by $2\frac{3}{4}$ by 12 inches, S-2-S.
- Slats, 4 pieces, $\frac{3}{8}$ by $1\frac{3}{4}$ by 21 inches, S-2-S.
- Slats, 8 pieces, $\frac{3}{8}$ by $1\frac{1}{4}$ by 21 inches, S-2-S.
- Bottom, 1 piece, $\frac{1}{2}$ by 10 by 10 inches, S-2-S.

Begin work by squaring the posts to length. If desired, the top ends only need be shaped, the measurements for the ends of the mortises being begun here and the surplus stock being removed from the lower ends of the posts after the whole frame has been assembled. After laying out the locations for the ends of the mortises, the sides for the mortises may be gauged and the mortises cut. Care must be taken to see that the mortises are laid out on the posts so that the posts pair properly. The amateur should know that face side and face edge of each of the posts is to be turned in. For this reason the best surfaces should not be selected for faces when the smoothing up is being done. If the face sides are turned in, the shoulders of the tenons are more likely to fit against the post snugly and thus make better looking joints. If one cannot visualize the locations of the mortises easily, that is, if he is uncertain in laying out their locations and that he is getting them on the right sides of the posts, he may set them up in the positions they are to occupy relative to one another and mark roughly as with penciled circle their approximate locations upon the posts. After this is done the posts may be laid flat upon the bench top and the exact lines placed thereon by accurate measurement.

The rail stock is surfaced on two sides to thickness and it will be necessary to square up the edges and ends to proper dimensions. It will be noted that the lower edges of the lower rails are curved. When the rails are to length and width the tenons may be laid out and worked.

The slats, like the rails, will need to be worked to proper width and length. It is well to house the whole end of each slat into the rail. This method

is much easier and just as serviceable as shouldering the ends of the slats so as to make tenons thereon.

Use good hot glue and plenty of clamps and put two of the sides together. After the glue has hardened upon these, the remainder of the frame may be assembled and the whole frame clamped together.

The following finish is quite satisfactory for black walnut: Thoroughly scrape and sandpaper the surfaces, removing all surplus glue. Apply a coat of paraffine oil, allowing it to stand about five or ten minutes then wiping off the surplus with a cloth. If paraffine oil is not to be had, boiled linseed oil will serve the purpose equally well. Allow this oil to dry over

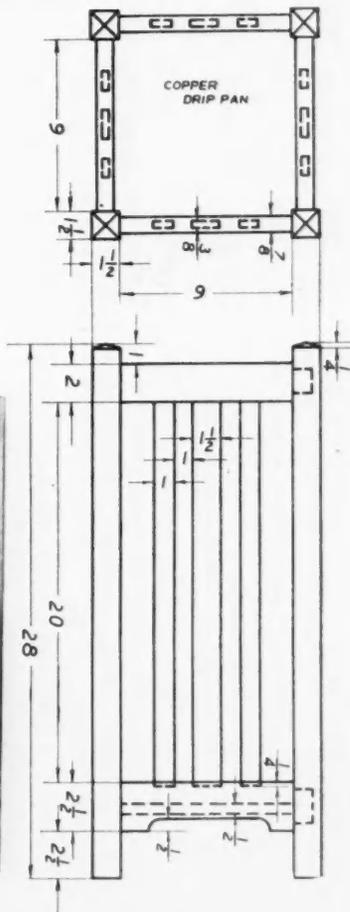
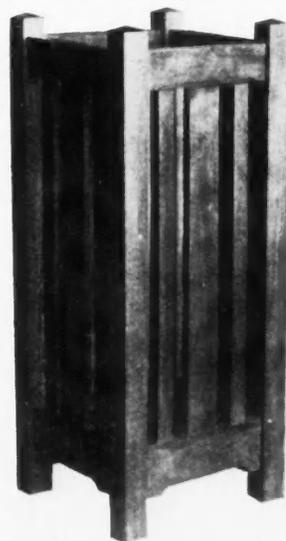


Photo and Drawings of Umbrella Stand

night then sandpaper very lightly using number 00 paper. Upon this apply a very thin coating of shellac, either orange or white. Sandpaper this lightly with the fine sandpaper and apply several coats of wax, polishing each coat well with a flannel cloth. If the light colored wax is used care must be taken not to allow it to accumulate in the corners or in the pores of the wood. Put on just as little as possible and still cover.

The Editors Drawer

New things worth while.

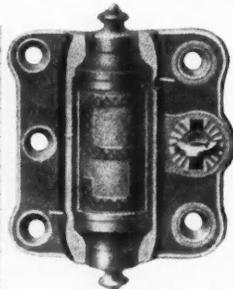
Detachable Door Hinges

It seems that the ingenuity of the builders hardware people will never run dry.

It is getting near the screen door season again—which



A Woman Can Hang Door on These Hinges



View of Hinge

calls to mind the annual struggle of the housewife to get her screen doors put up.

This will be an easy task now. There is a detachable hinge obtainable which operates as shown.

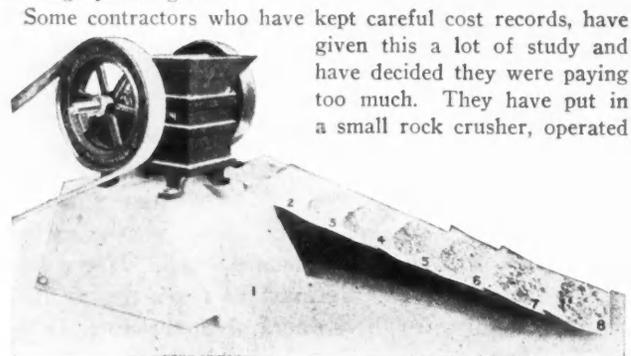
Notice that the small button and plate remain on the casing while the main part of the hinge is put away with the door. There are no loose parts to get lost. One quarter turn of the button locks or unlocks the hinge.

Carpenters and builders can make their customers happy this year by putting on detachable door hinges like these.



To Buy Gravel or to Crush Stone—Which?

Every contractor doing any amount of concrete work has been up against the proposition of buying and hauling gravel. He is the gravel man's best customer in spite of the fact that he may have, close at hand, an unlimited supply of rock which, if he could only break it up into small pieces, would make just as good an aggregate and possibly better, than the high-priced gravel.



Stone Crusher, Showing Graded Sizes of Product

by a low power gasoline engine and with it have not only gotten rid of large stones and rocks which otherwise would cost good money to haul away, but also have secured the best sort of aggregate for their concrete work.

The crusher illustrated is adjustable so it can be used to deliver stone of any size, from very fine torpedo grit up to as coarse as 2½ inches. Contractors who make their own cement blocks, cement tile and other molded pieces, can make extra use of such a crusher. The cost is said to be very small considering the work they do, and the way they are built.



New Garbage Burner

Housewives everywhere are getting to be more particular. They are insisting that all the refuse and garbage be entirely destroyed and not simply dumped out in the back yard to become a nuisance.

The owners of city apartments are putting in specially designed incinerators or furnaces to consume garbage and this idea is spreading to the suburbs and wherever there are first-class residences.

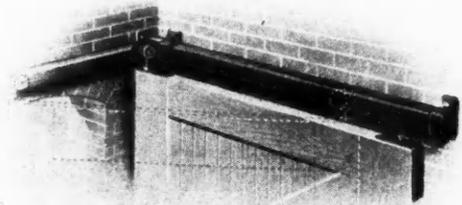
A new type of incinerator as illustrated has recently been developed. It seems to be just the thing for the average size apartment building, hotel or private residence. This is a gas burning incinerator. Unlike some incinerators, this one is odor proof. The mass of refuse to be consumed is dried out and then completely consumed, all vapors passing up the chimney. A minimum amount of fuel is required.

Our people are keen these days, for everything sanitary and labor-saving; and it is expected that many will want a garbage consumer of this kind.



Corner Door Hangers

A sliding door that sometimes comes to the builders' rescue when he is working in cramped quarters, is the one that slides in around the corner. When the door is open it stands



This Door Slides Around the Corner

at right angles against the inside wall of the building at right angles to its closed position.

The tracks and hangers for such a door are illustrated here. This is probably a good deal of a novelty to the majority of builders, yet it is thoroughly practical, easily applied and operated. It is in successful use on thousands of doors.

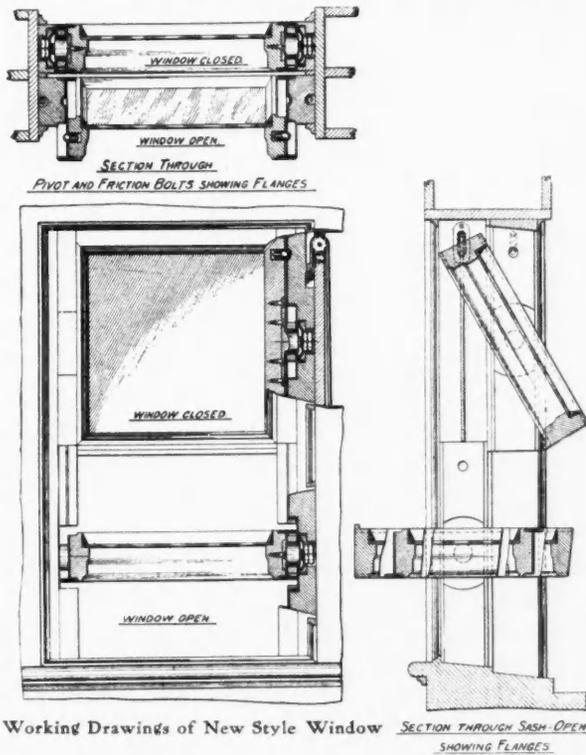
Note that the track on the wall at right angles to the opening projects into the wall far enough to allow the door to close tightly against the wall.



Practical Garbage Destructor

The George Pivot Window

The newest thing in improved window appliances is illustrated. It is a complimentary sliding style which when applied to the regular double hung window construction, makes it possible to revolve the sash inward as well as to



slide them up and down in the regular way.

Those who have used this window construction, testify that it is thoroughly satisfactory, simple, safe, convenient, inexpensive and weather-proof.

This appliance is made with various metals as best suited to the windows where they are intended to be used.

They can be applied to old windows as well as to new.

Builders will be able to discover many advantages in windows of this sort and doubtless will find many opportunities to use them.



A Form Wire Tightener

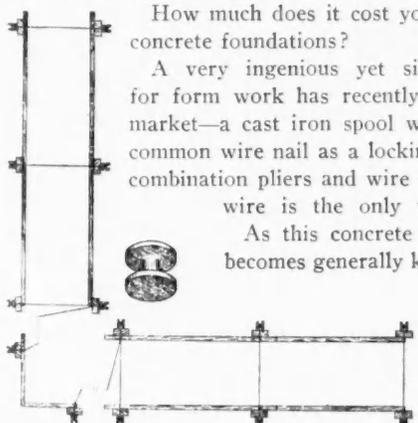
What does it cost you to build your forms for concrete work? Does the figure allow you a sufficient margin of profit, and can you depend on it as certain?

How much does it cost you to build forms for concrete foundations?

A very ingenious yet simple wire tightener for form work has recently been placed on the market—a cast iron spool which requires only a common wire nail as a locking device. A pair of combination pliers and wire cutters to cut off the wire is the only tool that is needed.

As this concrete form wire tightener becomes generally known, it will certainly be in great demand. Doubtless you have been handling your concrete work at a profit, but if you could have done just as good work at less cost, you have lost real money. All builders should enjoy larger profits on concrete foundation work.

Section Through Forms—Larger View of Space



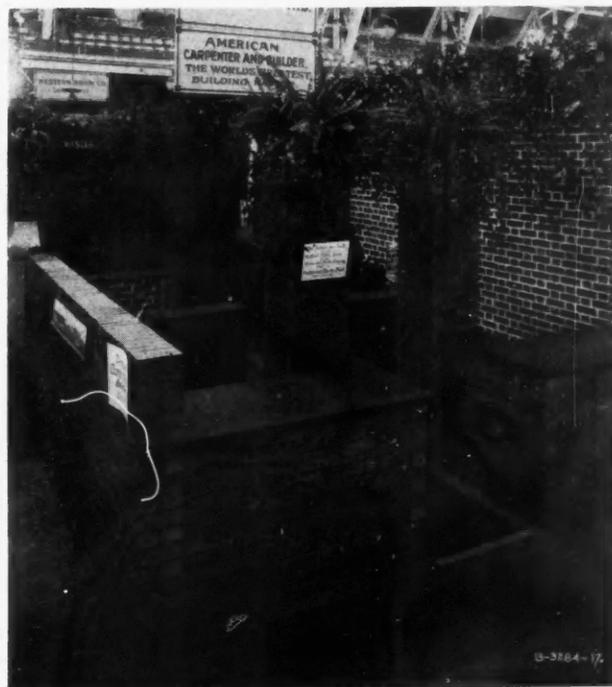
Clay Show A Huge Success

The Second Clay Products Exposition has drawn to a close but not without results. During the period of Feb. 26 to March 8, a great educational campaign was conducted in the city of Chicago by the clay manufacturers of the country. Thousands upon thousands of persons visited the magnificent exhibition of brick and other clay products at the Coliseum, and were taught the benefits of using clay products.

To the average person a brick is a brick and a mortar joint means nothing; but the multitude of brick panels brought questions which surprised and pleased the exhibitors. The question of bonds and mortar joints also came in for consideration and undoubtedly a greater knowledge of clay products was never sought in a similar period of time.

The exhibitions were remarkably artistic, the main aisle which represented the brick sold by Chicago dealers being a wonderful and artistic garden wall from which proceeded a beautiful pergola. Over this was thrown with effect green foliage with small pink and white flowers.

The exhibit of the AMERICAN CARPENTER AND BUILDER, illustrated herewith, called forth the praise



Where "A. C. & B." Folks Felt at Home at the Clay Show

of our many visitors. The space occupied extended through two regular spaces, fronting on the central north and south aisle and the one immediately adjacent to it on the east. It was directly south of the Chicago Face Brick Association exhibit and occupied a space 13 by 24 feet.

As a whole, the show was a huge success, the exhibitors were well satisfied and the educational work performed was so extensive that it is impossible to compute in dollars and cents the exact profits of the Second Great Clay Products Exposition.



Our Readers are Requested and Urged to Make Free Use of These Columns for the Discussion of all Questions of Interest to Carpenters and Builders

Loose Leaf Binder for Building Plans

To the Editor: Oneonta, N. Y.
A few years ago we purchased a loose leaf binder which would take sheets of the size of the pages of the AMERICAN CARPENTER AND BUILDER. Whenever the magazine comes we remove the various plans and place them in this binder. We have been doing this for about four years and at present time have a very complete collection which pleases practically every house builder's needs.

N. H. BRIGGS & SON.

Note: The better way we think is not to mutilate your magazines, but bind up all. You will find other features besides the plans valuable for reference. We can now furnish you a first class binder for each volume, 6 numbers, of the AMERICAN CARPENTER AND BUILDER. EDITOR.

How High is this Frame?

To the Editor: Standard, Cal.
I appreciate my AMERICAN CARPENTER AND BUILDER so much that I am enclosing a photo of a model gallows frame such as we build for double compartment mining shafts. If you



Height of This Frame Has Been Guessed All the Way from 1 to 60 feet. How High Is It and Why Do You Think So?

care to give it space it would be interesting to receive estimates as to its height from our fellow chips.

H. P. DOUGLAS.

How Can He Redress This Floor?

To the Editor: Colon, Mich.
I was just recently called upon to dress down, suitable for a nice finish, a floor that has been laid 37 years. It is white ash and wild cherry. The boards are about 2 inches wide laid alternately.

Now the trouble is the floor has been treated to a good covering of linseed oil which, of course, darkened it very

much and makes it look grimy and dirty. The people would like to have the floor surfaced and a good varnish put on.

I tried a floor scraping machine but could not keep an edge on the knife for more than three strokes, then was obliged to sharpen the knife again with same results.

I then tried it by using hand tools with the same results.

Now the question is how am I to get rid of that finish that is on, so I can make and keep the tools cutting without so much trouble and be able to finish the floor as it should be?

I enjoy the AMERICAN CARPENTER AND BUILDER more and more as I progress in the trade. WM. E. WARE.

Wants to Make a Player Piano Music Cabinet

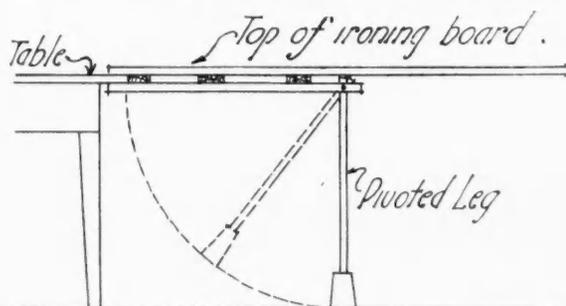
To the Editor: Louisiana, Mo.
I would like to ask you to publish plans for a music cabinet for a player piano. M. B. SHREVES.

An Improved Ironing Board

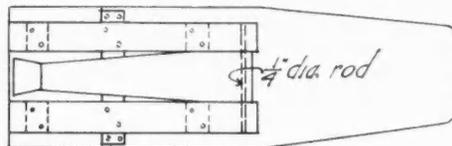
To the Editor: Barrington, Ill.
I notice on Page 76 of the February number AMERICAN CARPENTER AND BUILDER that Mr. A. D. Bailey requests a plan of an ironing board.

I enclose herewith a plan of one I made for my mother and she is well pleased with it.

It would be of interest to me if you would publish a plan of a tool box at your convenience. SANFORD E. RIEKE.



ELEVATION



BOTTOM VIEW

Drawings of an Improved Ironing Board

A No-Leak Porch Floor

To the Editor:

Mulvane, Kans.

In reply to your request for our opinion of the March number, I have to say that I think each succeeding issue since the first, in April, 1905, is the best ever—but you have certainly succeeded fine this time. I am more than pleased, and am always impatient to get each number to see what new thing has been discovered.

In studying the prize sketches I wish to make this inquiry: In third prize, Class A, page 44, March number, how do you get from parlor or den to the dining room? Is there an underground or overhead passageway? Of course it would not do for company to pass through a bedroom to D. R.; and the cook would chase them out of the kitchen if they came that way. I think I should make a swap, den to bedroom; B. R. to D. R.; and D. R. to den, putting the three main rooms together. See!

Replying to C. B. Jay, Waldron, Mich., will say that I have put in such floors (in a double deck porch so as not to leak), working after good architect's plans in this way: First deck over solid and put on either tin or a good grade of ready roofing, over this put a slat floor of $\frac{1}{4}$ with $\frac{1}{4}$ or $\frac{3}{8}$ -inch space between boards. Make this floor in any convenient width sections, say, 3 or 4 feet, and as long as the porch is wide, using three or four cleats of $\frac{1}{4}$ underside and be sure to clinch all nails thoroughly. Let this floor be long enough to come just inside of or under the balcony rail.

H. E. MCCREIGHT.



The Shed Rafter Again

To the Editor:

Rochester, Minn.

May I—without discourtesy—offer the following from a practical builder regarding the problem of the shed rafter, joining the main rafter which was discussed by Mr. Woods in the February number, and by Mr. Gray in the March issue of your worthy magazine? Possibly you may consider that the matter is properly laid at rest and should not be disturbed. But some of us think that it should not lie as it lies.

In February, Mr. Woods gave the length of shed rafter as 13 feet $2\frac{1}{8}$ inches. Mr. Gray says the length should be 13 feet $4\frac{3}{16}$ —about.

In March Mr. Woods says they were both wrong—and that the length should be $5\frac{3}{8}$ inches less than stated by Mr. Gray, thus making it about 12 feet $10\frac{3}{16}$ inches.

The writer says—if the editor will allow him—that the correct length of the shed rafter from a point plumb over the outside corner of plate along its top edge to its junction with the main rafter is 13 feet $3\frac{1}{7}$ inches—plus practically $\frac{1}{6}$. This, when the conditions are as clearly stated by Mr. Woods—and shown by his diagram—with the center line of each rafter running through the outside corner of the plate—and the rafter being 4 inches wide.

So the length last given by Mr. Woods is farther wrong than his first one was.

There is less than $\frac{1}{2}$ inch difference between the plumb heights of main and shed rafters—measured from outside corner of plate to top edge of rafter in each case.

This is where Mr. Woods goes astray—as do a great many good carpenters—in similar cases.

In the diagram shown, there is no difference in the length of the shed rafter—whether measured from the corner of plate along its dotted center line to the edge of square—as shown; or from a point plumb over the outside corner of plate along top edge of rafter to its junction with the main rafter.

Thus the top edge of shed rafter is lowered this scant $\frac{1}{2}$ inch requiring an extension of run of 2 feet 7 inches (a fraction less) instead of 2 feet 8 inches. So, instead of $5\frac{3}{8}$ inches, Mr. Woods should have deducted $1\frac{11}{20}$ inches only.

To mark the top cut of shed rafter resting on main rafter, it is not necessary—as might possibly be inferred from the article—to draw a diagram.

For these two, or any other two pitches—of 60 or more—this top cut can be found and marked directly on the rafter in ten seconds, with the aid of my Universal pitch gauge.

Trusting that this may help towards clarifying the problem, I am still aware that my statements may be disputed.

However, my business requires me to take considerable risks on the correctness of my conclusions and figures, and I am quite willing to do the same on those here given.

JOHN PARKHILL.

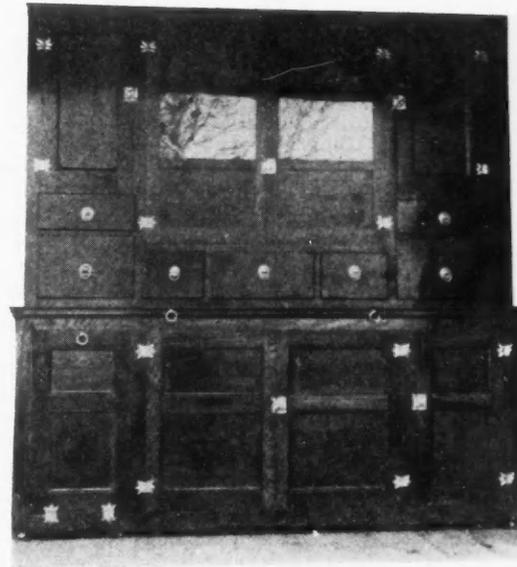


Kitchen Cabidat and Cupboard

To the Editor:

Harpster, Ohio.

I am taking the liberty of contributing a few lines to your valuable paper, which I consider the most valuable paper of its kind published. I am always looking for something new, some better way, something more pleasing to the people I deal with and I have never found a better place



Kitchen Cabinet Completed.



H. E. Swartz and His Kitchen Cabinet

than through the pages of this paper.

I am enclosing two photos of a combined kitchen cabinet and cupboard, which I have just finished; design is one of my own. This is the third piece of this kind I have made this winter.

Now I will say to the brothers, should any one like to try his hand at a piece of furniture of this kind, just write me and I will be glad to send him pencil drawings. This is made of solid oak, strictly hand made and sells at \$60.

H. E. SWARTZ,
Carpenter and Contractor.



Handy Tool Chest

To the Editor:

Benton, Wis.

I am sending a sketch of a light tool chest I made out of a dry goods box, which was of three-ply material, however, 1/2-inch material would do just as well. These chests give ample room for a full set of carpenter's tools. They have an advantage over a large chest in being light and easy to carry anywhere about the building, which with the ordinary chest cannot be easily done. In this they save time and money.

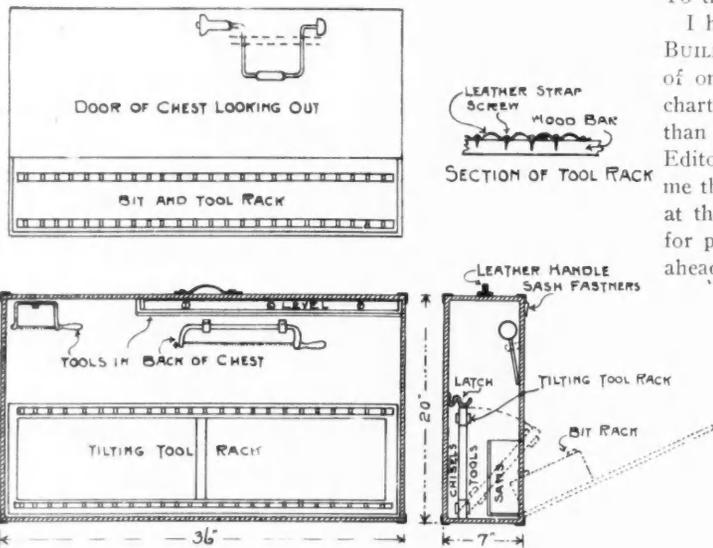
Chest No. 1 is for saws, chisels, bits, hammers, hatchets, snips and all small tools.

Chest No. 2 is for planes and miter box.

The chests are stained a reddish brown and the tin on the corners is painted black, which gives a very handsome effect.

The AMERICAN CARPENTER AND BUILDER is always a welcome friend to me.

ELSWORTH BROWN.



LIGHT TOOL CHEST SET

Troubled With Water Logged Steam Radiator

To the Editor:

Maplewood, Mo.

I have had installed in a six room residence a steam heating plant. Six radiators are taken from the circulating main and a 25 ft. radiator direct from the boiler. The radiator direct from the boiler and two of the second floor radiators do not heat readily; when the steam is turned on they seem to contain water. There are no "traps" in the piping. What could be the cause or causes of water remaining or being carried to these radiators?

J. J. DEBOER.

Answer: We would judge from your description contained, that either the piping leading to these radiators is too small, that the valves to certain radiators are not always closed tightly when steam is shut off, or that the radiators are installed in such a way that they do not have the proper slant which should be given in order for them to drain themselves after the steam has condensed.

We have assumed in the above that your heating plant is of a one pipe nature. The installation of pipes which are too small in a system of this kind does not allow ready drainage from the radiators, since it is difficult for steam to get in and water to get out through a small opening at the same time. We have known instances where radiators were installed on floors which were not level or which sagged to such an extent that the air valve end of the radiator was considerably lower than the steam end. Such a condition caused difficulty through the collection of water in the lower end of the radiator.

EDITOR.



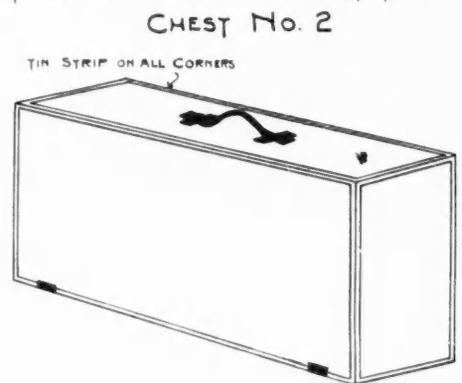
When to Add the Hair?

To the Editor:

Newland, Va.

I have been a subscriber to the AMERICAN CARPENTER AND BUILDER ever since it was first published, with the exception of one broken link, and have the honor of being one of its charter members and I am a much better carpenter now than I was before I began reading its pages. Now, Mr. Editor will you or some member of this great family tell me the proper time to put hair in lime for plastering, whether at the time of slaking or when the slake is made in mortar for plastering, supposing the lime to be slaked several weeks ahead of being used. Will the lime destroy the hair?

W. T. REAMY.



LIGHT TOOL CHEST SET

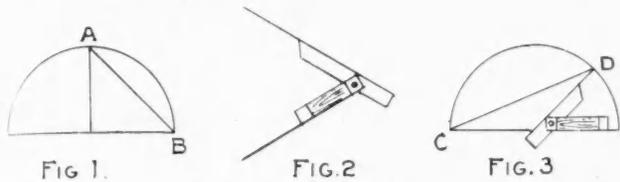
To Find the Miter

To the Editor:

Roselle Park, N. J.

I am sending a sketch of a simple way to get the cuts for any given angle. For instance, if you have an obtuse or acute angle panel to mold, you would have to get the intersection in order to get the cut. This may be easily found by first drawing a half circle of any dimension.

Referring to Fig. 1 any one should know from A to B is



Getting Cuts with a Bevel

the miter line for a square corner. The same principal applies to any given angle, as shown in Fig. 2. Now take a bevel and set it to the angle and apply it to the center of the semi-circle, as shown in Fig. 3, and the line C D will give the cut for the molding to fit in the angle.

I hope I have made this clear and that it may be of some use to brother carpenters.

I also wish to submit the following:

To make an Old Plane Good as New. If any of the boys have a wood smoothing plane that has a large trough caused by much use, try putting on a shoe of sheet brass and you will have a plane equal to an iron one.

MORRIS EARL.



Making Test Borings

To the Editor:

Pasadena, Calif.

Will be pleased if you can give me any information in regard to what kind of tools or apparatus is used by the test borings contractors in Chicago?

In making tests for the bearing power of soils, do you consider a square inch test as reliable as a square foot test?

What is the best way to make a test of the bearing power of soils without too much expense? WALTER S. CHASE.

Answer: An ordinary wood auger, fitted with a long shank and arranged so that additional lengths of rod may be screwed onto this first piece, may be used for this purpose. Often where samples of earth at different depths are desired, an ordinary two-inch pipe is driven down into the earth from a raised staging. Where great care is necessary in determining the kind of earth at a given depth, a pipe casing is driven down as fast as the auger bores the hole. This casing prevents earth from falling into the bored hole and allows the auger to pull up a sample of earth from the locality near the end of the driven pipe casing. When shallow holes are to be dug for testing purposes, an ordinary post hole digger may be used.

We believe that the square foot test for bearing power of soils is far more reliable than would be a test made upon a single square inch of area. In fact, tests on a square yard of surface are often made where it is feared that the square foot test will not produce reasonable results. Often a piece of apparatus built like a large table with four legs is used. Each of these legs is one square foot in area at its bottom surface. This table is then loaded on top by a known system of weights distributed equally over the top and observations are made in regard to the disturbance in soil around the foot of the legs of the table. Where a single standard is used for determining bearing power, a platform is arranged on the top of this single standard and the load applied on the platform. Often a hole about three feet deep is used to set the standard into when making the tests. This hole should be about eighteen inches square for a twelve-inch square standard.

Lines of small sticks driven into the ground and radiating outward from the center of this hole will provide a means of determining whether the surface of the ground is disturbed when load is applied on the platform. Such disturbances may be measured by carefully lining up the tops of the sticks at the start by means of a spirit level and afterwards taking frequent observations with the level placed on the tops of these same sticks. Any rise in the surface of the ground, due to the loading on the standard, will be apparent by change in level of the tops of the sticks. EDITOR.

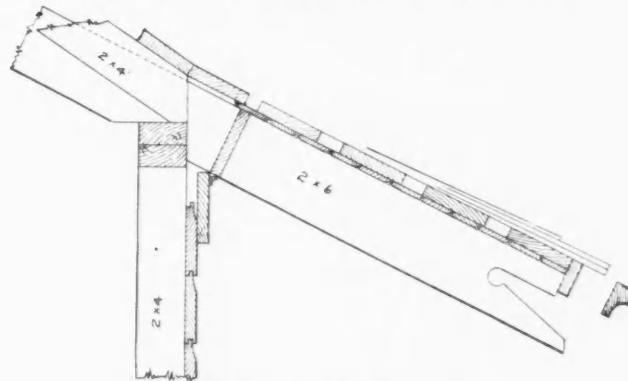


Doing Work Fast—Another Bungalow Cornice

To the Editor:

Nucla, Colo.

In this section, our fir dimension is usually sized one side and edge and if used on exposed cornices, as rafters, the other side must be planed by hand or on a buzz planer or else the entire lot taken to the mill and run through a surfacer. Also a 2 by 4-inch rafter with a projection of 30 to 36 inches, as is common on a bungalow cornice, looks very small, for which reason I generally use a 2 by 6-inch rafter end spiked to the main rafter. This also allows a different pitch to be



Section Troughs Bungalow Cornice

made on the cornice, if desired. I cut my rafters with a 3-inch square heel and ends with 2 5/8 inches above notch, for plancier use 6-inch partition and resaw, making two 3/8-inch pieces, which when put on brings rafter ends up to main rafters. Then roof boards on top of this. For fascia, use a 1/3 or a solid cove as shown in sketch, below cornice.

The drawing also shows a style of rafter end that is easily made by boring a 1 1/2-inch hole and sawing into it. I use a 6-inch frieze, pushed up tight under rafters, then a 1 by 6 cut in between each rafter and set square with rafter and nailed in place is much faster than notching out; a cove or quarter round set under this completes the job and makes a fine looking cornice. This frieze should be completed before the plancier is put on.

S. M. PRESTON.



Quick Roof-Boarding

To the Editor:

Cathlamet, Wash.

As I am sitting here this evening looking over the November number of the AMERICAN CARPENTER AND BUILDER, I read the article of I. P. Hicks. Thanks to I. P., it is not the first one; I have found much information in reading his and other articles in the AMERICAN CARPENTER AND BUILDER.

Now I would like to add one on cutting sheathing for his roof. I take the proper board and cut the sheathing for the hips on the ground, cutting the boards—some in the middle and others near one end—but always leaving both pieces long enough to be used. When I have enough to go two-thirds way to ridge, I take them up and nail on; and by nailing first one end to go to right of hip the other end of board, by reversing sides, is a fit for left side; this saving one cut.

HANS B. LANK.

How to Find the Liquid Contents of a Horizontal Tank

To the Editor:

Boston, Mass.

A recent correspondent asked for a method of finding out the number of gallons of water in a horizontal tank 18 feet long, 6 feet in diameter and having a 30-inch depth of water. The solution of this problem is given together with a method of constructing a curve so that any person can find out at any time the amount of liquid,—water, gasoline, or anything else which he may have in any horizontal tank, of which he knows the dimensions and the depth of liquid. Taking up first the specific case asked for:

Referring to the left hand figure, the half diameter *CE* is 3 feet. *CB* and *AC* are also equal to 3 feet. We know also that *DE* is 2½ feet and *CD* is ½ foot. What we wish to find first is the area of the segment *ABEA*. The easiest way to do this is to find first the area of the sector *ACBEA* and then deduct the area of the triangle *ACB*. Knowing *CB*, the hypotenuse of a right triangle, of which *CD* is the known altitude, the base *DB* is found from the formula $DB = \sqrt{(CB)^2 - (CD)^2} = \sqrt{9 - \frac{1}{4}}$. From this, $DB = 2.958$ feet. The area of the triangle $ACB = \frac{1}{2} CD \times AB = CD \times DB = 1.479$ square feet.

When finding the area of the sector *ACBEA* we must know the angle made at *C* by the lines *BC* and *EC*. We know that the tangent for that angle is represented by $\frac{DB}{DC}$. This equals 5.916, therefore the angle is 80 degrees 26 seconds. (This may be obtained from any angle table). We thus know that

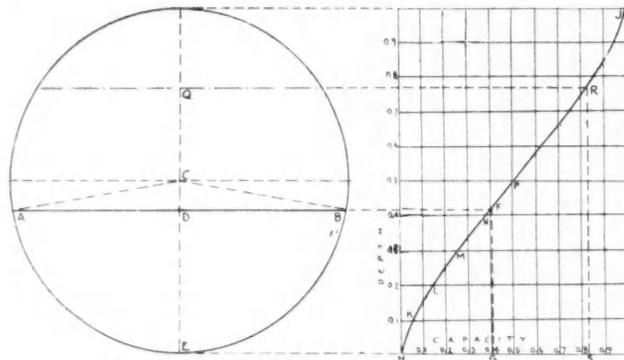


Chart of Horizontal Circular Tank Capacities

the entire angle $ACB = 160$ degrees 52 seconds. As the entire circle contains 360 degrees, the proportion of the circle covered by the sector *ACBEA* $= \frac{160.87}{360} = 0.44686$. Now the area of the entire circle is $3.1416 \times (\text{radius})^2 = 9 \times 3.1416 = 28.2744$ square feet. The area of the sector, therefore, will be $0.44686 \times 28.2744 = 12.812$ square feet. Deducting the area of the triangle 1.479 square feet, we find that the area of the segment is 11.333 square feet.

As one gallon contains 231 cubic inches, while one cubic foot is 1728 cubic inches, there are 7.48 gallons per cubic foot. As the area of our segment is 11.333 square feet and the length is 18 feet, the volume of water is 204 cubic feet. Multiplying this by 7.48 we find that there are 1526 gallons of water in the tank.

Now, to make this general for any cylindrical tank with horizontal axis: We work the thing out on the same basis for a series of proportions of depth such as those shown in the right-hand figure—one-tenth, two-tenths, three-tenths, etc., and figure it out in proportions of the total capacity of the tank—one-tenth, two-tenths, three-tenths, etc. From this we can construct the curve *HFI* as shown. Then we can substitute on the scale of depths the actual depths in either inches or feet, and on the scale of capacity the actual capacity in either cubic feet or gallons, whichever may be most convenient. Then, knowing the depth, *ED*, we carry this over to

the curve by the dotted line to *F* and drop down by the dotted line *FG* to the capacity scale, where we find that the tank contains 0.41 of its full capacity. This would give the same result as before, though perhaps not quite so accurately. It will, however, be sufficiently accurate for all ordinary purposes.

