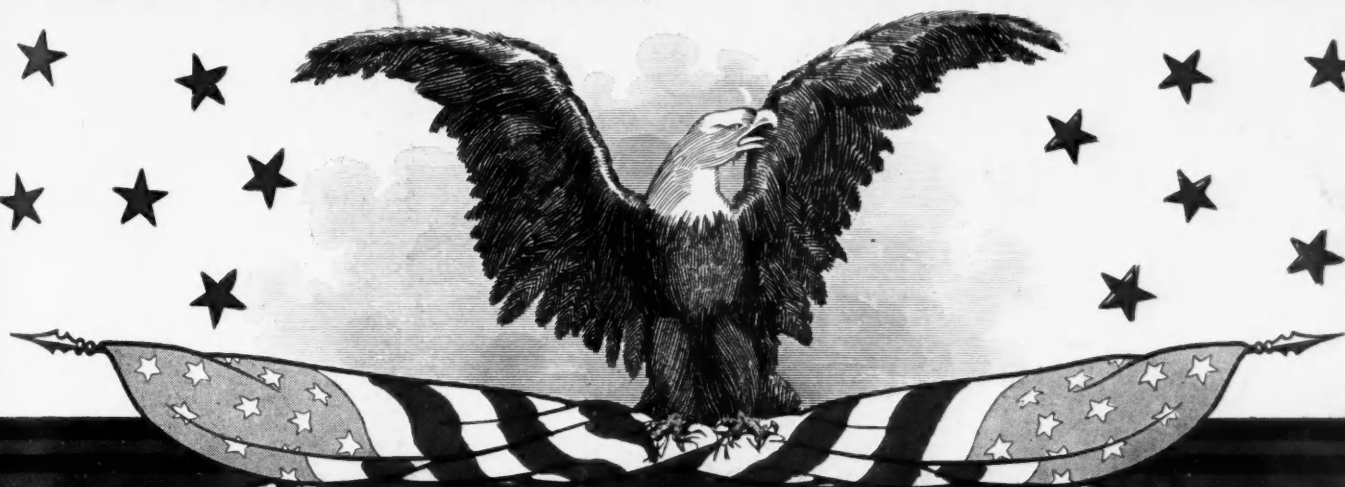


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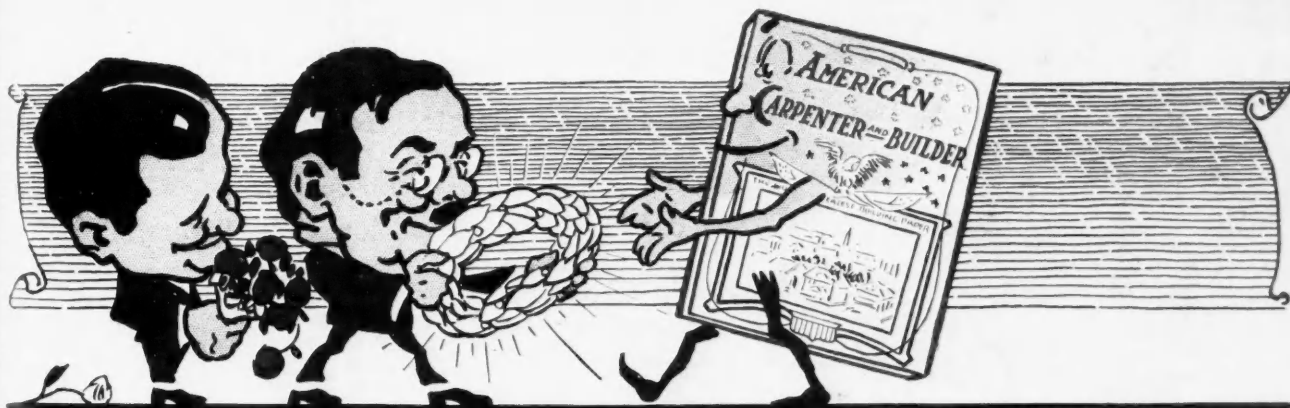
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AMERICAN CARPENTER AND BUILDER



THE WORLD'S GREATEST BUILDING PAPER



Those Interested are Invited to Attend Our Birthday Party—

LAST month the AMERICAN CARPENTER AND BUILDER completed its Eleventh Year. We are confident that no publication in that length of time ever justified its existence more completely, or ever won a wider following.

One of the truest gauges of the size and quality of a subscription list and of the service a publication is rendering is

its advertising section. We are proud of the patronage of some 350 of the very highest class and most dependable manufacturing concerns in the building field.

A large part of them have been continuous advertisers for a period of years. Letters from 100 who have been with us for FIVE YEARS OR MORE are presented, beginning on page 65.

No doubt you are acquainted with many of these firms. Read what their verdict is.

Price 20 Cents



The Oshkosh Low Loader Guards Your Customer's Investment

Concrete that stands the test of time builds for the contractor an enduring reputation. To gain this enviable standing the contractor employs the best men, materials and machinery.

The most efficient of his allies is the dependable four motion thorough mixing



LOW LOADER

Batch loaded direct into drum — discharged direct to wheelbarrow. Machines are made in two sizes — 5 cu. ft. and 7½ cu. ft. wet mix N. A. M. M. rating.

Send for descriptive circular of this economical long life mixer and for our latest booklet, "Facts and Figures for Cement Men."

Oshkosh Manufacturing Company

56 Amber Street, Oshkosh, Wis.

1440 Monadnock Bldg., Chicago

DODGE & DODGE, 140 West 38th St., New York

8M



Do You Drive an Auto?—Ought to Have a Trailer

WE wonder how many of our readers have gotten onto the finest little time-and-money saver yet devised for carpenters and builders; how many are using the light two-wheel or four-wheel carts to hitch on back of your auto and make it carry a big load of building supplies in a hustle to the job?

These automobile trailers are a great proposition. We believe they are the coming thing for builders, especially those whose work is scattered over quite an area. The auto trailer seems to have been built especially for such carpenters and builders. We know that a great many of our readers are driving cars to get around to their work, and we wonder how many have added a trailer to their outfit, and are making the run-about or touring car pay its way by hauling the light materials, the odds and ends, and the tools that are needed in a hurry.

Send Us a Photo of It at Work

We are making a study of this trailer proposition and would like to know what our readers think of it.

If you have a trailer, have a picture of it taken, a picture showing it in use; send us the picture and the photographer's bill. Also tell us how you are using the rig, and whether or not it is a paying proposition for you. For light, rapid hauling, we believe that the trailer is ideal for carpenters and builders. What do

you think? Some very good outfits of this sort are described in our advertising section. Better investigate these, too.

Auto Trucks for Heavy Hauling

For hauling such as contractors and lumber dealers have considerable of, nothing is so economical as a good motor truck. The more progressive concerns have given up horse hauling almost entirely.

If any of our readers have interesting data on motor truck hauling based on first-hand experience, we would like to have it for publication—with photographs.

Conclusion of Plumbing Article Postponed to June Article

Mr. C. F. Herington's very instructive article, "What Constitutes Good Plumbing in Your Home?" which was begun last month, will be concluded in the June AMERICAN CARPENTER AND BUILDER, lack of space preventing its inclusion this month.

Next Month—Summer Cottages

The vacation and summer cottaging period will soon be upon us. Thousands of summer cottages will be planned and built early this summer. The June AMERICAN CARPENTER AND BUILDER will contain several good designs and a quantity of real serviceable summer cottage suggestions.

Yours to serve,

EDITOR AMERICAN CARPENTER AND BUILDER.

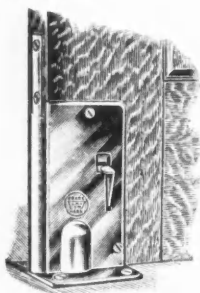
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TRADE
CHICAGO
MARK

**SPRING HINGES
REPUTATION**

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



**Chicago "Relax"
Spring Hinges**

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

is of recognized merit and utility.

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

Chicago Spring Butt Company.

CHICAGO

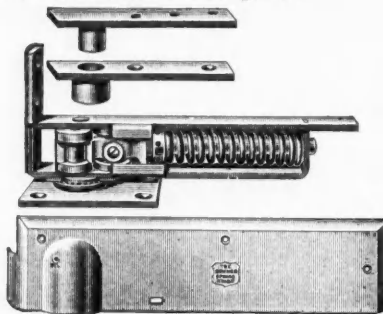


NEW YORK

BOMMER

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

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



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

Your Hardware Merchant Can Supply Them

Bommer Bros., Manufacturers Brooklyn, N.Y.



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

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

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

CABOT'S QUILT

A scientific heat insulator and sound-deadener that makes houses warmer in winter and cooler in summer and deadens sound in floors and partitions. Not a mere felt or paper, but non-conducting mat that is about thirty times warmer than common papers.

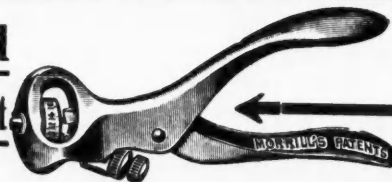
You can get Cabot's Stains and Quilt all over the country. Send for samples and names of nearest agents.

SAMUEL CABOT, Inc., Mfg. Chemists

BOSTON, MASS. 24 W. Kinzie St., Chicago
1133 Broadway, N. Y.

Worth Much to You

**Morrill
Saw Set**



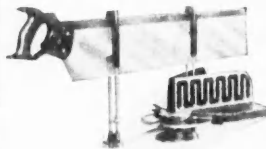
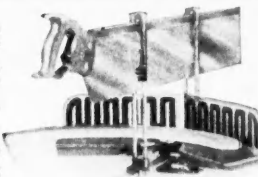
All master carpenters are using this Saw Set. In one operation it takes out the wrong set and puts in the right one. Write for FREE booklet "Saw Points". It tells how to properly joint, set and file hand saws.

CHAS. MORRILL

94 Lafayette Street
NEW YORK

**Kawalle Automatic
a Superior Mitre Box**

Why! Because you can absolutely depend on every cut that you wish to make on being the true cut for the place for which it is intended. It will automatically give the true cut of any corner without figuring degrees. It will automatically give the true radius cut of any circle work without knowing the diameter.



Write for Circular.

Shipped prepaid, on 10 days' trial.

Kawalle Automatic Mitre Box Co.
502 North Ninth St., Manitowoc, Wis.

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Circulation Audited and Verified February 24, 1915

<i>The</i> World's Greatest Building Paper	Important Notice When your subscription expires, renew at once, using the blank enclosed in your final copy. If it expires with this issue your renewal must reach us before May 25 to avoid missing the June number. Use P. O. or Express Money Order if possible, but bills or 2-cent stamps may be sent at our risk.	<i>The</i> World's Greatest Building Paper
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The publishers of the American Carpenter and Builder will not knowingly accept advertising from any individual, firm or corporation that is misleading in any way. They also reserve the right to edit advertising copy and to change or eliminate any statements that reflect or cast discredit upon any other building products.

The American Carpenter and Builder Company will use every legitimate means to safeguard the interests of its readers and its advertisers. It will use every effort to protect them from concerns whose business methods are open to question. Where the slightest doubt exists write the publishers for complete information. It may save money, time and worry.

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VOL. XXI MAY, 1916. No. 2

Living Down a Reputation

SOME how or other the general public has had the notion that the average contractor, while perhaps not a crook, comes near enough to it to bear close watching.

"He will skin the job if he can," we have heard it remarked, and so have you, more than once.

We do not believe that this reputation ever was deserved, certainly it is not deserved today; and we believe there is not so much of this disposition today on the part of the general public to cover up its own ignorance and short-sightedness concerning building matters by throwing mud at the contractor.

If a man wants a cheap job of building, no doubt he can get a contractor to handle it for him; and he gets what he pays for. This doesn't justify the general slander against all builders that they care only for price and will skin the job if they can.

In our observations, there is no class of men more honest, more thoroly trustworthy, or more public spirited than the contractors and builders. They are constructing their business future on the solid foundation of good work and satisfied customers. Quality is just as important with them as price.

How to fight down this old reputation is the problem. The fact that it never was justified doesn't help much. Some one had to be the scape-goat and take the blame; and it seemed to be the handy thing for the owner to lay it on to his contractor. Sometimes the lumberman, and sometimes the architect has encouraged this, too.

But that was before these days of mutual understanding and co-operation in the building world. What everyone must do now out of fairness and for the sake of business, is to combat this old notion until we hear no more of it. It kills confidence, and is essentially unjust.



Announcement of Prize Winners

THE AMERICAN CARPENTER AND BUILDER Competition has brought to light work of unusual merit. Our readers have evidently been doing some very good work during the past few years. These buildings were both planned and executed by one party; so this represents much more than the ordinary architectural competition.

The Board of Judges had no easy time in making the Awards since all of the work submitted was of such high order. The residence builders were most in evidence, by far the greatest number of buildings submitted being bungalows and dwelling houses. There was a fair proportion of public and business buildings, but the farm buildings were negligible.

as several of the barn builders wrote—we have no photograph to send; it's a prize winning barn, but I can't get a picture of it. (The moral of this of course is, always to see that a photographer is on the job.) The judges therefore decided to award two series of prizes in the residence class, one for large and one for small residences; one series of prizes for the public and business buildings, and to make no award for farm buildings.

Twenty-six designs as listed below are awarded Prizes and given Honorable Mention. The first prize in each class is worth \$20.00, the second prize \$10.00, and the third prize \$5.00. Two third prizes are awarded in the small residence class.

Class A Residences

First Prize:

W. TWILLEY MALONE, Contractor and Builder, Allen, Md. Eight-room Colonial residence for Mr. Frank Lano.

Second Prize:

DIEGAARD & RINDSIG, Contractors and Builders, Newell, Iowa. Eight-room residence for Mrs. Emma Wallen.

Third Prize:

T. J. COX and H. W. BRINKMAN, Architect and Builder, Emporia, Kan. Ten-room residence for the poet, Walt Mason.

Class B Small Residences

First Prize:

CHAS. M. GATES, Architect and Real Estate Builder, Denver, Colo. Six-room brick bungalow.

Second Prize:

ANDERSON BROS., Building Contractors, Litchfield, Minn. Eight-room story-and-a-half stucco bungalow.

Third Prize: Tie between

FLOYD W. SHAW, Lakewood, Ohio. Six-room story-and-a-half bungalow. and RUSSELL E. MAJOR, of Major & Co., Builders, Chicago, Ill. Six-room brick city home for Mr. George A. Shilling.

Class C Public and Business Buildings

First Prize:

D. A. HAINES, Architect and Superintendent, Mabel, Minn. Brick and stucco church (Methodist) at Mabel, Minn.

Second Prize:

LEWIS BECK, Contractor and Builder, Moweaqua, Ill. Brick Telephone Company Office and Exchange at Moweaqua, Ill.

Third Prize:

S. E. CARTER, Architect and Contractor, McLemoresville, Tenn. Brick building for the McLemoresville Collegiate Institute.

Honorable Mention Designs

ARTHUR T. L. THOMPSON, Rushmore, Minn. Winter hog house and horse barn.

WILLIAM S. BAGGS, Carpenter and Builder of Modern Homes, Minong, Wis. Seven-room story-and-a-half bungalow.

ORION L. STOCK, Architect and Builder, Terre Haute, Ind. Nine-room brick residence.

LOUIS BILSTEIN, Architect and Builder, South Bend, Ind. Eight-room Colonial residence.

CHAS. S. DOUGLAS, Contractor and Builder, Mount Vernon, Ont., Can. Eight-room concrete block residence.

ANSON A. ATWELL, Manager, The North Missouri Lumber Co., Chillicothe, Mo. Seven-room bungalow.

TALMER DAHLEN, Carpenter and Builder of Modern Homes, Frost, Minn. Six-room shingled house.

FRED H. NIEMANN, West Allis, Wis. Five-room bungalow.

J. D. RANCK, of Ranck & Lashley, Contractors, Cumberland, Md. Seven-room brick and tile residence.

WM. P. INGERSOLL, Contractor and Builder, Meriden, Iowa. Five-room concrete block bungalow.

W. P. FOLSOM, Council Bluffs, Iowa. Eight-room residence.

A. J. WILSON, Napa, Cal. Four-room shingled bungalow.

C. C. FENWICK, General Contractor and Builder, St. Joseph, Ill. Six-room bungalow.

O. M. BAUER, Architect and Builder, Loudonville, Ohio. Nine-room residence.

MARCUS J. CLAYBURGH, Contractor and Builder, Sentinel Butte, N. D. Six-room bungalow.

EARLE GOOD, Contractor and Builder, Thompson Falls, Mont. Five-room bungalow.

First Prize Class A—Colonial Residence for Mr. Frank Lano at Princess-Anne, Md.

Eight-Room Dwelling Designed and Built by W. Twilley Malone, Contractor and Builder, Allen, Md. Awarded First Prize for Large Residences

THE residence designed and erected last summer at Princess-Anne, Md., for Mr. Frank Lano, by W. Twilley Malone, contractor and builder of Allen, Md., is unhesitatingly placed first in the large residence class. It is what might be termed a "tailor made" house, each floor being carefully planned and arranged to suit owner's taste and needs.

It is erected on a corner lot facing the main avenue. It is seldom that a house shows up as well from all approaches. It has been greatly admired in this respect.

The house is of colonial design, with basement under practically the entire

building. The rooms are well lighted, built with an eye to comfort and convenience.

The basement contains heater room, laundry and store room.

The first floor consists of extra large living room with brick fireplace, built-in book cases, and window seat. From the living room large sliding doors open into the hall, which has a beautiful colonial stairway.

The door from the hall opens directly into the large dining room, which, with its abundance of light, is a delightful room.

Directly between the dining room and the kitchen is the pantry—one of the

W. TWILLEY MALONE

CONTRACTOR AND BUILDER

**PLANNING, DRAFTING AND
BLUE PRINTING**

ALLEN, MARYLAND

Well Arranged Letterhead Used by Mr. Malone.



Eight-Room House Awarded First Prize for Residences, Class A. It Was Designed and Built by W. Twilley Malone, Contractor and Builder, of Allen, Md., for Mr. Frank Lano, at Princess-Anne, Md.

greatest conveniences of the house, a feature of which is the refrigerator, which is arranged for outside icing.

The kitchen is quite pretty, as well as convenient, with its wainscoted walls and trim of North Carolina pine finished natural.

The second story has four bed rooms, bath and den, with an abundance of closet space. The bath is centrally located, convenient to all rooms and contains all up-to-date features. The third floor has two elegant bed rooms, with closets and large storage rooms.

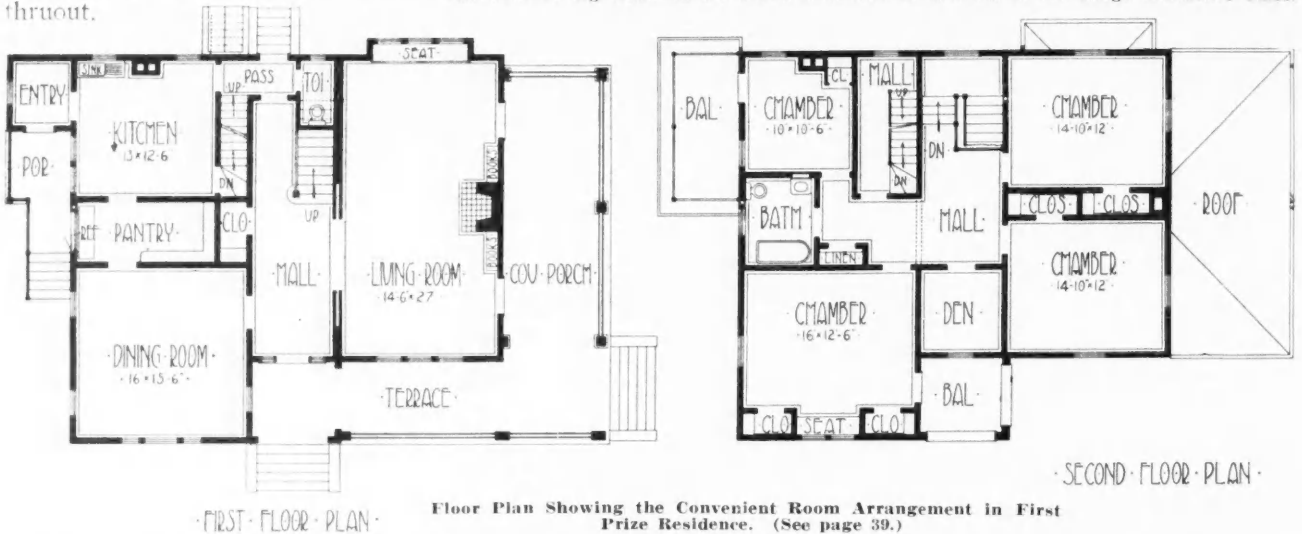
The interior thruout, except service wing, is finished in white, with doors and stairway in mahogany.

The plumbing is the hot water system, complete in every detail.

The house is electrically equipped thruout.



Beautiful Living Room in the House Awarded First Prize in the Large Residence Class.



Floor Plan Showing the Convenient Room Arrangement in First Prize Residence. (See page 39.)

The owner desiring an extra amount of light in the living room, a terrace was substituted for a covered porch on the front, which greatly adds to the perspective. The main entrance, with balcony above, has attracted much favorable comment.

The building is constructed almost exclusively of North Carolina pine.

The roof is covered with No. 1 Bangor slate.

The house was about five months in building.

STATEMENT OF COST OF LARGO RESIDENCE

Excavating and masonry	\$ 483.00	Hardware	55.50
Lumber bill	320.40	Plastering, 1,100 yds. at 32c.....	352.00
Sheathing	193.20	Painting	450.00
Millwork	1125.83	Plumbing	698.60
Slate	240.50	Electric wiring ...	50.00
Carpenters' labor..	668.20		
Nails, tinwork, Wd. weights, etc.	73.65		
			<hr/>
			\$4710.28

Second Prize Class A—Eight-Room Residence for Mrs. Emma Wallen at Newell, Iowa

Exceptional Four-Thousand Dollar Residence Designed and Built by Diegaard & Rindsig, Local Contractors and Builders, Awarded Second Prize

FOUR thousand dollars buys a lot of good construction at Newell, Iowa, especially when expended by that thrifty firm of builders, Diegaard & Rindsig. Their residence designed and built

for Mrs. Emma Wallen is awarded second prize. The two photographs and the plans will give a good idea of what this house is.

Dining and living rooms are finished in plain sawed

oak; kitchen, birch, finished natural; bed room on first floor, birch, finished mahogany; balance of rooms on first floor and all rooms on second floor are finished in cypress.

Dining room, living room and bed room on first floor have $\frac{3}{8}$ by $1\frac{1}{2}$ -inch quarter sawed oak floors, balance of rooms have $\frac{3}{8}$ by $1\frac{1}{2}$ -inch beech floors.

All walls were given two coats of flat tone paint.

All finish hardware is solid bronze.

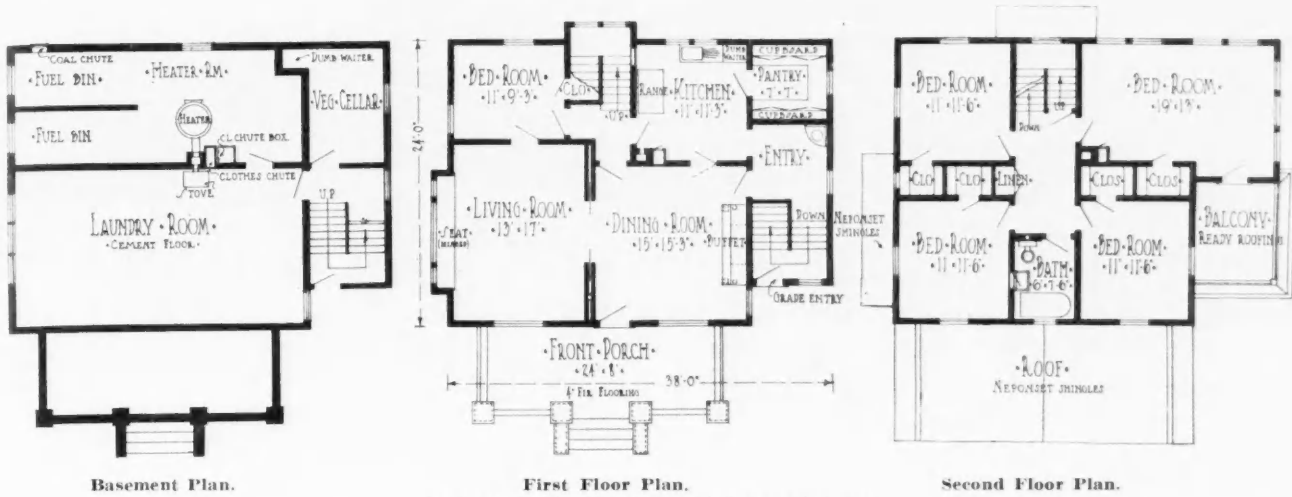
The statement of cost as made by the builders is:

Total cost of material.....\$2550.00
 Total cost of labor..... 1475.00

\$4025.00

They write: "When concrete cellar walls were built same were cribbed on both sides, and as soon as forms were removed a heavy coat of tar was put on the outside before the ground was filled in, which made the walls moist proof.