We plot the curve as follows, having figured it in the same manner as for our specific example:—The capacity of the tank at one-tenth its depth, is found to be 0.052 of the full capacity. We place this point at *K* as shown. Similarly, finding that at two-tenths the total depth, the capacity is represented by 0.1424, we plot this point at *L*. In the same way we find *M* at 0.2523 of total capacity, *N* at 0.3842 of total capacity, while *P* at half depth will be known at once to be just half the total capacity, because the upper half of the circle is identical with the lower half. Having thus one-half of our curve, the upper half may be obtained by plotting backwards from *J* in the same manner as we have plotted upwards from *H*, and the curve may then be drawn in. Then any depth, such as *Q*, may be carried across by line to *R* and the amount of liquid involved may be read at *S* on the capacity scale.

SIDNEY G. KOON, M. M. E.



The Water Tank Problem

To the Editor:

New York City.

In regard to the question asked by F. C. McCellan in March *AMERICAN CARPENTER AND BUILDER* about the number of gallons of water contained in a horizontal boiler 18 feet 0 inch long and 6 feet 0 inch in diameter when the water is 30 inches deep, I would like to suggest the following solution:

The diameter, length and depth of water being given it is only necessary to find the cross sectional area of the water in square inches and multiply this by the length of the boiler in inches in order to get the number of cubic inches of water. This divided by 231 (the number of cubic inches in a gallon) will give the number of gallons in the boiler. Doubtless the stumbling block was getting the cross sectional area of the water when it stood 30 inches deep, and for that purpose I desire to call attention to the sketch herewith (Fig. 1), which shows the conditions, as I understand them, together with a few lines I have added for the purpose of making my method of figuring clear.

It will be noted that I have drawn the vertical axis and have also connected the points *A* and *B* with the center of the boiler at *C*. I now have two right triangles *AMC* and *BMC* which are equal in every respect; *CB*, *CA* and *CN* are equal to the radius of the tank or 3 feet 0 inch, and as *MN* is the depth of the water (30 inches) *CM* must be equal

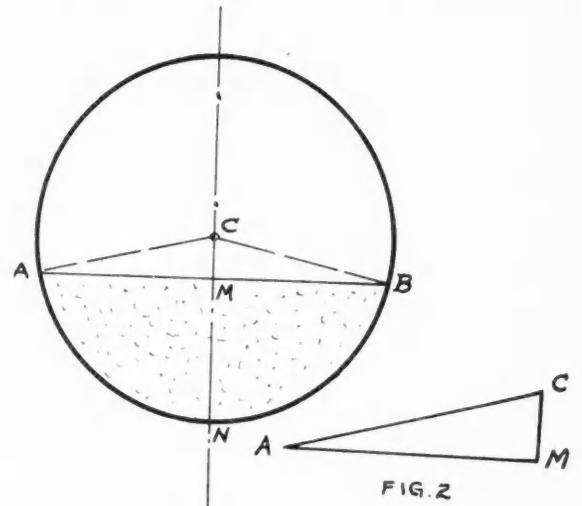


FIG. 1.

The Water Tank Problem

to CN (3 feet 0 inch) minus MN (30 inches), or 6 inches. Then my two triangles each have the hypotenuse or long side 3 feet 0 inch and one short side of 6 inches. Therefore our triangle is as shown in Fig. 2 and CM (6 inches) divided by CA (36 inches) will equal the cosine of angle C or .1666 which by reference to a book of sines shows angle C to be about 80 degrees and 25 minutes, and the sum of the top angles of the two triangles will, of course, be just twice that of one or 160 degrees and 50 minutes.

The area of the entire cross section of the boiler is simply the area of a 6 feet 0 inch circle or 4071.5 sq. in. Since the sum of all the angles possible to erect around C with the center C as an apex is 360 degrees the area included inside the lines CANBC will be proportionate to the entire area, as the sum of the degrees of the two top angles is to the total number of degrees. This is expressed

$$160 \text{ degrees } 50 \text{ minutes} : 360 \text{ deg. } 0 \text{ min.} :: x : 4071.5 \text{ sq. in.}$$

160.84×4071.5 divided by 360 equals 1816.8 sq. in. or the cross section of the area CANBC.

As the right triangles CAM and CBM have the hypotenuse and one side known I can find the other side by taking the square root of the difference between the square of the hypotenuse and the square of the other side.

$$\begin{aligned} \text{Then } (CA)^2 - (CM)^2 & \text{ equals } (AM)^2 \text{ or} \\ 36^2 - 6^2 & \text{ equals } (AM)^2 \\ 1296 - 36 & \text{ equals } (AM)^2 \\ \sqrt{1260} & \text{ equals AM or } 35.4 \text{ in.} \end{aligned}$$

Then the area of the two triangles is equal to twice the base times the altitude divided by 2 or $(6 \times 35.4 \text{ divided by } 2) \times 2$ or 212.4 square inches. Deducting this from the entire area CANBC leaves the water area alone or

$$1816.8 - 212.4 \text{ equals } 1604.4 \text{ square inches.}$$

$1604.4 \times 18 \times 12$ equals number of cubic inches of water in the boiler or 346550.4 and dividing this by the number of cubic inches in a gallon (231) will give the number of gallons or 1500 gallons.

OTTO E. TRAUTMANN.

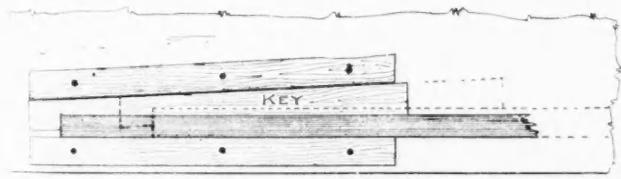
Note: A very large number of our readers have been interested enough to send in solutions to this problem. They are all along much the same lines as the above. EDITOR.



A Good Bench Stop

To the Editor: Uintah, Utah.

I am sending herewith a sketch of a bench stop. It is made of three 7/8-in. pieces; the two outside pieces are screwed



Bench Stop and How Used

down or tacked to the top of work bench while the middle piece is loose and acts as a key to hold any ordinary width stuff on edge, while being worked as the side pieces are so set as to adjust the key piece to the piece being worked.

R. O. BYBEE.



Looks Like a Dangerous Trick

To the Editor: Oak Hill, W. Va.

Would like to see a little trick of mine in your paper or perhaps it is not worth it.

I took a small bottle of gasoline and ran a wire through the stopper; fixed a little asbestos on the end of the wire so it would touch the gasoline. When I want to light my corn cob, I hold the little torch up close to the spark-plug on engine, make a spark with a wrench and presto! I have a dandy light. H. M. THURMOND.

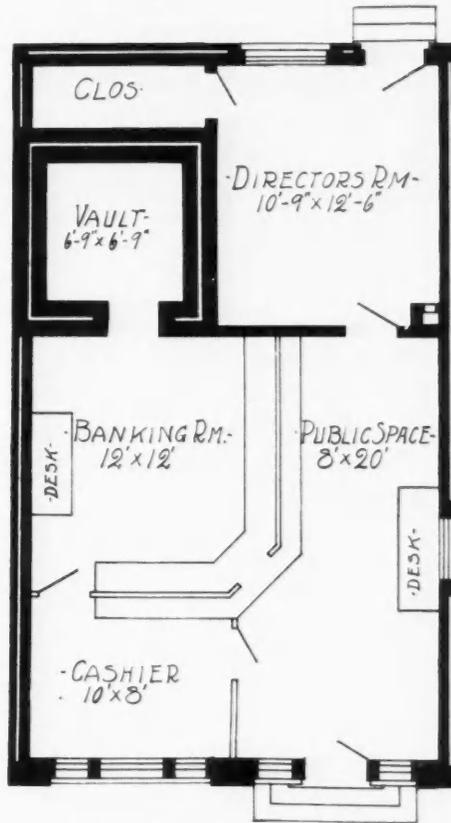
Lay Out for Small Bank

To the Editor: West Point, Iowa.

Will you kindly show a suggestion or outline of the floor for a country town bank, the size to be about 20 feet in front and about 36 deep, to be built out of brick with concrete floor in counting department around vault. This is a new proposition, having never had work similar to it.

PAUL G. HIRSCHLER.

Answer: The accompanying diagram shows a very good arrangement for a country town bank. All of the facilities



Model Floor Plan for Small Bank

which are desirable in such a building are provided here.

It will be noticed that the vault is built with a very thick double brick wall with dead air space between. The ceiling and floor of the vault should be of similar construction and the vault should rest on an independent foundation carried down to a solid bearing. It is important that a bank vault should be built fire-proof. All of the rest of the building may burn and tumble down; but the vault should be made so it will stand. EDITOR.



Wants Ideas for Shop Furniture

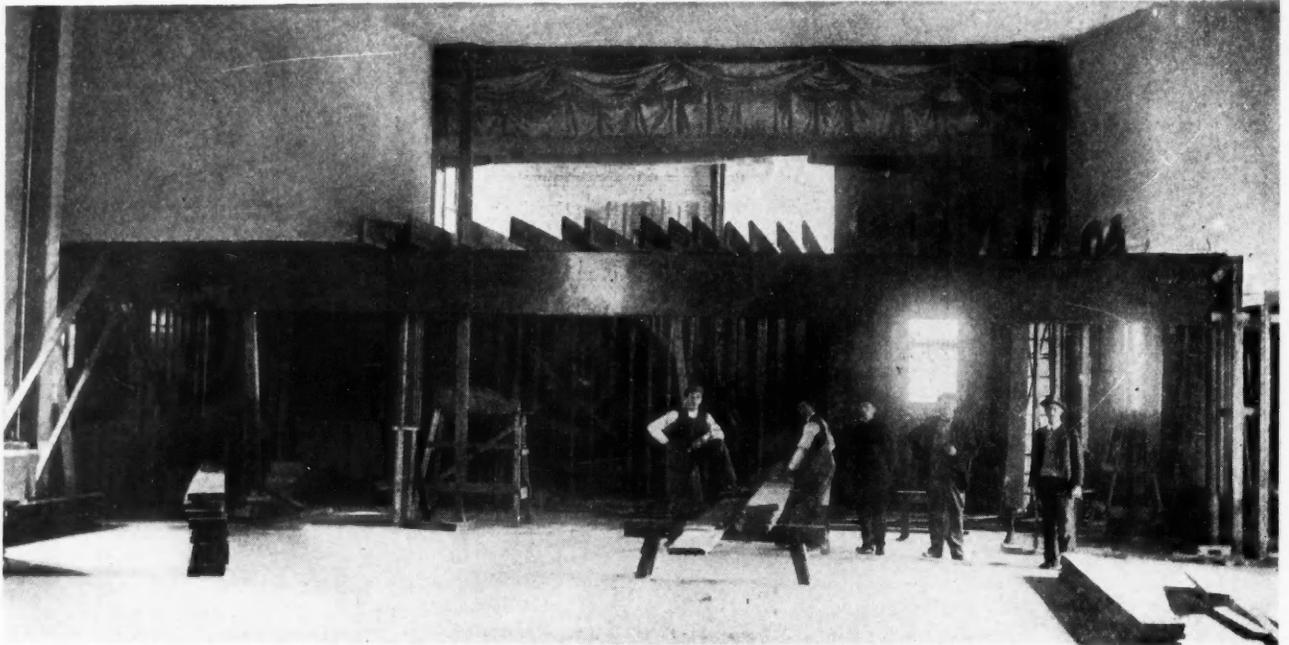
To the Editor: Charles City, Iowa.

I am taking the liberty to ask you if you can give me any information regarding heavily built wood desks, chairs, cases, and other furniture for shop-offices intended for foremen's use.

It occurred to me that perhaps you might have run across something of extra good construction but plain design, suitable to withstand the hard usage that such furniture would necessarily receive. The name and address of manufacturers making such furniture or sketches showing designs would be greatly appreciated.

I own a complete set of your Cyclopaedia of Construction, your Framing and Detail books, as well as five of your plan books; all of which I find of extreme interest and value.

C. S. MOSS, Architect.



Remodeling Co. G. Armory at Hackensack, N. J. Note 30-inch Steel Girder 48 feet long.

Hangin^g Large Accordion Doors

To the Editor:

Hackensack, N. J.

I wrote you about hanging of accordion doors, as I had a job to put up a set of them in the armory of Co. G., N. G. S. N. J. We removed the stage, which was 4 feet above armory floor; and raised it up, making a 11-foot ceiling. This required an iron girder 48 feet long, 30 inches deep and weighing 5,700 pounds. We thus made a room on second floor 24 by 60 feet long, for a company room holding 65 steel lockers for uniforms, also toilet and shower room.

The girder to which the track is bolted is 24 feet from the rear wall. There are ten full size and two half doors. The full size doors are 4 feet 2 inches wide and 8 feet 6 inches high, with Florentine glass in top, 42 by 48 inches. They work fine, better than 3-foot doors, as there are not so many

butts to bind. The wider the doors the less hanging stiles you have.

I used a regular 5-inch mortise lock and knobs, which works fine. These photos will show the boys of the AMERICAN CARPENTER AND BUILDER that doors over 3 feet wide can be hung and work all right. They will learn something by it, for I never hung or saw any work at all until I saw them in the AMERICAN CARPENTER AND BUILDER. And then I did not follow directions, for I made them 4 feet 2 inches wide; and they are a success. The hanging strip for the half doors to be left loose with a rabbetted piece to hold it in place.

In upper picture reading from right to left are A. Monroe, contractor; E. Zimmerman and helper, plumber, and E. Frylinck and H. Gross, carpenters.

ALONZO MONROE,
Carpenter and Builder.



Extra Wide Accordion Doors Which Work Perfectly

A Carpenter's Wife Speaks

To the Editor:

West Point Iowa.

To start with, I'm neither a carpenter nor a contractor, but simply the wife of a contractor and builder.

My husband said that my letter would not be published in the *CARPENTER AND BUILDER*, but although my husband is as truthful a man as there ought to be more of, yet I don't believe everything he says at least not this; because he *told* me to write in the first place when I suggested that it was time for him to do so. Of course he did not think I would.

He is over there in the little study room, drawing plans and details of work that he is to do the coming season.

That little drawing room is a great deal of trouble to me. It is a kind of den just next to the living room, and when Frank (yes, that's his name) is working in there, having strewn right and left, plans, specifications, reference papers and what not, the telephone summons him to leave every thing as he dropped it; and for fear that he might bring home some visitor or some prospective builder, I, of course, go and try to straighten and order as best I know how. He never says much when he finds things orderly, but I'm sure he appreciates it, "considering what he says when he finds things undone and in disorder." O no, he does not blame me, but after a day of difficult calculations and figuring, he comes home tired, yet determined to put it on paper and finding his drawing room in a tumult naturally goes against the grain.

I really never complain about it and since I have learned how he likes to have things, I begin to love the little task.

And I'll tell you the greatest *WHY* that I love to do it:

Several months after we were married, I said to Frank one day, "Why in the name of common sense didn't you put that drafting room upstairs or out in the shop, instead of here on the show?" And if I ever felt ashamed of what I said and more so of myself, it was when I had spoken those words. "Mabel," he said, "Now thirty-six weeks out of a year I'm home only on Sundays, as our work is mostly in the country, so when I designed this little nest, don't you remember? why you helped plan it, don't you remember how we planned this little study room right here, handy, so that we could be somewhere near together as much as possible during the time that I was at home."

Had I forgotten? No, no. I simply did not think, but I started then and there. I can't speak of all I thought, but to give some of you wives an idea of what it was I studied, I will nail down a few planks for a footing.

When the farmer (I was raised on the farm) is unable to get home before a late hour, his wife does all the chores, even putting in the feed for the team that the husband is driving, so when he comes home all he has to do is to run the team into the barn, unharness the animals and skidoo to the house.

If he is short on help and can find no one, the wife will fill the place by doing little tasks that she can easily handle, and so a hundred things similar. But now, about us Carpenters' wives? I can hear a dozen exclamations, "Well, well, do you expect that I go and hold the board while my husband saws it in two? Should I hold the rule while he scribes? or steady the ladder while he carries up shingles?"

Do you expect that I oil and put away the tools after quitting time, or hold the T square while he draws? NO, none of these, although they would be all right in their place.

But are there no other ways of helping our husbands, than by mending the nail aprons with number forty thread, or by making finger stalls that won't stick to the finger? That is quite a stunt; I never knew how to bandage a finger until Frank taught me. I once told him that I was very proud of him because of his ability in making finger stalls. He answered, "The credit is not mine but necessity is the mother of invention." By that I also take that I'm simply

a necessity, for I'm the mother of a boy who is so full of invention that he is always inventing something that causes much trouble and sorrow to "necessity" (his mother).

A carpenter can be all that health, ambition, and the *AMERICAN CARPENTER AND BUILDER* can make him. He may earn more than any other "fellow" around; but what good will that do him, if he has a wife that does not keep the double-tree of managing and planning *EVEN?*—a wife that is said does not "team" with the husband in the thousand duties of the every-day work—one that can spend just a little more than the husband earns, and so that he can hardly realize where it all goes to!

Frank says if I'm going to send this letter I better not sign my name or else he would authorize the post master not to send it, as he didn't even want the editorial staff to know what man had such a wife—there being no danger that it would ever be published.

This is how I try to help "my carpenter": I keep a little note book by the telephone, so if there are any calls for Frank while he is absent, I put down the name and the time such parties called. Then when Frank comes home he can call them. Or if he is out in the country, I 'phone out to him at noon or evening, so if the parties have not already spoken to him he can call them.

I also do much of his bookkeeping, for instance: Frank brings home statements of material used on certain jobs, and also the time of the laborers, and as these mostly consist of simple figures, it is not at all difficult, and I can do it in odd hours.

In the winter he makes furniture, always something new. He calls them "fool notions." He just loves to do that—that is, all except the finishing. So I studied up on the staining and varnishing question, and with time and patience I've gained enough knowledge so I'm quite successful in obtaining beautiful finishes on most all kinds of wood.

Frank is putting away his drawing material, so I must seal this before he gets it, for if he reads it, it won't even get started towards the post office, not to speak of ever reaching Chicago.

I would value the experience and opinion of other carpenters' wives very much, and providing the editor sees it advisable I hope to see in these columns of the next issue something about what the wives can do to help things along for the carpenter husband.

FRANK'S WIFE.



Floor Laid in Hot Tar

To the Editor:

Bridgeport, Conn.

In the last number of the *AMERICAN CARPENTER AND BUILDER*, was a question, how to make a porch floor water proof. In my experience I find that if you use good flooring laid in hot tar, it will make the porch water proof, and at the same time it is very cheap and good.

HENRY OSHBERG.



Belfry Designs Wanted

To the Editor:

Bieber, Cal.

I would like to see, in your valuable paper, some designs for a belfry on a school house, to be built on the mission type hip roof.

J. A. JACK.



Questions for Dry Kiln Experts

To the Editor:

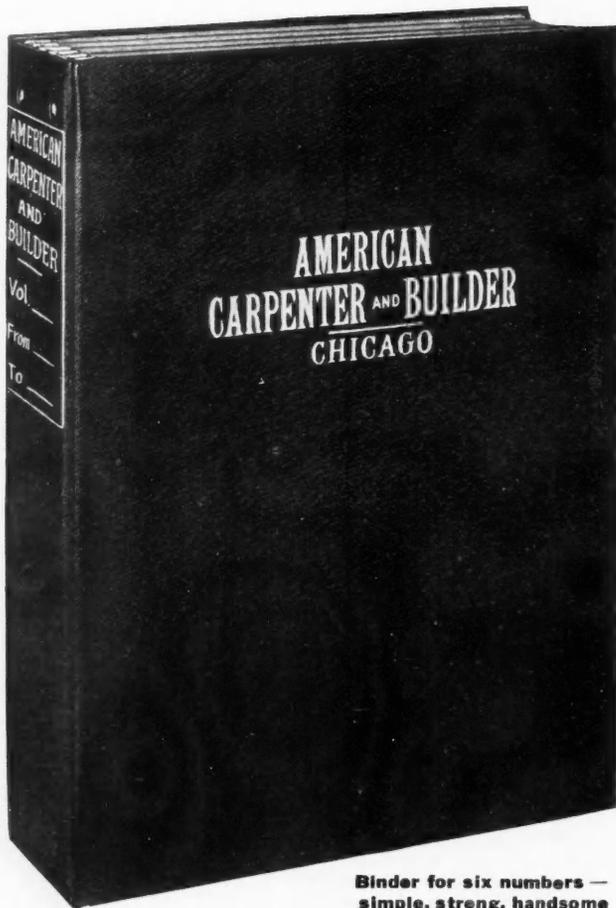
Wilburton, Okla.

I desire to know through *AMERICAN CARPENTER AND BUILDER* or direct, how to lay out a small steam dry kiln about 20 by 24 feet, 8 feet high. I want to use 1-inch pipe. The kiln will be framed of 2 by 4's. Sheathed outside and inside with rough boards with sawdust between. Any suggestions will be appreciated.

J. P. McLARTY,

Contractor and Builder.

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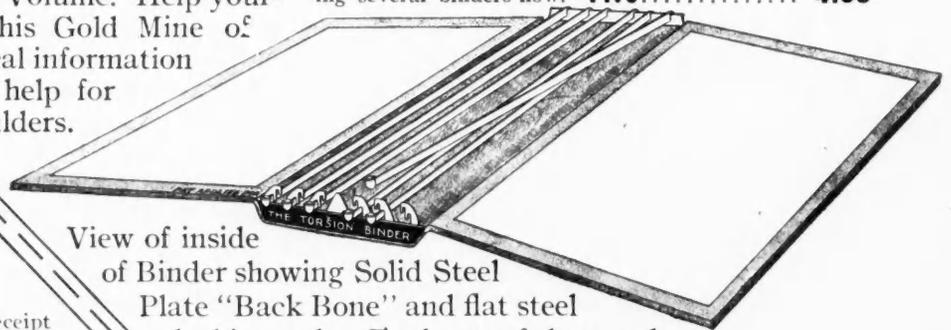
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View of inside of Binder showing Solid Steel Plate "Back Bone" and flat steel locking rods. Each one of these rods

is slipped through the middle of a copy of the magazine and is quickly and easily snapped fast. There is no punching, cutting or mutilating whatever. Each copy is bound in snugly—yet can be opened absolutely flat. Keeps your magazines clean and fresh—and right where you want them for ready reference.

TRADE NOTES AND ITEMS OF INTEREST

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

Clay Show Prize Cottage

SIX DAYS REQUIRED TO BUILD TWO-THOUSAND-DOLLAR HOUSE OF COMMON BRICK; WALLBOARD HELPS QUICK WORK

One of the features of the Clay Show was a brick cottage. It was built in a very attractive manner of common brick, and with such carefulness that visitors—both brick manufacturers and others—were greatly surprised at the attractive exterior that this common brick presented. The structure was roofed with clay tile. This was the prize house of the show and was given to the one guessing the nearest number of marbles contained in a jar. The winner of the house was John Mulligan, 400 Webster avenue, Chicago, who declared there must be about 5,377 marbles in the jar. This proved to be the exact number.

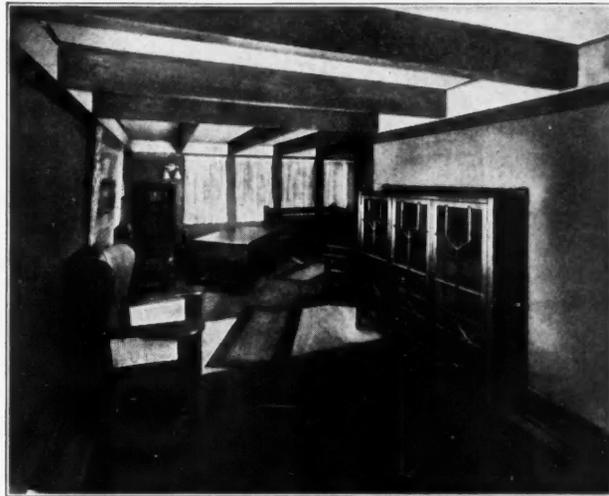
The structure contained six rooms, with a living room, dining room, and kitchen on the ground floor, with three bedrooms and a bath on the second floor. Visitors entered this brick cottage through a door which led to the living room, and they were taken through this room to the dining room.

One of the features of these two rooms which appealed to every one who entered was the fact that the entire structure was built in less than a week, and the interior of the building was completed for inspection one day after the brick walls were constructed. Visitors were puzzled as to how the inner walls had been plastered and thoroughly dried in this short period of time. Quite frequently some of the wise ones could be seen tapping on the walls with their knuckles to see if they could determine the material which had been used in the construction of these walls. In most instances these investigators went away puzzled.

As a matter of fact no plaster was used in this building, but a fireproof wallboard which the manufacturers say will

not warp, expand or contract. It is the product of the Bestwall Manufacturing Co., a Chicago firm, and known to the trade as "Bestwall." This material is made in various sizes and can be applied quickly and easily and was used in the prize cottage because of the fact that it becomes a finished wall as soon as the last nail is driven.

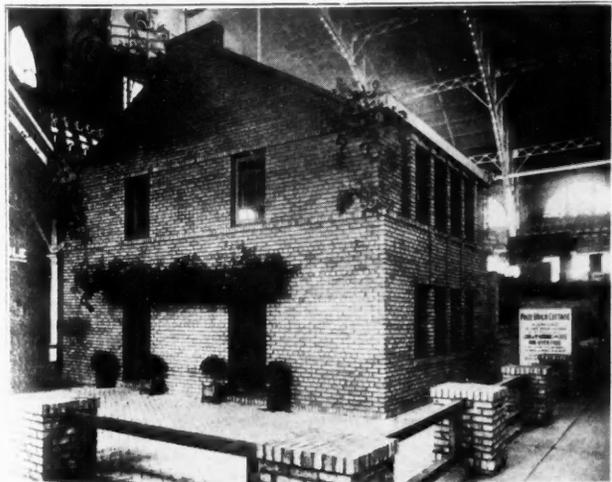
"Bestwall" is a mineral composition and can therefore



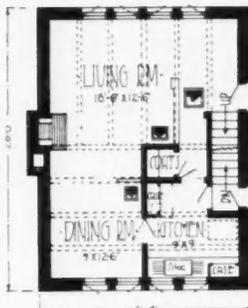
Living and Dining Rooms of Prize House

rightly be called fireproof. The walls of these two rooms were papered with ordinary oatmeal paper, retailing at not more than 30 cents per roll. From the dining room, entrance was had through a doorway to the kitchen whose walls were likewise constructed from "Bestwall," but instead of the oatmeal paper a cheap enameled paper was used, giving the effect of tile.

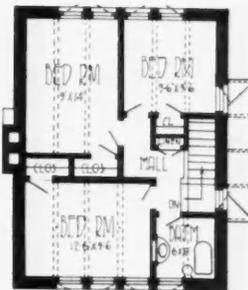
Entrance to the second floor was had from a corner of the living room and in close proximity to the main entrance of the cottage. This stairway led to a large hallway on the second floor from which entrance was had to the various rooms on this floor. A floral design paper was used in this hall and stairway.



Two-Thousand-Dollar Prize Brick Cottage



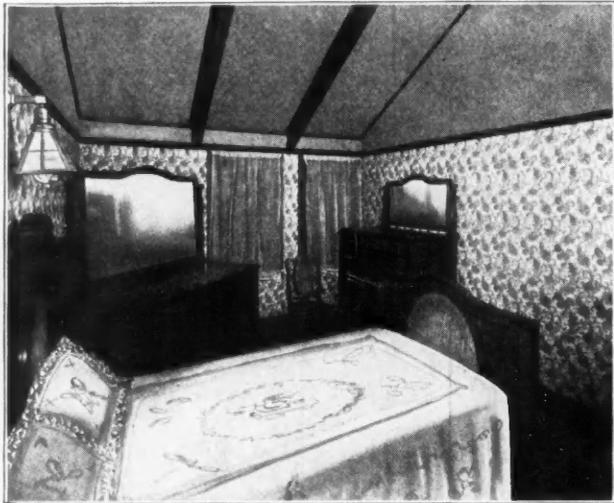
First Floor Plan



Second Floor Plan

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One of the Large Bedrooms

In all rooms the ceilings were all made of "Bestwall," upon which was papered a plain tint paper. Beamed ceilings were carried throughout the entire plan appearing in practically



Modern and Sanitary Kitchen

every room. A noticeable feature was the absence of panels which are usually present where wallboard is used. The reason for this is the perfect manner in which "Bestwall" is



Bathroom Furnished With Sanitary Fixtures

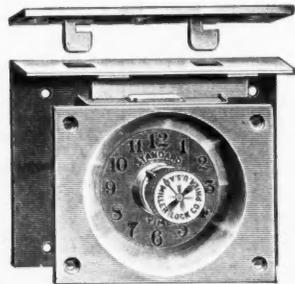
manufactured. When two ends of this material meet there is no noticeable difference as this material is made of a uniform thickness. Moderate priced wall paper was used throughout the building, none of it retailing in price over 30 cents per roll. The cottage was designed by Walter Burley Griffen, the architect whose plans for the capital city of Australia were recently accepted by that commonwealth. In order to rush the building to completion it was constructed in six days and Mr. Griffen worked in connection with the masons and the Bestwall Manufacturing Co. very harmoniously, the various parties having in mind the limited amount of time at their disposal. The exterior work was completed on the 24th and the wallboard put in place on that date. It was papered the next, and within 24 hours was thrown open to the public.



Keyless Chest Lock

The illustration herewith shows a lock that has been particularly designed for carpenters' tool chests. It is known as the "Standard Time" keyless chest lock and is operated by the knob in three seconds. This is not only a protection for valuable tools, but is a great convenience. Frequently keys are lost, or when tools are wanted in a hurry, the keys are forgotten. In either case it is sometimes necessary to rip open the old lock, or to have new keys made, both taking unnecessary time and money.

The "Standard Time" keyless chest lock is made by the Miller Lock Co, Frankford, Philadelphia, Pa. It locks automatically as the lid is closed. No two combinations are alike. It can easily be opened in the dark and is made to fit chests $\frac{7}{8}$ inch thick and up. It is made of brass, well finished and fully guaranteed.

No. 3360 all Brass
Size 4x3 Inches

Further information and prices will be gladly furnished by writing the Miller Lock Co., Frankford, Philadelphia, Pa.



How to Operate a Woodstocker

We have recently secured some drawings showing how easily different kinds of work may be done on Fay-Egan "Lightning" Nos. 62 and 63 Universal woodworkers. Also a photograph of some of the work. (See pages 104 and 106.)

Beginning with the two upper drawings we show the machine box chamfering and planing out of wind; then plain chamfering, jointing and mitering; tapering and hand matching; plain rabbeting and rabbeting and jointing window blinds; cornering and making rule joints; plowing and gaining; squaring newels and making circular moldings; raising door panels and making waved moldings; rip and cut-off sawing.

Many other varieties of woodwork can be done on these machines, including mortising and boring, and on the 63 the vertical spindle gives still greater range. These machines are really "A Whole Wood Shop in Themselves."

No wood is used in the construction of Fay-Egan woodworkers. They are made of iron and steel throughout and can be transported from job to job without danger of springing or getting the working parts out of alignment.

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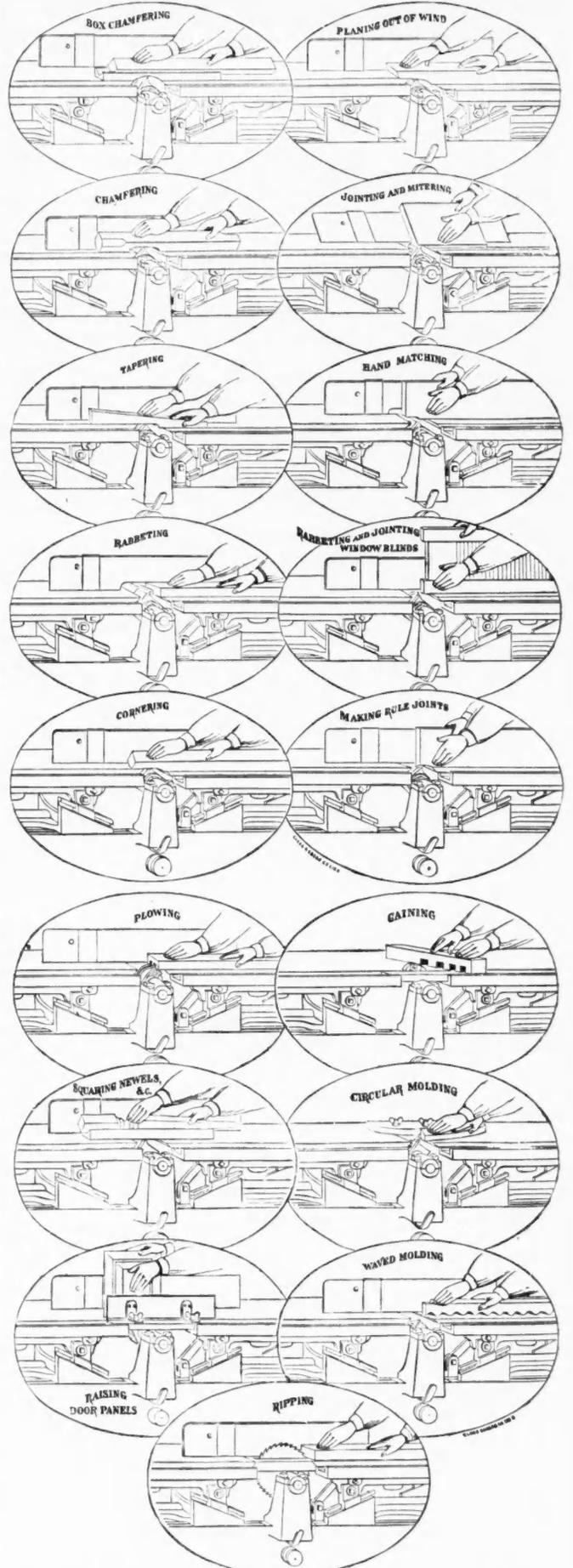
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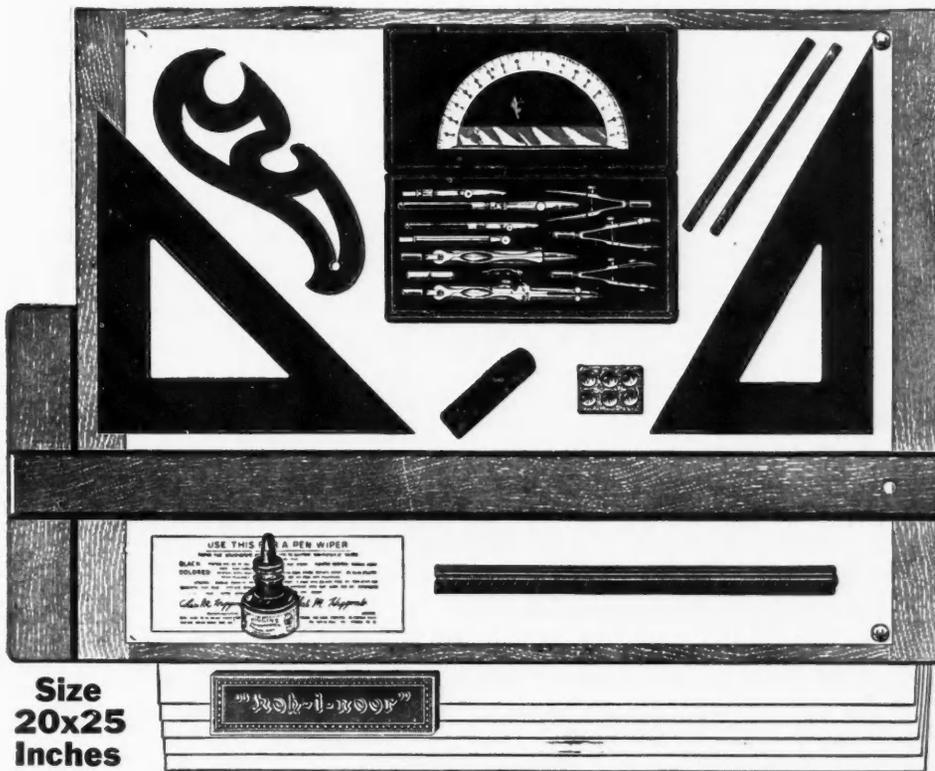
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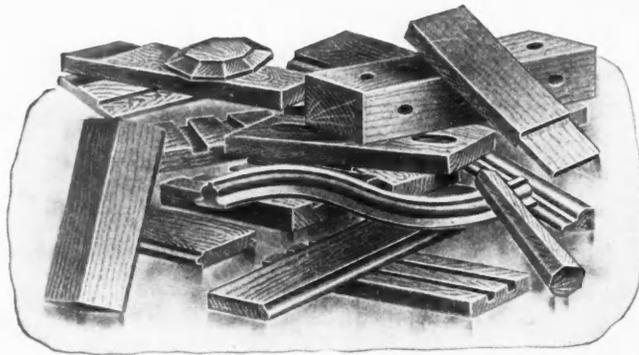
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When Writing Advertisers Please Mention the American Carpenter and Builder.