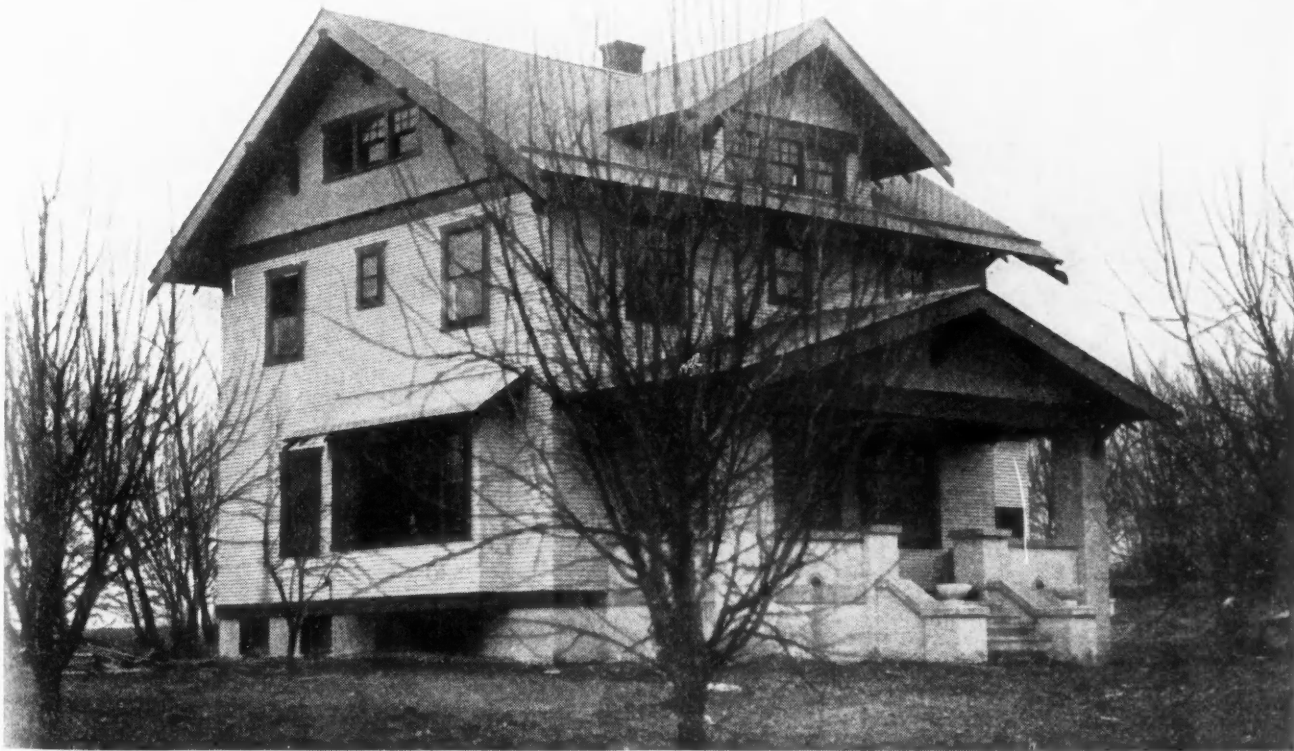
"You will notice that we use two lengths of studs



Basement Plan.

First Floor Plan.
 Arrangement in House Awarded Second Prize.

Second Floor Plan.



Handsone Eight-Room House Built by Diegaard & Rindsig, Contractors and Builders, of Newell, Iowa, for Mrs. Emma Wallen at Newell, Iowa. This is Awarded the Second Prize in the Large Residence Class.

IN A POSITION TO FURNISH BLUE PRINTS AND SPECIFICATIONS AT A LOW COST

PLANS AND ESTIMATES CHEERFULLY FURNISHED AT ANY AND ALL TIMES

DIEGAARD & RINDSIG

CONTRACTORS AND BUILDERS

NEWELL, IOWA. _____ 191 _____

The Business Letterhead of Diegaard & Rindsig.

and double plate instead of one length and ribbon for second floor joist. This we think is better and can be done quicker, because in raising one story at a time we can frame all windows and doors before raising the sides.

"All roof brackets, rafter ends, window frames, screens, kitchen and pantry cupboards, buffet and stair cases have been made by us in our own shop.

"At the present time we are building a new shop which is two stories high and 35 by 60 feet on the ground; same will be fireproof. We will send you photo and plans of same when completed, as we think it will interest our brother carpenters."



Another View of Second Prize House in Large Residence Class.

Third Prize Class A—Walt Mason's Home at Emporia, Kansas

Ten Room Residence Designed and Built by T. J. Cox and H. W. Brinkman, Local Architect and Builder, Awarded Third Prize for Large Residences

THIS is the home of the famous Kansas poet, Walt Mason, known as the Fat Poet, or Uncle Walt. It is located at 606 W. 12th Ave., Emporia, Kan. It was planned and built by H. W. Brinkman and T. J. Cox. The complete cost of this house was about \$10,000, itemized as follows:

look happy and very much pleased with their new home. It is frame construction and shingles stained green for the roof, and a deep brown for the walls. The foundation, flue and piers are of matt faced reddish brown brick. The front steps are of Kansas stone, as are the caps on piers. This house is not elaborate,

STATEMENT OF COST OF MASON RESIDENCE

Concrete and mason work	\$1150.00
Lumber and shingles	2050.00
Mill work	1500.00
Hardware, tin and iron work	360.00
Lathing and plastering	550.00
Plumbing, heating and wiring	1500.00
Carpenter work	1400.00
Fireplace	150.00
Painting	750.00
Incidentals	250.00

Approximate total, \$9660.00

The photograph shows the home just completed. Uncle Walt and Mrs. Uncle Walt, also little Mary



Room Arrangement of Walt Mason's Home. Uncle Walt Writes His Poems at Home, which Accounts for the Study Shown.



Walt Enjoying the Warmth of a Good Heating System.

as you may suppose. It has plain sawed red oak floor in first floor and edge grain yellow pine in second. The finish is plain red oak on first floor and yellow pine on second.

Contractor Cox, who handled the work, writes: "This job was done under contract by me except the plumbing, heating and wiring. Upon starting this job I bought a Parks saw rig and saved enough on the labor to pay for it. Of course it was only a small one, but it paid. I am now offering it for sale, for I need a larger one. I cannot help but feel a little proud on having received the honor of building this fine house for the one and only Walt Mason."



Walt Mason in Real Life. He Doesn't Look Like a Poet, but He Is.



Uncle Walt, Mrs. Uncle Walt, and Little Mary Standing on the Steps of the Mason Home. This was Designed and Built by H. W. Brinkman and T. J. Cox at Emporia, Kansas. This House Has Been Awarded Third Prize in the Large Residence Class.

What Walt Thinks of His New House and Its Builders

The column in the local paper out at "Emporie" that everyone reads first is run under the disguiseful heading, "A Waste of Words." Walt Mason is of course the author of this department. Lately the following appeared:

"This Department has been building a house this year, and when operations began an ordeal was expected, for it is the general belief that building a house makes a man's hair gray faster than anything else, but the experience has been a pleasure from first to last, because all the workmen employed have been so obliging and agreeable. There hasn't been a sorehead or a cantankerous workman on the job. Tom Cox is the

contractor, and if he were building the shanty for his own use he couldn't take more interest in it. Everybody who has had a hand in it has seemed to take pride in doing good work, and doing it cheerfully. The carpenters, painters, plumbers, cement men, and all who have had a part in the enterprise have demonstrated that Emporia workmen and mechanics are the best and most agreeable anywhere. This department hopes to spend many comfortable days in the new shack, and much of the pleasure will be derived from memories of the joyful time building it."

Walt Mason

T. J. COX
Carpenter and Builder

No. 701 Sylvan Street

Phone 1212 Blue

Emporia, Kansas

Letterhead Used by Mr. T. J. Cox.

First Prize Class B—Six-Room Brick Bungalow at Denver, Colo.

Well Planned Modern Bungalow Designed and Built by Chas. M. Gates, Architect and Real Estate Builder, Denver, Colo. Awarded First Prize for Small Residences

THE accompanying design was entered by Chas. M. Gates, architect and real estate builder, of Denver, Colo. It is placed first in the small residence or bungalow class, because of its neatness of appearance, convenience of arrangement, and economy

of construction. This, by the way, is the same Mr. Gates who won first place in the Class A competition of three years ago. He has the following to say about the building:

"The house has six lovely rooms, together with den



First Prize Design in Residences of Class B. This Attractive Six-Room Bungalow is the Work of Chas. M. Gates, Architect and Real Estate Builder, of Denver, Colorado.



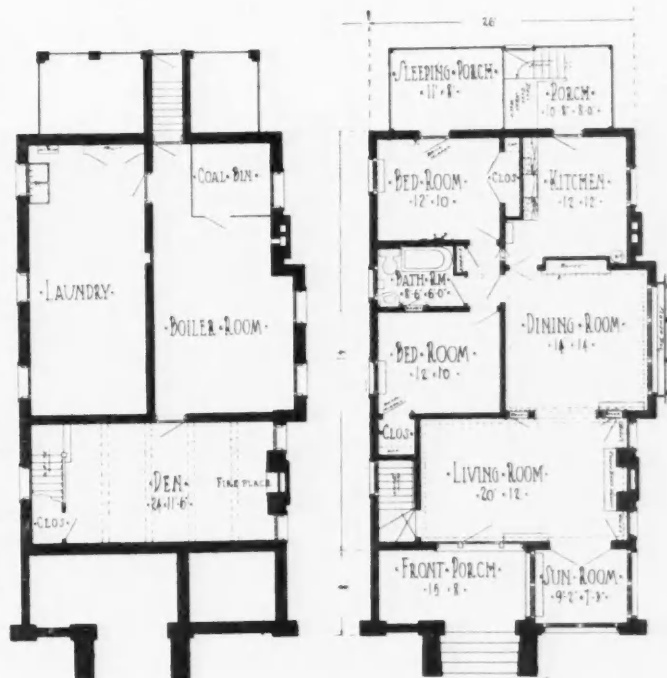
View Taken from the Living Room, Looking into the Dining Room in the First Prize Bungalow. The Attractive Proportions and Arrangement are Clearly Shown.

and sleeping porch. The sun parlor, living and dining rooms are done in oak and with oak floors. The balance of the house is in white enamel. A pair of French doors, glazed with twelve beveled plate glass each, connect the living room and sun parlor. An abundance of heat makes the sun parlor a splendid conservatory for flowers should you wish it. Built-in bookcases, massive colonnades, cozy fireplace, up-to-the-minute interior cornices and a buffet that simply talks to you make the living and dining rooms a real homey home for the most fastidious.

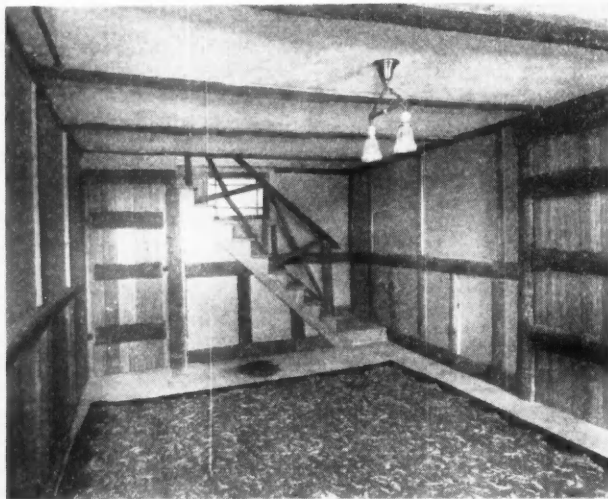
"The bath, with all high grade fixtures, being located as it is between the two bedrooms, makes for the greatest possible convenience. The sleeping porch is just off the family bedroom.

"The kitchen has extra large cupboards, with all usual conveniences of doors, bins and drawers, and has also a California cooling closet that does away with ice except in the very warmest weather.

"The den or billiard room has an extra roomy fireplace and mantel, being entirely finished in heavy slabbing with the bark on. When properly furnished with



Floor Plan of Bungalow Built by Chas. M. Gates. The Den in the Basement is an Unusual Feature.



The Interior of the Den. The Rustic Finish Makes it an Ideal Trophy Room.

trophies of rod and gun it takes but a small stretch of the imagination to think that you are in the Maine woods or our own Rockies.

"The house outside is a perfect type of the western bungalow, with its all-width, no-height effects, and is a dream of beauty thruout.

"I have built it three times here in Denver, complete in all its details, with hot water heat, for the uniform price of \$2,965. The items are as follows:

ACTUAL COST OF GATES BUNGALOW

Excavating	\$ 40.00	Painting	145.00
Plumbing	244.00	Electric wiring	38.00
Brickwork	660.00	Tin work	30.00
Cementing	88.00	Slab work	15.00
Carpenter work....	275.00	Electric fixtures ...	45.00
Lumber	971.30	Finish hardware ...	36.00
Dressing floors ...	15.00		
Plastering	142.70		
Heating	224.00		
			\$2969.00

Second Prize Class B—Story-and-a-half Stucco Bungalow at Litchfield, Minn.

Eight-Room Dwelling Costing \$3600.00 Designed and Built by Anderson Bros., Local Building Contractors, Awarded Second Prize for Small Residences

THE size of this house is 26 feet by 28 feet, with an addition of 12 feet by 18 feet in the rear for bed room, closet and back porch. The height of studding used was fourteen feet, that is, to the seat of the rafters. The first story is nine feet to the ceiling; the second story eight feet. We used 2 by 10-inch joist for both first and second floors. For insulation for outside walls we used "Flaxlinum" between the studdings, and also underlaid the metal lath and stucco with "Neponset" weather-proof insulating paper. Under shingles we used "Barretts" Tarred Felt.

The floor plans of this house call for five rooms on the first floor, with three bed rooms and bath room on the second floor, each bed room having good sized closets adjoining.

A trip of inspection thru the house will convince anyone that it is more than up to the average in convenience, in modern equipment and in arrangement.

In the basement, the outside walls of which are built of concrete blocks, we find a vegetable room, laundry, toilet, fuel room, coal bin, furnace room and additional floor space for storing purposes. In the basement also

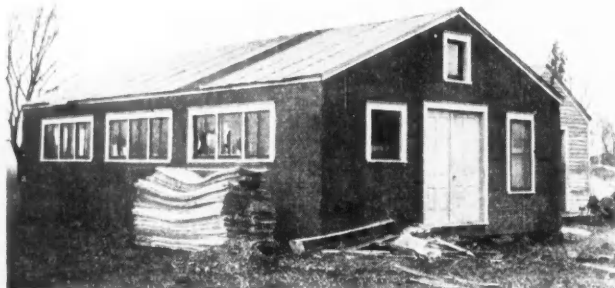
we have an electrical pump and pressure tanks, so that the attic tank is done away with. The pump is so equipped that it will pump both from the cistern and from the well. The house is also connected with the city water main and with the city sewer system, hence insuring the best possible results. One can draw either hot or cold water and soft water, in basement (that is, in the laundry), kitchen and in the bathroom.