Some of the Work Done on a Fay-Egan Woodworker are also becoming more discriminating in their choice. They now demand high grade machinery and quite a number of Fay-Egan woodworkers are now going into their shops.

The Fay-Egan Co. issue special catalogs on woodworkers and we understand a copy will be sent to interested parties free upon request to J. A. Fay & Egan Co., 545-565 W. Front St., Cincinnati, Ohio.

Simmons' Catalog

The Simmons Hardware Co., of St. Louis, Mo., have just completed their 1913 year catalog which has been a stupendous undertaking.

Some idea of the magnitude of the task can be gained from the fact that this edition required eighty-two rolls of paper 45 inches wide, making in all about sixteen carloads. This book contains in the neighborhood of 3000 pages and is a striking monument to the wonderful line carried by the Simmons Hardware Co. Every tool that a carpenter or builder could possibly use is shown in this book, as well as such builders' hardware of various natures.

Simmons Hardware Co. are jobbers of cutlery and tools

and their trade mark "Keen Kutter," is a well-known symbol for standard quality.

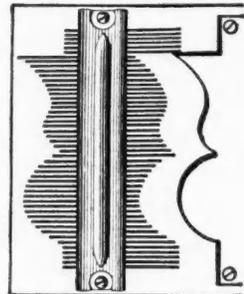
A line addressed to the Simmons Hardware Co., St. Louis, Mo., will bring their catalog of tools which will prove very acceptable to most of our readers.

A Useful Gauge

The Warren Supply Company, 85 Warren St., New York City, have produced a special tool that carpenters, builders, cabinet and pattern makers will find most useful in taking reproductions of a moulding, cornice, trim or any irregular curve or surface. It is called the Reinhardt Profile Gauge.

When in use the gauge is placed perpendicularly against the surface to be produced. The rods are pressed with the fingers until an exact profile of the object is obtained. The gauge is then placed on paper and the outline taken with a pencil.

In this manner drawing from sight or memory is done



away with and an absolutely correct result procured. The illustration shows pretty clearly what manner of tool this is. It comes in five sizes—from 2 to 6 inches. Every carpenter can afford this little instrument. For further information and prices address the above company.

CARLOAD PRICES

Shingles

Special Cash Prices

For straight carload lots F. O. B. Seattle
Good only until April 20th, 1912

Extra 'A' Red Cedar Shingles 6 to 2 in.	\$ 1.75 per M
Extra "Clears" Red Cedar Shingles 5 to 2 in.	2.15 per M
No. 1 Common Fir, sized 2x4, -8, 12, 14, 16 ft.	12.00 per M
2x6 and 2x8, -8, 12, 14, 16 ft.	11.50 per M
2x10, -8, 12, 14 and 16 ft.	12.50 per M
2x12, -8, 12, 14 and 16 ft.	13.00 per M
1x4 or 1x6 S 1 S Common Fir	11.00 per M
1x8, 1x10 or 1x12-3 1 S No. 1 Common Fir	12.50 per M
1x16-No. 2 Clear and Btr. Fir Drop Siding	20.00 per M
3/4x4-No. 2 Clear and Btr. Fir Ceiling	18.00 per M
1/2x4 or 1/2x6-No. 2 Clear Cedar	24.00 per M
Bevel Siding, random lengths	24.00 per M
1x4 No. 2 Clear V. G. Fir Flooring	28.00 per M

We Can Save You from \$75 to \$200 per Car and Guarantee the Quality and Count

You can actually get as good quality of lumber, shingles, sash, doors, and millwork, grade for grade, from our own mills as you have been buying, for one-third less, provided that you order a carload at a time, (for an average size house), and pay for same upon receipt at your station.

Read This—We Have Others

DEAR SIR:—Find everything O. K. Could not purchase such grades here. Material all nice, straight and clean. Will soon send you another order. J. O. CUNNINGHAM, Contractor, Wilson Creek, Wash.

We Will Sell You LUMBER

(Rough and Dressed)

LATH AND SHINGLES
: Sash, Doors and Millwork :

DIRECT

From our own Mills, in and near Seattle, Wash. in carload lots

We are manufacturers of best reputation established in Seattle for 30 years—at the same place. Until recently we sold on the dealer-and-credit plan, but now sell direct to the home-builders who do not require credit. Manufacturing concerns, railroads, contractors and builders are patronizing us freely and saving big money, while retail dealers knock our plan and our products in self-defence.

We guarantee satisfaction. If we can only send you the first carload, you will be our steady customers. We can furnish ample references as to quality, reliability and honest dealings.

Send us your "bill" and let us quote you our price delivered at your station, or at least get our "delivered price" list. It will pay you to know how much you can save.

NEWELL MILL & LUMBER CO.

8th Ave. So. & Charlestown St.
SEATTLE, WASH.

When Writing Advertisers Please Mention the American Carpenter and Builder.



Backed by our forests and mills You Can Underbid everybody



Stop
Paying
5 Profits
to these
middlemen

**Lumber and millwork are the big items
of your bids—we save you 40% to 60%**

Backed by such prices you can underbid everybody, locally or otherwise—
get more business, make bigger profits—double, treble, yes quadruple your income.

Service for the West

We own thousands upon thousands of acres of choicest Western timber—fir, spruce, cedar, hemlock and western soft pine in an almost inexhaustible supply. We own logging camps and railways. Six great mills convert the timber into lumber and millwork of highest quality. They produce 20 to 30 carloads per day.

Fir of celebrated quality

Our fir comes from a region famous for big trees and choice timber. It is long and straight, free from large knots and sap. Beautiful in appearance. Wonderfully durable.

Service for the East

We now control two large mills convenient as Eastern shipping points. Our St. Louis mill is equipped to ship cypress, yellow pine and oak finish items, also doors, sash, columns, etc. Our Southern mill in the heart of the celebrated Rose Mary belt, has unequalled facilities for shipping you

Soft short leaf yellow pine

Weighs 200 lbs. less per thousand than long leaf yellow pine. Makes best casing, base and interior finish. Works easily. Takes and holds paint well. Makes beautiful appearance under varnish. No cheap finish to equal this.

Get rid of this handicap
Get this big advantage

Just look at
these Prices

F. O. B., Seattle

2x4, 12, 14, 16 ft., No. 1 Common fir sized, per M.	\$12.50
2x6, 12, 14, 16 " " " "	12.00
2x8, 12, 14, 16 " " " "	12.00
2x10, 12, 14, 16 " " " "	13.00
2x12, 12, 14, 16 " " " "	13.50
1x6, No. 1 Common fir S1S	11.00
1x6, No. 2 Common fir S1S	9.00
1x4, No. 2 Clear and Better slash grain flooring, per M.	23.00
1x4, 1st Clear vertical grain fir flooring	31.00
5-8x4, No. 2 Clear and Better fir ceiling	19.00
1-2x6, "A" Clear red cedar bevel siding	24.50
1x6, No. 2 Clear and Better fir drop siding	20.00
1x4-4 Clear Bull Nose casing, per foot	1-25
1x7 1-4 " " base	2 1-25
2-8x6-8-1 3-8-5 Cross Panel Fir Door	\$1.50

Shingles—straight car load prices

5-2 16-inch Clear red cedar shingles, per M	\$2.20
6-2 16-inch Extra *A* red cedar shingles, per M	1.80

Quick delivery everywhere in the U. S.

Prompt shipments We maintain huge stocks at all of our mills. Miles and miles of lumber piles—warehouses, full of millwork of highest quality—await your orders. We fill orders within an average of 24 to 48 hours. Our shipments reach destination within an average of two weeks. You always figure this much in advance.

Unequaled railroad facilities

West From Seattle, seven great transcontinental railroads rush our shipments to all points west of the Mississippi—work delivered within two weeks.

East Our St. Louis and Southern mills, (near Shreveport, La.,) offer a similar service to all eastern points. There are twenty-six railroads out of St. Louis, Shreveport has eight, effecting prompt deliveries to eastern points as well as Oklahoma and Texas.

Quality and satisfaction guaranteed

We back every shipment of materials from the west with the guarantee that it will grade better than trust or combine standards. Our yellow pine is manufactured in strict accordance with the Yellow Pine Manufacturers' Association grading rules. The materials we furnish are bound to make a hit with your customers.

Mail coupon for catalog
and money-saving price list

One estimate will convince you

Send us your complete list or schedules of materials for work on which you are now figuring. Get our prices. Find out what a big saving we can make you. Underbid competition, get more business, make more profit. Send lists or schedules, today.

Hewitt-Lea-Funck Co.,

623 First Avenue, Seattle, Wash.

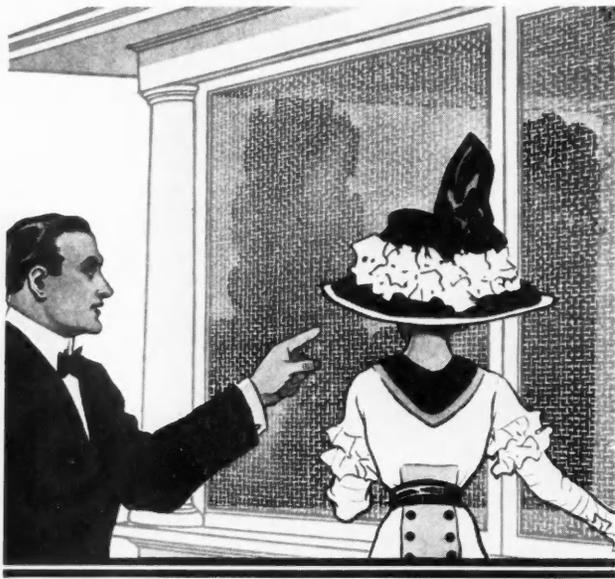
Kindly send me your catalog and List of prices on lumber and building supplies, laid down at my station.

Name _____

Address _____

Business _____

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Take Advantage of This Twentieth Century Improvement in Screen—

You are a progressive man, are naturally quick to take advantage of twentieth century improvements in methods and materials—

Here is just what you have been looking for in a modern wire cloth for door, window and porch screens.

Gilbert & Bennett PEARL Wire Cloth is the name—the genuine article is identified by *two copper wires* in the selvage.

It is the most beautiful screen imaginable—and the most durable. The very process which gives it its beauty renders it highly weather-proof. In the long run "PEARL" costs *much* less than cheaper screen.

GILBERT & BENNETT
PEARL
WIRE CLOTH

For Screening Doors, Windows and Porches

Two grades are to be had—Regular Grade, suitable for doors and windows and Extra Heavy, made especially for porches. Both have the *two copper wires* in the selvage as a means of identification.

Gilbert & Bennett PEARL Wire Cloth is permanent and truly economical—the meshes don't break, separate or offer a lodging place to dust, dirt or germs. It is worthy of your work.

Now, if only for the sake of information—call upon the best hardware dealer in your town and talk to him about "PEARL"—or—write our Chicago office for samples and complete book.



Write for These Samples and Particulars—
Address our Chicago Office.

The Gilbert & Bennett Mfg. Co.

Established 1818

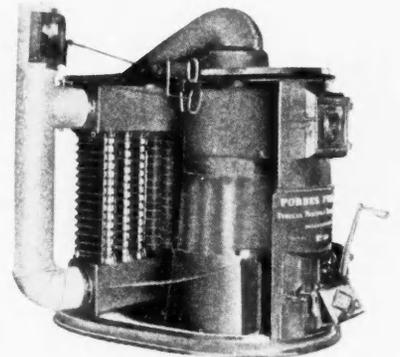
Chicago Georgetown, Conn. New York City Kansas City

When Writing Advertisers Please Mention the American Carpenter and Builder.

"A Heated Argument"

Figuratively speaking, there are three kinds of furnaces—the "dog in the manger" type, that takes all the fuel you can crowd into its capacious maw and gives nothing in return; the "stingy" kind that takes a lot of coal but gives an inadequate return in heat, and the "good servant" furnace that works night and day, generating heat and cutting down fuel bills until it drives one to open the doors and windows unless its enthusiasm is checked.

Much of the blame attached to furnace heating must necessarily be laid to faulty construction. There are several things that can be considered as contributory causes to insufficient heat being generated; and under this head might come the wrong placing of the furnace or wrong system of piping the heat to the various rooms. It is to be conceded that a great deal of heat is lost through the smoke pipe, as in most furnaces, provision is not made for the burning of combustible gases generated when fuel is consumed. Necessarily the hot smoke and gas must pass up through the flue and waste their heating properties on the outside air.



Perspective View, Casings Removed, Showing Radiating Manifold in Back

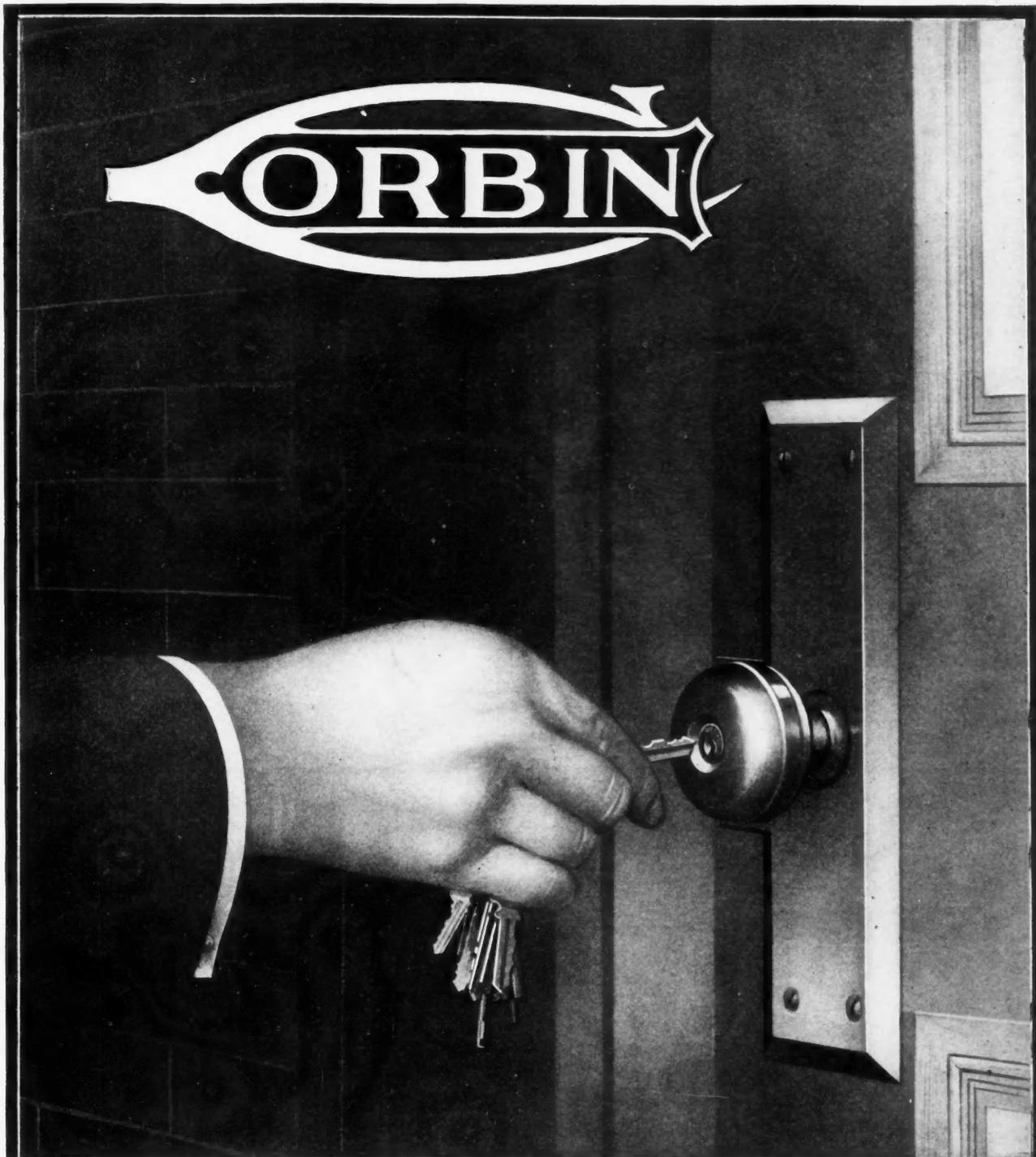
It seems that the Tubular Heating and Ventilating Company have practically solved the problem of efficient heating with furnaces. By their system, the gases and smoke are passed into the smoke neck and downward into what is called the radiating manifold. Here they are distributed, passing downward through several flues. While traveling through these flues, they lose most of their heat to the air which, rushing in from underneath and passing around the flues, goes into the heating pipes. A peculiar feature of the furnace manufactured by these people is that the smoke pipe is always cool to the touch.

These manufacturers call their product the Forbes Furnace and it is highly recommended by the various users throughout the country for its efficiency in heating all styles of residences or stores with a great saving of fuel. The principles on which the Forbes furnace has been manufactured are worthy of our readers' attention. The illustration herewith will give some idea of the construction used on the Forbes, but in order that the good qualities may be fully appreciated, catalog D, supplied by the Tubular Heating and Ventilating Company, 232 Quarry St., Philadelphia, Pa., should be procured. This will prove interesting reading to those contemplating furnace heating and any of our readers thinking of buying a furnace would do well to investigate this proposition before they place a final order.



A Good Pry Bar

There is a pry bar made by the Sutton Tool Company, Wilkinsonville, Mass., that will prove a welcome addition to the builder's tool kit. This bar is made from one piece of tool steel carefully forged and hardened. The length is 20 inches and a slot in the blade makes it possible to pull out nails straight as high as a man can reach. It does not "chaw" or split the boards either. For taking up floors, removing scaffolding and other like jobs, the "W. A. Bashaw" pry bar, as it is called, is extremely handy. The Sutton Tool Company are anxious to get in touch with builders so they can tell them about the pry bar. Write for particulars.



THE KEY HOLE IS IN THE KNOB

of a Corbin Unit Lock. It is shipped from the factory with all parts attached, and the fine adjustments made at the factory are never disturbed. Unequaled for fine buildings of all kinds. Booklet K 15 tells about it. The best dealers sell it.

P. & F. CORBIN

Division

The American Hardware Corporation
NEW BRITAIN, CONN.

P. & F. CORBIN of Chicago

P. & F. CORBIN of New York

P. & F. CORBIN DIV., Philadelphia

When Writing Advertisers Please Mention the American Carpenter and Builder.

How to Lay Out Building Lots or Foundations

Many a builder or farmer has been seriously handicapped in starting work because of inability to lay out building foundations or building lots. The high cost of the engineer's transit has made the purchase of this instrument out of the question. Waiting for a civil engineer to do the job for him has caused annoyance as well as delay. But he can now obtain a relatively inexpensive transit with which he can approach the problem with confidence. Such an instrument as the Starrett, for instance shown in Fig. 1, will enable him to lay out building foundations or building lots and do it at his own convenience.

One of the first things to learn in using the transit is its initial adjustment, that is, making the transit perfectly level. To do this the legs of the instrument are first set into the ground firmly so that the adjustment may not be disturbed. It is then brought to a level by adjusting the lower parts of the extension legs. Greater refinement in level is secured by adjusting the leveling screws between the plate and tripod head. This is done by bringing the level over one of the leveling screws and turning one screw in and another out until the bubble appears in the center of the level glass. Then turn the sight tube or telescope through an angle of about 90 degrees, and again adjust the bubble to the center of the glass by means of two leveling screws. This operation should be continued until the bubble stands in the center of the glass, no matter what direction the level may be turned.

By means of a plumb bob, suspended from the hook under the tripod head, the center of the instrument is set directly over the station mark or corner of the lot, or building to be laid out. The transit is then carefully leveled as above, after which neither the hands or the coat of the operator should be allowed to touch the legs of the instrument.

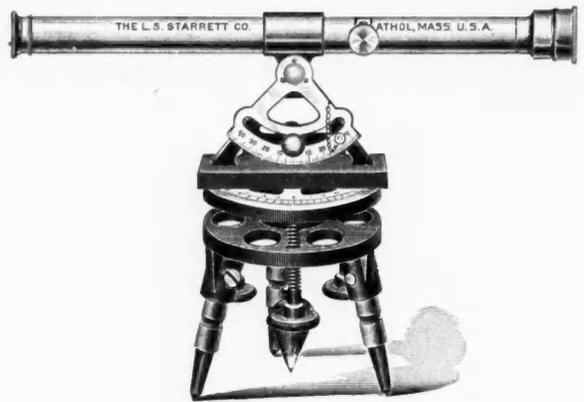


Fig. 1

If AB in Fig. 2 (page 112) represents the street line and the corner of the proposed building is at C , which is distant from the street line, NC , then a distance OP equal to NC should be measured from the street line at some point O which is at least as far from N as the length of the proposed building. Set a stake at P then the line CP will be parallel with the street. A distance from C in the straight line towards P is next laid off, equal in length to the building or lot; this determines the two front corners C and D .

To get the line at right-angles to CD , leave the sights still directed on the stake at P and the sight tube clamped by means of the clamp screw and nut. Then turn the graduated arc until the index finger can be passed into the zero mark by means of the push pin. Screw the graduated arc in that position by clamping the lever. Then turn the eye end of the sight-tube or telescope to the left until it has turned a right-angle, or 90 degrees. A sight along its new position will give the line CF on which the required distance is meas-

STUCCO PEBBLE DASH AND HALF TIMBER HOUSES

ARE

SUCCESSFUL

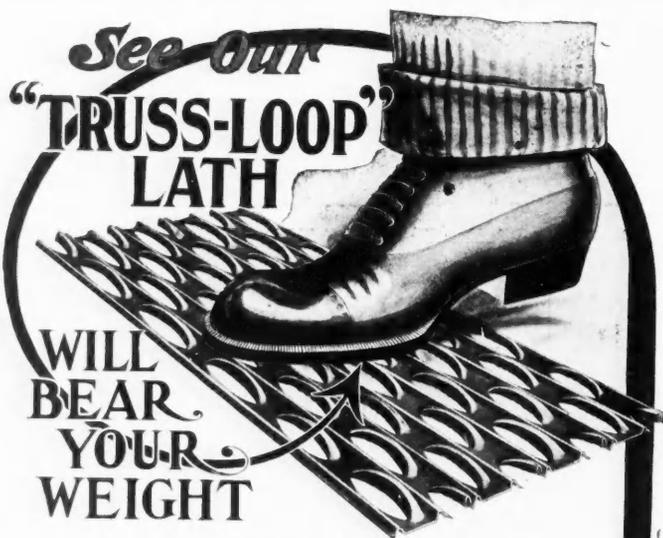
WHEN

"Truss-Loop"

METAL LATH IS USED

BECAUSE

The Truss-Loop Special Lath for exterior plastering is made of 24 ga. galvanized or non-corrosive metal weighing 8 lbs. to the sq. yd. (heaviest made). Is absolutely rigid, requires minimum of plaster and labor, is non-absorbent, neither spreads or shrinks, resulting in a Perfect Mortar — Keyed, Smooth, Non-Cracking Walls. Write for Stucco Catalog.



WILL
BEAR
YOUR
WEIGHT

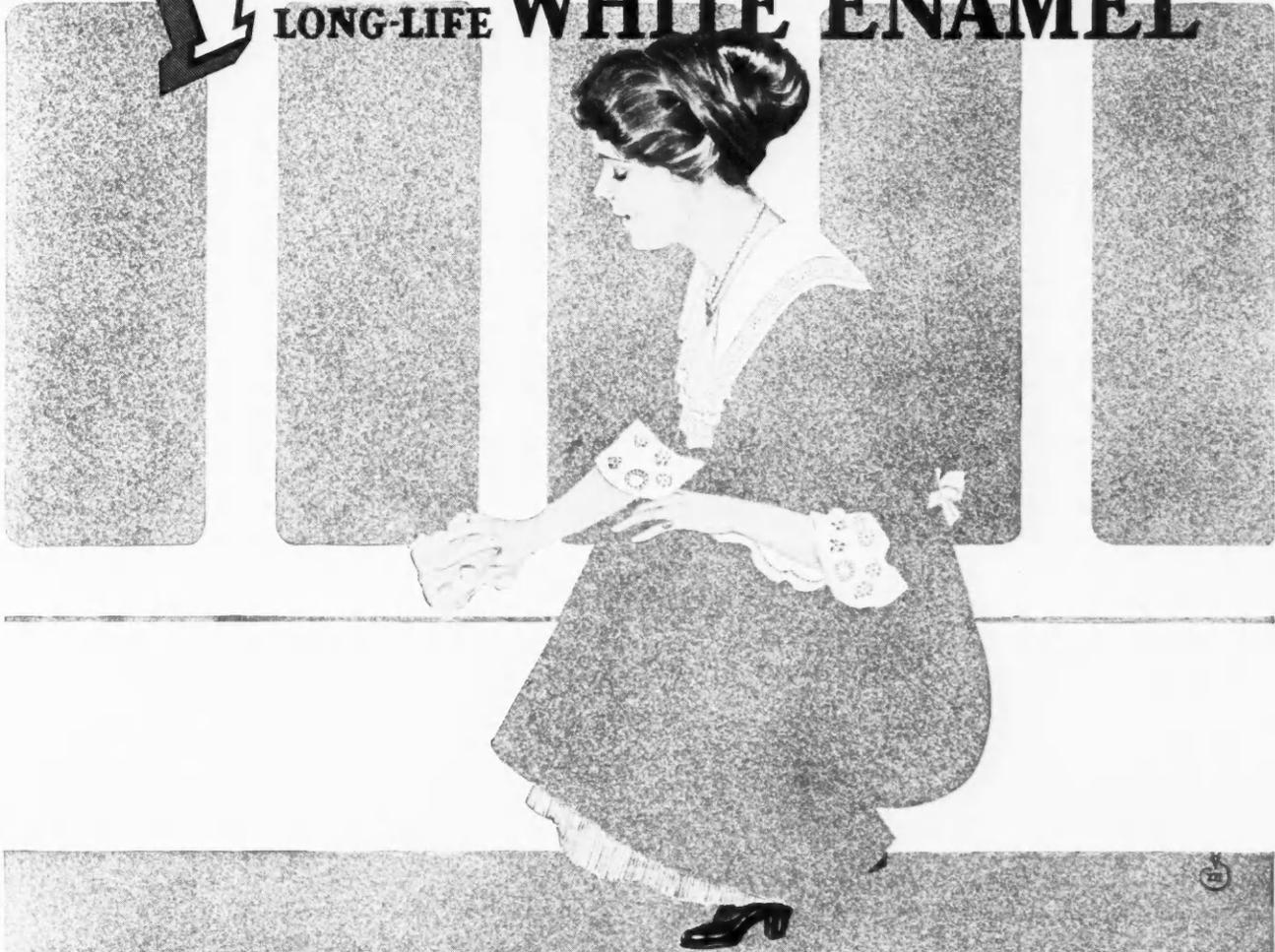
Note Strength and Rigidity Necessary for Stucco

BOSTWICK STEEL LATH CO., Niles, Ohio

When Writing Advertisers Please Mention the American Carpenter and Builder.

Vitralite

THE LONG-LIFE WHITE ENAMEL



TO give satisfaction, specify enamel that stands up under the cleaning rag. Sounds homely, but it is true. The porcelain-like character of Vitralite, *The Long-Life White Enamel*, sheds dirt, so that it can easily be washed off. Dirt will not be absorbed, nor washed into the finish. Thus it will remain a pure, intense white, through all its long life, unmarred by crack or chip, whether used inside or outside, on wood metal or plaster.

"61" Floor Varnish for floors, is heel-proof, mar-proof and water-proof.

Send For Booklets and Sample Panels.

See Pratt & Lambert Specifications, pages 1842-1843, 1913 Sweet's Index, before specifying wood finishes.

Pratt & Lambert-Inc., 110 Tonawanda Street, Buffalo, N. Y.

"61" FLOOR VARNISH

PRATT & LAMBERT VARNISHES

AMERICAN FACTORIES: NEW YORK, BUFFALO, CHICAGO, BRIDGEBURG, CANADA. ESTABLISHED 64 YEARS. FOREIGN FACTORIES: LONDON, PARIS, HAMBURG.

When Writing Advertisers Please Mention the American Carpenter and Builder.

Birch Finish



Residence of W. T. Christine, Glen Ellyn, Ill.
J. E. Minott, Aurora, Ill., Architect.

BIRCH solves the perplexing problem of how to get the best interior finish at the least expense. The owner of the attractive cottage shown above says:

"I do not believe any house ever was more highly and generally complimented than ours, and particularly does the **Birch Trim**, finished in natural color, wring praise from those who see it. The house is trimmed throughout in **Birch** except two rooms. Stairway is **Birch**, treads, risers, balusters, rails and newel posts."

BIRCH is a close-grained, wear-resisting, hard, wood that does not warp, shrink, nor mar easily like softer woods. It has a peculiar richness of tone and figure and takes readily and permanently a wide variety of stains. **Birch** is so adaptable and serviceable that it can be used throughout the house from kitchen to sleeping rooms for doors, casing, base, trim and floors with excellent effect, while the cost is so reasonable that to specify **Birch** is true economy.

Our illustrated **Birch Book "C,"** which shows how **Birch** is used in modern homes, apartments, and office buildings, together with a sample of **Birch** in stained and natural colors will be sent postpaid to any reader of this magazine.

The Northern Hemlock and Hardwood Manufacturers Association

Dept. C

Wausau, Wisconsin

When Writing Advertisers Please Mention the American Carpenter and Builder.

ured off to determine the corner *F*.

Next move the transit to *D* and level it up as before. Direct the sights to a rod or nail on the stake at corner *C*. Clamp the transit in this position and bring the zero of the arc to the index finger as before. Then turn the eye end of the sight tube or telescope to the right until the index

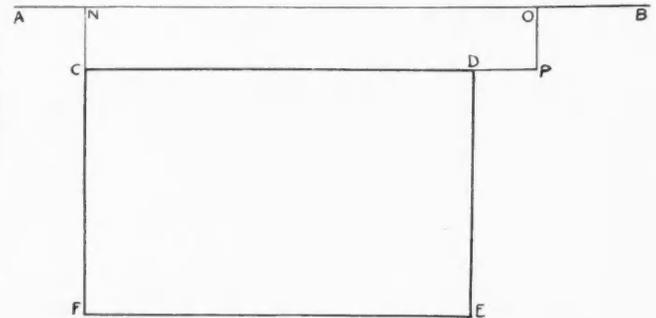


Fig. 2. Laying out Foundations

finger has turned a right angle, or 90 degrees. This will give the direction of *DE* on which line the width of the building or lot will be measured off, thus determining the corner *E*.

To prove the work and make sure that no errors have occurred, the transit should then be set up at *E* and if the distance *EF* equals the distance *CD* the work is proved to be correct. If either of these fails an error has been made, either in the measurements or in turning the angles. In this case the work must be repeated until it checks with itself.

Where the outline of the building is other than a rectangle, the procedure is just the same from one point to the next, but more points have to be arranged for and the final proving of the work is more likely to reveal a small error. It is usually advisable with an irregular shaped building, such as

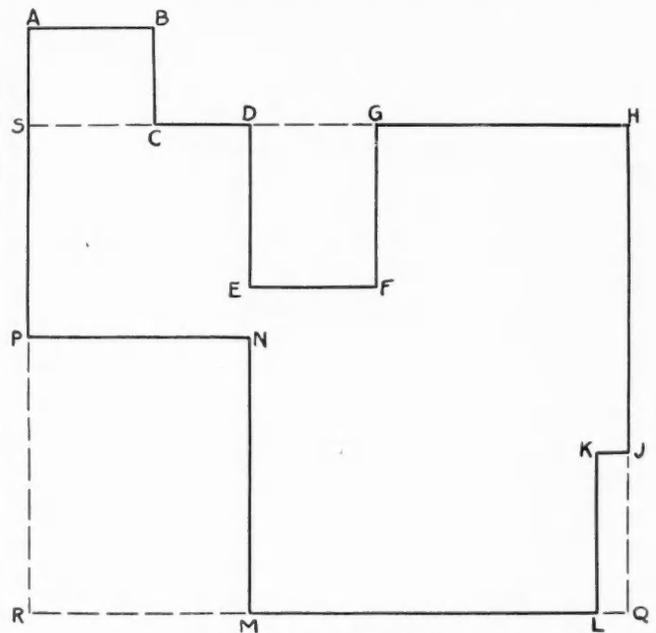


Fig. 3. Laying out Foundations

shown in Fig. 3, to lay out first a large rectangle which will comprise the entire building or a greater part of it. This is shown in Fig. 3 as the rectangle *HQR S*. Having this once established accurately, the remaining portion of the lay out will consist in small rectangles, each of which can be laid out itself and proved separately. As will be noted in the figure, these other rectangles are respectively *JKL QMN P R*, *ABC S*, and *DEFG*. This happens to be the lay out of a brick house built a great many years ago, before ideas of compactness were in vogue.



AND SHINGLES

Facts About Quality, Sizes and Grades

CONCERNING QUALITY. It is a well known fact among contracting concerns and architects that cypress lumber for cornice work, finishing lumber and bevel siding, and yellow pine for dimension, joists, timbers, flooring, ceiling, parades, etc., are very superior in strength and lasting qualities to other kinds of woods, such as hemlock, tamarack, jack pine, etc. In most cases our yellow pine prices are lower than the prices charged by local concerns for cheaper woods, but frequently in the states and localities where hemlock, tamarack, etc., grow a slightly lower price is quoted on these woods than on yellow pine. In all instances, however, yellow pine and cypress will be the cheapest and most satisfactory woods in the end, for they last much longer and make a more permanent building.

CONCERNING SIZES. The sizes specified on this and the opposite page for dimension lumber, timbers, boards, shiplap, dressed and matched, etc., are the even inch measurements into which lumber is always cut, green and rough. After allowing for the shrinkage of drying and for surfacing, this stock will be a little scant in thickness and width. Our lumber is all dressed and manufactured in standard or regular Association lumber sizes.

In ordering flooring, siding, ceiling, partition, shiplap, dressed and matched, be sure to order enough extra to allow for the tongue and groove. For instance, it takes 4-inch lumber to make flooring with 3 1/4-inch face. The difference is taken up in the tongue and groove. Example: A room 10x10 feet requires 100 square feet plus 25 per cent, or 125 feet, the board measure quantity necessary to cover this room.

flooring, ceiling, siding, etc., both in cypress and yellow pine, is made from thoroughly kiln dried stock, very carefully machined. This is the highest grade furnished, is commonly known as Clear grade and is intended for the very best class of work.

Our Select grade finishing lumber is the next grade below the clear and will contain some defects which can be covered with paint. This is the grade usually used for outside finishing lumber.

No. 1 grade dimension and timbers are all sound, straight stock, and our No. 1 boards, flooring, siding, ceiling, etc., are equal to the No. 1 grades usually furnished and are better than are sold in many local territories. No. 1 grade is the highest grade in which timbers, dimension, sheathing shiplap and dressed and matched are manufactured, and this stock is recommended for the best class of work.

Our No. 2 grade boards, sheathing and shiplap are good serviceable stock, and are the grade in which this material is usually ordered in moderate and high priced buildings. Our No. 2 dimension, flooring, ceiling, etc., are equal to the No. 2 grades usually furnished, but should be ordered only for low priced construction.

Our No. 3 grade is the lowest grade we handle, but in many localities No. 3 boards, sheathing and shiplap are used almost entirely. This lumber will be used with some waste, and may be satisfactory for low priced buildings. Mark your Order "Lumber Dept., 56-A."

ALL PRICES
On These Two Pages Are Guaranteed
Only To April 30

DIMENSION Yellow Pine.		Surfaced Four Sides.	
Size, Lath, In. Feet	No. 1 Grade, Price, Each Piece	Size, Lath, In. Feet	Price, Each Piece
4x4 10	\$0.11	4x4 10	\$0.32
4x4 12	.14	4x4 12	.40
4x4 14	.17	4x4 14	.46
4x4 16	.20	4x4 16	.52
4x4 18	.23	4x4 18	.58
4x4 20	.26	4x4 20	.65
4x4 22	.29	4x4 22	.72
4x4 24	.32	4x4 24	.78
4x4 26	.35	4x4 26	.84
4x4 28	.38	4x4 28	.90
4x4 30	.41	4x4 30	.96
4x6 10	.44	4x6 10	1.02
4x6 12	.47	4x6 12	1.08
4x6 14	.50	4x6 14	1.14
4x6 16	.53	4x6 16	1.20
4x6 18	.56	4x6 18	1.26
4x6 20	.59	4x6 20	1.32
4x6 22	.62	4x6 22	1.38
4x6 24	.65	4x6 24	1.44
4x6 26	.68	4x6 26	1.50
4x6 28	.71	4x6 28	1.56
4x6 30	.74	4x6 30	1.62
6x6 10	.77	6x6 10	1.68
6x6 12	.80	6x6 12	1.74
6x6 14	.83	6x6 14	1.80
6x6 16	.86	6x6 16	1.86
6x6 18	.89	6x6 18	1.92
6x6 20	.92	6x6 20	1.98
6x6 22	.95	6x6 22	2.04
6x6 24	.98	6x6 24	2.10
6x6 26	1.01	6x6 26	2.16
6x6 28	1.04	6x6 28	2.22
6x6 30	1.07	6x6 30	2.28
8x8 10	1.10	8x8 10	2.34
8x8 12	1.13	8x8 12	2.40
8x8 14	1.16	8x8 14	2.46
8x8 16	1.19	8x8 16	2.52
8x8 18	1.22	8x8 18	2.58
8x8 20	1.25	8x8 20	2.64
8x8 22	1.28	8x8 22	2.70
8x8 24	1.31	8x8 24	2.76
8x8 26	1.34	8x8 26	2.82
8x8 28	1.37	8x8 28	2.88
8x8 30	1.40	8x8 30	2.94
8x10 10	1.43	8x10 10	3.00
8x10 12	1.46	8x10 12	3.06
8x10 14	1.49	8x10 14	3.12
8x10 16	1.52	8x10 16	3.18
8x10 18	1.55	8x10 18	3.24
8x10 20	1.58	8x10 20	3.30
8x10 22	1.61	8x10 22	3.36
8x10 24	1.64	8x10 24	3.42
8x10 26	1.67	8x10 26	3.48
8x10 28	1.70	8x10 28	3.54
8x10 30	1.73	8x10 30	3.60

SHINGLES. RED CEDAR AND CYPRESS.

Thickness, Inches	Length, Inches	Grade	Kind of Wood	Price, per 1,000	Weight, per 1,000
6-2	16	Extra Star A Star	Red Cedar	\$3.65	160 lbs.
5-2	16	Extra Clear	Red Cedar	4.35	180 lbs.
5-2	16	Prime	Cypress	3.70	300 lbs.

LATH. CYPRESS AND YELLOW PINE.

Thoroughly dry. All 3/8 inch thick, 1 3/4 inches wide.

Length, Inches	Wood	Grade	Price, per 1,000	Weight, per 1,000
48	Yel. Pine	No. 1	\$3.15	500 lbs.
48	Yel. Pine	No. 2	2.60	500 lbs.
48	Cypress	No. 1	4.55	500 lbs.
48	Cypress	No. 2	3.70	500 lbs.

SHINGLE LATH, FURRING STRIPS AND GROUNDS AND BRIDGING.

Surfaced two sides and made from sound stock suitable for the purpose intended.

Thickness, Inch	Width	Kind of Wood	Price, per 100 Lineal Feet	Weight, per 100 Lineal Feet
13-16	1 inch	Yel. Pine	25c	20 lbs.
13-16	2 inch	Yel. Pine	40c	40 lbs.
13-16	3 inch	Yel. Pine	55c	60 lbs.

BRIDGING. YELLOW PINE. (Square Ends.)

Size, Inches	Price, per 100 Lineal Feet	Weight, per 100 Lineal Feet
1x2	40c	40 lbs.
2x2	75c	75 lbs.

DIMENSION SHINGLES. RED CEDAR.

5 inches wide, 16 inches long. Furnished in six different designs.

Diamond Butt.	Octagon Butt.	Half Circle Butt.	Segment Butt.	Cove Butt.	Square Butt.
8x10 12	2.02	3.10			
8x10 14	2.36	3.60			
8x10 16	2.70	4.00			
8x10 18	3.03	4.55			
8x10 20	3.37	5.10			
8x10 22	4.00	5.55			
8x10 24	4.36	6.10			
8x10 26	4.90	6.60			
8x10 28	5.47	7.10			
8x10 30	6.05	7.60			
8x10 32	6.63	8.10			
8x10 34	7.22	8.60			
8x10 36	7.82	9.10			

Draw a circle around name of design you want shipped.

Grade	Price, per 1,000	Weight, per 1,000
Clear	\$5.00	150 lbs.

YELLOW PINE BOARDS, SHIPLAP, AND DRESSED AND MATCHED.

Size, Inches	No. 1 Grade, Price, per M Square Feet	No. 2 Grade, Price, per M Square Feet	No. 3 Grade, Price, per M Square Feet	Weight, per 1,000 Square Feet
1x4	\$23.25	\$20.50	\$18.75	2,500 lbs.
1x6	25.50	21.50	18.75	2,500 lbs.
1x8	25.50	22.90	19.00	2,500 lbs.
1x10	26.00	23.00	19.00	2,500 lbs.
1x12	29.85	23.50	20.00	2,500 lbs.

Order extra to allow for shiplap or dressed and matched.

CYPRESS BARN BOARDS.

Strictly No. 1 Selected Stock. Surfaced Both Sides. Be Sure to Specify Length Wanted.

Size, Inches	Lengths, Feet	Price, per 1,000 Feet, Board Measure	Weight, per 100 Square Feet
1x8	12, 14, 16	\$29.00	250 lbs.
1x8	18, 20	30.00	250 lbs.
1x10	12, 14, 16	31.00	250 lbs.
1x10	18, 20	32.00	250 lbs.
1x12	12, 14, 16	36.00	250 lbs.
1x12	18, 20	38.00	250 lbs.

Above stock will be furnished in shiplap or dressed and matched for 15 cents extra per 100 square feet.

YELLOW PINE BARN BOARDS.

Select No. 1 Grade. Surfaced Both Sides. Be Sure to Specify Length Wanted.

Size, Inches	Length, Feet	Price, per 1,000 Feet, Board Measure	Weight, per 100 Square Feet
1x8	12, 14, 16	\$27.00	250 lbs.
1x8	18, 20	28.00	250 lbs.
1x10	12, 14, 16	29.00	250 lbs.
1x10	18, 20	30.00	250 lbs.
1x12	12, 14, 16	32.00	250 lbs.
1x12	18, 20	33.00	250 lbs.

Above stock will be furnished in shiplap or dressed and matched for 15 cents extra per 100 square feet.

BARN BATTENS.

Size	Kind Wood	Design	Price, per 100 Lineal Feet	Weight, per 100 Lineal Feet
3/4x3	Cypress	Flat	\$0.57	30 lbs.
3/4x2 1/2	Cypress	O. G.	.80	40 lbs.
3/4x3	Yellow Pine	Flat	.50	30 lbs.
3/4x2 1/2	Yellow Pine	O. G.	.75	40 lbs.

ORDER LUMBER ON THIS PAGE FROM SEARS, ROEBUCK & COMPANY, CHICAGO, ILLINOIS

The Lock-Joint Column

Columns both for inside and outside decoration of buildings are accorded more favor year by year. They lend a certain stateliness and dignity which no other mill work offers. Columns for buildings have been used since the earliest recollection of man and even in this advanced age our designs are reproductions of those made by the ancients.

In their product the Rudolph Hegener Co. have followed the standard designs very closely and their columns deserve commendation from the standpoints of art and utility. This company employ a special patented lock-joint feature. This is said to prevent absolutely the column from spreading, warping or springing. All sizes from the smallest to the largest are made.

We cannot begin to describe the many features of Hegener columns and capitals. Nicely illustrated booklets and price lists can be had by addressing Rudolph Hegener Co., 9232 Harbor Ave., Chicago, Illinois. We suggest that our readers get these books which will always prove a handy reference either when making estimates or buying columns.



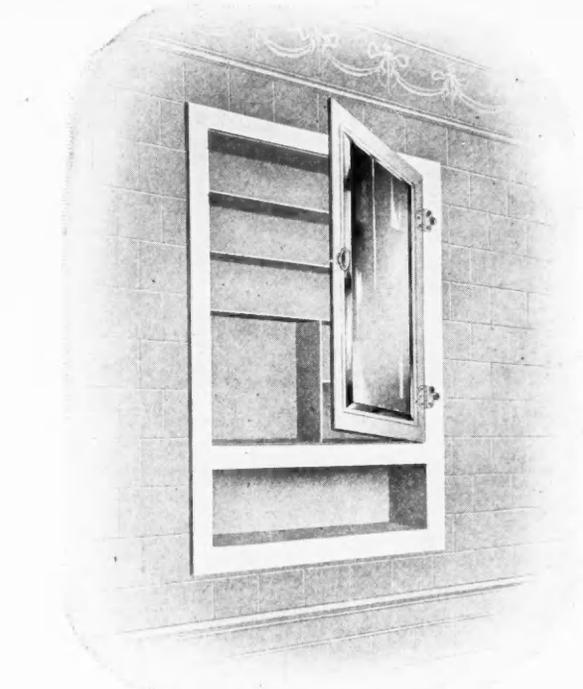
Hess Furnaces Improved

In every issue of this paper, since the beginning, the Hess Warming & Ventilating Company have advertised their steel furnaces, and later, their white steel medicine cabinets.

The company are grateful to hundreds of our subscribers for their liberal purchases of heaters and cabinets.

The Hess Steel Furnace for 1913 is better than ever. An important concession to buyers is offered, in the supplying of the "extra heavy" steel radiators, in place of the "standard" weight used for so many years, without increasing the price.

This is made possible by procuring extra large plates from the mills, and forming the corners, thus saving the cost of



Hess Steel White Enameled Medicine Cabinet

welding smaller plates together, the saving in cost of welding equalling the increased expense of heavier metal.

The welding of all seams in the Hess furnace makes leakage of gas and dust permanently impossible, while its power and fuel economy have pleased thousands of customers.

In spite of the repeated advances in the cost of steel and

Attention Mill Men!

We are making a specialty of built-up work for interior trim, panelled and flush wainscoting, veneered casings, base-boards, etc., in both plain and figured woods.

Can build up to 7' x 16'. Send in your specifications; we would like to quote you.



The F. Eggers Veneer Seating Co., TWO RIVERS, WISCONSIN

When Writing Advertisers Please Mention the American Carpenter and Builder.

LIVE CARPENTERS A R E GETTING onto the CYPRESS BAND-WAGON!

READ EVERY WORD of the UP-TO-DATE LETTER BELOW

We're glad they're taking advantage of our facilities and we're glad they respond to our helpful intentions. No other lumber manufacturers are doing much to help the people whose use of their particular kind of wood constitutes their market—are they? The Cypress people are "friends to their friends," just as Cypress itself is the best lumber friend of the man who cares what *permanent value* he gets for his lumber money.

AND IT'S ONE OF THE EASIEST WOODS KNOWN ON EDGE TOOLS

A BIG LESSON FROM A LITTLE DAHLIA STAKE. READ IT:

Feb. 17, 1913

Southern Cypress Manufacturer's Association,

Dear Sirs: I received Vol. 28 of your Cypress Pocket Library and was very much pleased with it. Intend to build from some of those designs this spring and of course will use **Cypress**. My attention was first drawn to **Cypress** several years ago by using some of it for Dahlia stakes along with some pine, etc., and after the pine had rotted away **THE CYPRESS SHOWED NO SIGNS OF DECAY**. Since then I have used it for **boats** and **canoes** and it has been **very satisfactory**.

Would like you to send me the following volumes and hope and **expect to profit by same**.

I THINK YOUR PLAN OF SENDING OUT THESE BOOKLETS A GOOD ONE, AS IT ENABLES ONE TO PLAN AND PROFIT BY EXPERT OPINION.

BEING A CARPENTER I AM FREQUENTLY CALLED ON TO BUILD TRELISES, PERGOLAS, ARBORS, ETC,

Please send me the following volumes of your Cypress Pocket Library; 3, 6, 7, 19, 28, 30 and 33.

Yours truly,

4 Vanden Bosch Ave., Auburn, N. Y.

(Signed) C. E. ROBBINS.

CARPENTERS AND BUILDERS ARE WELCOME TO THE BEST WE HAVE. GET YOURS!

WRITE TODAY for VOLUME ONE of the CYPRESS POCKET LIBRARY, with Full Text of OFFICIAL U. S. GOVT. REPT. Also Full List of 35 Other Volumes. (FREE on request.)

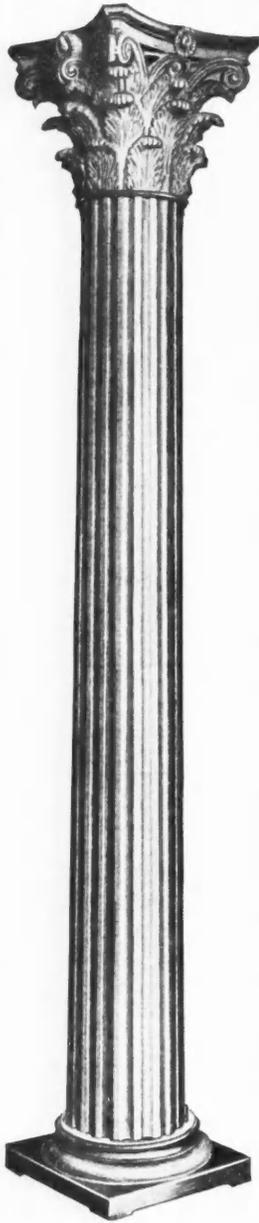
Let our "BUILDERS' DEPARTMENT" help YOU. Our entire resources are at your service with Reliable Counsel.

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

INSIST ON CYPRESS AT YOUR LOCAL DEALER'S. IF HE HASN'T IT, *LET US KNOW IMMEDIATELY.*

When Writing Advertisers Please Mention the American Carpenter and Builder.

End Your Column Troubles Forever by Using UNION METAL COLUMNS



Design No. 218

We make them in all sizes. We want reliable, active agents.

Mail the coupon for catalogs.

THE UNION METAL MFG. CO.

Canton, Ohio

SOLE MANUFACTURERS

COUPON

The Union Metal Mfg. Co., Canton, Ohio.

Gentlemen:—Please send me free of charge all literature bearing on your Union Metal Columns

Yours truly

Name

Address

Town and State

They are made of steel and cast iron and are therefore free from the many serious faults so common to wooden columns, such as opening of glued joints, splitting, warping, rotting, etc., etc.

Furthermore they are incomparably superior in appearance because they are made over accurate patterns and dies, and are therefore perfectly true and all lines are sharp and clean cut.

Building experts in all parts of the country recognize their durable, ornamental and all around practical qualities, and are accordingly using them more and more.

Union Metal Columns are absolutely practical for any structure where columns are required regardless of size.

The outside of the shaft is smooth and perfectly symmetrical, and is coated with a high class paint that will adhere to the steel, being prepared for just this purpose.

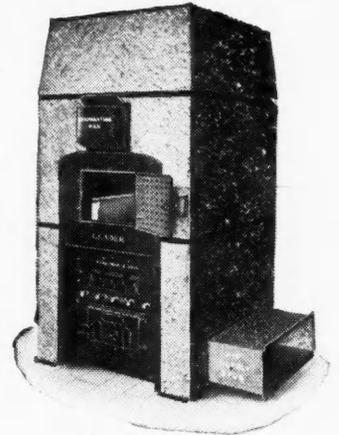
Union Metal Columns are the product of a wide experience, and scientific research, and are in no sense experimental, but to the contrary are in actual use on all kinds of buildings both small and large, humble and magnificent, throughout the United States and foreign countries.

They outlast any other column except those made from marble or granite and are low priced.

other materials used in making the Hess furnace, prices have not been raised, but an increase in price will be made May 1st.

All who will need furnaces this season, therefore, are invited to send plans for estimates in time to secure the present low rates.

Hess Steel White Enamelled Medicine Cabinets are in great demand. They are beautiful goods, nice enough for the finest bathrooms, and cheaper than wood of equal finish.



Hess Steel Furnace

The Hess Warming & Ventilating Company, 920 Tacoma Bldg., Chicago, supply free booklets on request.



An Architect's View

Below is a letter received by Franklyn R. Muller & Co., 316 N. May street, manufacturers of Asbestone, the sanitary flooring material which is receiving such well deserved recognition among architects and builders.

Chicago, Ill., Feb. 20, 1913.

Gentlemen: I want to express my satisfaction and appreciation for your personal attention and prompt execution of your last work done for me, namely, the Asbestone floors of the auditorium, balcony, foyers and stairs of the Lincoln Theatre Building.

I do not have to mention the quality of your work, as I think the Asbestone floor equal, if not better, than any other magnesite floor on the market, which I know from actual experience.

I have used the Asbestone quite extensively for stair treads, applying same $\frac{5}{8}$ inch thick on steel plate sub-treads, and have found them very satisfactory.

I can highly recommend your floor to anyone as a sanitary, durable and noiseless floor. Yours very truly,

(Signed) ROBERT C. BERLIN, Architect.



A Square Business Man

One of your friends came into the office the other day and we had a very interesting talk with him. Mr. S. F. Ferguson of Danville, Ill. He is a well-known dealer in new and second-hand builders' machinery.

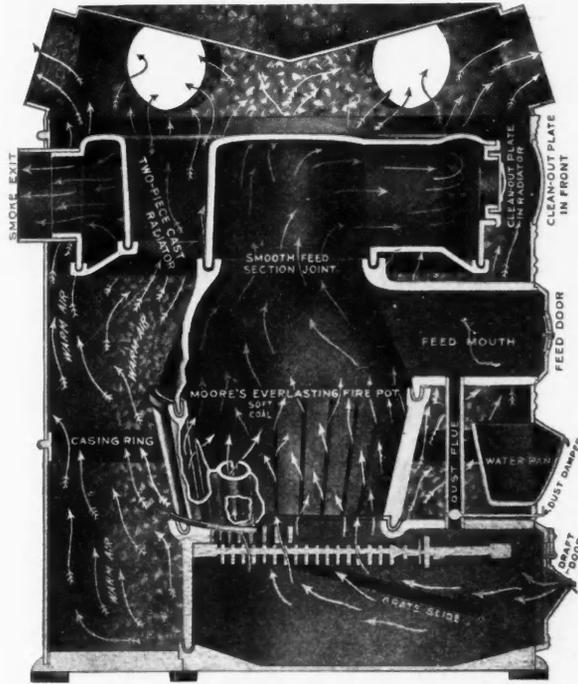
We were greatly impressed with Mr. Ferguson's ideas of how to conduct business along successful lines. He has found that the old saying, "Honesty is the best policy," is about the best motto a business man can follow. It seems that Mr. Ferguson is very progressive and at the same time, has sufficient reverence for old-time business methods to combine them with the present-day usages. Among other things he said, "I believe in giving every man a square deal. Whatever goods I advertise are exactly as I represent them to be. If they are not, I give my customers full privilege of returning the machines at my expense. I built up a reputation for integrity in business dealings that I wouldn't sacrifice for many thousands of dollars and I find that when I have once made a sale to a customer, he always remains one of my friends."

This looks to us as though Mr. Ferguson's success is justified and will continue so long as he follows these methods. He does a big business in concrete mixers, builders' hoists, molds, forms, barrows, cars, dump wagons engines and any other kind of machinery that a builder or contractor uses.

When Mr. Ferguson left, he placed on our desk a number of his circulars and his latest catalog which show in a very

When Writing Advertisers Please Mention the American Carpenter and Builder.

SAVE 25% ON FUEL BILLS



It is a proven fact that MOORE'S FURNACE is so constructed that it saves fuel and keeps the house warm in any weather. You get more heat per pound of coal out of MOORE'S FURNACE than from any other make. The reason for more heat is

Larger and Better Radiating Surface

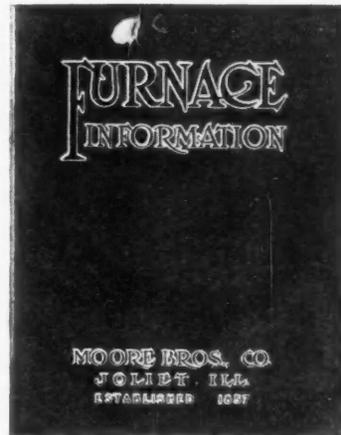
The sides of the heating dome are practically straight and heavily corrugated. The radiator is extra large in diameter and the bottom is slanted upward and inward to throw the in-rushing air thru the central chamber and around the radiator dome.

Moore's Everlasting Fire Pot Saves 1/3 to 1/2 Fuel

Because it burns the gas, the smoke and the soot, and makes soft coal equal in heating value to hard coal. The air is admitted thru the flues, and the fuel burns from the sides toward the center, allowing unrestricted radiation thru the fire pot.

Built Entirely of Cast Iron

The most durable of all constructions. Goes together easily. All parts are fitted together before being shipped.



Our Free Book on Furnace Information

Will give you a lot of facts about furnace heating. Send for it, and see why you should specify **Moore's Furnace** in your heating contract. Fill out the coupon today and get that book.

COUPON

MOORE BROS. CO.
Joliet, Illinois

Please send me your free book on Furnace Information.

My name is

Town and State

MOORE BROS. COMPANY
JOLIET ILLINOIS

When Writing Advertisers Please Mention the American Carpenter and Builder.

thorough manner the machines in which he deals. It is our opinion that anyone desiring information as to the kind of a machine to purchase, will be rewarded by having Mr. Ferguson send them the catalog. Address S. F. Ferguson & Co., Danville, Ill., and without doubt you will be treated very courteously.

“The General” Offers a Specification Roof

Those who have used “Certain-teed” ready roofing will be glad to know that its makers, the General Roofing Mfg. Co., have now entered the specification roofing field. It is expected that “Certain-teed Specifications” will revolutionize the built-up specification roofing trade the same as “Certain-teed” ready roofing has the role roofing business.

This is a built-up roof that is destined to rapidly replace the old style coal tar and gravel roofs on skyscrapers, factories, store buildings, apartments, and theatres—or any buildings with large surfaces where conditions are unusually severe, and the greatest durability is necessary. This method of construction no longer makes the use of smoky, hot tar kettle necessary, because “Certain-teed Specification” roofing is laid with cold liquid “Certain-teed Cement.”

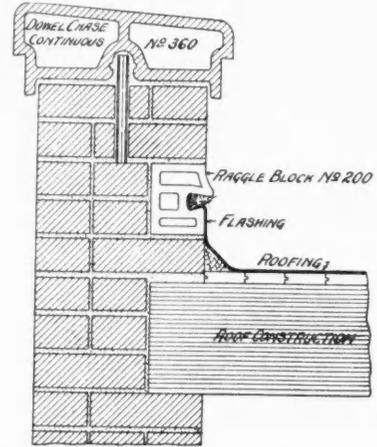
Mr. S. S. Cuning, president of the General Weatherproofing Co., of St. Louis, and in charge of the Specification Roofing work for the General Roofing Mfg. Co., describes the situation as follows:

“The prime factors of any building material are its suitability and durability. We have made wonderful strides in building construction. Sanitary, fireproof, every known convenience goes into them. Still we have been content with covering our roof decks with a material that has grown less in value as time progresses.

“Have we looked into the question and do we know the difference between coal tar and asphalt? Coal tar, the by-product of gas works and coke ovens, once a gas, still retains

much of its gaseous nature and at low temperatures volatilizes and reverts into its former self, and is lost. Can such material be counted as permanent when used in roofing? Why are tar and tar products inferior today? One chief reason is that perhaps 85 per cent of the tar produced in cities is the by-product of gas works producing fuel and illuminating gas by the “Water Gas” method.

“It is the admixture of the tar residues and the petroleum



SECTION THROUGH THIRTEEN INCH COPING BOTH SIDES CLOSED

Permanent Joining of Certain-teed Specification Roofing and Fire Wall Recommended by Mr. Cuning

residues as they come from the water gas plant, that gives the producer under this method, his greatest trouble. It is absolutely impossible to control results.

“While some of the light constituents of tar make good fluxes for petroleum bases, petroleum oils are poor fluxes for tar residues and act as precipitants of these bases

J-M ASBESTOS STUCCO

Contains No Sand

The Sand in ordinary stucco frequently causes discoloration and does not produce a fine and dense stucco.

J-M Asbestos Stucco does not contain any sand. It is made from Asbestic, which is composed of finely ground Asbestos Rock and Asbestos Fibre, which combination, with binding materials, forms a tough weather-resisting and fireproof exterior finish.

J-M Asbestos Stucco being uniform in texture, makes an artistic surface, free from contraction cracks and capable of being worked into a greater variety of texture effects than can be secured with any other kind of stucco. It will not chip or crumble, and combines toughness with solidity. In many instances it saves 15% of the labor cost in applying.

Write nearest branch for Booklet.

H. W. JOHNS-MANVILLE CO.

Manufacturers of Asbestos and Magnesia Products

ASBESTOS

Asbestos Roofings, Packings, Electrical Supplies, Etc.

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Baltimore
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Minneapolis

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New York
Omaha

Philadelphia
Pittsburgh
San Francisco

Seattle
St. Louis
Syracuse

Toronto,

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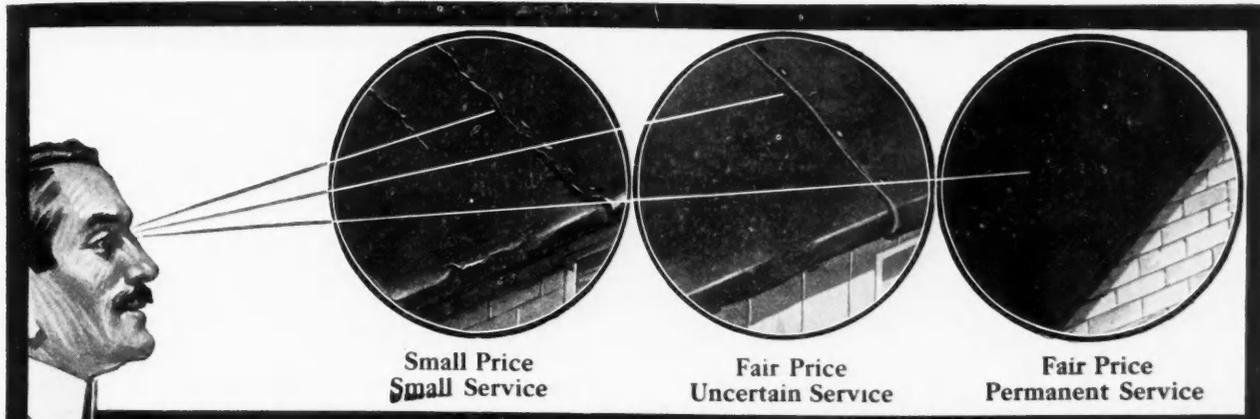
Vancouver.

1213



Residence of Mrs. Pressley Bisland, Lawrence Park, N. Y., covered with J-M Asbestos Stucco

When Writing Advertisers Please Mention the American Carpenter and Builder.



Be far-sighted — look beyond first cost

Don't pay for "hind-sight" by being *near-sighted* in selecting your roofing. There are just three classes from which to choose:

1—Low first cost and *high* final cost.

The price is cheap. The roofing looks pretty good—on the surface. But the construction is weak—the material shortly dries out and cracks—and the joining of laid sheets is unprotected. The unending expense of *upkeep* makes its *final* cost high.

2—Fair first cost and *uncertain* final cost.

This class of roofing is made of excellent materials, and looks attractive. But it hasn't the necessary tensile strength;—and the joining of laid sheets is unprotected. This roofing's *life* and *cost of upkeep* is uncertain.

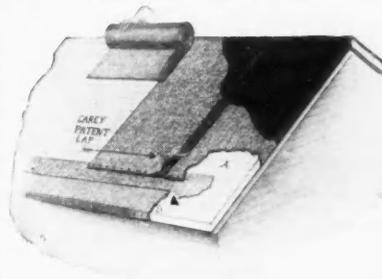
3—Fair first cost and *low* final cost.

Carey Flexible Cement Roofing

The strength of Carey Roofing's construction is easily understood, and its lasting service readily *proved*.

Here is how it is made: First a foundation layer of heavy woolen felt. On this is laid the *body*, a heavy layer of live flexible asphalt cement. To *protect* and give *tensile strength* to the body, a layer of strong Calcutta burlap is imbedded in it. This layer is in turn protected and preserved by a layer of special asphalt composition. All these layers

are compressed in one indivisible sheet, at the factory.



When these sheets are laid on the roof, the joining edges are first nailed down. Then the Carey Patent Lap, an extension of the *burlap layer*, is cemented down *over the nails and joins*. A final coat is then spread over the whole roof. There are no *weak spots*. Your building has a weather-tight roofing that will give *certain* and *permanent* service, at low cost.

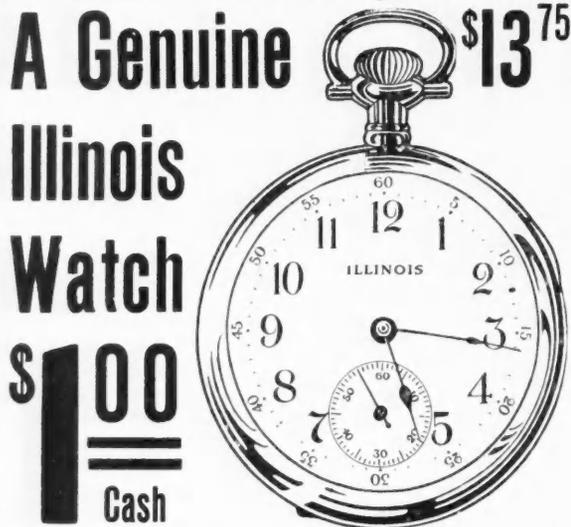
Write for generous sample and complete information. You can arrange with nearest dealer to see Carey roofs in service—let us *prove* good service

THE PHILIP CAREY COMPANY

58 Wayne Avenue, Lockland Cincinnati, Ohio

- | | | | | | | | |
|----------------|-------------|--------------|-------------|---------------|---------------|-----------|----------------|
| Allentown, Pa. | Charlotte | Denver | Kansas City | Minneapolis | Oklahoma City | Scranton | Toronto |
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| Birmingham | Cincinnati | Hartford | Los Angeles | Newark, N. J. | Portland | St. Louis | Washington |
| Boston | Cleveland | Havana | Memphis | New Orleans | Rochester | Syracuse | Youngstown, O. |
| Buffalo | Dallas | Jacksonville | Milwaukee | New York | San Francisco | Toledo | |

When Writing Advertisers Please Mention the American Carpenter and Builder.



I have decided to make carpenters and readers of American Carpenter and Builder this watch offer that is the sensation of the watch trade. I have enough of these superb watches to satisfy all who order promptly. Don't wait until the day the offer closes.

Arthur H. Spiegel
Pres't & Gen. Mgr.

Here's the chance for every carpenter and builder, no matter what his income or financial condition may be, to own a really fine timepiece. Think of a genuine "Illinois," made by the Illinois Watch Co., of Springfield, Ill. 17-jewel movement, 20-year gold-filled case and only \$13.75, on easy credit terms of \$1 a month. **17 Fine Jewels.** The movement is the highest type known. Containing 17 jewels, which means perfect running qualities. Will give as good service as the highest priced watch.

20-Year Gold-Filled Case is a beauty, made in openface style, with handsomely engraved back. It is warranted for 20 years. Being screw back and bezel, it is dust-proof.

Guaranteed 25 Years. We send you a certificate with this watch that positive'y guarantees it for 25 years' service. Think of a watch sold for only \$13.75 that is guaranteed for almost a lifetime of usefulness. No watch selling for \$100.00 or more is any more perfect time-keeper. Ask anyone who knows watches.

Big Jewelry Book FREE

In our special jewelry catalog are many other styles and sizes of high grade watches, also some wonderful diamond and jewelry values, all sold on credit. You should have this book, because we can save you money on all jewelry.

Tear Off This Blank and Mail



NOT GOOD AFTER MAY 15th

SPIEGEL, MAY, STERN CO.,
3523 Wall Street, Chicago.

I enclose first payment of \$1.00, for which send express paid, the 17-jewel Illinois Watch No. X1276, described in your advertisement. If I keep it I will pay \$1 each month until \$13.75 has been paid. If I return it within the 30-day trial period you are to send me back my \$1.

Name _____

Postoffice _____

St. or Box No. _____ State _____

Spiegel, May, Stern Co.
CHICAGO

with a formation of a crumbly, nonadhesive mass. There was a time when a gravel roofer guaranteed his roof for a long period. Why is he fighting now to reduce the guarantee? And many contend they should not be asked to guarantee at all. From one standpoint their contention has merit, but only from the standpoint of 'comparison.' Other trades are not called on to give any such surety covering their work.

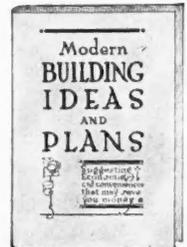
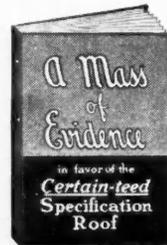
"This is the sole contention of the roofer. Now, from the owner's standpoint. He is the man who pays the bill, the 'ultimate consumer' that the economist is striving to assist and protect, and it is the duty of the architect and contractor to assist him in the fullest; which the former can do first by specifying a roof of that known worth backed by the guarantee of the manufacturer and applied by a reputable contractor, one the manufacturer has confidence enough in to join in with him in the guarantee.

"Let us go into cost and maintenance figures. Your tar and gravel roofs cost X per square, and are guaranteed for five years. About that time, connections at fire walls and openings begin to break and a coating of pitch is applied at a cost of, say AA a square, which is supposed to carry the roof three or four more years. At ten years utmost, the roof must be recovered and the renewal cost is 25 to 30 per cent more than the initial cost of the roof.

"All this while the owner has maintained at heavy expense, gutters and downspouts worn out by the action of tar acids and gravel and dirt slipping in them.

"How can all this undue worry and expense be overcome?"

"A 'Certain-teed Specification' roof is a built-up-on-the-roof asphalt roof constructed of layers of 'Certain-teed' roofing cemented with cold liquid 'Certain-teed' cement. This does not require coating or painting and the maker joins with the roofing contractor in a 15 years' guarantee. That is a long time we know, but the manufacturer of the material entering into this roof, has had a quarter of a century of actual experience in mining, milling and blending the mineral asphalt and mineral asphalt oils which he uses as saturants of his felts and in his coatings and cement. Asphalt, never



Two Good Roofing Books to Have

a gas, dries out so slowly that it reckons against time. 'Certain-teed' asphalt products will stand in any climate, from the Equator to the frozen far north. The manufacturer of 'Certain-teed' felts and their construction into roofing materials, the blending of the asphalt and oils (for no asphalt is fit for cement in its natural state) is carried on in the plants of the General Roofing Manufacturing Company, the world's largest producer of Roofing and Building Materials."

These mills are located at East St. Louis, Ill., Marseilles, Ill., and York, Pa. Write the plant nearest you for particulars.

Reputable roofers only can apply "Certain-teed Specification" roofs. With them, the General joins in the guarantee. With him the question of faulty workmanship cannot arise, for it is done right with right material. He has just issued a book entitled "A Mass of Evidence" backing up his proposition, and will be pleased to mail every architect or builder a copy on application. It is gratis—is not a lot of testimonials, but shows illustrations of actual buildings of every class and use that are covered with "Certain-teed" materials, and demonstrate unusual construction.

When Writing Advertisers Please Mention the American Carpenter and Builder.

Specification Roofing

Before you decide for or against Certain-teed Specification Roofing—get our book “A Mass of Evidence” FREE

Remember, we do not ask you to take our word alone—or the word of any one builder or contractor.

All we ask is that you investigate for yourself.

Upon request, we will place in your hands a book containing such a mass of evidence in favor of Certain-teed Specification Roofing that you will find your doubts, your prejudices, your misgivings, if you have any, fading like mist before the bright morning sun.

A limited edition of this book has been printed for distribution among Architects, Contractors and Builders.

It is the most complete book of its kind ever published—it contains *actual photographs* of skyscrapers, apartments, warehouses, factories, depots, banks, livery barns, college buildings, hospitals—any and all kinds of buildings covered with Certain-teed Specification Roofing—all illustrations are reproduced from actual photographs—and the *camera cannot lie*.

Detailed Specifications free upon application

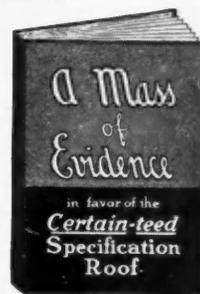
Detailed Specifications for applying Certain-teed Specification Roofing over concrete or board sheathing will be furnished free to Architects, Contractors, Builders and Carpenters.



So write us today for our book “A Mass of Evidence,” illustrating methods adapted by leading architects and engineers for the application of roofing, water proofing and insulation materials.

In writing, also ask for a copy of our book “Modern Building Ideas and Plans”—you will find it useful in your business.

You simply cannot afford to miss this opportunity to get these two valuable books—so let us hear from you by return mail. In doing so you promise nothing—obligate yourself in no way.