On the first floor the wide pedestal openings practically throw the dining room, living room and front hall and stairway into one room. This part of the house is finished in oak, including oak floor. The remainder of the house is finished in brick, with maple flooring. In one wall of the dining room is a six-foot built-in sideboard, while on the outside wall is the window seat in the "built-out" triple window, which adds considerably to the effect and coziness of the pleasant dining room.

In the kitchen the central and special feature is the spacious kitchen cabinet. The convenience of a kitchen has much to do with the arrangement of the different objects, the cupboard, sink and stove. A glance at the plan will show that these are so placed that the housewife has but a few steps to go from one to the other—and her work is right before her.

STATEMENT OF ACTUAL COST OF ANDERSON BROS. RESIDENCE

Lumber and mill-work	\$1350.00	Electric wiring	45.00
Painting	225.00	Plumbing and heating	650.00
Stucco, lathing, plastering and chimney	490.00	Basement, cistern and cess pool, including excavating	276.00
Hardware, tinning and gutters	150.00		
Carpenter labor ...	450.00	Total cost	\$3633.00



Shop Owned by Anderson Bros., Where Considerable of Their Machine Work is Done.

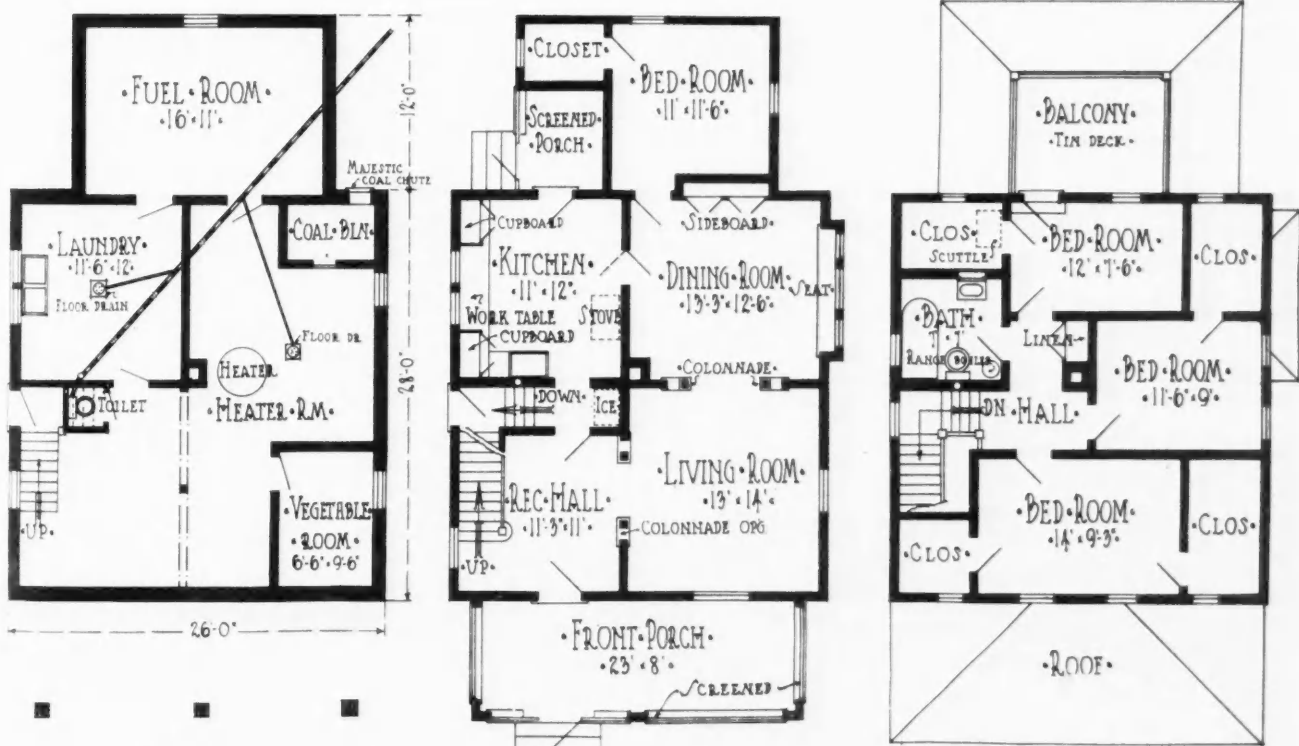


Cement Stucco House Awarded Second Prize in Class B Residences. Designed and Built by Anderson Bros., Building Contractors, at Litchfield, Minn.

The kitchen cabinet consists of two sections of drawers, two flour bins, one moulding board and four cupboard doors, under the table, which is twenty inches wide (deep) and two feet, eight inches high. On top of this table on either side of the mullion window is a three-foot cupboard, extending to the ceiling and en-

closed with cupboard doors. In the grade entrance between front hall and kitchen a space is provided for the ice box, which is very handily situated from the kitchen.

Upstairs we find three comfortable bed rooms with ample closet space, well lighted, for each room.



Basement Plan.

First Floor Plan.

Second Floor Plan.

Convenient Arrangement and Complete Equipment of House Built by Anderson Bros. at Litchfield, Minn.

Third Prize (Tie) Class B—Six-Room Brick City House

Typical Narrow Lot Two-Story Brick House Designed by Russell E. Major, and Built by Major & Co., Builders, Chicago, Ill., for Mr. Geo. A. Shilling, Tied for Third Place Small Residence Class

THIS building has been erected on a 27-foot lot. All the rooms contain large windows. The three bedrooms and bathroom have separate clothes closets. The clothes chute, which is accessible from the hall, is handy for all three bedrooms and

dows in the living room are double hung windows, top sash broken up into three panes.

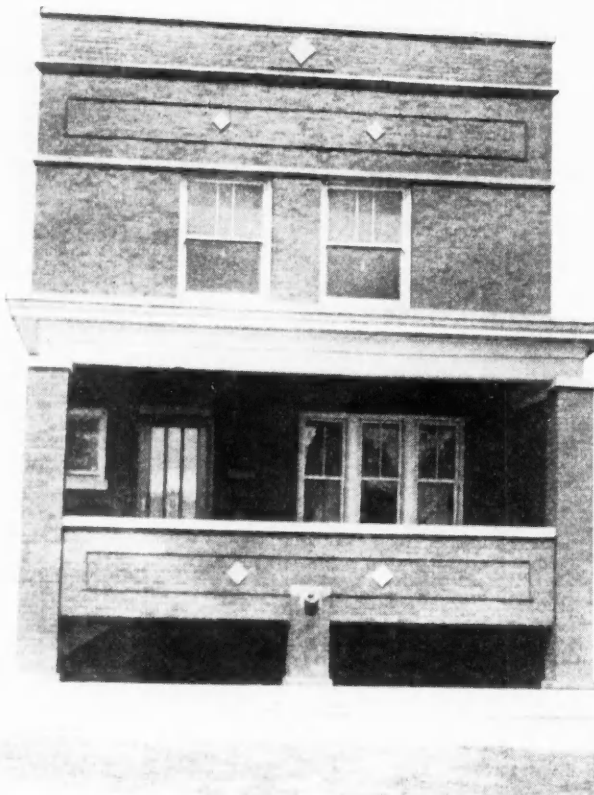
The bookcases with the fireplace takes up one side of the room. Over the bookcases are two small art glass windows. The face brick is red and the construction of the fireplace is such as to allow gas or soft coal to be used. It contains a damper and an ash dump.

The dining room is separated from the living room by two French doors. The windows of the dining room are made to match the doors.

The buffet, which was made to order, was designed by R. E. Major, Draftsman. The plate rail in the dining room is at the same height as the top of the buffet.

STATEMENT OF THE COST OF RESIDENCE ERECTED AT 1454 WEST MARQUETTE ROAD, CHICAGO

Estimate	Rough lumber	384.77
Mason work, permits, excavating, grading, tuck pointing, concrete foundation, brick work	Carpenter labor ...	465.30
\$1125.00	Iron railing on front porch	6.00
Lathing and plastering	Damper in fireplace	7.50
220.00	Grate in fireplace	5.60
Painting and finishing	Insurance on carpenters and public	9.77
220.00	Total	\$4029.24
Heating	Extras	
315.00	Heating	\$ 16.50
Electric work	Cement work	60.00
78.00	Glass	1.75
Cement work	Hardware	2.42
90.00	Plumbing	15.50
Gravel roof	Mill work	4.00
24.00	Total extras	\$ 100.17
Galvanized iron ..	General contractor's profit	215.00
23.00	Total cost of building	\$4344.41
Porch roof		
18.75		
Tile floors		
30.00		
Glass		
75.00		
Stairs		
47.50		
Hardware		
75.05		
Electric fixtures ..		
75.00		
Plumbing		
285.00		
Mill work		
440.00		
Rough iron		
29.00		



Narrow Lot City House Tied for Third Prize in Class B. This was built at Chicago for Mr. Geo. A. Shilling by Major & Co., Builders, of Chicago, Ill.

bathroom. It is also accessible from the first floor.

All woodwork in hall and bedrooms is oak. The bathroom floor is tile and the trim is white enameled birch. The cement plaster below the chair rail in bathroom is marked off in squares 3 by 6 inches to represent tile. The fixtures, such as the lavatory, bath tub, and closet, are all white, and are the standard size. All hardware, including the faucets, electric light and gas fixture, are nickel-plated.

All trim downstairs is oak except in the kitchen and pantry, which are trimmed in birch. The living room can be shut off from the hall by four small oak-panelled doors. The win-



Floor Plans of Typical Narrow Lot, Two-Story City House Built of Brick.



View in Living Room Corner of Major Brick City House. This Shows the Fireplace, Book Case, and Glass Doors to the Dining Room.

Third Prize (Tie) Class B—Story-and-a-half Bungalow at Lakewood, Ohio

Artistic Six-Room Bungalow Designed and Built by Floyd W. Shaw, Lakewood, Ohio, Tied for Third Place Small Residence Class

AN additional third prize goes to Floyd W. Shaw of Lakewood, Ohio. He has the following to say about this bungalow.

"Here are plans and pictures of one of the houses

I have designed and built, which is about as compact and convenient as any of them.

"The foundation is laid up of construction tile 5 by 8 by 12 inches and 5 by 4 by 12 inches, and faced above



Two Views of Story-and-a-Half Bungalow Built by Floyd W. Shaw of Lakewood, Ohio. Tied for Third Prize in Class B.

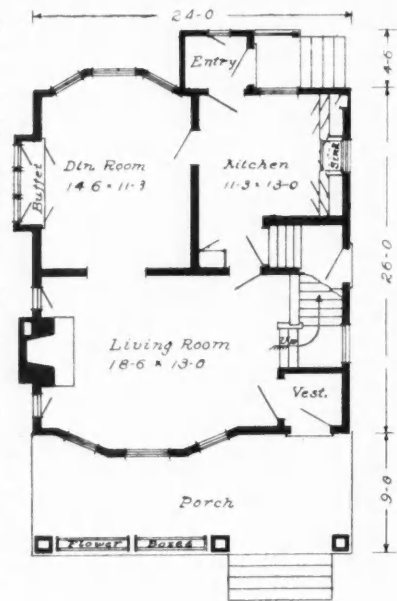
grade with rough cut brick. Drain tile are laid around foundation, connected to sewer and covered with 18 inches of cinders. The basement is seven feet or more in the clear, having 3-inch concrete floor with cinders underneath and drains to slop sink.

"A brick mantel at one end of living room is built so that either coal or gas can be used.

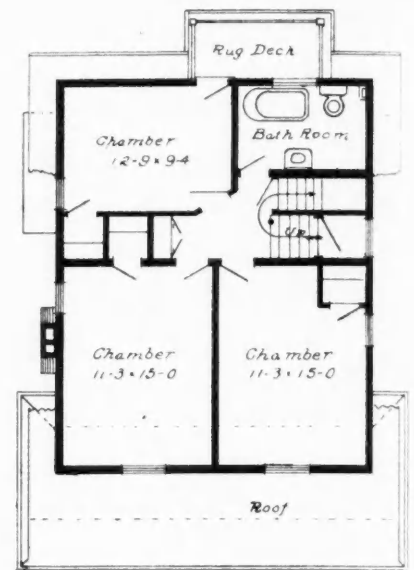
"The rough lumber is No. 1 hemlock and Norway. First and second floor joists 2 by 8, 16 inches, O. C. doubled under all partitions and around stairways and chimney. Ceiling joists 2 by 6, 16 inches O. C., main rafters 2 by 6, 20 inches O. C. The exterior finish is cypress and redwood siding. Floors up and downstairs are oak, with white pine in the kitchen.

"The living room, dining room and stairway are finished in oak, band mould finish, stained dark golden oak and finished flat.

"The kitchen, refrigerator room and cellarway are finished in yellow pine stained gray, the back chamber is finished in yellow pine stained dark, and balance of



FIRST FLOOR PLAN.



SECOND FLOOR PLAN.