General Roofing Mfg. Co.

E. St. Louis, Ill. York, Pa. Marseilles, Ill. Minneapolis, Minn. Memphis, Tenn. San Francisco, Cal.
Winnipeg, Can. London, England Hamburg, Germany

Manufacturers of Certain-teed Shingles and Roll Roofing

Certain-teed Specification Roofing is rapidly replacing the old style coal tar and gravel roofs — no hot tar, gravel or slag used.

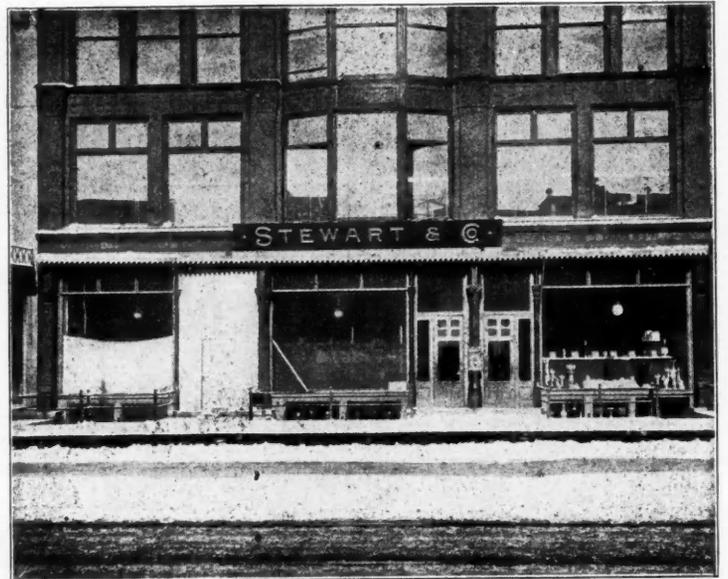
When Writing Advertisers Please Mention the American Carpenter and Builder.

A Ventilated Store Front

The value of a good window display in any store cannot be overestimated. It is the best advertising medium any store-keeper has, but if a display in the window is obscured from the view of passersby, either through an accumulation of frost or moisture on the window panes, the advertising value of the display is lost. No matter what business a man is in, if he has the opportunity to display his wares in the window, he should do it, and at the same time he should see that the display is kept clean and bright-looking at all times.

This is not always possible when the ordinary store front is used and many a business has been ruined by a badly constructed store front. In placing their ventilated store fronts before the builders, Love Bros., of Aurora, Illinois, have brought forward something that is very valuable. These fronts are made of special graded iron and steel, which is warranted not to rust or corrode. The method of construction is such that the danger of breakage to the glass is reduced to a minimum and in case such breakage does occur, the glass can be replaced very easily. Their system of ventilation of the store front is unique, insofar as constant circulation of fresh air behind the glass is kept up by means of vents at the bottom and top of the window. This does away with the necessity of a store keeper running an electric fan in the window to keep the glass dried off. The expense of running such a fan throughout the winter months is considerable. These iron fronts form a delightful and artistic addition to any store building and give the store keeper full reign in the matter of making an attractive display without the danger of its being hidden. They are practically indestructible, standing the test of time, weather and fire favorably. They can be

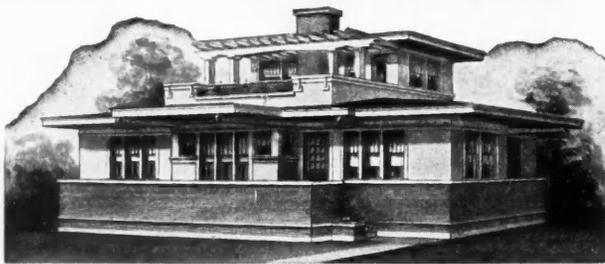
installed in any building new or old. Love Bros. being engineers, founders and machinists, handle a wide line of material. They manufacture iron fencing, stairs, railing, grilles, fire-escapes, side-walk lights, furnaces, etc. They maintain an efficiency department with the object of helping



Modern Store Front That Won't Frost Over

all carpenters and builders who experience any difficulty in the matter of installing store fronts. Any questions which confront the carpenter or builder are quickly settled in a satisfactory manner by consulting Love Bros., Aurora, Ill. Their catalog is one of the handsomest we have seen in a

50¢ SAVES YOU \$300.00



10% Larger Bedrooms! No Lost Space
50% Larger Wardrobe Capacity
Modern in Every Way. Easier to Rent or Sell

with the "New Way" Wardrobes. It is a mass of valuable information for every carpenter and builder. It shows the "New Way" to build a home and save \$350.00 on a \$3,600 residence. You don't have to make your building larger to have "New Way" Wardrobes. They are built in flush and save more than half the floor space usually devoted to old-fashioned, dark, dusty and inconvenient clothes closets. **And** they are not an extra expense.

I want you to have my "New Way Home" Plan Book, for it will give you new and progressive ideas. If you decide to install the "New Way" Wardrobes, my architectural department will help you in every possible way.

Send 50 cents now for the Plan Book, which will be sent at once by mail.

JOHN THOMAS BATTS

Room 611 Architectural Department

GRAND RAPIDS, MICHIGAN



When Writing Advertisers Please Mention the American Carpenter and Builder.

Bestwall A Bestwall

FIREPROOF WALL BOARD

It Will Not WARP, EXPAND or CONTRACT

The MOST SATISFACTORY WALL BOARD
ANYONE Can Put It Up QUICKLY and EASILY

Bestwall is NOT a Paper Board—It is a MINERAL COMPOSITION

BESTWALL BOARDS are made in convenient sizes to secure most artistic panel effects. If you do not wish to panel the walls you can apply wall paper or washable paint directly on the surface without the use of strips over the joints. This cannot be done successfully with any other wall board.

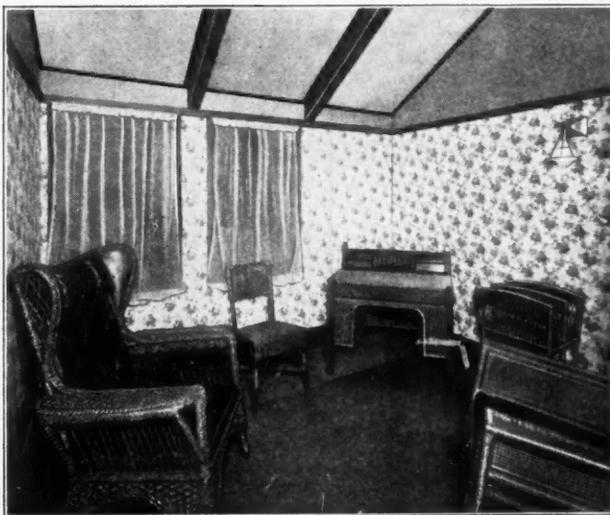


Photo. of Interior of Model House at Clay Show
Walled and Ceiled with Bestwall

SIZES

32"x 36"	—8 sq. ft. per board—23 boards per crate—184 sq. ft.
32"x 72"	—16 sq. ft. per board—12 boards per crate—192 sq. ft.
36"x 72"	—18 sq. ft. per board—11 boards per crate—198 sq. ft.
48"x 36"	—12 sq. ft. per board—16 boards per crate—192 sq. ft.
48"x 72"	—24 sq. ft. per board—8 boards per crate—192 sq. ft.

Nail it directly to the Studding—Makes the Best Wall

You have a Finished Wall as Soon as it is nailed in place. No waiting for plaster to dry. You can occupy your house at once without danger to health.

We make a special crack filler for the joints so that a wall can be finished ready to decorate. There is no expansion or contraction to "Bestwall," therefore there will be no cracking at the joints

Write to Us For Sample and Particulars About BESTWALL and Its Uses
BESTWALL MANUFACTURING CO. Chicago, Illinois

When Writing Advertisers Please Mention the American Carpenter and Builder.

Out
Your
Coal Bill
 $\frac{1}{2}$ to $\frac{2}{3}$

**THE UNDERFEED
DOES IT**

CARPENTERS and BUILDERS.—Here's the question which will be brought home to millions of April periodical readers:

"How much did you pay for coal last winter? Figure it up—then divide the amount by **two** or even **three**; that will give the cost for next winter, provided you put in an Underfeed—either Warm Air Furnace or Steam or Hot Water Boiler. And the **difference saved** will soon pay for the Underfeed."

You, too, are **vitaly** interested in the proper heating of any house you erect. The Underfeed is the **most economical** heater on the market—the heater that **ADDS** to the **RENTING** or **SELLING** value of any building.

Send for our **FREE** Book and we will convince you as we have thousands of others.

**THE PECK Williamson
Underfeed FURNACES
BOILERS**

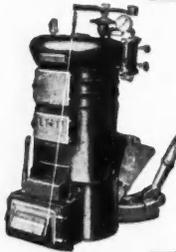
"The House Beautiful" in a recent article on heating equipment, asserts: "Underfeed furnaces are growing in popularity, for in firepots of this sort, fuel is consumed more scientifically and the **utmost heat** is produced.

Economy and Efficiency are Underfeed certainties in both Furnaces and Boilers.

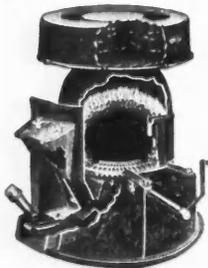
Four Big Savings

are insured by the Underfeed way of burning coal.

1. Cheaper grades of hard or soft coal, slack, pea or buckwheat sizes are pumped into the firepot from below, and yield in the Underfeed more clean, even heat than **highest priced** coal burned in the ordinary way.
2. Smoke and gases (25% to 40% heat value of coal) wasted up chimneys of other heaters, **must** pass through the flames, are consumed and make **more** heat.
3. In the Underfeed the fire glow plays upon heat-responsive, **clean metal**, because heating surfaces are **always** kept clean; in other heaters, the fire glow is upon soot-covered surfaces, which retard heat.
4. Instead of being blanketed under fresh coal, **live coals** are **always** on top, close to the heating surfaces. This explains the **even Underfeed temperature**, while top heaters invariably show **less** heat after fresh coal is added.



**Underfeed Heaters are Adapted
for All Buildings—Large or Small**



Installed in unit or battery form in apartment houses, halls, churches, theaters, schools, etc.

Send us your building plans and we will furnish **free** engineering plans, actual cost of installation, and tell you where you can get your Underfeed.

It will **add** to your reputation as a builder of **always comfortable** houses to **specify** the Underfeed.

The
Peck - WILLIAMSON CO.
436 W. Fifth Street Cincinnati, Ohio.

long time and we suggest it as being a desirable one for our readers. In our opinion, you will be well repaid by writing for it.



Modern Millwork

The business of the Huber Builders' Material Company, 45-49 Vine street, Cincinnati, Ohio, has shown the most gratifying increase during the past year, their customers in the south and southeast having sent in an unusually large number of orders. One of the advantages of dealing with them is the fact that in so doing you can get practically all the building material, including millwork, hardware, paint, etc., in one order, thus saving time and cost of transportation.



Harry A. Huber, Pres. Huber Builders' Material Co.

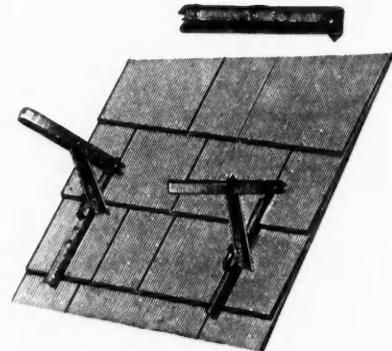
The Huber Builders' Material Company are showing in their latest catalog unusual values in mantels, porch columns, general millwork and art glass doors. They are also agents for Bestwall Board, rolling partitions, etc.

Mr. Harry A. Huber, whose picture appears herewith, has had a wide experience in this particular field. It is owing to his personal push and initiative that the firm has advanced as it has. In their latest catalog, which will be sent to our readers on request, they have adopted the slogan "To Huberize Is to Economize."



Griswold's Adjustable Roofing Bracket

An adjustable roofing bracket which carpenters and builders are likely to find of advantage when shingling a roof is

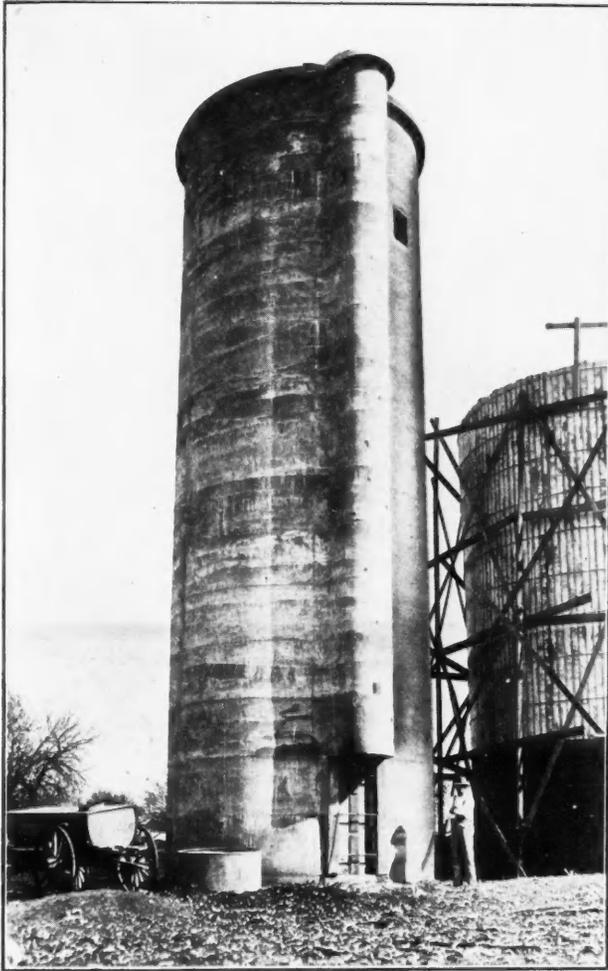


Griswold's Adjustable Roofing Bracket

illustrated. The bracket fastens on three courses of shingles and is locked to two shingles on the roof so that it cannot be accidentally removed. The bracket is made of steel, is light in weight and folds into small space for packing. The illustration shows two brackets in place upon a roof, but each being at a different angle from the other for the purpose of indicating the variations permissible. The small view at the top of the picture shows the appearance of the bracket when folded. The bracket is made by W. S. Griswold, 37 John Street, Springfield, Mass., who points out that it is of great convenience when working around dormer windows, skylights and on piazza roofs as the bracket can be adjusted to any pitch of roof in an instant and gives a staging 14 in. wide on which to work if desired.

When Writing Advertisers Please Mention the American Carpenter and Builder.

We Secure Contracts for You



by keeping constantly in touch with people needing and using silos. Every inquiry from your territory is turned over to you. You fill the demand. You get the profits. Monseco Reinforced Monolithic Silos are endorsed by the Universities of Illinois and Wisconsin. We positively place you in a position to build monolithic silos in the quickest and most economical way. **Read every word of this advertisement. It contains a particular message for you contractors.**

Monseco Silo Equipment

consists of scaffold-hoist and Monseco forms. The contractor does not use timbering of any kind. The forms are made in two circles each 3 feet high and divided into segments to permit easy handling. You pour 6 feet of wall, including chute, per day; 3 feet in the morning and 3 feet in the afternoon. Reinforcement and ladder rungs are installed at the same time. The walls are 6 inches thick and do not vary. You can build a complete 16x41 monolithic reinforced concrete silo in nine days by using Monseco equipment.

Guaranteed 5 Years

Monseco Silos are no experiment. We have built hundreds and have guaranteed them against cracks or defects for a period of 5 years. Monseco Equipment has been thoroughly tested before being offered to you. It is worthy of your confidence.

A Contractors Proposition

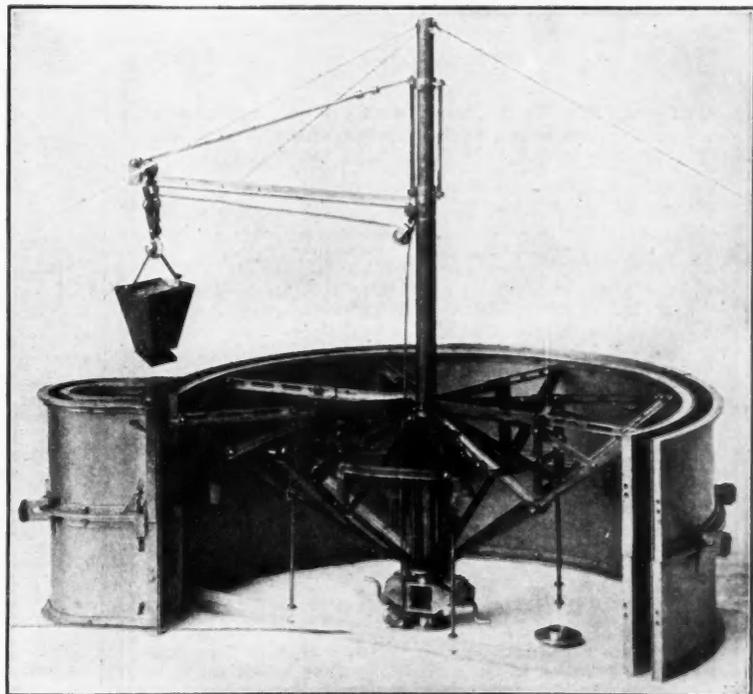
Our wide-spread advertising gets us inquiries and contracts from farmers all over the country. We turn these over to you. You do the work. You get the big profits. Even if you have never built silos, you can build perfect ones by using Monseco equipment and following the book of copyrighted instructions we furnish free.

Your interests are involved. **Get our Free Book of Information on Monseco Silos and Monseco Equipment.** Think how we co-operate with the builder; think how we'll help you to get the business and money and **write at once for full information.** The price of a stamp will tell you how to make hundreds of dollars this season. Don't delay. Write now.

Monolithic Silo & Construction Co.

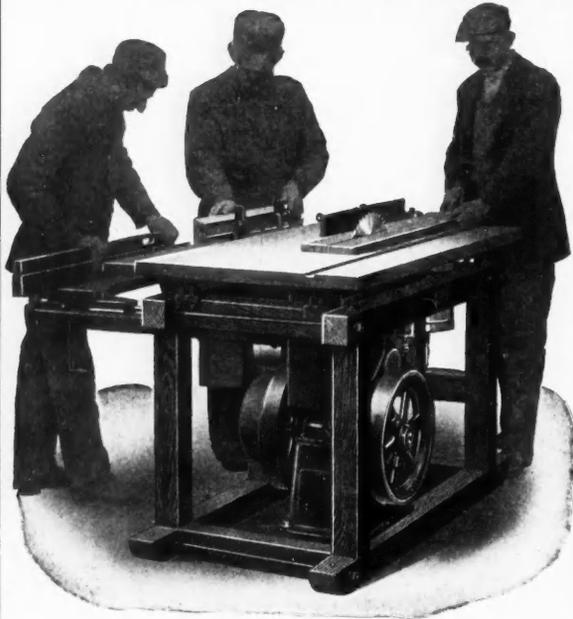
870 Peoples Gas Building
Chicago, Illinois

When Writing Advertisers Please Mention the American Carpenter and Builder.



"AMERICAN"

CONTRACTORS' PORTABLE VARIETY WOOD-WORKER



With this machine on the job, you can not only cut, match and bore the lumber for your concrete building forms, but you can handle the wood finish and trim as well.

For the "American" is a simple, sturdy, reliable little planing mill that you can take from job to job, right on the work—at a price that brings it within the reach of every contractor.

In the "American" Wood-Worker you really get three distinct machines—each capable of a great variety of work—each independent of the other—each so arranged that a man can work on it without interfering with the men on the other two machines.

Note that last feature particularly—the "American" is a three-man machine with three times the capacity and usefulness of any mere saw bench.

On its saw table you have a rip saw, cut-off saw and mitre saw—a dado and gaining machine—a grooving machine and a rabbitter.

At one side is a 6-inch jointer and planer; and matcher bits and moulding cutters can be inserted for all shapes. A sander drum and a disk sander are provided. And there is an emery wheel for grinding.

The boring table has a 6-inch feed and a vertical adjustment of $3\frac{1}{2}$ inches. For sanding or grinding it supports the work.

And remember that all these functions are combined in a solid, compact, self-contained, durable machine with power built in (gasoline engine or electric motor), easily moved anywhere, ready for work at a moment's notice, right on the job.

American Saw Mill Machinery Co.

82 Main Street
HACKETTSTOWN, N. J.

1655 Hudson Terminal
NEW YORK CITY

James' Stanchions Used

We have received word from Mr. M. T. Kellor of Beloit, Wis., whose round dairy barn won second place in the Prize Competition, that this barn is equipped in part with "James" sanitary steel stanchions made by the James Mfg. Co., Fort Atkinson, Wis. We are glad to have this additional information in regard to this very interesting and thoroughly modern dairy barn which was illustrated on pages 58 and 59 of the March AMERICAN CARPENTER AND BUILDER.



A Mark of Progress

The Dow Wire & Iron Works of Louisville, Ky., have recently added to their already large equipment, two ovens for the enameling department and an automatic pipe bending machine. This looks as if the company were preparing to take care of additional business which has been coming their way for a considerable number of years.

These people specialize in artistic steel and bronze work for banks and elevator enclosures; also iron and wire fencing, wire cloth and such articles. Incidentally we might mention that they have a handsome catalog which every builder will find very interesting. It is sent free on request.



The Mixer with the Hoist

When it comes to improvements—intelligent improvements that are bound to be of direct service—we are compelled to take off our hat to the Jaeger Machine Co.

Just as we began to think their concrete mixer had reached the point of highest efficiency, these people come along with another improvement that's certain to be most useful. Year by year we have watched the Jaeger Machine Co., directing every effort to making their mixer pre-eminent and always they have effected an interesting change or improvement. Now they announce a combination of the "Big-an-Little" mixer with a hoist.

You have heard of the "Big-an-Little" mixer. Who hasn't? And if rapidly increasing sales are an indication, the builders



Handy Combined Mixer and Material Hoist.

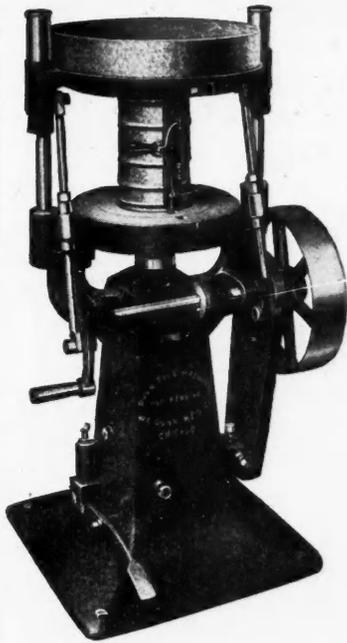
regard it favorably. Why, the Jaeger Machine Co. have found it necessary to establish sales agents in different territories to handle part of the business. But to tell you about this new arrangement.

Well, as you know the "Big-an-Little" mixer is equipped with a $2\frac{1}{2}$ H. P. engine which generates ample power to run the mixer as well as any other machine the builder may chance to use. Consequently the Jaeger people simply attached a builder's hoist to their mixer, which can be thrown into operation by throwing over a lever. The mixer and hoist

When Writing Advertisers Please Mention the American Carpenter and Builder.

Don't Take Chances

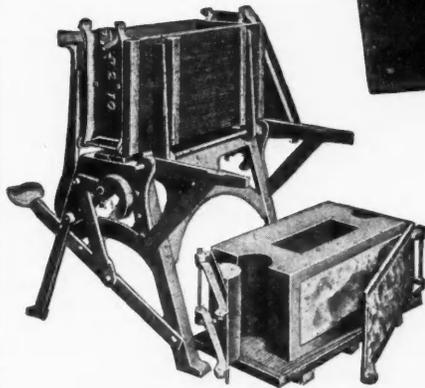
You need not buy concrete machinery before trying it. We ship any machine on approval; you set it up—operate it—test and prove it 15 days free. If it doesn't make good, ship it back at our expense and you owe us nothing.



DUNN TILE MACHINE
Capacity 2,000 Tile
Price \$165

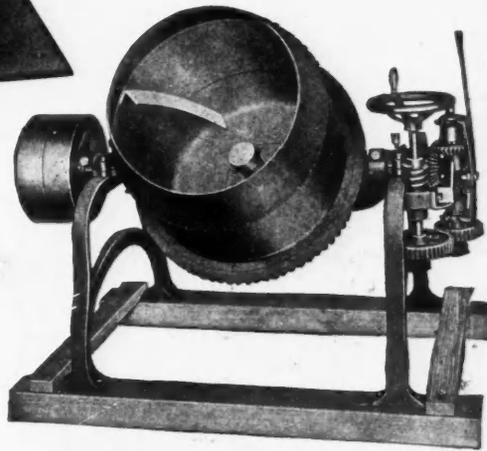


**DUNN HEAVY DUTY
TILE MACHINE**
Capacity 3,200 Tile
Price \$350



**COMBINATION BLOCK
MACHINE**
Capacity 250 Blocks
Price \$40

DUNN UTILITY MIXER
Capacity, 5 Cu. Ft.
Per Batch
Price \$100



ORNAMENTAL MOLDS
All Sizes and Designs

You Can Find Out More

about the merits of our machines, by actually seeing them work yourself in your own plant on a two week's free trial than by any claims we can make. You'll find our machines right, our selling plans right, and our prices right. Be sure and get our proposition before buying.

Our 64 Page Book is Ready

It tells all about our 1913 selling plans and straight-to-you prices that will save you money. Just tell us what machine you are mostly interested in and we'll gladly send you a copy by return mail.

W. E. DUNN MFG. CO.

4132-34 Fillmore Street

CHICAGO

When Writing Advertisers Please Mention the American Carpenter and Builder.

in no way interfere with each other and both can be run at the same time or separately. From the illustration it can be learned how useful such a contrivance is in hoisting either concrete or mortar in barrows or buckets directly to the workmen. It saves several men's time in wheeling the material. The hoist can likewise be used to place lumber, brick, or any other material, wherever wanted.

This is something worth considering. It's up to you to do things quickly and with as little expense as possible. Get the data on this new feature by writing the Jaeger Machine Co., Columbus, Ohio.

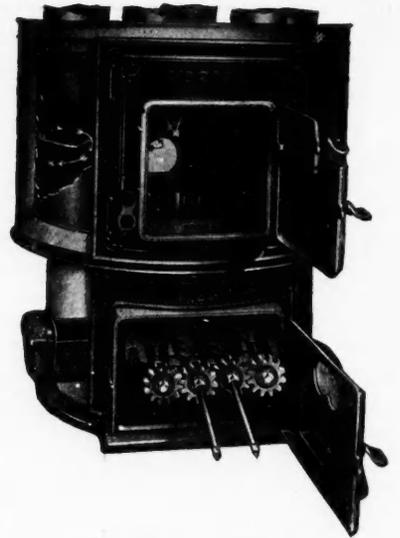


A Furnace for Low Basements

In many cases where houses have been constructed with shallow basements or cellars, it has been found impracticable to install the ordinary furnace on account of its height, as the pipes could not be pitched sufficiently to allow proper circulation of heated air.

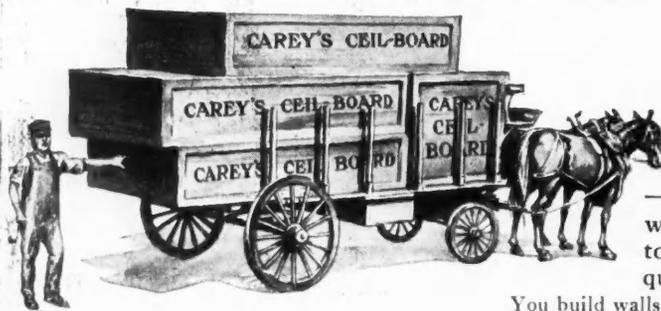
The Ajax Low Constructed Furnace has proved a success wherever installed in a shallow basement. This furnace comes in five sizes and the height varies from 56 to 60 inches. It is equally adapted to either high or low cellars as it is impossible to get too much pitch to the warm air pipes. The Ajax furnace has many desirable features. The ash pit is especially deep. The large double feed door makes this a dandy furnace for sections of the country where large chunks of wood are burned in the early Fall or late Spring. The grate is a very simple one and can be easily removed as it is not fastened in any way with screws or bolts. The circulation of air in this furnace has been worked out to a nicety. The fire travel is exceptionally long as the flames on leaving the fire pot at the back are brought forward to the front through the upper flue, and are then again carried to the rear through the lower flue. This spreads the heat more evenly through the radiators and the heating value of the circulating air is greatly in-

creased. The manufacturers of the Ajax have not skimped in any way in the construction of this furnace as they have constructed the radiators so that they are practically ever-lasting. The firepot also is worthy of notice as it is made to give the greatest amount of radiating service. Hot water attachments can easily be applied to this furnace.



Ajax Low Constructed Furnace

No doubt many of our readers will often run into cases where a house has a low cellar or basement and on being consulted as to the advisability of installing a furnace they cannot conscientiously recommend it. If you keep the Ajax in mind you will always have a reliable solution to any of these difficulties. It has long been our opinion that any carpenter or contractor could greatly add to his income by assuming the agency for some reliably constructed furnace. The Co-operative Foundry Co. of Rochester, N. Y., are manufacturers of the Ajax and they have received many testimonials to its value. All inquiries from readers of the AMERICAN CARPENTER AND BUILDER will receive prompt and courteous attention. They maintain a special service department to answer carpenters and builders on any heating problem.



Here are the Walls and Ceilings for your building

—delivered all ready to be put up. No time is lost waiting for other materials or in putting other materials together. It can be applied promptly on delivery, quickly and easily, and in any weather at any season.

You build walls and ceilings that are better than those of lath and plaster—just as solid and much more lasting and at considerable less cost—when you use

CAREY CEIL BOARD

Ceil Board is a solid sheet formed by three layers of first grade chip board, solidly cemented together by two layers of special flexible asphalt cement.

It is strong, tough and flexible. Ceil Board will never crack, break or chip. It is damp-proof, vermin-proof and sound-proof—hygienic and sanitary—and thoroughly fire-retarding.

Ceil Board is made in sheets 32 & 48 inches wide and in any

length up to 10 feet. These sheets are nailed directly to the studding on both walls and ceilings—and they're ready for the decorator the same day.

Every form of wall decoration works out perfectly on its smooth, even surface. It is furnished ready-decorated, too, in wood veneers for use in cabinet or panel work, or printed in special designs, such as oak grain.



Photograph showing simple but rich effect obtained with Ceil Board in the Dining Room.

Pleasing results are obtained with Ceil Board in private dwellings, office buildings, warehouses and out-buildings of every character. It costs no more than ordinary wall board. We want every builder to see and test it. Write today for sample and prices.

THE PHILIP CAREY COMPANY

General Offices and Factories:

58 Wayne Avenue - Lockland, Cincinnati

- | | | | | |
|----------------|--------------|---------------|---------------|----------------|
| Allentown, Pa. | Cleveland | Little Rock | New York | Spokane |
| Atlanta | Dallas | Los Angeles | Oklahoma City | St. Louis |
| Baltimore | Denver | Memphis | Philadelphia | Syracuse |
| Birmingham | Detroit | Milwaukee | Pittsburgh | Toledo |
| Boston | Harrisburg | Minneapolis | Portland | Toronto |
| Buffalo | Hartford | Montreal | Rochester | Wheeling |
| Charlotte | Havana | Nashville | San Francisco | Winnipeg |
| Chattanooga | Jacksonville | Newark, N. J. | Scranton | Washington |
| Chicago | Kansas City | New Orleans | Seattle | Youngstown, O. |
| Cincinnati | Knoxville | | | |



A corner of a sheet of three-ply Ceil Board, showing how three layers are jointed with special asphalt cement composition.

When Writing Advertisers Please Mention the American Carpenter and Builder.



A world-wide business has grown since 1858 from this old kettle.

Send For Your Copy of This Free Book

HERE'S a book that every carpenter, contractor or builder should have: "Natural Woods and How to Finish Them." Written by an expert, and full of valuable information that you'll be mighty glad to have at hand.

Remember that the finish on a job is sometimes the principal factor in determining the satisfaction of the owner. 55 years of varnish-making experience have gone into this book and there'll be many a time when you want to consult it. Simply write and say you want the book and it will go forward at once.



**BERRY
BROTHERS'
VARNISHES**

BERRY BROTHERS

Established 1858

Factories: Detroit, Mich., and Walkersville, Ont.

Branches: New York, Boston, Philadelphia, Baltimore, Chicago, Cincinnati, St. Louis, San Francisco, London, England.

When Writing Advertisers Please Mention the American Carpenter and Builder.



On Our
Saved \$360 Material
Bill of \$969 Complete

I furnished all the material complete, for this 8 room house for A. L. Clark, at Rochelle, Ill. Lumber, Lath, Shingles, Doors, Windows, Trim, Millwork, Guttering, Sash Weights, all Hardware, Nails, Paint and Varnish, (two coats inside and outside), everything complete, except masonry, for \$969. Dealer's price was \$1,329, an exact saving of \$360.

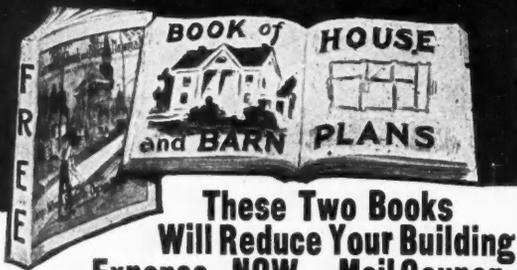


H. B. Munger, Pres.
 30 Yrs. Experience.

My two books, plan book (of 50 house plans) and building material catalog (of 8,000 illustrated bargains) mailed absolutely free and without obligation.

The books cost you nothing and show the way to big savings. In building and repair work they are a most valuable price guide.

GOING TO BUILD?



These Two Books Will Reduce Your Building Expense. NOW — Mail Coupon.

Doors of All Kinds



At Wholesale Prices
 Glass Doors \$1.99 Up
 Lock Sets \$1.00 Up

Clear Lattice 30c
 Per 100 Feet

Wearwell Paint

Perfect guaranteed house Paint, only **\$1.20** per gal. in 5 gal. kits. We have all kinds of good paint at wholesale prices.

Economy Rubber Roofing

2-Ply 45 pounds guaranteed 7 years, **\$1.35**
 3-Ply 55 pounds guaranteed 10 years, **\$1.60**



Chicago Millwork Supply Co. 1422 W. 37th St. Chicago

Chicago Millwork Supply Company,
 1422 West 37th Street, Chicago, Ill.

Gentlemen: Please send your FREE Books, listed below to

Name

Address State

Catalog No. 43, Building Materials. Book No. 53, House and Barn Plans.

When Writing Advertisers Please Mention the American Carpenter and Builder.

A New Tool Catalog

The Goodell-Pratt Co., Greenfield, Mass., have ready for distribution a new catalog, No. 11, in which our readers will find listed tools for the carpenter's and builder's kit.

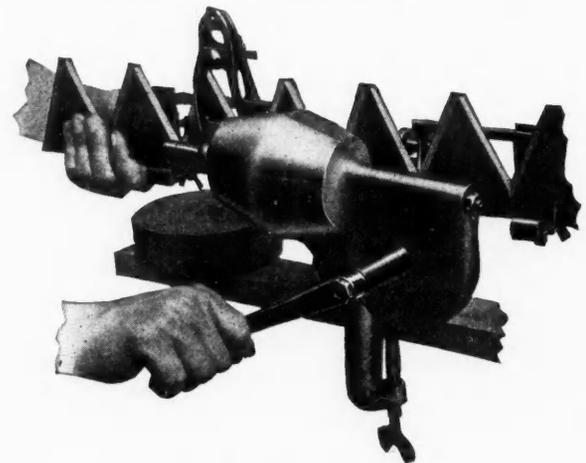
This company are tool smiths of long standing and employ all desirable features in the making of their products. Some implements of the trade are shown which will tend to materially decrease the time and labor consumed in various phases of carpentering. As the standing of this company and the reliability of their line is unquestioned, we suggest that interested builders and carpenters obtain the new catalog.



New Sickle and Tool Sharpener

The Luther Grinder Mfg. Co., Milwaukee, Wis., have just put out a new machine for sickle and tool sharpening which places farm sickle grinders in the class with strictly high grade machines.

The "Best Maide" sickle and tool grinder is a combination of Luther's "Best Maide" type and of the Spartan sickle grinder. It has a special patented arrangement for swivelling the frame and is adjustable to any angle, vertical or hori-



Luther Sickle and Tool Grinder

zontal, and holds the machine rigidly in any position. This feature is, of course, used only in tool sharpening. The tool wheel is double-faced, one side being used for medium and general grinding and the other for finishing up and for fine work. Gears are cut from solid blanks, with a worm gear and shaft, and ball bearings. During the sickle sharpening season it is used with tool wheel off but at other times of the year the tool wheel offers a quick and easy means of sharpening any tool within the range of a hand-power machine.

The No. 254 has a double-faced medium and fine tool sharpening wheel, beveled sickle wheel and sickle holder. The No. 255 is the same machine as the No. 254 except that the tool sharpening wheel is 5 inches in diameter instead of 4 inches.



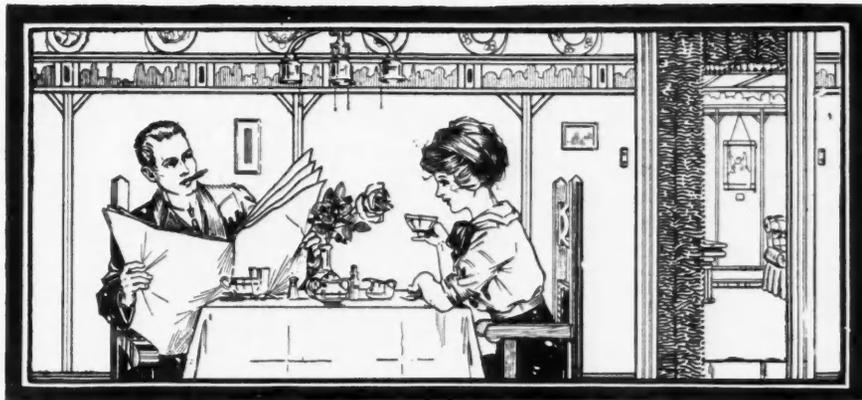
Metal Insurance

By T. M. Stocking

Is this an unfamiliar term? Yet it is the thing to do; and the live owners of property are adopting it throughout the country. If the rate for fire or life insurance is too low, you think twice before giving your risk to that company, as you doubt its ability to carry out its contracts under all conditions. If the rate is too high, you shun that company as an enemy of economy. A fair price for the best protection in a concern of reputation, is your advice.

What are we driving at?

Why, metal insurance by protective paint! Have a paint policy. Do not paint your structures spasmodically.



There's just this about this Wall Board proposition—

If it is as good as we say it is, you, Mr. Carpenter & Builder, ought to know about it.

You can't afford not to be up to the minute in your building methods.

That is why we are offering to send a Free Sample of Utility Wall Board to every Carpenter and Builder who will write for it.

We want you to know that

UTILITY WALL BOARD

is the most remarkable of modern building materials.

It is a tough fibre board, very stiff and easily handled—It is nailed direct to the studding and ceiling joist and takes place of both lath and plaster.

It makes a smooth even, wall and ceiling that will last as long as the house stands.

It is moisture proof, will not crack, nor warp, nor shrink and may be decorated in any way that you would treat a plaster wall. No muss or dirt in putting it on—and less expense than lath and plaster.

MAY WE SEND YOU THAT SAMPLE?

THE HEPPE'S COMPANY, 4503 Filmore Street, CHICAGO, ILLS.

Best—By—Test

ASBESTONE

Trade Mark

A Guaranteed Fireproof Durable Material for FLOORS, BASE and WAINSCOTING. ADMIRABLY ADAPTED FOR USE IN BUILDINGS OF ALL KINDS
BANKS, SCHOOLS, COLLEGES, CHURCHES, HOSPITALS,
HOTELS, THEATRES, COURT HOUSES, CLUBS,
BATHROOMS, RESIDENCES, ETC.

"ASBESTONE" is far cheaper than tile, more easily laid and in many other ways it's superior. Can be laid over any base, new or old, either wood or cement. Any color or combination of colors can be used.

Our book on "ASBESTONE" will be sent free.

Steel-Bond Flooring

Is a high grade product of great durability. Has most of the qualities of Asbestone, but is not as fine grained nor will it take quite as high a polish. It is a superior and moderate priced flooring. Write us about it.



Press Room of Christie Lithograph & Printing Co., Duluth, Minn.

FRANKLYN R. MULLER & CO. 314 North May Street Chicago, Illinois

When Writing Advertisers Please Mention the American Carpenter and Builder.

A structure well painted is insured against decay and depreciation. Thus your property inventories higher and your profit and loss account stands you in more on the credit side. Never paint spasmodically; do not let your structure run down and then make a fruitless effort to bring it up to efficiency. This is waste of money and hits you hardest at your weakest time. Use good paint; make regular inspection and paint with Dixon's Silica-Graphite Paint.

It is made in four colors—one quality only, and is equally suitable for metal or wood. The leading railroads and manufacturing have adopted it, after exhaustive tests, as their maintenance paint. Nature's unrivalled mixture of the silica and graphite is alone mined by the Joseph Dixon Crucible Company at Ticonderoga, N. Y.



Improved Level for Contractors & Builders

The David White Company, 419 East Water St., Milwaukee, Wis., progressive manufacturers of builders' levels, have just completed their new and Improved Level for 1913, which is



Builders' Level

illustrated herewith. The Company wish to point out and particularly call the attention of the contractor and builder, to the fact that they have incorporated into this Improved model, new and special features such as longer and more tapering

centers, thus rendering the level less liable to become out of adjustment; improved locking device for the Y's, thus dispensing with the old-fashioned pin bolts; spiral motion to eyepiece, which enables a more precise focusing of the cross-hairs; long powerful telescope with magnifying power 25 diameters, thus particularly adapted for running long levels.

Cypress Uses in House Building

By JOHN BEMER CROSBY.

"Is it suitable?" That is the acid test now being applied to building materials. In the vocabulary of the educated builder "suitable" stands for durability, workability, beauty.

For every purpose for which it is recommended by its manufacturers, and there is a great array of special adaptabilities, cypress sustains with ease this crucial test. Distinctly it is a "suitable" wood. Those who build for the future as well as for the present use cypress for those purposes for which the "Wood Eternal" has no superior.

Cypress is far too valuable to be used indiscriminately by the building trade. It need not be used where cheap woods might serve acceptably, yet it is coming to be more and more used in places where "good enough" lumber is not so much the object as permanent investment value. But cypress adds so definitely to the value of a structure that builders and owners most experienced consider that practically it must be used for those special purposes for which few other woods can be used with like assurance of satisfaction.

The foregoing is prefatory to the statement which is made by those interested in this wood that the really ideal building is made entirely of cypress. The cypress resources of the nation are not great enough to permit every one to build an ideal structure—there is not enough cypress lumber produced to furnish material for all buildings. Fortunately, however, the amount of cypress timber is ample for us and our children to employ it to our hearts' content at prices much below its actual investment value.

Many people are introducing themselves to cypress by using it as a sort of preserving veneer, shutting out the elements of destruction and safeguarding the interior from decay—and then, before they realize it, are putting cypress trim in the dining room or "Sugi" finish panelling in the library.



This House is Built to Last

Are your houses built for permanence? You can be absolutely sure of a good plaster job—one that will stand up every time and be a future business getter for you—if you plaster on

XX Century Lath

Acid Resisting

XX Century Lath is made with a mesh that "keys" the plaster to it and prevents cracking and falling off. It is cut from U. S. Standard gauge sheets, the thickest metal gauge in use and is shipped coated with carbon paint to prevent rusting.

Send for Booklet 34. It will give you many more reasons why XX Century is the lath that lasts. Our monthly bulletin, "Expanded Metal Construction", will be sent to Contractors on request.

IMPORTANT:—We can ship XX Century Lath within 48 hours of receipt of your order.

Largest Exclusive Manufacturers of Metal Lath in the World

NORTH WESTERN EXPANDED METAL CO., 903 Old Colony Bldg., CHICAGO

When Writing Advertisers Please Mention the American Carpenter and Builder.



A Free Book

for the contractor and builder, "Small Farm Buildings of Concrete." This 160 page illustrated book, telling how to build small concrete structures, should be in the hands of every builder and contractor. It is full of valuable information, drawings, pictures, instructions, directions and suggestions.

Building of concrete offers a profitable field of work in all localities, particularly among the farmers. Learn how to do this class of work by studying this book.

Farmers want concrete milk houses, barns, corn cribs, granaries, hog houses, root cellars and poultry houses and very often cannot find a contractor to do the job.

Write to our nearest office for this free book, "Small Farm Buildings of Concrete" and it will be sent you promptly upon receipt of your request.

Universal Portland Cement Co.

Offices

Chicago	72 West Adams Street
Pittsburgh	Frick Building
Minneapolis	Security Bank Building

Plants at Chicago and Pittsburgh
Annual Output 12,000,000 Barrels

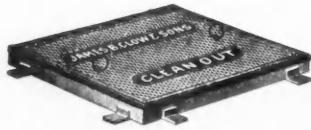
Clow Cast Iron Specialties



A-2187

[Ex. Hy. Cesspool, Long Outlet

Size of top.....In.	12x12	16x16	18x18
Depth.....In.	10	10	10
Size of outlet...In.	3	4	6
Length of outletIn.	10	10	10
Painted, net Each	3.09	3.58	7.15



A-1700.

Cleanout Cover and Frame

Size.....Inches	27x27
Size of frame, outside...Inches	27 1/4 x 27 1/4
Height of frame.....Inches	4
Price, Standard, net.....Each	\$ 9.00
Price, Extra Heavy, net.Each	18.00



A-2185

Extra Heavy Cesspool

Size of top.....Inches	16x16
Depth.....Inches	10
Size of outlet.....Inches	4
Painted, net.....Each	2.00



A-2015

Grating with Loose Frame

Size, inches	8x8	10x10	13 1/4 x 13 1/4	18x18
Grate only net.	.60	.98	1.43	1.80
Grate and frame, net	.83	1.28	1.88	2.25



A-2020

Grating

Size, inches.....	9x9	13 1/4 x 13 1/4
Price, each, net....	.75	\$1.13



A-1945

Grating

Concave, diam.	19	in., net, each	\$3.38
Convex, diam.	22 1/4	in., net, each	3.75



A-1950

Cast-Iron Grating

Diameter.....Inch	Each net
Diameter.....14	\$1.88
Diameter.....16	2.06
Diameter.....18	2.25
Diameter.....20	2.43
Diameter.....21 1/2	2.81
Diameter.....23	3.19
Diameter.....28	3.56
Diameter.....30	3.94



A-1955

Cast Iron Bar Strainer

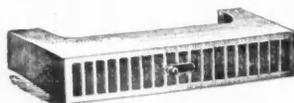
Diameter . 4	5	6	7	8	9	10
Net, each. .07	.09	.11	.18	.23	.28	.37



A-1710.

Cleanout Cover and Frame

Opening, diam., In.	18	24	34
Top, Outside, diam., In.	22	28	38
Price, net, ea	\$4.13	\$6.00	\$9.00



A-2200

Air Brick with Sliding Ventilator

Size.....Inches	8 1/2 x 5	17 x 2 1/2	17 x 5
Price, net...Each	2.59	2.59	5.17



A-2201.

Air Brick

Size.....Inches	8 1/2 x 5	17 x 2 1/2	17 x 5
Price, net...Each	2.20	2.20	4.40



A-1720.

Cleanout Cover and Frame

Opening, diameter, inches...	18
Top, outside diam., inches...	22
Base, outside diam., inches...	28
Price, net, each.....	\$4.88

Applying the "exterior veneer" principle, every builder may insure his structure against rot tendencies and other deteriorating influences by "veneering" the house with cypress. This calls for the use of cypress for all outside woodwork. It is the exposed woodwork that bears the brunt of the attack and the wise general masses his greatest defensive forces at the exposed posts.

Safeguarding a Weak Spot

The absolute safety of the building, however, is not assured by using cypress for this purpose. There are other points of attack that should be guarded. The chief one is where the frame structure joins the foundation—the sills or bearing plates. These rest on the cold, damp material of which the



Typical Piece of Flat Grain Cypress with Sugi finish. Many prefer it to "Curly"

foundation is made. They serve as the super-foundation of a frame building.

The entire weight of the building is carried by the sills. There are many points of contact between the sills and the studding, each one of which is an ideal point of attack for destroying fungi. The foundation usually transmits the necessary moisture to feed the fungi and the result is deterioration, slow at first, but becoming more rapid as the destroying agent strengthens its hold.

Destruction of wood at this point is commonly attributed to "dry-rot," a somewhat misleading term. There is no such thing as dry-rot. Utter absence of moisture or complete submersion in it renders wood impervious to decay. Certain wood destroying fungi thrive with a minimum of moisture and where they secure a foothold "dry-rot" is said to have set in.

Cypress is relatively impervious to rot influences and it is for this reason it is recommended by its backers for duty at all exposed points, and important among the points are the sills of a house. The use of cypress for this purpose completes the veneer.

The extra cost of the absolutely necessary quantity of cypress—its cost being somewhat higher than many woods—

Send For Catalogue 39

James B. Clow & Sons

CHICAGO, ILL.

When Writing Advertisers Please Mention the American Carpenter and Builder.

Beaver Board Is More Than a Wall-Covering

IT'S the whole wall, except the studs, and entirely does away with the need of lath, plaster and wall-paper. At the same time it can be put over old plaster where necessary.

The genuine, patented, nationally advertised Beaver Board is a Pure-Wood-Fibre proposition handled exactly like lumber, but vastly superior to it for walls and ceilings of every type of building.

Get the whole thing straight in your mind by sending for free pamphlet, "The A. B. C. of Beaver Board Construction."



Trade Mark

The Beaver Companies
 United States:
 181 Beaver Road,
 Buffalo, N. Y.
 Canada:
 381 Wall Street,
 Beaverdale, Ottawa
 Great Britain:
 4 Southampton Row,
 London, W. C.

Nailing Beaver Board to the studding of a new room. It can also be put over old lath and plaster.



There is Only One



IT is not classed with the cheap substitutes for lath and plaster. It is not like so-called "wall boards." It is a wall lining in a class by itself—the most practical, the most successful. Thirteen years of severe tests in thousands of homes have proven its superiority.

How You Can Know the Genuine

Get the sample as illustrated above—notice the construction. It is built with kiln-dried wood slats as the foundation, pressed between layers of air-tight cement and specially prepared paper into a stiff, straight sheet ¼ inch thick.

Why Contractors and Builders Should Use Compo-Board

It is stronger, more durable than lath and plaster, or any of its substitutes. Impervious to cold, heat and moisture. Its smooth surface can be decorated with paint, kalsomine or wall paper—with or without panels.

It enables you to complete a house 15 to 30 days sooner—give greater satisfaction to your client and get a higher price.

Sample and book free—(Tells in an interesting way all about this modern wall lining).

Northwestern Compo-Board Co.

5777 Lyndale Ave., North :: Minneapolis, Minn.

LISTEN!

Surfaces waterproofed to prevent buckling!

Furnished in three finishes—plain oak, cream white and burnt leather. Requires no further decoration!

Battens to go with it—of same material!

Of standard NEPONSET Waterproof Building Products quality!

NEPONSET WALL BOARD

For Walls and Ceilings

WRITE FOR SAMPLE

Address

BIRD & SON East Walpole, Mass.

24 River Street
 EST. 1795.



New York	Columbus, O.
Washington	San Francisco, Cal.
Chicago	Canadian Plant,
Portland, Ore.	Hamilton, Ont.

Plastergon Widens Your Field of Work



The Plaster's job comes to you—you get the decorating, too.

You're not confined to houses—you can install Plastergon in new and remodeled offices, garages, warehouses, etc.—even where dampness, vibration or excessive temperature exist.

Plastergon Only Guaranteed Wall Board

Plastergon is chemically treated by our exclusive process. You take no chances—you can't afford to—you might endanger your reputation as a builder.

Plastergon costs less than lath and plaster—lasts as long as the building.

It's other superiorities are numerous. Let's tell you about them and how easy it is to get Plastergon jobs. Write to-day.

Plastergon Wall Board Co.
 Dept. A. Tonawanda N. Y.



When Writing Advertisers Please Mention the American Carpenter and Builder.

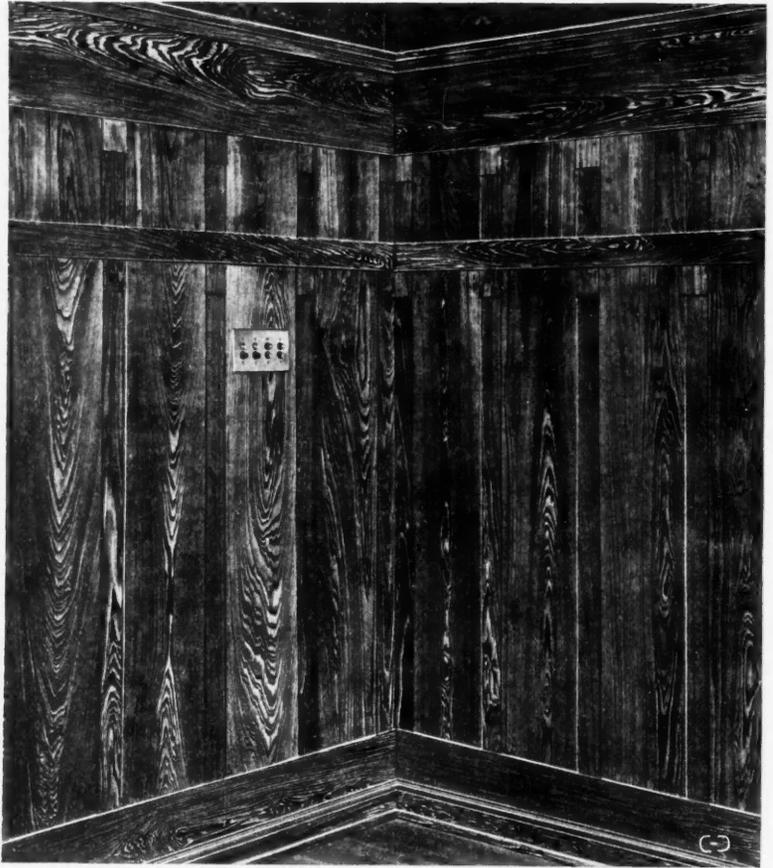
is almost infinitesimal. If cypress is specified and included in the estimate the man who pays for the structure never would be aware of any addition to the price; probably there would be none.

Here are the actual figures: Take an ordinary house with, say, 150 feet of outer wall. Using one piece of 2 by 12 and one piece of 2 by 10 for a box sill it would require 550 feet of lumber for the sills. If it was necessary to pay as much as \$20 a thousand feet more for the cypress, the cost of the whole building would be increased only \$11. Surely that is a very small premium to pay for assurance against the necessity of putting in a new super-foundation for the entire structure, repair work that would cost several hundred dollars, plus untold inconvenience.

An Advertised Product

The merits of cypress are being pressed home upon the consciousness of the building trade. Previous to the inauguration of this campaign cypress was handled just as other kinds of lumber are handled. Probably it was used for many purposes for which some other kind or kinds of lumber would have served as well. Certain it is that the building trade was not securing the value from cypress that it has since its merits have been widely promulgated.

There existed in the mind of the public a hazy sort of idea that cypress was all right, but when they were shown another kind of lumber and informed that it was just what they needed, confronted by a situation of that kind and having nothing with which to back up their own ideas or impressions the buyer meekly submitted and



A Corner in the Reading Room of Progressive Union, New Orleans. (Sugi Curley Grain Cypress Finish Well Shown)



LIVING ROOM

showing Oscillating Portal Wall Bed with a combination writing desk, book case and dressing mirror on the front of the bed. A buffet, book case or furniture of any kind, may be used. By utilizing the front of the bed for a piece of furniture, you save the wall space that this furniture would otherwise require, and perfectly conceal the fact that there is a wall bed in the room. All of the drawer and locker space of the furniture is available.

Wall Beds

We are the Pioneers of the wall bed industry. We also make the old style recessed Upright Wall Bed, which has the wooden frame work under it. We particularly recommend our latest achievement, the Oscillating Portal Wall Bed, which is an absolutely sanitary bed. To introduce our wall beds more extensively in the eastern and middle States, we will sell at cost, and prepay the freight charges to any part of the United States, where we are not represented, for a limited time only. Write for literature and particulars today.



BED ROOM

with an Oscillating Portal Wall Bed, showing entrance to the closet while the bed is down. No additional door is necessary to permit free access to the closet. The bed is all metal, is full size, standard height. It has no frame work underneath to collect dust or VERMIN. When the bed is not desired, the bed room is immediately transformed into a perfect living or dining room.

Marshall & Stearns Company

San Francisco, Cal.

When Writing Advertisers Please Mention the American Carpenter and Builder.



**THIS BOOK
About Wood Finishes
GIVEN AWAY**

If you are interested in building or re-decorating, send for this remarkable book "Modern Wood Finishing." It is filled from cover to cover with money-making suggestions; it gives many valuable ideas for the interior decoration of the home.

This book tells you how to obtain the various effects on wood. There are forty-eight different wood finishes reproduced in life-like colors. In fact, it is the most exhaustive treatise yet published on the subject—an education in itself.

It costs no more to obtain an exquisite finish, than it does a poor one. It is chiefly a question of knowing *how* to get the effects you desire. This book tells of the *ease* and *economy* with which

Bridgeport Standard Wood Finishes

are applied. The unusual attractiveness—the lustrous beauty—and the smooth, transparent finish they give, explains *why* Bridgeport Standard Wood Finishes are recognized as the utmost in value.

Send for a free copy of Modern Wood Finishing—today.

BRIDGEPORT WOOD FINISHING CO., New Milford, Conn.
NEW YORK CHICAGO BOSTON

Cal-Co-Craft

A Sensation in Wall Paneling

For Dining Rooms, Halls, Offices, Show Windows, Etc.



CAL-CO-CRAFT is a reproduction of wood grain (taken from the actual wood), transferred to paper—hung like any wall paper and paneled off with simple mouldings—note cut above.

Cost is negligible compared with wood, and **CAL-CO-CRAFT** on the wall cannot be distinguished from heavy wood, except on closest inspection.

*Send to Dept. C for samples
and give name of decorator*

The Cott-a-lap Co.

Somerville :: :: :: New Jersey



**Is the Roofing
FOR YOU**

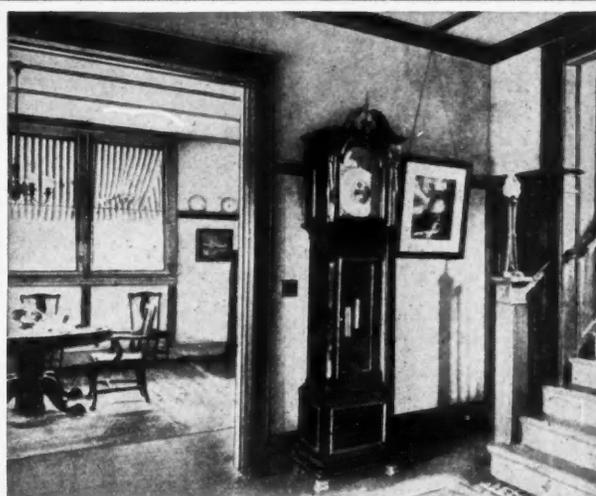
If you are interested in a roofing giving a warm, coppery red tile effect—more durable than shingles or metal, yet less expensive.

If architectural beauty, ease of laying, surety against leaks, extremely fire resisting and absolute permanency appeal to you look no further for roofing—ZOLIUM is what you want.

ZOLIUM is backed up just as you want it to be. It will serve you well.

Send for sample and booklet A-C-1.

Flintkote Manufacturing Company
88 Pearl St. BOSTON, MASS.



*Your Customer
will be delighted with*

Roberds Ideal Wall Board

It makes such a beautiful interior finish at such a reasonable cost. It can be painted, papered or tinted and lasts forever. It never gets shabby, never cracks, peels, chips or warps and is proof against vermin, heat, cold, fire and moisture.

Roberds Ideal Wall Board comes in sheets all ready to be nailed to the studding. Your cheapest man can apply it without previous experience. No muss, no confusion, no delay and no disappointment.

Our special proposition to carpenters and builders is unusually attractive. Write for it today and we will send you full particulars, samples, prices, catalog and testimonials from other contractors.

The Roberds Mfg. Company

100 Railroad Street :: MARION, INDIANA

When Writing Advertisers Please Mention the American Carpenter and Builder.



**Cannot Rot, Split,
Chip, Curl or Burn**

This spring Contractors and Builders again face the problem—scarcity of good wood shingles. Can't always substitute slate, either, for various reasons.

But there is a substitute that is **more** than a substitute. Something that not only takes the place of wood shingles or slate, but actually gives better results. That something is

Cortright Metal Shingles

"The Permanently Perfect Roofing"

Unlike the wood shingle roof, which burns like tinder, the moment a spark drops on it, or in the birds' nests usually to be found in the eaves, CORTRIGHT METAL SHINGLES cannot burn under any conditions. They last as long as the building, and never need repairs.

Before going ahead with your Spring roofing propositions, get our free book "Concerning That Roof," and detailed information without obligation, by simply signing and returning the attached coupon now.

Cortright Metal Roofing Company
PHILADELPHIA and CHICAGO

— — — Clip, Sign and Return this Coupon NOW — — —

CORTRIGHT METAL ROOFING CO., Philadelphia.

Gentlemen:—You may send me your special proposition to Contractors and Builders.

Name

Address

City..... A.C.B.4-13

accepted what was sent. They simply "bought some boards."

Today the building world knows cypress values. Its impression of cypress values are supported by authentic information.

Builders and the public at large—the great home-owning class—have been recipients of far greater benefits than any that can have fallen to the share of the producers of this wonderful lumber. By insisting on cypress for many if not all the purposes for which it is recommended the consumers have added untold value to their buildings.

Producers of cypress are among the first lumbermen endeavor to educate the public regarding the value of wood. This was almost the first departure in teaching the public folly of the old custom of building with whatever came handy or whatever kind of wood was offered.

The building trade is filled with prejudices for and against woods which have been handed down from generation to generation. Some of these ideas are based on fact, some of them on fancy. Some are right, some are partly right, some are wholly wrong.

Departing from old ways and old standards, cypress manufacturers adopted this policy: "Believing that wood users are entitled to complete and reliable information, we will set in motion machinery that will supply them such knowledge of cypress. With such knowledge an intelligent choice can be made. We will influence the builder to use cypress by reinforcing his own experience with facts he may not have known and by appealing to his self-interest as well as to his professional pride in knowing what is best for his customers and thus best for his reputation, and by teaching him the fundamentals of wood values."

On the Inside

Thousands of builders are using cypress for exterior woodwork as a matter of economy. They consider it the best investment they can make. For interior woodwork cypress meets a greater competition. Many other woods will give length of service where not exposed to weather. Some of them possess beauty of color and figure, not surpassing cypress but approaching it.

Perhaps the foregoing should have been written in the past tense as the advent of the "Sugi" finish which is exceedingly easy and economical and gives the world-famous Japanese "drift-wood" effects, has destroyed all former basis of comparison.

"Sugi" finish, like other marvels, is secured in a very simple manner. The surface of the wood to which it is to be applied is charred with a gasoline torch and the charred portions brushed away with a steel brush. The soft wood of cypress alternates with the hardwood. The flames from the torch eat more deeply into the soft wood than into the hardwood and when charred substance is brushed away the full beauty of the wonderful marking of cypress is brought out in bold relief—and there is your "Sugi" finish.

The surface can be left in that condition, or, if desired, can be given a coat of filler and varnish.

Cypress is being used in increasingly large quantities for greenhouses—having almost a monopoly of that trade—pergolas, sleeping porches for new and old houses, for rustic siding, for arbors and trellises and for all uses where the wood is exposed to alternate extremes of temperature and moisture. Its rot-defying qualities have made it the general favorite for such uses. The list is too long, the range of uses too great to permit of an extended reference to each at this time. As a boat material it is thought the acme by the best authorities.

That contractor who said, "When other woods failed I used to use cypress—now I'm getting to use it first, and save doing the work over every year or so," has the situation down pat.

When Writing Advertisers Please Mention the American Carpenter and Builder.

Granite

TRADE MARK

ROOFING



A six-inch lap is better than a three-inch lap. It gives better protection against leaks and permits nailing down on the under sheet only, so that no nail heads appear on the surface. Otherwise this is the same Granite Roofing that we have sold for 29 years for use on great factories. It is immune from damage by coal, smoke or cinders, and it has a sea grit surface which makes painting entirely needless. Behind it is a reputation that has Passed the Quarter Century Mark.

EASTERN GRANITE ROOFING CO.
19 Battery Place, New York

Chicago

Pittsburgh



Dairy Farm Buildings owned by Henry A. C. Taylor, Newport, R. I. Roofed with Asbestos "Century" Shingles by W. H. Langley, of Newport, Contractor. Reproduced from an Artist's Drawing.

Asbestos "Century" Shingles

"The Roof that Outlives the Building"

YOU gain four peculiar advantages by roofing with Asbestos "Century" Shingles.

They are the first practical light-weight roofing made of reinforced concrete.

They are absolutely fire-proof. Low insurance. Unaffected by weather conditions. No painting—No repairing.

Their durability increases with age. Last forever.

Write for names of representative roofers who can supply Asbestos "Century" Shingles and Booklet, "Roofing A Practical Talk."

Keasbey & Mattison Company, Factors
Dept. B, Ambler, Penna.

Branch Offices in Principal Cities of the United States

This advertisement appears in April Magazines read by the owners and tenants of the better class of buildings. Write to above address for terms and trade prices.

MONTROSS METAL SHINGLES



Fire-Lightning-and Storm Proof

The Roof should never require renewal

We guarantee our Painted Tin Shingles from 10 to 30 years, according to grade. We know the quality of material that enters into their manufacture, and assume the responsibility. Our first Roofing put on in 1880 is still good. Small plates, high quality, with perfect construction

that eliminates moisture from joints and overlaps, means durability, and the Montross Shingles prove it.

Our Galvanized Shingles are high grade base plate, tinned and redipped by hand, carrying a 60% heavier coating of pure Zinc than large Commercial sheets.

Let us send our catalog and explain Montross Shingles fully. Live agents wanted for exclusive territory.

Montross Metal Roofing Co., 2nd and Erie Sts., Camden, N. J.

ROOFING SLATE

Sea Green, Purple Vein, Genuine Bangor, All Grades

There will be a big demand in every locality in spring for Slate Roofing. Get in shape to handle the business now. Write Today for our delivered prices on all grades of Slate, Slater's Tools and Supplies, and the Lightning Slate Dresser. Full instructions about laying furnished free to new men. We are the Oldest and Largest Roofing Slate Concern in the U. S. operating 3 large quarries at Poughney, Vt. and 1 at Bangor, Penna. Orders filled promptly with choice stock. References—any bank in Cleveland. **DON'T DELAY—WRITE TODAY—NOW.**

THE AULD CONGER CO.
1000 Prospect St. Cleveland, Ohio

Roofs Last Forever

when shingled with Meadow Brook Slate. There is no "wear out" to these shingles. Meadow Brook Slate comes in all sizes and is

Easy to Apply
Neat

Fire-Proof

Put slate shingles on your next building but get the best—Meadow Brook.

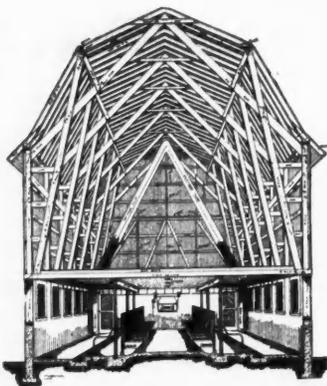
Let you forget, write us today for description and price-list. You'll save money.

Meadow Brook Slate Co.
Slatington, Pa.

When Writing Advertisers Please Mention the American Carpenter and Builder.

How to Make More Money Building Barns

Every man in the building business can have the benefit of W. D. James' barn knowledge and use it to his own advantage and profit. There's more money in building up-to-date, properly equipped barns on scientific principles than in putting up the old type. The right kind of a barn means an enthusiastic owner, and that means more jobs in the same neighborhood.



Get Our Special Blue Print and Building Service Offer

Mr. James is the foremost authority on dairy barn building, and he wants to make you a special offer of complete working blue prints of several practical dairy barns of different sizes and types. In addition to Mr. James' personal co-operation, you can have help from our architectural department, conducted by experts. Write today for all the facts regarding this service.

James Manufacturing Co.

A. H. 75 Cane Street

Ft. Atkinson, Wis.



This Valuable Book Free

—tells about new and better construction—lighting—size—site—drainage—general equipment—King system of ventilation; gives floor plans of successful barns. Your copy—Free—if you answer these questions: For whom do you expect to build or remodel dairy barns? (Give names and addresses). When? For how many cows? Send your application now for book and complete information.

SINGLE 5 \$225 **MONARCH** TWIN 10 \$275



For Business or Pleasure

IN a motorcycle for business four things are essential, and the MONARCH is the only machine to combine all these necessary points. First, Durability. Second, Comfort. Third, Power and Fourth Speed. There is no competitor for the MONARCH in any of the above.

If you want maximum efficiency with minimum expense, get in line for the 1913 MONARCH.

Please address

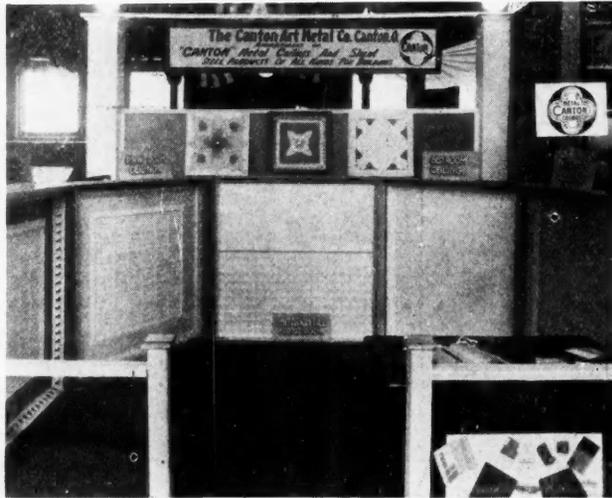
Sales Dept.

IVES MOTORCYCLE CORPORATION

Owego, Tioga Co., New York

Metal Ceiling Exhibit Draws Crowd

This photograph shows the display both of The Canton Art Metal Co., manufacturers of high grade sheet metal products, Canton, O., at the New York State Retail Hardware Dealers' Association recent convention. This photograph shows an entirely new feature in metal ceilings. The arrange-



Interesting Display at Buffalo Convention

ment and display of metal tiling for bath rooms as seen in the background and the arrangement for private house work, showing all small designs.

This display attracted considerable attention, not only from the hardware dealers in attendance, but from the citizens of Buffalo. They seemed to take a great deal of interest in this line of work. It is evident that plaster is losing ground and that wall board and metal ceilings and work of this kind is taking its place.

Sharpening Stone Catalog

We have received a very artistic little catalog from the Pike Manufacturing Co., Pike, N. H., which illustrates their line of sharpening stones and abrasive specialties. This neat book contains nearly one hundred pages. Their entire line is fully shown with some of the best illustrations that could possibly be used in a book of this nature. Every conceivable shape and size of sharpening stone is shown in addition to some of the smaller sharpening devices.

We think our readers will be interested in this little booklet which will be sent upon application to the Pike Manufacturing Co.

A Progressive Plumbing Supply House

The photograph on page 146 shows the office and immense warehouse of the Bowman Supply & Mfg. Co., Inc., North Side, Pittsburgh, Pa., dealers in plumbing, gas, steam and water supplies. It gives some idea of the rapid growth of this progressive and enterprising concern.

This modern business was incorporated in 1907 with the following officers, all clean, straightforward business men, known throughout the country for their integrity and fair business dealings: J. W. Bowman, president and treasurer; J. F. Bowman, vice-president, and A. H. Bowman, secretary and general manager. Due to their ability and careful management the business has constantly increased to the proportions indicated by the spacious modern buildings shown in the cut.

The office and sales force are composed of men who have had years of experience in their several lines and who are capable of handling all inquiries and orders in a most effi-

When Writing Advertisers Please Mention the American Carpenter and Builder.

Planes You Can Depend On

You will never mar a surface or splinter an edge with the finishing stroke if you use a Keen Kutter plane. The working surface is true—the knife so delicately adjusted that a shaving may be hair-thin or thick as a chip. Like all

KEEN KUTTER

Quality Tools

these planes have the feel and hang that enable you to get the best results. All are stamped with the over 45-year-old trade mark that guarantees satisfaction or money back.

"The Recollection of Quality Remains Long After the Price is Forgotten."
Trade Mark Registered. —E. C. SIMMONS.

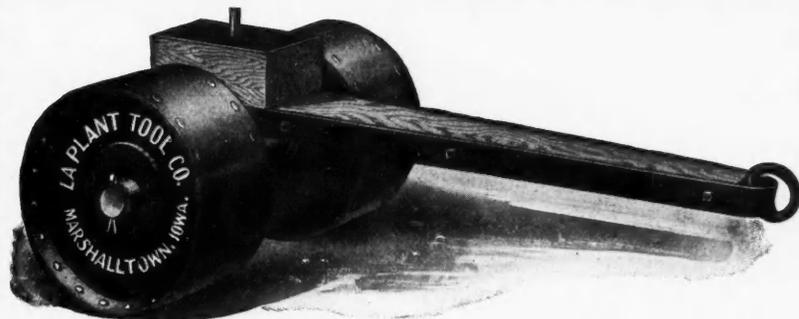
If not at your dealer's, write us.