Room Arrangement in Six-Room Bungalow Designed by F. W. Shaw at Lakewood, Ohio.

second floor is finished in white-wood, white enameled, with birch mahogany doors, stools, sash and shoe mould.

"The house is roofed with green slate except rug deck, which is covered with 14-ounce canvas.

"The house is wired thruout for electricity.

"Fumes from the kitchen range are carried off thru a 3-inch wrought iron pipe run up thru the partitions.

"The hardware is of plain design, finished in antique brass.

"The style of exterior was chosen because the second story could be built out in front to beter advantage than most any other design, and gives good sized rooms with plenty of closet space. A linen closet in the hall has four drawers in lower part and doors and shelves in upper part. There is also a cabinet of drawers in the bathroom under attic stair landing. A medicine cabinet is built in wall over lavatory, having mirror door. A clothes chute runs from second floor to basement, with doors in bathroom and kitchen and having slatted cage at bottom. A fruit room is built in basement and a place for setting milk bottles inside is provided near grade door.

"All corners are finished with metal corner beads to protect the plaster.

"The attic was too low to put in collar beams, so trusses were built across midway from plate to ridge, which carry the roof very nicely."

The cost of the different items was as follows:

STATEMENT OF COST OF SHAW HOUSE

Masonry, including material and labor for foundation, cementing cellar and plastering...	\$ 485.00	Wiring	38.50
Carpentry, including bill-stuff, sash and doors, finish and labor	1404.00	Plumbing	272.50
Roofing	140.00	Painting	185.00
		Heating and tinning	110.65
		Hardware	54.00
		Fixtures	46.00
			<hr/>
			\$2735.65



Built-In Buffet in Dining Room of Bungalow which Tied for Third Prize in Class B Design.

First Prize Class C—Methodist Church at Mable, Minn.

Brick and Stucco Church Designed by D. A. Haines and Erected by Day Labor Under His Personal Superintendence, Awarded First Prize for Public and Business Buildings

THE accompanying floor plans and photo show a Methodist church built at Mable, Minn. It is used as a community meeting place for social functions as well as a place for worship.

The main floor contains the auditorium, two class rooms, choir room, mothers' room, vestibule and a closet for storing janitor's supplies, etc. The class rooms are separated from the auditorium by accordion doors glazed with chipped glass. The choir room has a built-in case for the choir's music and song books. Over the basement stairs there are stairs leading to a room in the tower over the entry and vestibule, which is used for a Sunday-school class room.

There is a full basement with 10-foot ceiling, which contains five rooms: one large or main room, two class rooms or parlors, a kitchen and a furnace room, besides a front and rear hall and two toilet rooms.

The main room is used as an assembly room for the Sunday-school and League, and for a dining room for banquets, dinners, etc., and will accommodate tables to seat about 100 people.

The class rooms are separated from the main room by folding doors, and one of them can be divided into two by folding doors.

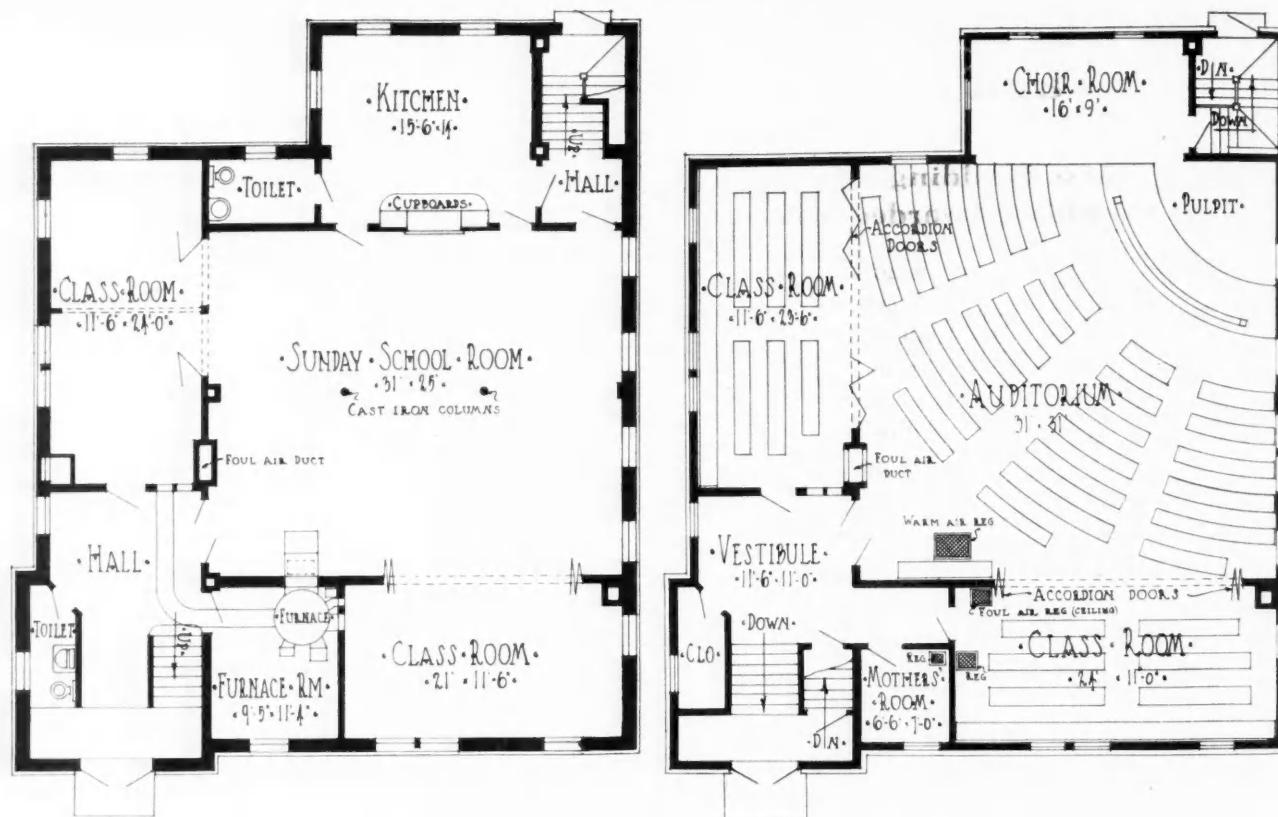
The kitchen is equipped with a range, work tables, wet sink and a built-in serving and china cupboard, with drawers for silverware and table linen and doors opening on both the kitchen and dining room sides.

The toilet rooms are supplied with modern fixtures, the halls with coat hangers, and the furnace room with a coal bin and chute.

The constructive details and materials used are as follows: The footings are all of concrete, varying in size according to load carried. The basement walls



Methodist Church, First Prize Class C. Designed by D. A. Haines and Erected Under His Supervision at Mable, Minn.



Arrangement of Basement and Main Floor of Methodist Church, which was Awarded First Prize in Class C.

below grade are of concrete, 11 inches thick, lined with 4-inch hollow clay blocks. At the grade line it drops back to a 12-inch wall with a 3-inch quarter round finish just at the grade. Above grade it is 8-inch hollow clay blocks faced with dark brown mottled vitrified brick laid in black mortar and finished with a concrete water-table at the top. In doing the excavating great care was taken to have the banks straight and plumb, the clay block wall was laid and the concrete poured in the space between the blocks and the bank, thus avoiding the necessity of using forms for the concrete wall. Forms were made and the concrete water-table was poured on the wall in its place. It was made in sections about 5 feet in length with a 1/4-inch space between the sections, and was afterwards pointed up. Before the concrete was fully set the outside forms were removed and the concrete trowelled down. This made a very neat and quickly constructed water-table.

The superstructure is frame construction, 2 by 6-inch studding sheathed diagonally on both sides with No. 3 flooring, covered with metal lath on the exterior and given three coats of asbestos stucco with a rough cast finish.

The roof and the part of the tower which shows dark in the photo are covered with asbestos shingles of a dark brown color to match the brick in the basement wall.

The exterior wood finish is painted a brownish white to harmonize with the color of the brick and roof.

The interior finish is plain red oak filled and stained a dark oak shade, given two coats of varnish and finished flat.

The floor in the entry is tile, in the halls, furnace room and toilets cement, in all other rooms hardwood. In the basement the wood floor is laid on strips laid in cement.

The windows in the upper rooms are all double glazed—leaded art glass on the interior and opalescent storm glass on the exterior.

The heating plant is a hot air furnace of capacity sufficient to heat the whole building at once in the coldest weather, and is so arranged that any one of the rooms may be heated separately or any number or all at once.

The ventilating system is so arranged that the air can be rotated in full or in part, or not at all, as may be desired.

The entire building is lighted with electric lights. In the main rooms the lights are the indirect light type.

The following is a detailed statement of the cost of the building: The work was done largely by unskilled labor—donated by the members of the church, but such labor was reckoned at from \$2.00 to \$3.00 per day. Had the work been done by contract the cost of the labor could have been reduced quite a little.

ACTUAL COST OF CHURCH

Material	\$4059.00	dry	326.50
Labor — carpenter and mason	3209.00	Furniture for auditorium	426.00
Heating, ventilating, plumbing and tin work	481.00	Decorating	85.00
Art glass	388.00	Lighting	164.50
Hardware and foundry		Sundry amounts ..	114.00
		Total	\$9253.00

Second Prize Class C—Telephone Company Office and Exchange at Moweauqua, Ill.

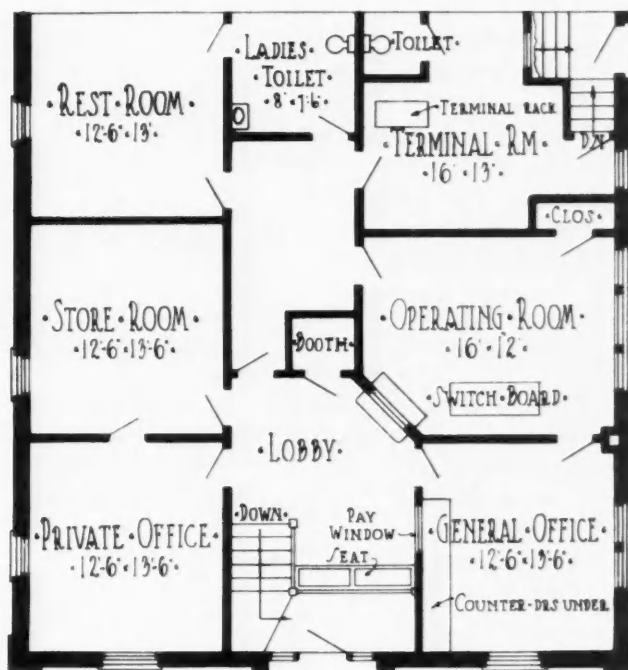
Brick Business Building Designed and Built by Lewis Beck, Local Contractor and Builder, Awarded Second Prize for Public and Business Buildings

THIS telephone building is 40 by 42 feet in size, with the basement under entire floor space. It has six rooms, lobby, hall, and toilet rooms.

The walls are built of structural tile with a 4-inch outside veneer of face brick.

Entrance to this building is directly from the sidewalk. The landing and stairway are made of colored concrete. As shown on the plan, this leads to the first floor directly into the lobby. At top of stairway is a built-in seat for the convenience of patrons who are waiting telephone calls. Entrance to long distant booth is directly from the lobby. The general office has a built-in counter with drawers under with a pay window directly over the counter.

Entrance to the basement is from the terminal room. There is also an outside entrance on the same landing, leading either to the basement or to the first floor. Basement has concrete floor. All partitions on first floor are of wood. The building is plastered with hard plaster and has a sand finish for painting. The floor is laid of beech, which makes a good hard floor. All the interior woodwork is Y. P., stained in dark oak. All inside doors have Florentine tops. This gives plenty of light to all rooms in building.



Room Arrangement in Building for Telephone Company which Won Second Prize.



Telephone Company's Office Awarded Second Prize for Public and Business Buildings. Built at Moweauqua, Ill., by Lewis Beck, Contractor and Builder.

LEWIS BECK

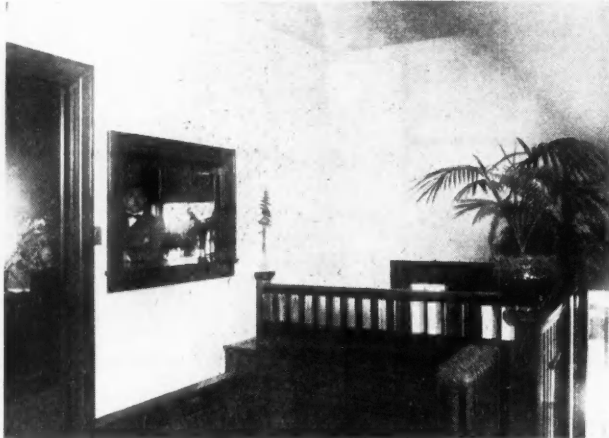
Contractor and Builder

ESTIMATES MADE ON SHORT NOTICE
PLANS AND SPECIFICATIONS FURNISHED
WHEN DESIRED

PHONE 247

Moweaqua, Illinois,

Well Arranged Business Letterhead Used by Lewis Beck, Designer and Builder of Telephone Company's Office.



Interior View of Office of Telephone Company at Moweaqua, Ill.

Entrance to private office is from the lobby. There is also a rest room for the operators directly across the hall from the operating room.

The first floor joist are 2 by 12 inches, ceiling joist and roof joist are 2 by 8 inches. The roof is covered with a composition roofing.