SIMMONS HARDWARE CO., Inc.

St. Louis New York Philadelphia Toledo Minneapolis Sioux City Wichita



No. K18
Size 6 inches
Price \$1.20



THE LA PLANT HEAVY HOUSE MOVING TRUCKS

When you get a job with an old building on the lot—move it with the La Plant Trucks to another place—instead of wrecking it. There is more profit in it for you.

La Plant Heavy House Moving Trucks are made of steel—on scientific lines—are interchangeable so they can be worked singly, in pairs or in fours.

Write for catalogue O and see how easy it is to wheel a building a mile in a day—and how little the cost is for La Plant outfit compared with the profit to be made in moving houses instead of wrecking them.

LA PLANT TOOL CO.

1100 E. Nevada St.

Marshalltown, Iowa

TRY IT FREE

Why, compared with the grindstone or emery wheel, it is mere child's play to do the toughest job of grinding—and with the patent tool rests and attachments an apprentice can do any job of sharpening, such as gumming saws, sharpening plane bits and twist drills as well as a high paid mechanic. Try it 30 days absolutely free—then if you don't want to keep it, return it at our expense.



A Work Shop in Itself

Extra attachments convert the Luther "Shop" Tool Grinder into jig and circle saw, lathe, force feed, drill, etc.—you can completely equip your workshop at very low cost—free book illustrates and describes extra attachments.—17 in all. Write for Free Book today.

Dimo-Grit Sharpening Stones

Ask your dealer for Dimo-Grit Sharpening Stones—the fastest, smoothest sharpening substance for steel. Look for the name, "Dimo-Grit" on the stones.

Cuts Steel as Emery Does Copper

Dimo-Grit, the new artificial diamond abrasive, peels steel away in tiny shavings—25 times faster than grindstone, 10 times more efficient than emery—no need of water cooling, no danger of drawing temper. Will not glaze or wear lopsided. Dimo-Grit is especially adapted for steel. Carborundum wheels supplied when wanted.

LUTHER SHOP TOOL GRINDER

Foot and engine power—built completely of steel and iron, enclosed shaft drive like an automobile, dust-proof bearings—runs as easy as sewing machine—4000 revolutions per minute by foot power.

LUTHER GRINDER MFG. CO.
1905 Michigan Street MILWAUKEE, WIS.



14 MACHINES IN ONE

- 1—Fine Dimo-Grit Wheel. 2—Coarse Dimo-Grit Wheel. 3—Universal Tool Rest. 4—Chisel and Plane Bit Guide. 5—Dimo-Grit Razor Hone. 6—Dimo-Grit Seythe Stone. 7—Dimo-Grit Saw Gummer. 8—Felt Polishing Wheel. 9—Medium Dimo-Grit Wheel. 10—Cloth Buffing Wheel. 11—Dimo-Grit Oil Stone. 12—Dimo-Grit Pocket Hone. 13M—Plane Bit Honing Attachment. 14M—Twist Drill Sharpening Attachment

40-Page Free Book

Shows all ways this machine saves and earns money and makes work easier—gives valuable pointers on tool sharpening. Prove this machine's value to you in your own work. Send for full information, then decide if you want to try the shop outfit for 30 days free. Don't delay. Write today.

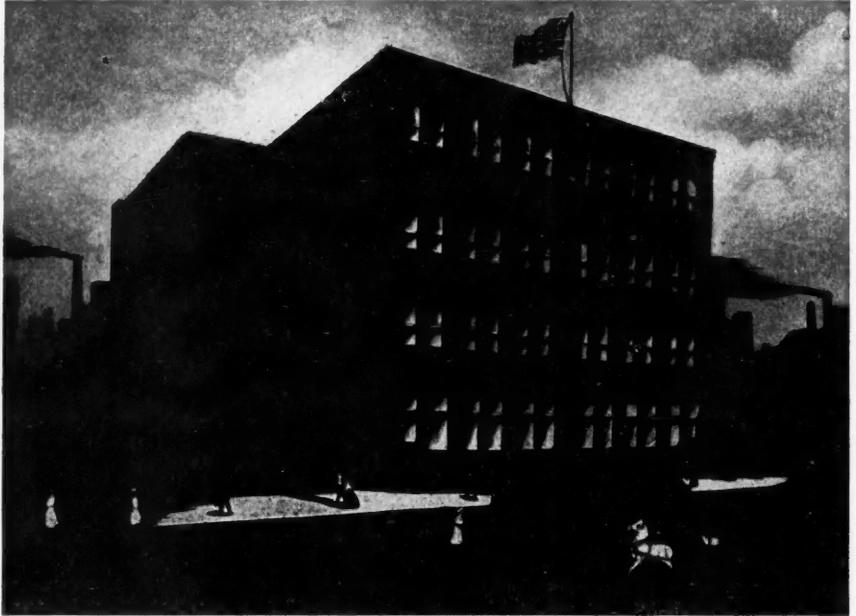
When Writing Advertisers Please Mention the American Carpenter and Builder.

cient and pleasing manner. This, coupled with the unexcelled facilities for the handling of materials and shipping of orders, gives the clients of this company the benefits of a prompt and most satisfactory service.

The large warehouse and office building (as shown in this view) contain over 42,000 square feet of floor space and are constantly stocked with a full, complete and most attractive line of modern, high grade sanitary plumbing fixtures and equipment of practical and latest designs; hot water and steam heating appliances of the newest and most efficient types, also with gas, steam and water supplies of first quality. This concern is in a position and fully prepared at all times to make prompt shipment of all orders, large or small, immediately on receipt.

The large and comprehensive catalog as issued by this successful supply house should be in the hands of every architect, contractor and builder; for therein are shown in every detail all materials that may be required to insure the most modern, practical and sanitary equipment for bathroom, laundry or kitchen, also for heating or water supply. As this is a very expensive catalog, it is hoped that those asking for it will do so for business reasons and not from mere idle curiosity.

The plumbing fixtures shown in this catalog such as bath tubs, lavatories, water closets, sinks, laundry trays, etc., are



Office and Warehouse of the Bowman Supply and Mfg. Co., Inc., Pittsburgh, Pa.

of the most pleasing and attractive designs and are generally known for their durability, sanitary qualities and perfect construction. While a very elaborate and high grade stock of sanitary fixtures are shown suitable for the most expensive residences or buildings you will also find shown a complete line of moderate and low priced material which meets the demands of those desiring cheaper but still perfect and durable fixtures.

Specify MF Ternes

THE FEATURES

Of our Roofing ternes are a base plate of Copper Bearing Open Hearth Steel, thoroughly annealed and accurately resquared—and a good uniform coating. The weight of coating carried is stamped on each grade.



32 POUNDS COATING

"The terne which turns the elements."

THE COATING

On our MF Roofing Tin is 32 pounds—the weight best suited generally. We manufacture Roofing ternes from 8 to 40 pounds coating—the best modern skill can produce. Send for booklet "The Roof of Quality and Service."

Our Copper Bearing Open Hearth Roofing Tin is stamped "C. B. OPEN HEARTH" in addition to the brand and the weight of coating carried. We also manufacture Apollo Best Bloom Galvanized Sheets, Formed Metal Roofing and Siding Products, Black Sheets of all Descriptions, Special Sheets, Etc.

American Sheet and Tin Plate Company

General Offices: Frick Building, Pittsburgh, Pa.

DISTRICT SALES OFFICES:

Chicago Cincinnati Denver Detroit New Orleans New York Philadelphia Pittsburgh St. Louis
 Export Representatives: UNITED STATES STEEL PRODUCTS COMPANY, New York City
 Pacific Coast Representatives: UNITED STATES STEEL PRODUCTS COMPANY, San Francisco, Los Angeles, Portland, Seattle

When Writing Advertisers Please Mention the American Carpenter and Builder.

Fair Play for Contractors

Reduced Size



Copyright 1913 by Barrows & Donnellan Co.

Manufacturers of Lumber and Mill Work

Mr. Carpenter-Contractor:—

The 1913 Copyrighted Edition of **The Contractors Red Book** is now ready for distribution.

The Contractors Red Book is the one book which gives the Carpenter-Contractor a fair and square deal.

The Contractors Red Book is not a mail order catalogue, and will be sent to Carpenter-Contractors only.

The Contractors Red Book is a 96 page Price Book, profusely illustrated, of convenient size for carrying in a coat pocket, and is the only Price Book issued that co-operates in every way with the Carpenter-Contractors in the distribution of Lumber and Millwork.

The Contractors Red Book is fully protected by Copyright, and is issued only by Barrows & Donnellan Co., Manufacturers of Lumber and Millwork, the Largest Company of its kind in the United States selling its products exclusively through Carpenter-Contractors.

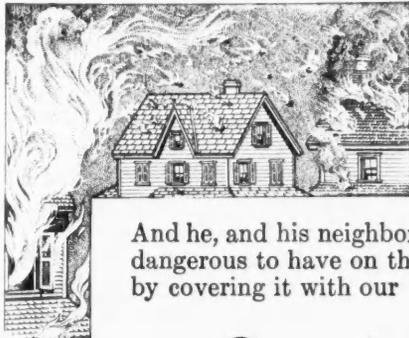
The Contractors Red Book—also Our Plan For Co-operating with Carpenter-Contractors (the long-felt need of the Carpenter-Contractors)—will be mailed **Free**, provided your request is received on your Letter Head or Business Card, to identify you to us as a Carpenter-Contractor

Write Today—Limited Edition—New Idea

Address your request to

**Barrows & Donnellan Co. 8700 Erie Avenue
CHICAGO, ILLINOIS**

Yards at Chicago and East St. Louis, Illinois



Every Fire Helps Your Business

Of course we all sympathize with the fire-stricken house owner. But with American pluck he promptly rebuilds.

And he, and his neighbors, have learned this lesson: That shingles are kindling wood; too dangerous to have on their house tops. That even a frame house can be semi-fireproofed by covering it with our



Genuine Bangor Roofing Slate

Sparks striking frame walls glide off too quickly to do harm. The danger is on the roof, where sparks lodge. Genuine Bangor Roofing Slate is non-combustible. Being a non-porous, hence non-absorbent mineral, our slate does not decay. Being stone it does not rust.

It is tough and—unlike other slate—will arrive and can be handled **WITHOUT** breakage.

The best proof of its superiority are the many attempts to sell other slate under a name resembling ours.

As a business man, always eager for more business, more profits and more business reputation, it will pay you to let us tell you more about our Special Co-operative Plan for helping you to increase **your** business through our Trade Help Department.

This puts you to no obligation or expense. Write us today for further information. Fill out the attached coupon. Then tear it off and send it today. You will find it mighty profitable.

Genuine Bangor Slate Co.

Drake Bldg.

Easton, Pa.

FILL OUT. TEAR OFF. MAIL TODAY.

You'll miss profits if you don't. This puts you to no expense or obligation.

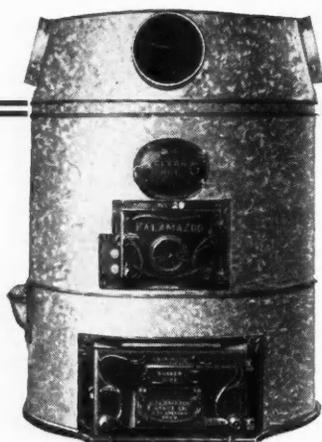
Genuine Bangor Slate Co.
Easton, Pa.

Send particulars about increasing my business and profits to (Sign here)

Address.....
Town..... State.....

When Writing Advertisers Please Mention the American Carpenter and Builder.

**Easy
to
Install**



**Sure
to
Please**

Good Profit For You

The furnace is not one of the first things you handle in building a house, but it is one of the **first in importance**.

Many builders who have done the best kind of carpenter's work, masonry, plumbing, etc., and who were entitled to the owner's gratitude so far as the structure itself was concerned, have had grief in the end because the heating plant was not right.

You never have trouble of this kind when you put a Kalamazoo in any job you have. We want you to get acquainted with Kalamazoo *quality, service and profit*.

This is the furnace easiest to install—its results are guaranteed—and the saving of jobber's and retailer's profits, expenses, etc., enable us to put better quality into a job and deal with you on liberal terms. We are able to *prove* the supremacy of the

Kalamazoo Furnace

Simplicity of installation is one big point. From a sketch of the house, showing location of rooms, size, prevailing winds, direction the building faces, etc., our expert engineers work out blue prints that are sent you free. These show *everything*—make it all simple. It is the most complete installation service ever devised.

An absolute guarantee of quality and satisfactory use *backs up every Kalamazoo heating system*. The owner *must* be pleased—and that responsibility is ours. Perfect insulation—greater heating surface—fuel economy—complete air circulation; these and other points of Kalamazoo supremacy are *proved*.

There are no unpleasant "come-backs" when you install a Kalamazoo. We are behind the owner—behind **you**—with that strong guarantee and with a system that holds our last degree of confidence because of its known goodness.

Write for Free Book No. 947

telling all about Kalamazoo service—its superior construction. We'll make you liberal terms—show you how the building season of 1913 can be a **better** season for you from the minute you make up your mind to handle Kalamazoo furnaces. Don't delay. Let us hear from you by return mail and complete information will be sent you at once.

Kalamazoo Stove Co.
Kalamazoo - Mich.

**You make a
good profit—
and a good
friend—and
"booster"—
whenever
you place a
Kalamazoo
Furnace.**

"A Kalamazoo And Gas
Trade Mark Registered **Direct to You"** Stoves Too

Giving Life to the Wood

It is said that Woodlife Shingle Stain being highly preservative adds years to the life of any woodwork coated with it. Distilled wood creosote forms the principal ingredient of this stain. This differs considerably from the ordinary creosote which is usually a color-bleacher and has a sickening odor.

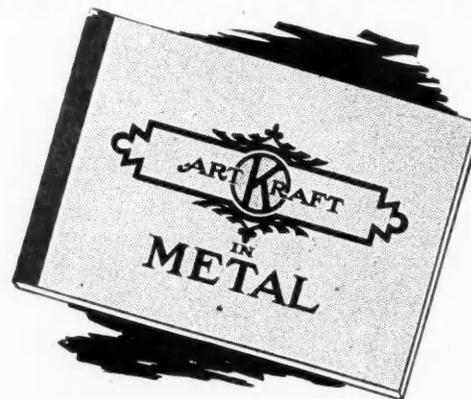
Where Woodlife Shingle Stain is used alone, the natural beauty of the wood may be retained or if a tint is desired, the stain may be combined with durable Woodlife colors. It is adapted for use on roofs, siding, barns, sheds and any other place where woodwork is exposed to the weather. The manufacturers—the Woodlife Co., 190-192 Montague St., Brooklyn, N. Y., claim that their stain is less expensive than paint and has many good qualities that paint lacks. Write them for more information.



An Interesting Catalog

The Canton Metal Ceiling Company of Canton, Ohio, the enterprising maker of "Art-Kraft" products in metal for all exterior and interior purposes, is once more to the front with a further indication of that progressive spirit success feeds on.

This time we must compliment them on the originality of a New Catalog which is now being distributed to contractors



and builders; it is a work of art and should prove very attractive and interesting to our readers.

The catalog contains hundreds of suggestions for real artistic effects, many of them being entirely new conceptions in designing in metal for wall and ceiling decoration of refinement and good taste. These designs are adaptable for the home, store, office, in fact, any class of building, and are sold at prices pleasing to the buyer.

If your copy of this catalog has failed to arrive be sure and send your name to the Canton Metal Ceiling Company, Canton, Ohio, and they will gladly see that you get one.



Huther Saws

Huther Brothers Saw Mfg. Co., Inc., Rochester, N. Y., was established in 1880 and incorporated in 1906, during which interval and since which time they have been manufacturing a very high grade of saws.

Their Solid Tooth Circular Saws are made from the best grade of steel, and their goods are gotten out by skilled mechanics under the personal supervision of expert saw makers.

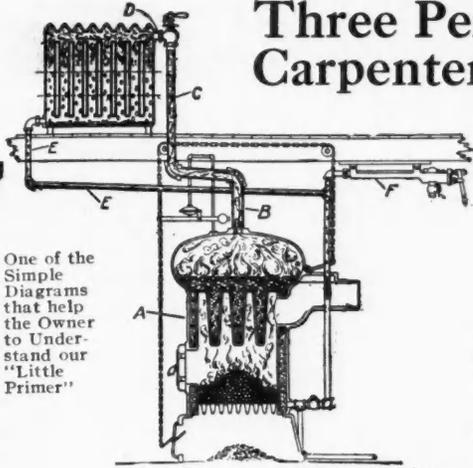
Huther Brothers make a full line of Shingle, Edger and Heading Saws, particular attention being given to the grinding and straightening of same. They also manufacture a complete line of circular knives for cutting cloth, cork, etc., as well as Circular Milling Saws and Cutters; Saw Mandrels and Planer Knives. However, a large part of the product of their factory consists of Special Saws, including Turned or Beveled Face Saws for cutting beading, moulding or special shaped grooves. Lock Corner Cutters, with teeth relieved so

When Writing Advertisers Please Mention the American Carpenter and Builder.

Three Pertinent Reasons Why Every Carpenter and Builder Should Endorse

Vapor-Vacuum Heating Kriebel System

One of the Simple Diagrams that help the Owner to Understand our "Little Primer"



1. The permanent satisfaction to the owner. There is never the slightest "kick" about Vapor-Vacuum Heating (Kriebel System), but, on the other hand, the owner **enthuses**—tells his neighbor and the men down at the office and tells them **WHO RECOMMENDED** the system.

2. You are able to point out to the owner a **guaranteed saving** of 25 per cent on coal, and when he reads our "Little Primer," the book written so any one can understand it, he knows for himself **why** the V-V system saves him 25 per cent on coal and **why** you recommended it,

3. Our Engineering Department helps you by preparing, free of charge, complete heating layouts of any job you will send us sketches of. That's exactly what we have the Engineering Department for.

Write now for a copy of the "Little Primer" and let us tell you how we co-operate with carpenters and builders. No obligation.

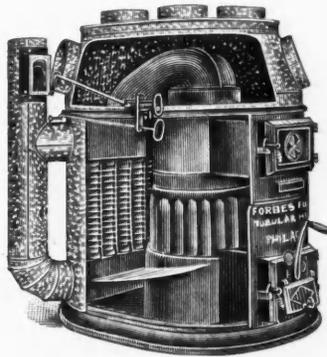
VAPOR-VACUUM HEATING CO.

895 Drexel Building

Philadelphia

CLIP, SIGN AND RETURN THIS COUPON NOW.
Gentlemen: Tell me how you co-operate with carpenters and builders.
Name
Address

FORBES FURNACE



The secret of a builders success depends on the number of his satisfied customers. The way to Satisfy them in regards to heating is to have a "FORBES FURNACE" installed in the house.

We don't want to take up your valuable time but would ask that you write us for a catalog which contains full information and which you can study at your leisure.

Tubular Heating & Ventilating Co.

Department "X"

232 Quarry Street

:::

Philadelphia, Pa.

\$ QUICK SALES LARGE PROFITS \$

Building Contractors

are making large profits selling the **Detroit Combination Gas Machine** to farmers and others located where city gas is not available.

You make a big Profit on the sale of the Plant, another Profit on the installation and sale of appliances—**Three Profits in One Deal.**



DETROIT Combination Gas Machine FOR LIGHTING AND COOKING

If you are not already selling this machine, it will pay you to start at once. It makes the cheapest—

Gas for Lighting—Gas for Cooking Gas for Laundry—Power Purposes and for all other uses common to city gas at **just as cheap** or cheaper cost.

These plants have been the standard for over 44 years. Perfectly safe, entered in **Class A National Board of Fire Underwriters**. More than 20,000 in use in Residences, Stores, Factories, Churches, Schools, Villages and Hospitals. Write today for complete information and dealers' terms.

Detroit Heating & Lighting Co.
546 Wight Street Detroit, Michigan

Carburetor under ground

Machine in basement

When Writing Advertisers Please Mention the American Carpenter and Builder.

as to do away with all friction when in operation, are another of their products. They also make a Special Hollow Ground Saw for smooth cutting either with or across the grain. This same style Saw with Combination Tooth used for cutting both with and across the grain is a product of their manufacture used extensively by pattern shops and in packing rooms; it being especially desirable where a little cutting both with and across the grain is necessary and the operator cannot spare time to change saws.

The Huther Patent Groover or Dado Head is used today by wood workers in all parts of the world. These heads are used for cutting grooves of any width or depth either with or across the grain, and are composed of two special saws or blades which have beveled sections, thus giving the Cutter the combined cutting qualities of a knife and a saw, and of Special Two-Tooth Inside Cutters which are made up 1/16 in., 1/8 in. and 1/4 in. thick. In order to cut grooves of different widths, all that is necessary is to either add or take away the inside cutters. These Dados are excellent tools for manufacturers of furniture, sash, doors, blinds and carriage bodies;

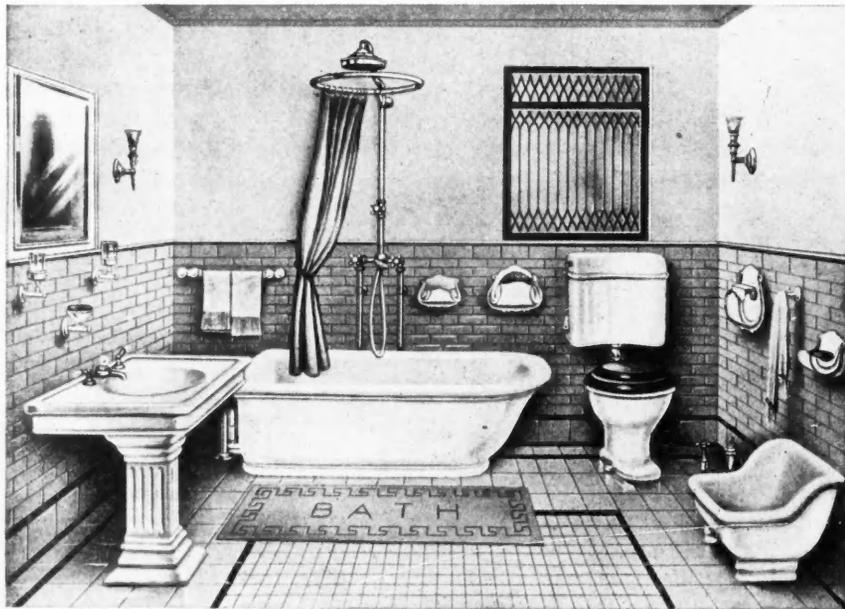
in fact, for anyone who has a saw mandrel, as they can be used for various kinds of work. Huther Brothers send their Grooving Head to all parts of the world under condition that if it does not prove satisfactory after ten days' trial, it may be returned and transportation charges both ways paid by them.

For several years the goods produced by Huther Brothers Saw Mfg. Co., Inc., have been recognized as of a high standard in the saw maker's art. Those having used their products acknowledge this fact; others will after a trial.

You will find their Catalog No. 33 both interesting and instructive. All those having power woodworkers should have it.



Modern Plant of Huther Bros. Saw Mfg. Co., Rochester, N. Y.



- Bath Tubs
- Water Closets
- Lavatories
- Kitchen Sinks
- Range Boilers
- Heaters
- Laundry Trays
- Water Systems
- Pipe and Fittings
- Steam and Hot Water Boilers
- Radiators
- Brass Goods
- Sanitary Specialties

BOWMAN SUPPLY & MFG. CO., INC.

PLUMBING, GAS, STEAM & WATER SUPPLIES

If Interested Write for Catalog.

PITTSBURG, PENNA.

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"Snap Shot" Money in Your Pocket



LISTEN! \$5 to \$20 a day—easy. Be a *one minute photographer.* **Look! Cable, Wyo., writes:** "Made \$27 in 2 hours."

Perry, Ky., writes: "Made \$50 in 2 days." Hundreds of similar reports on file. Start business for yourself. *Small capital. No experience.* Big, quick profits at fairs, picnics, private houses—**EVERYWHERE.** Profits start at once. Write us today. Get out of the "time clock" line and the "pay-envelope" brigade. Investigate the

"MANDEL" POST CARD MACHINE

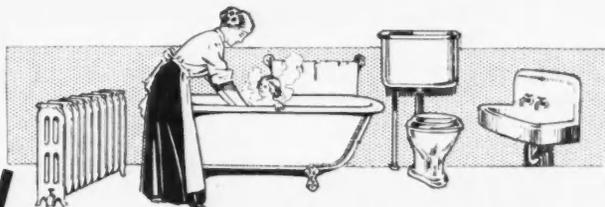
New invention—wonderful machine. Takes, finishes and delivers original post card photos at the rate of 3 a minute—*Right on the spot where you take them.* New, startling, sensational photographic success—

Photos Direct on Post Card
No Plates Films or Dark Room

Machine is everything in one—a *complete portable post card gallery.* Gets the interest, attention and order from every onlooker. Sale of first supplies gives you back practically entire investment. You make money on the same day outfit arrives. Immediate sales—Immediate profits. Do you want to make \$2000 this year? *Then write at once.* INFORMATION IS FREE. Address either office:

THE CHICAGO FERROTYPING COMPANY

619 Ferrotyping Bldg., Chicago, Ill. or 619 Public Bank Bldg., New York, N.Y.



How to Install Your Own Plumbing and Heating Systems

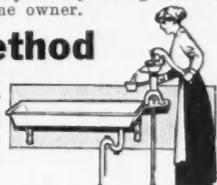
Builders, contractors and home owners—my big new book tells you how to install your own water system, modern heating plant, and bath-room outfit. You can easily install a running water system or a modern heating plant from the complete plans and instructions furnished to you free. The saving is enormous. Before you build, before you make improvements, send for my free book.

How to Save On All Material

My method for saving on all material is a revelation even to the most experienced contractors and builders. Get this free book and see for yourself. You get guaranteed material at the lowest bed-rock bottom price. My money-saving method is a blessing to every builder and home owner.

Gibbons New Method

Every home, even the smallest cottage, can now have running water or a heating plant. Churches, halls and schools can have these improvements at a low cost. My free book explains all. Write for it today.



BOOK FREE

My new book gives you greater buying power than your local dealer. Thousands of things illustrated and priced. Gasoline engines hydraulic rams, pumps, pipes, valves, electric lighting plants, acetylene, lighting plants, all accessories, everything guaranteed. You certainly ought to have this book. Send today.

M. J. GIBBONS, Dept. 2418, Dayton, O.

Everybody Can Afford Wolff Plumbing

Specify Plumbing Goods made by a firm of long established reputation, whose goods are of unquestioned value, rather than be tempted by price consideration into buying

substitutes which can only result in disappointment and loss. Our Suggestion Booklet shows a series of designs for bath rooms from \$60.00 upward. Sent upon request.

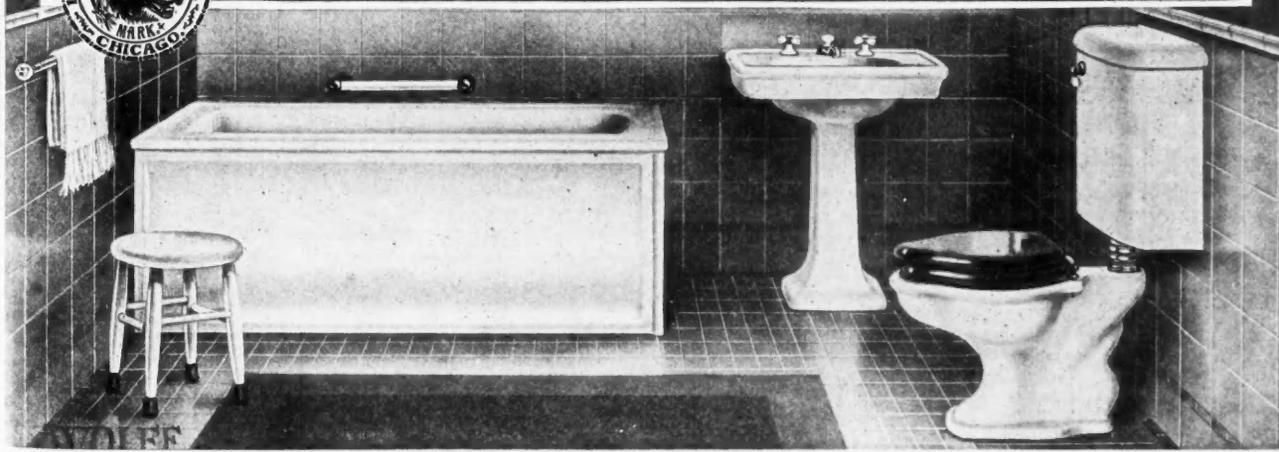
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L. WOLFF MANUFACTURING COMPANY

Plumbing Goods Exclusively

MAIN OFFICE 601-627 W. Lake Street CHICAGO SHOWROOMS 111 N. Dearborn Street



When Writing Advertisers Please Mention the American Carpenter and Builder.

T. L. Smith Co. Hold House Warming

The Grand Re-Union and House Warming of the T. L. Smith Company at Milwaukee, Wisconsin, on February 26th and 27th, marked a very important event in the history of this pioneer concrete mixer company. This was the formal

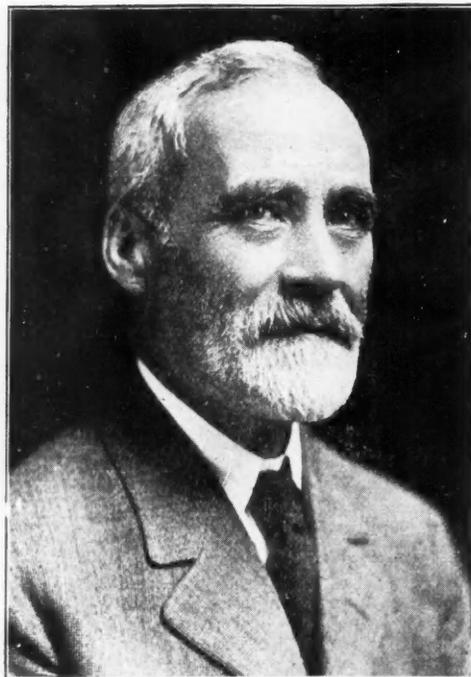
town managers and agents who came to Milwaukee as the guests of the T. L. Smith Company. While here they were entertained in various pleasant ways. The mornings were taken up with trips through the several shops comprising the Smith Company's immense plant. These excursions were made as instructive as possible by demonstrating the various new machines which will help keep this progressive company at the front during the year 1913.

During the noon hours the guests, including the department managers of the local offices were treated to a splendid luncheon. The Chief Engineer of the Company, Mr. E. W. Meyer, proved himself a splendid host on these occasions, as everyone seemed to be enjoying himself.



Cut Costs to Builders

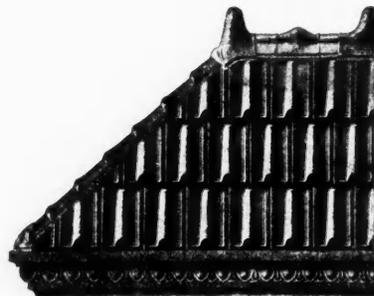
When it comes right down to a point of investigation it will be found that the high cost of building material is often due to the maintenance of individual selling organizations. Each factory has been in the habit of appointing one or more "middle men," which necessitated boosting prices to make his profits and to cover the cost of rehandling the goods. A direct



THOMAS L. SMITH

opening of their magnificent new office building located across the street from their present shops.

The celebration took the form of a reunion of the out of



Unito Metal Shingle Roofing—Style "A" tile with hip and gable finials, hip moulding and cresting blocks

Six months ago a prominent builder up in Michigan wrote for a sample of Flex-a-Tile. He got it. He is doing a lot of building and every house he puts up is being roofed with Flex-a-Tile Asphalt Shingles. "Its the greatest roofing on earth," he writes.

**FLEX-A-TILE
ASPHALT SHINGLES**

makes a *real* roof in every sense of the word. Absolutely weather proof—practically everlasting and as beautiful as any tiling you ever saw.

Also—they are easily and quickly put on and as inexpensive as good wood shingles.

Flex-a-Tile Asphalt Shingles are made of solid asphalt surfaced with chipped slate and granite. The natural colors of the slate and granite are green and dark red. They are of course everlasting—can't fade or wear off.

Better send for a free sample today—You need Flex-a-Tile in your business.



THE HEPPE'S COMPANY 1010 Forty-fifth Ave., Chicago, Ills.

When Writing Advertisers Please Mention the American Carpenter and Builder.

WANTED! CARPENTERS^A & BUILDERS^B

in every locality to use Unito Products
 Unito Asphalt Roofing Unito Excell Metal Tile
 Unito Asphalt Shingles Unito Excell Metal Ceilings
 Unito Excell Metal Roofing Unito Wallboard
 Unito Engines

20 BIG FACTORIES SELL TO YOU DIRECT

Through ONE SELLING OFFICE. They want to co-operate with you to enlarge your business and increase your profits. Our Co-operative Factories-to-you selling plan not only enables you to buy Better Goods at Lower Prices but actually helps you to get business you are not getting today. We guarantee complete satisfaction to you.

OUR SPECIAL PROPOSITION FOR YOU

Is for carpenters and builders ONLY. We want you to take advantage of it. Don't turn over this page until you send for our big illustrated catalog. Learn what this means to you. Prices talk. Our catalog tells everything. Remember our selling plan will give you BETTER GOODS, BETTER SERVICE, BETTER SATISFACTION at lower prices than you ever paid before.

Write for our Catalog.

Contractor's Dept., Room 716

THE UNITED FACTORIES CO.

Cleveland, Ohio



UNITO ASPHALT SHINGLES

A SIX-FAMILY HOUSE OF CONCRETE CONSTRUCTION



The Concrete Work from Cellar to Roof-Peak was COMPLETED IN THIRTY DAYS. It was necessary on this job to maintain a THOROUGHLY MIXED, UNIFORM output. It was essential that the work be rushed to completion rapidly and efficiently.

The Concrete for This Six-Family House Was Mixed with the EUREKA MIXER

For speed and uniform output, the Eureka has never been equalled. It means money in your pocket to know more about Eureka mixing. Remember that Eureka Mixers dot the globe and are everywhere cutting costs for their owners. Over 300 Eureka's are used in New York City alone. Write for Catalog, names of users in your locality, and name of nearest distributor for your territory. As a matter of precaution, we suggest that you do not delay should you want Spring delivery.

WHAT THE CONTRACTOR SAYS:

Jan. 8, 1913.
 Your Eureka Mixer has worked well and to my entire satisfaction during the entire job.
 New England Concrete Construction Co.,
 Theodore Metzger, Mgr.

DISTRIBUTING POINTS

- W. V. Johnson & Co., General Eastern Agents, 1 Madison Ave., New York City.
- CEDAR RAPIDS: Iowa Stone Company.
- CHICAGO: F. T. Kinnare, 335 River Street.
- CINCINNATI: C. Taylor Handman, Merchants Bldg.
- DALLAS: J. Peyton Hunter, 6 Terminal Bldg.
- DAYTON: M. D. Larkin Supply Co.
- DETROIT: Walter R. Barrie, 1029 Lothrop Ave.
- JACKSONVILLE: J. F. Campbell, 118 E. Bay St.
- KANSAS CITY: John Deere Plow Co.
- PEORIA: Southwestern Port Huron Co., 213 S. Water St.
- PITTSBURG: J. M. Bursner, 506 Machesney Bldg.
- SALT LAKE CITY: Harris Bros., 310 Atlas Block.
- WINNIPEG: Thomas Jackson & Son, 370 Colony St.
- ATLANTA, GA.: Progressive Sales Co., Haynes and Rhodes Sts., P. O. Box 1594.

EUREKA MACHINE CO., 85 Handy Street, Lansing, Michigan

When Writing Advertisers Please Mention the American Carpenter and Builder.

and in every sense of the word—"Factory to Consumer" selling plan is one of the best means for cutting high prices.

With this idea well in mind the United Factories Company was organized. By co-operating, twenty large factories maintain one selling office which is not much larger than each individual factory would have to maintain if it were trying alone to do business with the consumer. It will be seen that by this plan the cost of selling is about one twentieth of what it would otherwise be. That naturally means better quality and lower prices; for no one stands between the factory and the consumer grasping profits, and there is but one shipment—from the factory to the buyer.

So with their 20 big factories all working to maintain a high quality in their products the United Factories Company claim to be able to give a better grade material at a lower price and aim to co-operate with the carpenter, builder and contractor, helping him in every way to increase his business and reach out for that which he is not getting now. Liberal guarantees cover every shipment and the United Factories Company generously specify that if their goods are not exactly as represented the buyer may return the shipment at the factory's expense.