The entire cost of this building is \$2,500.00, as follows:

ACTUAL COST OF TELEPHONE EXCHANGE			
Brick and building		Hardware	50.00
tile	\$360.00	Excavating	50.00
Cost of laying same	226.00	Concreting basement	50.00
Rough lumber	450.00	Roofing	50.00
Millwork	260.00	Plumbing and heat-	
Steel work	57.00	ing	400.00
Carpenter work	250.00	Electric wiring and	
Paint material and		fixtures	50.00
labor	95.00	Plastering	150.00

Third Prize Class C—Building for the McMoresville Collegiate Institute

Substantial Brick Structure Designed and Built by Mr. S. E. Carter, Architect and Contractor, McMoresville, Tenn. Awarded Third Prize for Public and Business Buildings

MCMORESVILLE is a small village three miles from the railroad, and has about three hundred inhabitants. It has been the home of a Methodist school for about thirty years. The old building not being adequate to the needs, the Board of Trustees decided to raze the old building and erect a new one, using all the old materials that would do to use again.

The County Board of Education by mutual agreement with the Board of Trustees use the same building for the public school work and for this privilege they agreed to furnish \$2,500.00 with which to equip the building.

All the money was raised by subscription, so it goes without saying that the Board did not have the money for all the material and equipment which they desired, and which a modern building would require. "Nevertheless," so Mr. Carter writes, "they came to me with \$10,000 in subscriptions and asked me to plan a building which could be built for that amount.

"They furnished me the following data by which to be governed in the planning:

Basement—Just enough basement for heating plant, fuel room and engine room for light plant (there being no light or water works in town.)

First Floor—Auditorium to seat two hundred and fifty people, music room, library room, cloak room and a chapel to seat two hundred and sixty people.

Second Floor—Five class rooms and one office room.

The exterior to be plain and simple with more expensive material used on inside finishings.

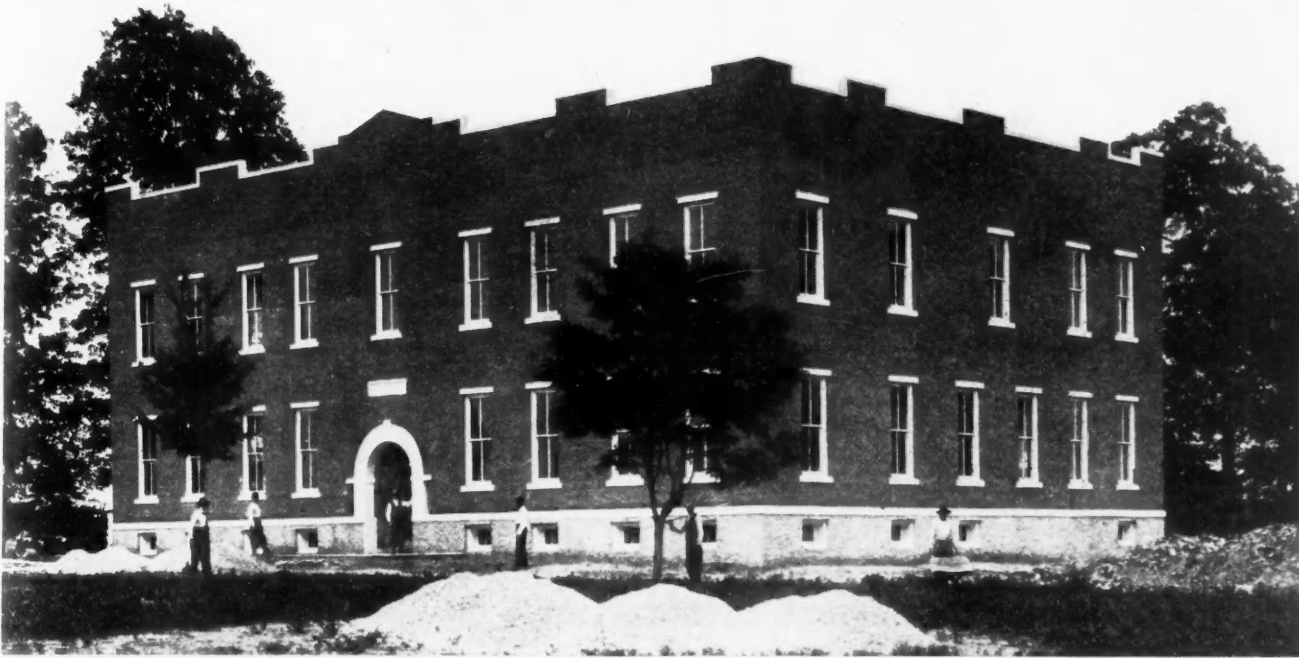
"With the above data in mind the accompanying plans were drawn and executed and are giving entire satisfaction."

The entire cost of the building is a trifle under the \$10,000 mark.

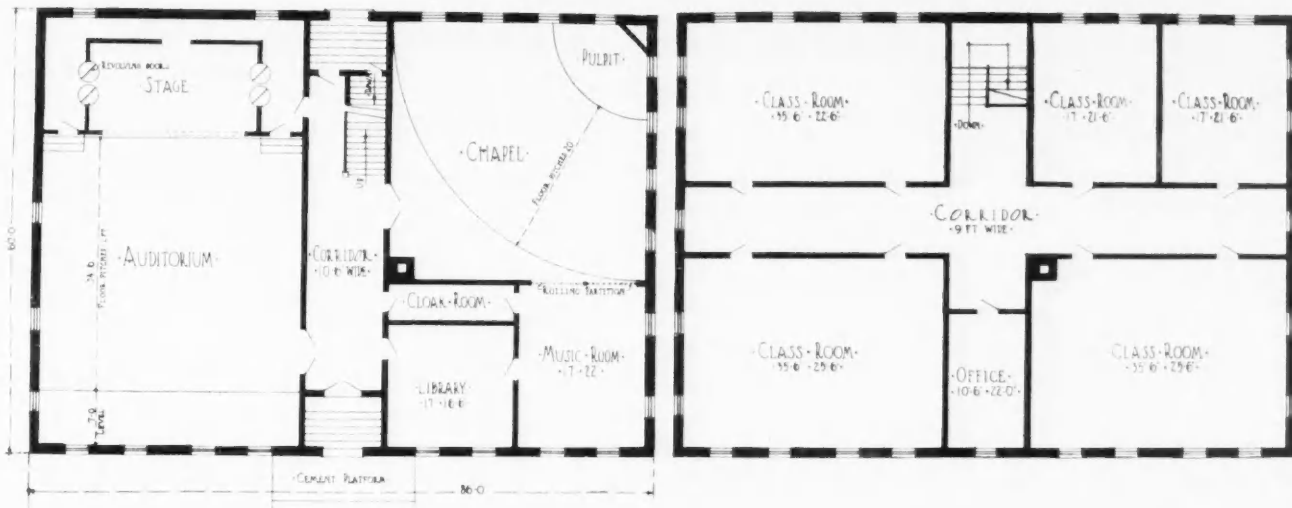
S. E. CARTER
ARCHITECT AND CONTRACTOR
ROUGH OAK AND CHESTNUT
LUMBER

McMoresville, Tenn.

Business Letterhead of S. E. Carter.



Building Awarded Third Prize in Class C. This Brick Building was Designed and Built for the McMoresville Collegiate Institute by Mr. S. E. Carter, Architect and Contractor, of McMoresville, Tenn.



Room Arrangement of First and Second Floors of College Building Awarded Third Prize for Public and Business Buildings.

The \$2,500 from the County Board of Education brings the total cost to approximately \$12,500.

SUMMARY OF MATERIAL AND LABOR OF SCHOOL

240,000 Brick	\$1920.00	Hardware	\$ 85.00
50,000 feet framing	730.00	Miscellaneous	437.25
190 barrels lime...	170.00	Mason	840.00
125 bags cement...	67.00	Labor	680.00
24,000 laths	90.00	Carpenter	960.00
8 tons plaster.....	72.00	Painter	155.00
12,000 feet flooring..	314.00	Plasterer	265.00
16,000 feet ceiling..	390.00	Electrician	65.00
Heating plant	1000.00	Seats, blackboards	
Light plant	500.00	and other equip-	
Doors and windows	285.00	ments	2500.00
Roofing	425.00	Grand total	\$12,500.00
Mill work	431.00		
Paint	98.00		

Too True

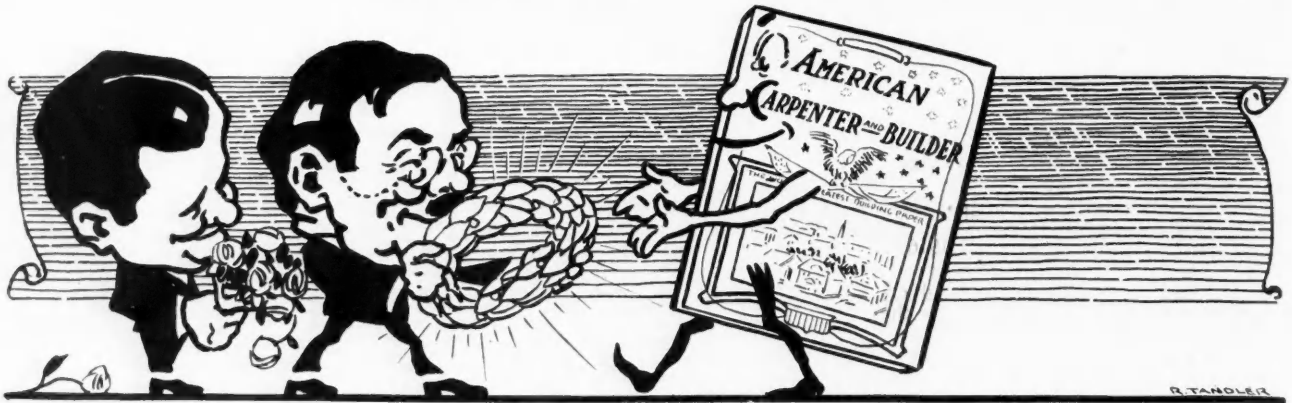
"Sadie, what is a gentleman?"
 "Please, ma'am," answered the well-bred child, "a gentleman's a man you don't know very well."

A Dangerous Practice

THE Detroit building department is warning builders against the practice of making slots or chases in masonry walls to conceal pipes or wires. They say that very often walls such as tile, which is hard to cut, are almost ruined in strength by such construction methods.

Such a warning should be considered by every builder, and applied to his own work. No masonry wall should be cut down by making slots or chases so that less than eight inches of masonry is left untouched. Eight inches should always be left to take the bearing.

The fact that this dangerous practice has been current in Detroit building would tend to show that similar conditions exist in other towns. Now is the time for the builder to guard against this before any accidents happen. A word to the wise is sufficient.



A Birthday Tribute from Our Advertisers

On the Occasion of Its Eleventh Anniversary
One Hundred Prominent Manufacturers in
the Building Field Write the Publishers of
the American Carpenter and Builder.

EACH AN ADVERTISER MORE THAN 5 YEARS

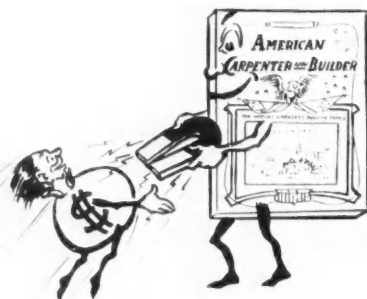
Testify as to Profitable Business Developed—Volume of
Inquiries and Sales Pronounced Exceptional—Editorial
Policies Endorsed—Subscribers Found Trustworthy
and Men of Influence.

“Simply Wonderful as a Continuous Business-Getter”

Torrington, Conn., April 1, 1916.
AMERICAN CARPENTER AND BUILDER:

Having used the AMERICAN CARPENTER AND BUILDER since its first publication, our opinion of it, as an advertising medium, is that no publication that we have used in advertising our product has ever approached it in results. It's simply wonderful as a continuous business getter.

THE PROGRESSIVE MFG. CO.



It Pulls the Business.

“One of the Strongest Mediums on Our List”

New Britain, Conn., April 1, 1916.
AMERICAN CARPENTER AND BUILDER:

We consider the AMERICAN CARPENTER AND BUILDER one of the strongest mediums on our list and have been pleased with the results obtained by use of space therein.

P. & F. CORBIN,

J. B. COMSTOCK, Advertising Manager.

“Has Certainly Reached an Enviably Position”

New Britain, Conn., March 31, 1916.
AMERICAN CARPENTER AND BUILDER:

On this, your eleventh anniversary, please accept our congratulations.

Your magazine has certainly reached an enviable position in its particular field.

Our method of doing business is such that direct inquiries are not encouraged, so that the number of such inquiries has little to do in influencing our opinion of the value of your magazine as a means of reaching those interested in the line we manufacture.

That we have been with you since you started and shall hope to be with you

for many years to come, is fairly good evidence of how we regard the AMERICAN CARPENTER AND BUILDER as an advertising medium.

THE STANLEY RULE & LEVEL CO.,
C. W. NICHOLS, Adv. Dept.

“Material You Publish Is Very Useful and Helpful to Your Readers”

New Haven, Conn., April 3, 1916.

AMERICAN CARPENTER AND BUILDER:

Our continuous use of space in your publication for so many years shows that we consider it a valuable advertising medium. Unfortunately it is impossible for us to trace any sales to our advertising so that we cannot tell what the results in business have been. The material you publish, we judge, is very useful and helpful to your readers, and it has been our purpose to make our advertising just as helpful.

SARGENT & COMPANY,
J. FRED WRIGHT.

“Editorial Work Authentic and Valuable to Readers. Magazines Are Kept for Future Reference”

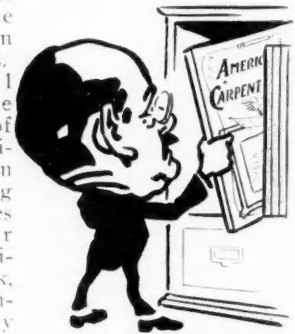
Aurora, Ill., March 31, 1916.

AMERICAN CARPENTER AND BUILDER:

We were surprised to know that we had been using the AMERICAN CARPENTER AND BUILDER since September, 1905. We did not realize it had covered so long a period.

In looking back over this time we find that we have had excellent results from our advertising appearing in your publication. We have received a good many inquiries, and these inquirers have been a class that we could turn into buyers.

We feel that the strength of your publication as an advertising medium lies in your strong editorial work, as you continuously have articles appearing in



Each Number Carefully Filed for Reference.

the AMERICAN CARPENTER AND BUILDER which are authentic and of value to the readers, and being so, magazines are kept for future reference, which adds to the life of the advertising appearing in those issues.

RICHARDS-WILCOX MFG. CO.,
D. M. KAGAY, Advertising Manager.

"We Are Well Pleased"

Seymour, Conn., March 31, 1916.
AMERICAN CARPENTER AND BUILDER:
We are well pleased with the advertisement which we are carrying in the AMERICAN CARPENTER AND BUILDER.
THE JAMES SWAN CO.,
W.M. B. SWAN, Pres.

"Your Carpenters Especially Always Have Their Eyes Open for Something New and Good Which Applies to Their Trade"

New Haven, Conn., April 4, 1916.
AMERICAN CARPENTER AND BUILDER:
The AMERICAN CARPENTER AND BUILDER is a good medium to interest the carpenter or builder in our line of builders' hardware, high-grade window and door specialties and brings about in the long run as good results as one can get from advertising. Carpenters and builders, carpenters especially, from our observation, read advertisements and always have their eyes open for something new and good which applies to their trade, and make their wants known to the hardware store where they trade, and from there it passes on to the jobber and to the manufacturer. The AMERICAN CARPENTER AND BUILDER covers a field of this description, and while we are not large advertisers we have good reasons for remaining with you.

THE H. B. IVES CO.

"The Leading Paper for Contractors and Builders"

Chicago, March 31, 1916.
AMERICAN CARPENTER AND BUILDER:
On this eleventh anniversary of your first publication we offer you our sin-



The Leader.

cere congratulations. Your paper has been a great success and this success must be very gratifying to you. When our attention was called to your new publication, eleven years ago, we took some space. We think we have not missed a single issue since that time, and on one occasion, at least, we have used as much as four pages specially prepared in colors in one issue. We cannot tell you exactly how profitable the paper has been to us, for profits are not always measured in exact figures,

but we regard it as the leading paper for contractors and builders in the country, and that is the class we especially desire to reach. It has been very satisfactory to us and we expect, indefinitely, to continue using your columns.
HESS WARMING & VENTILATING CO.
Per GEO. H. HESS, Sec'y.

"Assistance in Preparing Advertising Copy Appreciated"

Chicago, Ill., April 11, 1916.
AMERICAN CARPENTER AND BUILDER:
It is with pleasure that we write to inform you that we have obtained the very best of results with our advertising in the AMERICAN CARPENTER AND BUILDER. We keep a close check on inquiries received from our magazine advertising and have found that the rate per inquiry thru the AMERICAN CARPENTER AND BUILDER is considerably below that of other advertising.



Expert Advertising Copy Service Rendered.

We wish to thank you for the many courtesies shown us in the past and for the assistance you have given us in preparing advertising copy.
TRIPLE "A" MACHINE CO.,
E. G. CASE.

"Constant Inquiries Received"

Chicago, Ill., March 30, 1916.
AMERICAN CARPENTER AND BUILDER:
We consider it a privilege to write a few lines relative to your publication—AMERICAN CARPENTER AND BUILDER. As stated in your letter, we are one of the advertisers who have been using space with you for five years, and we can state without hesitation, that your publication is an excellent one and that we receive constant inquiries thru our advertising used in your medium.

With best wishes for your continued success,
PATENT VULCANITE ROOFING CO.,
A. J. VAN PAGE,
Asst. Sales Mgr.

"Your Paper is One of the Essentials to the Proper Conduct of Our Business"

Chicago, Ill., April 21, 1916.
AMERICAN CARPENTER AND BUILDER:
We do not know just how many years it is since we began advertising in your paper, but it is something over five years, we know; and the fact that we have kept our sign hanging up there all these years should be sufficient demonstration to you that we believe in your medium. We feel as though an advertisement in your paper is one of the essentials to the proper conduct of our business, and we hope that you will continue to keep up the high standard and quality of your paper, and circulation in the future as you have in the past.

Yours very truly,
THE HEPPESS COMPANY,
By O. A. HEPPESS, Secy.

"One of the Few Where Money Is Well Spent"

Chicago, Ill., April 8, 1916.
AMERICAN CARPENTER AND BUILDER:
We have found the AMERICAN CARPENTER AND BUILDER one of the best mediums to advertise our derricks in. The results we obtained the last five years were satisfactory enough so that we felt it was to our interest to keep our adv. in steady, and we certainly do not regret that we started advertising in your trade journal, which is one of the few where money is well spent.
SASGEN DERRICK CO.,
M. J. SASGEN, President.

"Volume of Business Increased"

Chicago, Ill., April 21, 1916.
AMERICAN CARPENTER AND BUILDER:
The best evidence of the value of your publication as an advertising medium, we believe, is the fact that we have continued to use it continuously ever since we started to advertise in the building trade publications; and it is partly due to this advertising that we are enjoying at the present time several times the volume of business in this line that we were when we commenced this advertising.
THE STANDARD SCALE & SUPPLY CO.
By M. H. REED, Manager.

"We Know It Will Pay Any One"

Chicago, Ill., March 30, 1916.
AMERICAN CARPENTER AND BUILDER:
The business derived from advertising in your magazine has been very good; in fact, not for a single moment would we consider discontinuing placing our advertisements in same. To whom it may concern, we can recommend your magazine as one that we know will pay any one who may place an advertisement therein.
HARDIN-LAVIN CO.,
W. H. ESCH, Manager.

"Reaches Many Barn Builders"

Ottawa, Ill., April 1, 1916.
AMERICAN CARPENTER AND BUILDER:
We have placed our advertisements in your publication at frequent intervals during the past ten years and the resulting number of inquiries has demonstrated that the paper reaches many contractors and carpenters, most of whom live in the smaller cities and towns. This is especially desirable in our case, since we are chiefly interested in knowing the men engaged in building farm structures. Trusting you will endeavor to maintain the present logical method of editing the AMERICAN CARPENTER AND BUILDER.
J. E. PORTER COMPANY,
By W. L. WEINTZ.



The Barn Builders' Bible.



"Well Edited, Well Managed, Well Printed, and We Believe Well Read"

Louisville, Ky., March 31, 1916.

AMERICAN CARPENTER AND BUILDER:

We consider your paper among the best that come to our desk. It is well edited, well managed and well printed, and we believe that it is well read. We have been with you for six years and hope to stay, at least, six years longer. With very best wishes and hopes for many happy returns,

DOW WIRE & IRON WORKS.

By W. HUME LOGAN, President.

"A Logical Medium for Us"

Chicago, Ill., March 30, 1916.

AMERICAN CARPENTER AND BUILDER:

We have now been using your advertising columns for about six years. The fact that this use has been continuous and that we contemplate continuing our advertising with you is an indication that we are very well satisfied with results.

Your publication is, of course, a logical medium for us, as the courses we offer in plan reading, estimating, building construction, architectural drafting, etc., appeal strongly to practical men who read your magazine.

CHICAGO TECHNICAL COLLEGE.
C. W. MOREY, Pres.

"One of the Last Mediums We Would Consider Taking Off the List"

Chicago, Ill., March 30, 1916.

AMERICAN CARPENTER AND BUILDER:

We have always secured excellent returns in point of the number of inquiries received from your publication and have, as well, been able to trace a fair proportion of orders originating from replies to our advertisements. Probably the best evidence of our opinion of the AMERICAN CARPENTER AND BUILDER is that we have used it continuously for so long a period and that it is one of the last mediums we would consider taking off our list.

NORTH WESTERN EXPANDED METAL CO.,
C. O. POWELL, Advertising Manager.

"But Found no Paper or Magazine Which Gave Us the Desired Results Like the American Carpenter and Builder"

Galesburg, Ill., April 1, 1916.

AMERICAN CARPENTER AND BUILDER:

We have been advertisers in your magazine for the last few years. During this time we have also advertised with other concerns, but found no paper or magazine which gave us the desired

results like the AMERICAN CARPENTER AND BUILDER. Our advertisements in this magazine have brought us many good customers from all parts of the United States.

Our business relations with your company have been friendly and cordial and you have assisted us in every way possible to make the sale of our products a success.

Assuring you your efforts and kindness have been appreciated and wishing a continuance of these pleasant business relations.

GALESBURG SHEET METAL WKS.,
MARTIN LAUERMAN.

"Have Made Many Permanent Friends in the Building Profession"

Galesburg, Ill., April 7, 1916.

AMERICAN CARPENTER AND BUILDER:

We regard your publication as a very good medium for reaching the building trade. Thru its pages we have made many permanent friends in the building profession. With best wishes, we are,

WILLIS MANUFACTURING CO.,
Per H. L. SWAN.

"An Excellent Lot of High-Grade Readers Among Architects, Contractors and Home Builders"

Waterloo, Ia., April 7, 1916.

AMERICAN CARPENTER AND BUILDER:

Herrick advertisements have been appearing in your journal since 1907, and we have been very much pleased with the results obtained from them. The Herrick refrigerators appeal to the live architects, contractors and home builders, and the replies we receive prove that you have an excellent lot of high-class readers in those lines.

HERRICK REFRIGERATOR & C. S. CO.
H. G. NORTHEY, Sec'y.

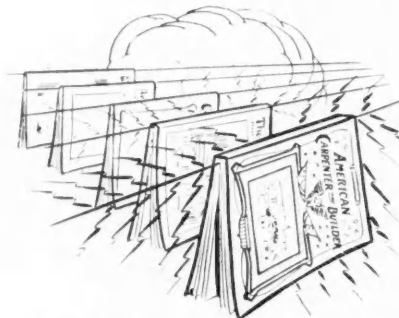
"The Livest Wire in the Bunch of Trade Papers"

Waterloo, Ia., April 8, 1916.

AMERICAN CARPENTER AND BUILDER:

We certainly wish to be included in your list of old friends, and to say we esteem the AMERICAN CARPENTER AND BUILDER very highly. It is about the livest wire in the bunch of trade papers with which we are in touch, and it is accordingly only a natural sequence that it should be a "top-notch" in advertising results. In the last five years during which we have used the BUILDER continuously, inquiries and sales have steadily increased in volume.

WATERLOO CEMENT MACHINERY CORPORATION,
C. L. LOVELAND, Adv. Mgr.



The Livest Wire Business Journal.

"We Like the Men Who Publish It, We Like the Stuff That Is in It, and We Like It Because It Pays Us"

Waterloo, Iowa, April 21, 1916.

AMERICAN CARPENTER AND BUILDER:

The fact that we have been an advertiser in the AMERICAN CARPENTER AND BUILDER since July, 1905, is evidence itself of the fact that we heartily approve of the AMERICAN CARPENTER AND BUILDER and the manner in which it is conducted.

I cannot help but feel that the publishers are to be complimented on the progressive policies you established way back in 1905, and to which you have lived up continuously.

Frankly, we like the AMERICAN CARPENTER AND BUILDER personally, editorially and advertisingly. In other words, we like the men who publish it, we like the stuff that is in it, and we like it because it pays us.

Yours concretely,

THE CEMENT TILE

MACHINERY CO.

By W. H. STEWART, Sales Mgr.



"Readers Very Quick to Take Up New and Better Building Ideas"

Beatrice, Neb., April 3, 1916.

AMERICAN CARPENTER AND BUILDER:

The fact that our advertisement has not missed a number for over eight years shows how highly we regard your publication. We would not attempt to sell building specialties without its aid.

Its readers in the smaller cities and towns are very quick to take up with new and better building ideas and they appear to be in such close and pleasant relations with the people for whom they build that they are able to adopt and use these new ideas as soon as they are satisfied that they are really good. We attribute much of our own success to the splendid patronage which its readers have given us.

F. D. KEES MFG. CO.
J. A. KEES, Sec'y.

"One of the Best Papers for Reaching the Carpenters and Builders"

Rockford, Ill., April 7, 1916.

AMERICAN CARPENTER AND BUILDER:

We have advertised in the AMERICAN CARPENTER AND BUILDER since the day of the first issue and have been well pleased with the results, both as to inquiries and orders. We consider it one of the best papers for reaching the carpenters and builders that is published.

W. F. & JOHN BARNES CO.
A. T. B.



Justified by Actual Profits—
the Publicity Costs Nothing.