A few of the products of this immense factory system are metal tile, metal



Unito Asphalt Shingles

shingles, metal roofing and siding, composition roofing, asphalt shingles, wall board, metal ceiling paints, and many other lines especially interesting to builders. Illustrations of the Unito Metal Roofing Tile and Unito Asphalt Shingles are shown. Our readers are doubtlessly anxious to increase their business and profits, so we suggest that they investigate what this company offer. The price of a stamp will probably save you many dollars. Address The United Factories Company, of Cleveland, Ohio.



The Izzard-Warren Co.'s Catalog

A neat little catalog of 48 pages has been issued by Izzard-Warren Co. of Philadelphia, Pa.

These people are manufacturers of the "Sterling" surveying instruments and drawing materials. Their catalog is very complete inasmuch as it is profusely illustrated and contains detailed description of each instrument shown. The aim of the Izzard-Warren Co. is to market instruments that are in every way specimens of perfect workmanship and material. Their experience in this line covers a period of many years and their trade mark, "Sterling," well describes their product.

AMERICAN CARPENTER AND BUILDER readers should possess this little book.



Universal Starts New Plant

The Universal Portland Cement Co., has started work on the construction of Plant No. 7, at Duluth, Minn. This plant will cost about \$1,700,000, and will have an output of 1,400,000 barrels of Universal Portland Cement per annum.

Mr. Edward M. Hagar, President, states that work will be pushed as rapidly as possible, and it is expected that the plant will be in operation in 1914. With its present plants at Chicago and Pittsburgh this will give the Company a total output of 45,000 barrels a day, or, 13,500,000 barrels a year.

KISSELKAR TRUCKS

**Time and money saved
to carpenters and builders**

THE record of this 1,500-pound Kissel-Kar Motor Wagon has made F. W. Wrampelmeier & Sons, Cincinnati, painters, wonder how they used to get along without it.

This same type is used by many carpenters and builders, although many call for one of the larger Kissel-Kar models.

Hills, ruts, chuck holes, heavy roads or slippery pavements do not worry Kissel-Kar Trucks. The long stroke motor, four speed transmission and differential lock take care of that.

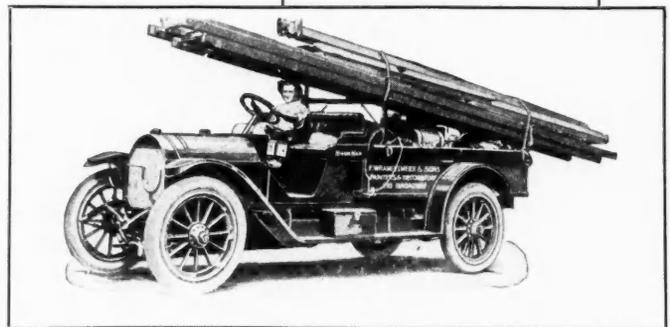
No such emergency factors are found combined in other trucks. Some have one of them, some another—but none have all.

Kissel-Kar Trucks are good **all the way through**—every inch of construction studied—every principle tested, proved and verified—each part patterned to establish a perfectly balanced strength and stress-resistance.

There are seven chassis models of Kissel-Kar Trucks, each designed and built for a different duty. The smallest has a burden capacity of 1500 pounds—the largest carries 5 tons. Those between are rated a 1, 1 1/4, 2, 3 and 4 tons. Illustrated portfolio shows hundreds of Kissel-Kar Trucks in actual service. There is a copy for you. Send for it.

Kissel Motor Car Co., 546 Kissel Ave., Hartford, Wis.

New York, Chicago, Boston, Minneapolis, Milwaukee, Kansas City, St. Paul, Los Angeles, Dallas and 200 other leading points.



Nickel or Chrome Vanadium steel—heat-treated—fortifies each vital point in a Kissel-Kar truck chassis. Axles both of the heaviest forgings. Cone leather-faced clutch. Spicer Universal joints. Driver's comforts. Bodies built to suit.

WHAT KISSELKAR SERVICE MEANS

A responsible institution agrees to take mechanical care off your hands, keep your car "tuned" up, and your depreciation down—AND DOES IT. Kissel-Kar Service Buildings and Stations everywhere.

When Writing Advertisers Please Mention the American Carpenter and Builder.

CONCRETE-LIGHTING-STANDARDS

Offer the ideal means of lighting any street, business or residential, either in small towns or large cities. They are **practical** and **artistic**. A well lighted street increases property value, affords better protection and is a town's best advertisement.

Beautify the Homes You Build

Install Concrete Lighting Standards along the private driveways; on either side of the gateway or the entrance steps. Place them in front of stores and public buildings. A well lighted street is the business man's best asset. You'll have no difficulty selling Concrete Lighting Standards. Everyone is interested in them.

Make Bigger Money

Get acquainted with this modern system of lighting. It can be used in every city. Be the first to grasp this opportunity in your neighborhood.

My Free Booklet

will tell you how easy it is. Send for it. It will help you double your income. I shall be glad to figure on any special designs of molds or standards that you may submit to me. **I save you money.**

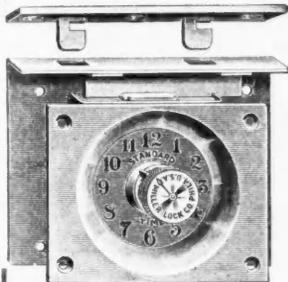
GEO. W. EDGCUMBE

177 Fair Avenue

The Post Man

Benton Harbor, Mich.

Carpenters! Protect Your Valuable Tools



No. 3380 all Brass
Size 4x3 inches

by using a
**"STANDARD TIME"
Keyless Chest Lock**

Operated by knob in 3 seconds. Can be opened in the dark. Locks automatically as lid is closed.

Absolute Security

One cost only. No keys to lose. Fully guaranteed. Made to fit chests from 1/2 inch thick and up.

Write Us Today for Prices and Particulars

Miller Lock Co.

Frankford, Philadelphia, U. S. A.

FREE PLAN BOOK PACIFIC COAST BUNGALOWS



We will send any builder, contractor, carpenter, architect or prospective home owner our

"BUNGALOW BOOK"

upon request. This book contains photographs and miniature floor plans of varied designs and costs. It emphasizes in particular Bungalows covered from "crest to foundation" with

WASHINGTON RED CEDAR SHINGLES

(do not warp, rot or decay).

Remember that you stain a bungalow once in five years while you paint the boards twice.

RED CEDAR SHINGLE MANUFACTURERS ASSOCIATION

Representing over 200 Mills—Daily capacity over 20 million shingles
400 Arcade Annex SEATTLE, WASH.

Why Buy a Common Engine on Your Mixer?

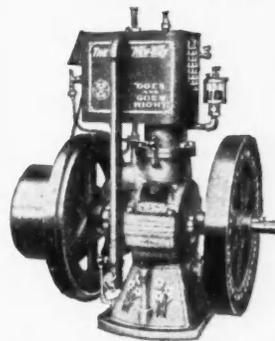
WHEN YOU CAN GET THE

New Way Air Cooled Engine

WHICH ALWAYS

Goes and Goes Right

The "New-Way"



saves you money because your men are not idle waiting for engine to be fixed.

Time Lost is Money Lost.

Time saved by the New Way Air Cooled Engine is money made.

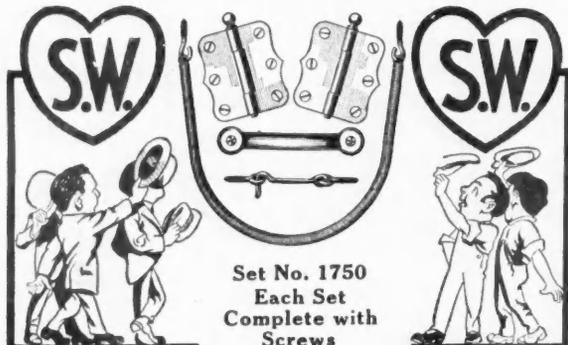
Demand the New Way Air Cooled Engine on your Mixer and Hoist and *Accept No Substitute.* Quality and Reliability Count Always.

Write for Catalog "X"

The "New-Way" MOTOR COMPANY
LANSING, MICHIGAN, U.S.A.

When Writing Advertisers Please Mention the American Carpenter and Builder.

STANLEY'S Wrought Steel Screen Door Hardware



Set No. 1750
Each Set
Complete with
Screws

Ready to Go On the Screen Door

Owners and Builders alike are pleased with the high quality of the hardware and the convenient way it is packed ready for use.

Don't Swat the Fly — Keep Him Out

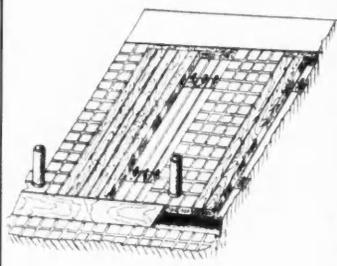
A screen door hung on a pair of Stanley Butts and held shut by a Stanley Spring will do better work than a dozen fly swatters. Write for circular "A." It tells the story.

The Stanley Works

New York New Britain, Conn. Chicago

The SCHOULER STALL FLOOR

Put in a Schouler Patent Sanitary Stall Floor. Slats removable and interchangeable. Over 10,000 in use. Cheapest stall on the market.



Catalog and circulars FREE—Write today.

Schouler Cement Construction Co.

144 Frelinghuysen Ave.

NEWARK, N. J.

LET US GIVE YOU THIS TRANSPARENT CELLULOID TRIANGLE

It is 4 inch size, 30°+60° angles. Lowest retail price, 25 cents. Absolutely essential to everyone who draws. We make this offer to introduce our new catalogue showing

SPAULDING'S NEW CARRYING CASES AND COMPLETE OUTFITS

for carpenters, builders, designers, architects, engineers and students—compact, durable and convenient. Spaulding's Carrying Cases are made light and strong. They provide well arranged compartments, including space for drawing board and T square. Handled like a suit case; unique, practical, inexpensive. Outfits include all necessary equipment. If you draw, send us five 2-cent stamps today to pay postage and get the free triangle and the catalogue.

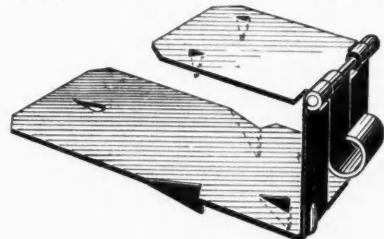
SPAULDING PRINT PAPER CO., 48 Federal Street, Boston

When Writing Advertisers Please Mention the American Carpenter and Builder.

A New Roof Scaffold Bracket

The illustration shows a scaffold bracket which is stamped from heavy sheet steel and is so designed that it can be placed on the roof in a few seconds. It will not give way nor split the shingles.

It will be seen that the bottom plate has four half-inch sharp projecting lugs which are forced into the roof when weight is applied to the bracket. The top plate is strongly hinged to the upright end of the bottom plate and has an extending arm against which the 2 by 4 rests. When a 2 by 4



R-W. No. 631
Roof Scaffold Bracket



Bracket in Actual Use

is pushed against the extending arm, the two lugs projecting from the top plate are forced into the 2 by 4 and hold it securely in place. No nails are needed and the more weight placed on a bracket, the better it holds. These are usually placed about ten feet apart and two brackets usually will carry four men.

The Richards-Wilcox Mfg. Co., Aurora, Ill., are the makers of the device and will be glad to answer questions about it.



A Handy Weight Card

The American Sheet & Tin Plate Co., Pittsburgh, Pa., have issued a handy table by which the standard weight per bundle and the standard weight per square of their corrugated roofing and siding can be easily found. Our builders handling either sheet roofing or siding will find the table very handy to have above their desks and we are sure there will be many references to it. Suppose you write for a free card.



Selling Lumber "Freight Prepaid"

With characteristic western progressiveness Hewitt-Lea-Funck Company have been overturning tradition after tradition in adjusting their business to their direct-to-user policy, established about one year ago.

No one engaged in selling lumber and millwork to the user by mail has heretofore cared to undertake the responsibility of quoting delivered prices. Hewitt-Lea-Funck, however, have added this feature to their service and believe it only a question of time before all shippers of lumber will be forced, by the demands of their trade to take this step.

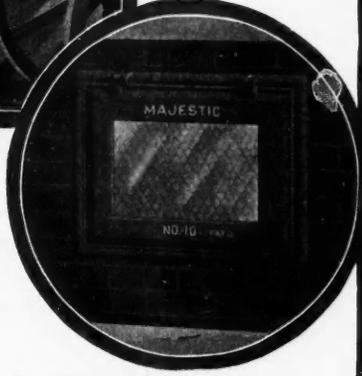
The Hewitt-Lea-Funck Company invite every reader of this journal to get their price lists. Address them at 623 First Ave., Seattle, Wash. They now ship lumber and millwork from three points: Seattle, Wash., St. Louis, Mo., and Shreveport, La., providing prompt service to all parts of the country.

MAJESTIC

FOUNDATION
COAL CHUTE



Protects the building just where most needed — above the opening.
The heavy steel hopper catches all the coal.



When not in use, the hopper lies in the bottom of the chute body. The door locks automatically either open or closed. Strictly burglar-proof. With 1/4-inch wire glass or steel panel in door.

Write for circular and address of nearest dealer.

MAJESTIC FURNACE CO.
995 to 1001 Sixth Avenue Huntington, Indiana



STAMPED STEEL TILING

Just the thing for
Bathrooms, Kitchens, Restaurants,
Butcher Shops, etc.

AND ITS RIGHT IN YOUR LINE

Real tile frequently becomes loose and falls off. This cannot. The studding or plaster is first sheathed with narrow, dry boards and the metal put on with small nails.

SIX PATTERNS

Furnished with Baked White Enamel finish—or simply prime painted Metal trim Cap Base, Corners, etc., supplied or you can use wood trim.

NORTHROP, COBURN & DODGE CO.
29 Cherry Street, New York

76 Years ExperienceWHITEFully Warranted

WHITE EDGE TOOLS

On behalf of his own satisfaction we want every carpenter and builder in the country to know and use WHITE edge tools. Backed by 76 years of successful manufacturing experience WHITE tools are today the standard for correct design, proper materials and extreme durability under constant usage.

The first cost of a WHITE edge tool may be a trifle more than that of the ordinary grade but it is as near a permanent and lasting investment as anything subject to wear may be. Most dealers handle WHITE edge tools. If yours does not, please send us a card telling us what you need and we will tell you where you may secure them and the price.

The L. & I. J. White Company

Dept. A**Buffalo, N. Y.**

When Writing Advertisers Please Mention the American Carpenter and Builder.

A Business Booster that has Delighted Three Generations of Children

Thousands of business houses in every line have for years been putting out souvenirs, premiums and other inducements of one kind or another, designed to keep their memory green in the public mind.

Far removed from this class, yet outdoing all of them in its lasting popularity, is the famous, time-honored Berry



Pickaninnies Enjoying a Luxberry Wagon

Wagon which for over 40 years has been one of the proudest possessions of succeeding generations of children.

There is no corner of the world where this little wagon has not penetrated. It has been dragged along by happy children over the smooth roads of France, and the rough trails of the Australian bush; it has been the delight of the town-bred child and the chief joy of the southern pickaninny. The photograph shows a group of the latter getting some

of the most fun possible out of the Berry Wagon. And on file at the Berry Brothers' factory are other photographs from almost every corner of the world. Today, the children who played with the Berry wagon when it was a new thing are grand-parents, but their grandchildren are just as eager to own one. The wagon stands today as one of the best examples of advertising value ever devised. Each year seems to increase its popularity. Berry Bros., the varnish makers, whose factories are in Detroit, Mich., distribute these wagons.



The Dillion Hoist

The Northwestern Barb Wire Co., of Sterling, Ill., have put on the market a simple and sturdy little hoist that will prove a valuable aid to our carpenters and builders. The Dillion Hoist, as it is called, weighs only 50 pounds, yet it has a lifting power of 5,000 pounds.



From Factory To You

French's Mixture, "the Aristocrat of smoking tobacco," comes direct from factory to you. For pipe or cigarette. Words cannot do justice to the fragrance, richness and sweetness of French's Mixture—the charming blend of North Carolina red and golden leaf. Examine it under a microscope and you will find it to be the cleanest and purest. Smoke a pipeful and you will tell your friends that French's Mixture is the most satisfying and economical tobacco you ever touched a match to.

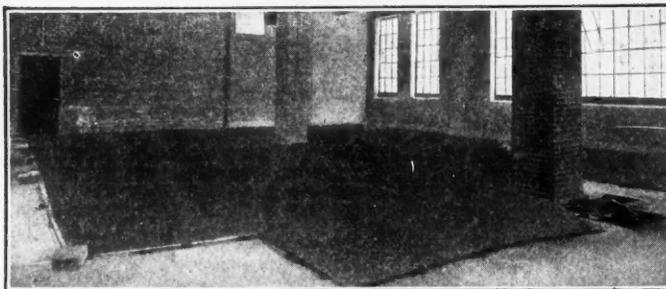
50 Cent Calabash Pipe Free

Don't pay your good money for stale tobacco from the dealers' shelves. Get that pleasing, mellow French's Mixture that comes direct from the factory to you. Hand-blended, age-ripened and exquisitely mellow. If you want to get more pleasure out of smoking than you ever got before, just send 40c for ¼-lb. of French's Mixture (Granulated) or 45c for ¼-lb. of French's Long Cut. Send now and we will include free a 50c Scotch Calabash pipe. Get real smoking pleasure. Take this opportunity of getting a fine pipe free.

Sample Pouch Send 10c (silver or 2c stamps) for large sample pouch of French's Mixture or Long Cut, and booklet interesting to smokers. Specify your choice of the Mixture or Long Cut.

FRENCH TOBACCO CO. Dept. 2418, Statesville, N. C.

J-M Mastic makes floors practically proof against acids, water and wear.



Floor in warehouse of D. Auerbach & Sons, New York. J-M Mastic being applied.

This flooring is all mineral, having a natural asphalt for its base. Water and acids have absolutely no effect on it. It is practically indestructible. Will outwear any other type of floor.

Being waterproof, J-M Mastic floors can be quickly and thoroughly cleaned by the simple process of flushing. It dries immediately. Absolutely sanitary—will not originate or hold dust. Slipping is impossible on a J-M Mastic floor on account of its peculiar "holding" quality.

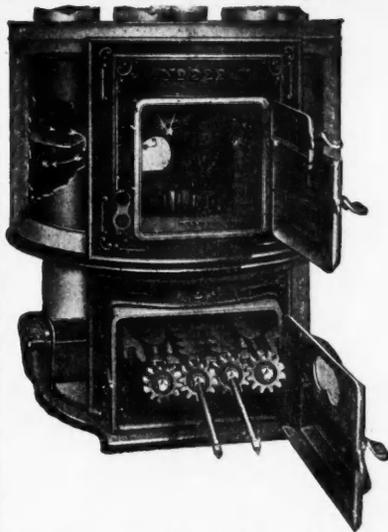
Although dense, J-M Mastic has a resiliency which adds to the comfort and efficiency of those who are compelled to stand while at work, and it does not cause foot soreness and fatigue like concrete and other hard non-yielding floor surfaces. J-M Mastic can't be equalled for factory use. It is the cheapest-per-year floor.

Write our nearest branch for full particulars.

H. W. JOHNS-MANVILLE CO.

Albany	Buffalo	Cleveland	Indianapolis	Louisville	New Orleans	Philadelphia	Seattle
Baltimore	Chicago	Dallas	Kansas City	Milwaukee	New York	Pittsburgh	St. Louis
Boston	Cincinnati	Detroit	Los Angeles	Minneapolis	Omaha	San Francisco	Syracuse
For Canada:—THE CANADIAN H. W. JOHNS-MANVILLE CO., LIMITED.							1926
Toronto		Montreal		Winnipeg			Vancouver

When Writing Advertisers Please Mention the American Carpenter and Builder.



5 SIZES, Height 56 in. to 60 in.

HERE IS YOUR FURNACE

The Only One for Low Cellars

This furnace can be placed in a cellar as low as five feet. It is a powerful heater. The two-flue radiator has a large surface to radiate every bit of heat. The exceptionally long fire travel guarantees perfect heating and no waste of fuel. In this construction you heat the house and not the air over it.

The Ajax Low Construction Furnace

requires no pit. You get the proper pitch to the pipes even in a low cellar without one. The parts are so perfectly fitted that any man can set up the furnace and make a gas-tight and heat-tight job. Large feed doors allow burning of large chunks of wood. The grates slide out easily—no bolts or screws.

We want every carpenter and builder to consult our special service department on all their heating problems. Advice free.

Send for Catalog and Price List of our Complete line.

Dept. A, CO-OPERATIVE FOUNDRY COMPANY

ROCHESTER, NEW YORK

Western Branch, 505 So. Clinton Street, Chicago, Illinois



Ignores the Elements Defies Wear



Carpenters and Builders, for years you have experienced trouble, dissatisfaction and needless labor in applying Duck for porch Covering.

Then, after laying, the canvas soon buckled, split and rotted, resulting in constant complaints.

WE SOLVE YOUR PROBLEM!!

Con-Ser-Tex Canvas Roofing reaches the seat of your trouble. It is of special construction, fibre-treated to prevent mildew and surface coated with non-oil ingredients to keep applied paint from injuring the fibre.

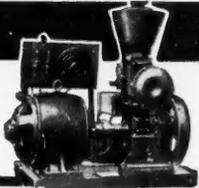
Write us for detailed particulars, prices and instructions as to just how to apply it.

Full information mailed free—and we can show you how and why you can profitably make use of CON-SER-TEX.

William L. Barrell Co., 8 Thomas Street, New York City

Chicago Distributor
GEO. B. CARPENTER & CO.,
Wells and Michigan Streets

Pacific Coast Distributors
WATERHOUSE & PRICE CO.,
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Electric Light from Kerosene!

Sandow Light Plants use kerosene as fuel and furnish electricity for almost nothing. Cheap to buy and cheaper to run. Sold on trial and absolutely guaranteed. Bulletin 300 describes an electric light outfit to suit your needs and your pocketbook. It's free.

DETROIT MOTOR CAR SUPPLY COMPANY, DETROIT, MICH.

"Woodlife"

Is least expensive and most durable

A "Natural" shingle stain, guaranteed for five years. It is durable, economical and artistic. May be had in any shade. Liquids and colors



separately packed. To be mixed as needed. Widely used by architects and builders for shingled houses, bungalows and all rough wood. Write for particulars.

Chas. H. Brown Paint Co.
190-192 Montague St., Brooklyn, N. Y.

Buy Good Paint Direct



AND SAVE 50c A GALLON

30 years' experience, a modern factory, pure materials and selling direct is why it will pay you to buy

**BROWN SEAL
Prepared Paints**

Shipped on approval. Write for color card and prices.

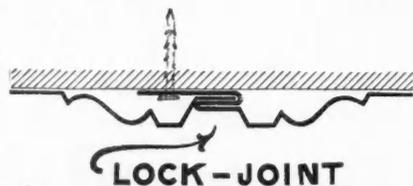
The Yuma Paint Co.

462 East First Street

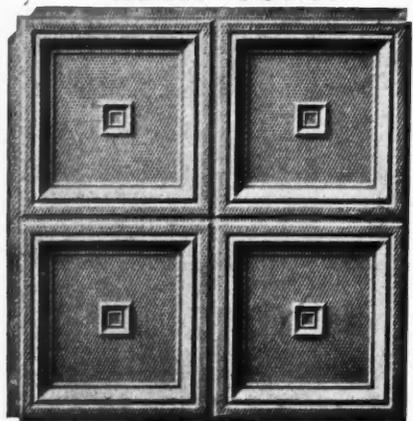
DAYTON, OHIO

When Writing Advertisers Please Mention the American Carpenter and Builder.

The right type of METAL CEILING



LOCK-JOINT



We make it!!

We stand good for everything we promise.

The accompanying cut shows our Quad. Lock joint construction.

The putting on is easy.

Catalogue or Booklet upon request, including attractive prices.

The Kinnear & Gager Mfg. Co.
Columbus, Ohio
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The High Cost of Building Reduced

We can sell you Millwork, Mantels, Porch work, Grates, etc. for any class of building at prices ranging from 25% to 40% lower than your local dealer. In fact we sell for less money than he has to pay for the same grade of material—the reason is plain—we sell direct to Builders. No salesmen, dealers or jobbers. The entire saving goes to you.

“Huberize Means Economize”

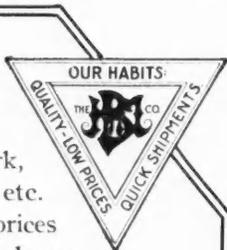
Our stock is strictly high grade. We guarantee quick shipments, safe delivery and positive satisfaction. Will stand all damage in transit. Freight rates are a small item, carloads save 30%.



Send us your list or plans, or ask for prices on any special product—we handle everything needed to complete a building.

A big, new catalog just out. Sent anywhere free. Send your name—a postal will do.

The Huber Builders Material Company
45-49 Vine Street Cincinnati, Ohio



Neponset Wall Board

Word has been received from F. W. Bird & Son, East Walpole, Mass., that Neponset wall board is now being made in cream white and burnt leather finishes as well as in the original plain oak. With these three finishes many attractive combinations can be made with Neponset wall board. The usual arrangement is to use plain oak for wainscoting and finish upper walls with either the burnt leather or cream white finish and to use cream white on the ceiling.

Battens in cream white and in plain oak finish are made of the same material as the wall board. These battens of course are much less expensive than wooden battens and being of the same finish harmonize well with the wall board. On ceilings especially these white battens are very useful.

In order to prevent buckling the surfaces of Neponset wall board have been thoroughly waterproofed.

Neponset wall board is being used in all kinds of new houses, in camps, garages, barns, etc. It has also been used in remodeling old houses, in unfinished rooms or over the old plaster. For partitions as well as for walls and ceilings, in offices, factories and railroad stations, and for backing store windows it has proved to be very successful.

Neponset wall board is an absolutely finished product which requires no further decoration. For full particulars address F. W. Bird & Son, East Walpole, Mass.



Woolridge Architectural Co. Opens Sioux City Office

On February 8th the Woolridge Architectural Co. of Correctionville, Iowa, opened an office in the Willeges Bldg., Sioux City, Iowa. Mr. J. R. Woolridge, of Sioux City, Iowa, is president; J. H. Woolridge, of Correctionville, Iowa, vice-president, and I. I. Woolridge, of Sioux City, Iowa, secretary and treasurer.



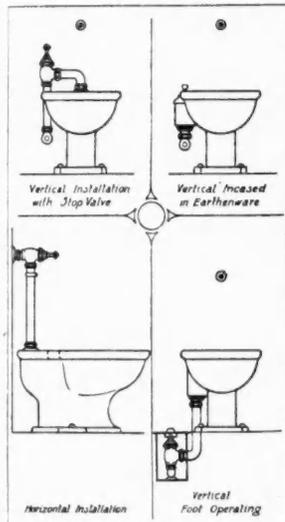
Flushing Valve Does Away with Tank

During the past few years there has been a marked evolution in sanitary appliances and accessories, the trend being toward simplicity of design and construction. One of the most conspicuous examples of this tendency is the gradual abolition of the toilet flushing tank, with its complicated mechanism, in favor of the flushing valve.

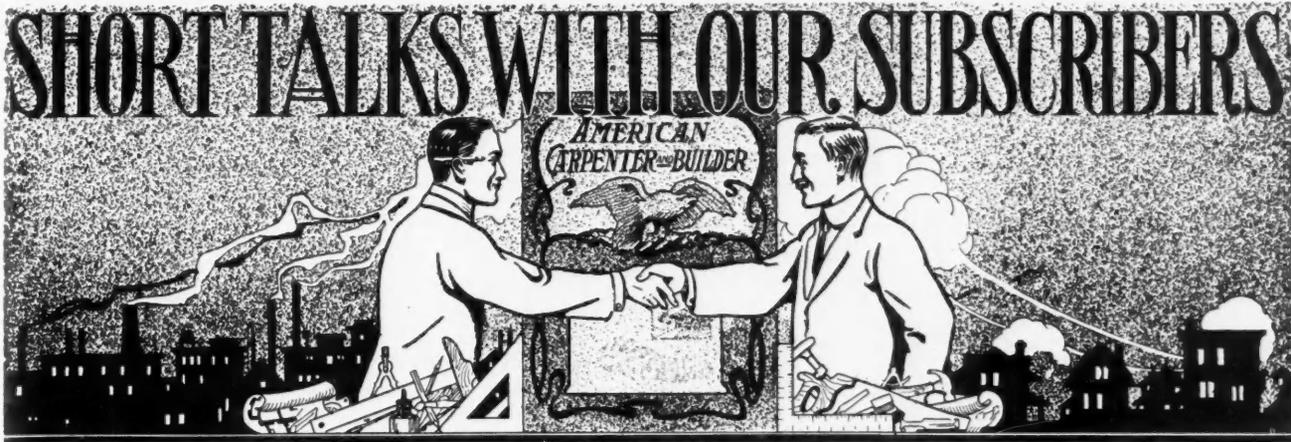
But while the flushing valve, by its neat outward appearance conforms to modern ideas of sanitary equipment, its advantages have heretofore been offset by several serious mechanical objections. To overcome these objections an extremely simple flushing valve, known as the “J-M Valve” has just been put on the market by the H. W. Johns-Manville Co., New York.

This device is designed for use in connection with toilets, slop sinks, etc. It is furnished in three sizes— $\frac{1}{2}$ in., $\frac{3}{4}$ in., $1\frac{1}{4}$ in.—and is guaranteed to control the flow of water and give a proper flush and refill where the water pressure at the valve is 10 lbs. or more.

The manufacturers claim that this device will properly flush any fixture that requires a regulated or timed flow. And as it has only two moving parts it is said to be the simplest and most efficient flushing mechanism on the market. It can be installed in any position, upright, horizontally or at an angle, without interfering in any way with its satisfactory operation.



When Writing Advertisers Please Mention the American Carpenter and Builder.



Service for "Our Folks"

ONE of the most honorable of the old mottoes that have come down to us from feudal days, is that which is a part of the crest of the Prince of Wales—"Ich Dien" meaning *I serve*.

A glance at our front cover this month reveals this old motto in its modern form—SERVICE FOR "OUR FOLKS."

Service is the foundation stone of the AMERICAN CARPENTER AND BUILDER. We believe in big, honest values and a square deal for every subscriber and every advertiser.

We are glad that America's enterprising, trustworthy builders, architects, and carpenters have in the past responded so heartily to our offers to serve them that our business has warranted this present enlargement and removal into our new home.

But we feel good about this, not because it will be "the biggest and the best," but because in our new home we will be able to serve you better, to render bigger and better service for "Our Folks."

We have had one of our best artists letter this drawing so that the first thing you see are the words, "Service for Our Folks." Of course, we do count on the loyalty, the friendship of our readers, and value it more than tongue can tell, but after all, it is by the test of real value and service rendered by which we want to be judged.

Book of 1004 Pages for \$1.00

VOLUME XIV of the AMERICAN CARPENTER AND BUILDER (six numbers, Oct., 1912, to April, 1913), makes a book of 1004 pages. That's a pretty good reference library for builders in itself, isn't it? Your binder for this book will only cost you \$1.00 (or less). This is certainly the biggest buy we know of in the building book line. The volume index which went out as a supplement with the magazine last month, makes everything contained in these six numbers handy to refer to. More than a thousand topics are listed in the volume index. Looking over the subjects listed, one is amazed at their great variety and how completely they cover the building field.

Make the best use of this volume

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index by binding up your volume XIV and pasting this index into the front of it. Do this now, before the index gets lost.

How Do You Like the Binder?

EVER since the announcement in the April issue, we have been shipping out to our readers, those special binding covers. We are using a set of them here in our editorial rooms and we think they are the finest magazine binder we have ever seen. We don't know how it could be made any better, stronger, easier to use, or more attractive in appearance. We hope you will all like them. We still have a good supply of these binders on hand for those who have not yet ordered. Turn now to page 84 for full particulars about ordering.

Thanks, and the Same to You

Harmony, Neb.

Editor American Carpenter and Builder:

Enclosed find \$2.00 to renew my subscription. I have given your magazine but a year's trial. However, in that time, I have derived so much benefit from its generous pages that I would not be without it and would not miss a single issue. My best teacher is the American Carpenter and Builder. A single issue has more than once saved or made for me many times more than the actual subscription has cost.

I file away every copy and treasure them highly. I have corresponded with many of the advertisers and have so far found each and every one of them true to their word. I wish the American Carpenter and Builder every success.

Your subscriber, Jas. D. Novak.

We are human. We like to get letters like this. And we get lots and lots of them. We are particularly glad that our subscriber has found the AMERICAN CARPENTER AND BUILDER advertisers all true to their word. That has been our own experience with them, also. Our readers will get special attention too if they will always mention to advertisers that they belong to our Big Family of Subscribers.

Are your needs all supplied and are you fully posted for the Spring and Summer work? Better write now for booklets, catalogs, samples and prices. Fraternally yours,

EDITOR AMERICAN CARPENTER AND BUILDER.

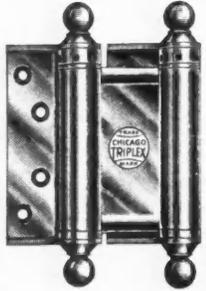
CHICAGO

SPRING BUTTS

A SUGGESTION

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

Chicago "Triplex" Spring Butts



offer this advantage to you. The appearance, durability and finish of this article are unsurpassed, and in consideration of prices that are conservative in respect to value, the up-to-date builder cannot afford to risk his reputation with goods that are unsatisfactory.

Send for Catalogue C 29. It illustrates and describes the most complete line of Spring Hinges manufactured.

Chicago Spring Butt Company

CHICAGO



NEW YORK

BOMMER

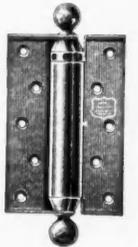
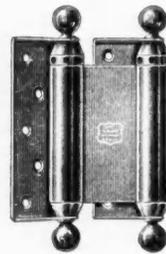
SPRING HINGES

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Quality Goods

BUT COST NO MORE THAN THE SUBSTITUTES

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on every genuine Bommer Hinge

Durable—Neat—Reliable

BOMMER SPRING HINGES

ARE THE BEST

Bommer Bros., Mfrs., Brooklyn, N. Y.

Set Your Saw Right--If you want to take the wrong set out of your Saw and put in the right set at one operation you should use the

MORRILL SAW SET



A mechanically perfect Saw Set that will set any Saw not over 16 gauge.

Look for the Trade-Mark Apex

Chas. Morrill
275 Broadway
NEW YORK



Make Your Houses Frost-Proof by lining them with Cabot's "Quilt"

It is cheaper to build warm houses than to heat cold ones. A cold house will waste enough coal in two winters to pay for enough Quilt to make it warm for all time. Quilt is not a mere building paper, but a thick, matted lining of cured eel-grass that is twenty-eight times warmer than common papers. It will make your house warm in winter and cool in summer, cut down your doctor's bills and keep the whole family comfortable. It costs only 1c a foot, will never rot or disintegrate—last forever—and is fire retarding. A full investigation will cost you a p-stal card—which will bring you a sample and the proofs. Will you write now?

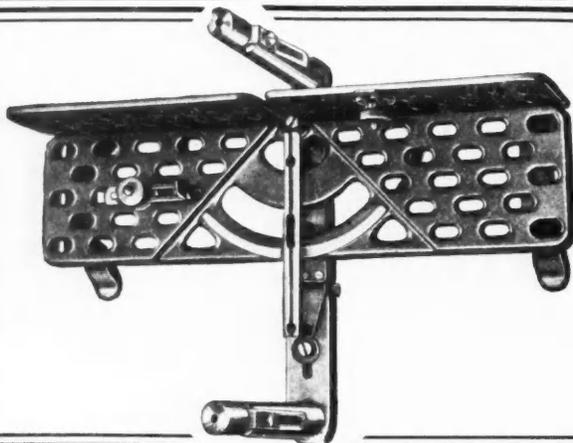
Residence of Walter M. Collins, Builder, Bayside, L. I. lined with Cabot's Quilt, and what the owner says:

"The side walls are of twenty-four in. red cedar shingles, stained with your Special Gray and laid over your single ply 'Quilt.' The Quilt is certainly a good investment, as the house is in a very exposed position, and after the hardest winter in years, without a frozen pipe or any difficulty in heating, I feel that the small additional cost over ordinary building paper has already been saved in coal and comfort."

Samuel Cabot, Inc., Boston, Mass.

24 W. Kinzie St., Chicago
1133 Broadway, New York

Cabot's Creosote Shingle Stains



MARSH AYER

The only ALL STEEL Mitre Box on the market. Built entirely of pressed steel and drop forged parts. Light, accurate, and practically indestructible.

Our circulars explain it fully.

H. C. MARSH CO.

606 Race Street

ROCKFORD, ILL.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.