"A Good Investment"

Saginaw, Mich., April 5, 1916.
AMERICAN CARPENTER AND BUILDER:
The fact that we have been a continuous advertiser with you since 1905 conveys to you our regards for your paper and also that we have considered it a good investment. We wish to express our appreciation of the very friendly business relations that have existed between us during these years. With kind regards we remain,
THE LUFKIN RULE CO.
S. B. McGEE, Sales Manager.

"One of the Best"

Waterloo, Ia., March 31, 1916.
AMERICAN CARPENTER AND BUILDER:
We have been advertising in the AMERICAN CARPENTER AND BUILDER for about nine years and find it one of the best mediums we have on our list.
BOVEE GRINDER & FURNACE WORKS.
Per L. F. POTTER.

"Editorial Makeup Improved from Year to Year"

Sterling, Ill., March 31, 1916.
AMERICAN CARPENTER AND BUILDER:
We appreciate the opportunity to express our gratification at the excellent results which we have received from the advertising space used in AMERICAN CARPENTER AND BUILDER during the past nine years.

Had the returns not been satisfactory we certainly should not have continued using your publication during this extended period.

We are confident there is no better means of reaching the contractors and builders and feel confident there is no better proof of this statement than in the satisfactory returns which we have received.

We have noticed with pleasure the improved makeup and editorial policy of your publication from year to year. Wishing your publication every success.

NATIONAL MFG. CO.
F. B. KENNEDY, Adv. Mgr.

"Explicit Confidence in Your Magazine"

Huntington, Ind., March 31, 1916.
AMERICAN CARPENTER AND BUILDER:
We have been carrying considerable space advertising our line of coal chutes and warm air furnaces in the AMERICAN CARPENTER AND BUILDER since 1908.

We have always held your magazine in high esteem and have gotten splendid results from it as compared with other

magazines of a similar character. We would not forget to mention also that one of our reasons for having explicit confidence in your magazine is due to the fact that we have a very warm feeling in our heart for Mr. Smith, your traveling representative. He has always been very courteous and we are always glad to welcome him when he finds it convenient to call.

We hope that business conditions will continue so that we will find it convenient to always carry our line of specialties in your magazine, as we feel that it reaches a class of people better than any other magazine. We certainly wish to thank you for courtesies extended to us from your office from time to time.

Wishing you splendid success in your further efforts and with kindest regards,
THE MAJESTIC COMPANY.
Per J. M. TRIGGS.

"No Better Medium to Reach the Users of Carpenters' Tools"

Greenfield, Mass., April 8, 1916.
AMERICAN CARPENTER AND BUILDER:
Having advertised in the AMERICAN CARPENTER AND BUILDER continually since



The Favorite of the Carpenters.

July, 1905, it is a pleasure to state that we have been well satisfied with the results obtained and consider that there is no better medium to reach the users of carpenters' tools.
GOODELL MFG. CO.
P. E. FAY, Treas.

"Seven Consecutive Years of Satisfaction"

Lawrenceburgh, Ind., March 30, 1916.
AMERICAN CARPENTER AND BUILDER:
You will find upon referring to your records that we have been represented in your journal for a period of seven consecutive years, which is indisputable evidence of satisfaction, and our contemplation of renewal of contract certifies to our appreciation of good service.
GEO. H. BISHOP & CO.
Per FRANK GOULD.

"Read by the Most Progressive Carpenters and Small Contractors"

Fitchburg, Mass., April 3, 1916.
AMERICAN CARPENTER AND BUILDER:
We have advertised in the AMERICAN CARPENTER AND BUILDER for the past eight or nine years because we felt that that publication would be read by the most progressive carpenters or small contractors if they were keeping up to date at all.

SIMONDS MFG. CO.
R. D. BALDWIN, Adv. Mgr.

"Number of Inquiries Steadily Increasing"

Athol, Mass., April 8, 1916.
AMERICAN CARPENTER AND BUILDER:
The fact that we have been advertising in your publication continuously for several years is the best indication of our opinion of the publication as an advertising medium. We are pleased to note that the number of inquiries for our catalog received thru our advertisement in the AMERICAN CARPENTER AND BUILDER is steadily increasing. We wish you the success which your efforts and enterprise deserve.
THE L. S. STARRETT COMPANY.
F. E. WING, Treas.

"Very Satisfactory Results"

Boston, Mass., April 10, 1916.
AMERICAN CARPENTER AND BUILDER:
The writer, who is now in charge of our advertising, has only been in this position for the last four or five months and is totally incompetent to judge what benefits have been derived during the past five years from our ad. in your paper.

He can, however, make the statement that during the past few months your paper has been used with very satisfactory results and it is our intention to continue its use.
FLINTKOTE MANUFACTURING COMPANY.
By WM. A. HARRIS.

"Continuously for About Ten Years with Very Good Results"

Greenfield, Mass., April 5, 1916.
AMERICAN CARPENTER AND BUILDER:
We have used the AMERICAN CARPENTER AND BUILDER continuously for about ten years, with very good results.
GOODELL-PRATT COMPANY.
F. W. PRATT, Advertising Dept.

"Best in Field and Improving"

Reading, Pa., April 8, 1916.
AMERICAN CARPENTER AND BUILDER:
Our experience has caused us to consider the AMERICAN CARPENTER AND BUILDER to be the best publication in its particular field and is constantly improving. On account of our being very busy filling orders for dumbwaiters, elevators and sidewalk lifts, we must confine our remarks to as few words as possible.
J. G. SPEIDEL
SMITH.



"A. C. & B." Advertising Keeps the Shipping Rooms Busy.

"The Standard of Comparison for Other Publications. Have Had More Direct Sales Through Inquiries Received Than From Any Other Publication"

Jackson, Mich., March 30, 1916.
AMERICAN CARPENTER AND BUILDER:

We consider the AMERICAN CARPENTER AND BUILDER one of the best, if not the best, trade paper in which our ad. appears. We base this opinion on the results we are able to realize from the inquiries, also on the number of inquiries received. It has gradually grown to be the standard of comparison for other publications. This has reference to concrete machinery, both mixers and block machines.

Since we have been advertising the Jackson Auto Trailer in your paper we have made more direct sales thru inquiries received from the AMERICAN CARPENTER AND BUILDER than from any other one publication. All this goes to show, in our opinion, that the readers of your paper are, for the most part, actually interested, and are actual buyers of the material about which they make inquiry.

We are pleased to report this condi-



Many Sales Direct from Ads.

tion to you and sincerely believe that thru your efforts, such conditions will be continued, or, perhaps, bettered.

THE MILES MANUFACTURING CO.

By R. T. KAYWOOD, Sec. and Treas.

"Well Covers the Trade"

Battle Creek, Mich., March 30, 1916.
AMERICAN CARPENTER AND BUILDER:

We have been satisfied that your publication well covers the trade to which it is directed and is therefore a good advertising medium in that direction, and this is our reason for having continued our advertising.

H. B. SHERMAN MFG. CO.

"Our Advertising Must Pay Out or Be Discontinued. We Continue in the American Carpenter and Builder Year After Year"

Cadillac, Mich., April 3, 1916.
AMERICAN CARPENTER AND BUILDER:

The best evidence that we have been satisfied with this advertising is the fact that we have continued to use your medium year after year for a period of eight years. It is the policy of this company that advertising must pay out or it will be discontinued, and it is be-

cause our advertising in the AMERICAN CARPENTER AND BUILDER has paid that we have continued to use your medium. In conclusion, we wish to say that we are well pleased with AMERICAN CARPENTER AND BUILDER.

HELM BRICK MACHINE CO.

By C. J. HELM, President.

"Reaches Discriminating Readers Who Appreciate Products of Merit"

Detroit, Mich., April 3, 1916.
AMERICAN CARPENTER AND BUILDER:

Ten years of continuous advertising in your publication! Need we give any further evidence of how highly we regard the AMERICAN CARPENTER AND BUILDER as an advertising medium? Unquestionably your publication is filling an important need and reaches discriminating readers who appreciate products of merit. That's the real secret of successful advertising: good products, sincere advertising and a publication rendering real service. With best wishes for your continued success.

TRUSSED CONCRETE STEEL CO.

S. M. FECHHEIMER,
Manager Publicity Department.

"One of the Best Mediums for Woodworking Machinery"

Grand Rapids, Mich., March 30, 1916.
AMERICAN CARPENTER AND BUILDER:

It has been our good fortune to have been among your advertisers almost constantly since 1908, and we have always considered the AMERICAN CARPENTER AND BUILDER to be one of the best mediums to reach consumers of the class of woodworking machinery which we are building. We hope that the results which we obtain in the future will be of the same satisfactory nature as those obtained in the past.

FOX MACHINE COMPANY.
W. H. Fox.

"Backed by a Splendid Organization"

Niles, Mich., April 4, 1916.
AMERICAN CARPENTER AND BUILDER:

I am frank to say that our business relations and the results which this company has obtained thru the publicity of this good paper has been uniformly excellent.

I have been familiar with your publi-



Splendid Organization of Editors, Special Writers, Illustrators, Architects, Engineers and Business Counsellors.

cation almost since its organization, and I have watched its growth as well as the able manner in which it has been managed and edited, and the splendid organization which this publication has behind it reflects a great deal of credit on Mr. Radford and you, who have been with him so long and supported him so ably.

KAWNEER MANUFACTURING CO.
FRANCIS J. PLYM, President



"Read Extensively by People Building New Homes"

Niagara Falls, N. Y., April 4, 1916.
AMERICAN CARPENTER AND BUILDER:

We have been using the AMERICAN CARPENTER AND BUILDER for several years and believe it to be one of the best publications of its kind in the building trade. It is not only interesting to the carpenter and builder, but its columns are also read extensively by a large number of people building new homes. We consider it a very valuable paper on our list and judging from the past five years' experience we believe that we will be connected with this publication permanently.

THE CARBORUNDUM COMPANY

"More Inquiries Than From Any Other Trade Paper"

Northville, Mich., April 7, 1916.
AMERICAN CARPENTER AND BUILDER:

We have been using your paper continuously since 1910, and it gives us great pleasure to be able to state that during that time we have received more inquiries concerning the article advertised in your paper than from any other trade paper we have used. A sufficient number of the inquiries have been live enough to make the advertising a paying proposition.

As to any suggestions for future improvements, we consider this is a matter entirely up to the general management of your paper, and have no doubt you will have enough new schemes to continue to make it attractive to your patrons.

AMERICAN BELL & FOUNDRY CO.
F. S. HARMON, Pres.

"Sales Uniform Over Ten Years"

Holland, Mich., April 6, 1916.
AMERICAN CARPENTER AND BUILDER:

It was interesting to us to note that we had been advertising in the AMERICAN CARPENTER AND BUILDER for over 10 years.

We have always followed the inquiries and sales produced and we must say that they have been very satisfactory. Results obtained, both inquiries and sales, held exceptionally well each year

that we now feel that as long as we continue advertising we can always count on a certain amount of business year after year.

We do not know that we could suggest any improvements in this paper in its editorial or reading matter. We have always felt that it was a leader in its field.

W. E. DUNN MFG. CO.
W. E. DUNN, President.

"More Business Than We Can Take Care of"

Holland, Mich., April 12, 1916.
AMERICAN CARPENTER AND BUILDER:
What advertising was done in your magazine during the past five or six years has been very satisfactory as to the results we have gotten; and the fact that we are advertising with you at present, when we really have more business than we can take care of, is the best proof that your publication has given us satisfactory advertising service.

HOLLAND FURNACE CO.
A. H. LANDEWEHR, Manager.

"Progressiveness and Ambition Guarantee the Future"

Jackson, Mich., March 30, 1916.
AMERICAN CARPENTER AND BUILDER:
We have had space in your publication almost since its beginning, and wish to congratulate you upon the splendid growth you have made and the attractive and practical magazine you are publishing. As a means of publicity we can trace more inquiries directly to the AMERICAN CARPENTER AND BUILDER than any other journal we are advertising in.

We do not feel ourselves competent to offer any suggestions for improvement and if such are necessary feel sure that the general progressiveness and ambition which have characterized your efforts in the past will continue in the future. Wishing you many more years of success.

THE KNICKERBOCKER COMPANY,
By W. B. KNICKERBOCKER, JR.

"Readers Are Exceptionally Enterprising and Wide-Awake Men"

Scranton, Pa., April 6, 1916.
AMERICAN CARPENTER AND BUILDER:
We are glad to send our salutations and best wishes to the AMERICAN CARPENTER AND BUILDER. Our records show that we have advertised the schools in this publication continuously for over ten years. The response from ambitious men who realize the need and value of special training has been of such nature as to convince us that the readers of the AMERICAN CARPENTER AND BUILDER are exceptionally enterprising and wide-awake men.

INTERNATIONAL CORRESPONDENT SCHOOLS.
G. LYNN SUMNER, Adv. Mgr.



The Radford Building, 1827 Prairie Ave., Chicago.

"Substantial Organization With a Building of Its Own"

Jersey City, N. J., April 1, 1916.
AMERICAN CARPENTER AND BUILDER:
The fact that the AMERICAN CARPENTER AND BUILDER has held its own and has now completed its eleventh year is pretty good evidence that it has found itself wanted and that it has given satisfaction, else it would not be alive today, nor have what it presumably has, a paying subscription list and a paying advertising list.

Furthermore, we notice that it has a building of its own handsome enough for a king's palace. We therefore wish it may see its four score and better years as the Dixon Company has.
JOSEPH DIXON CRUCIBLE CO.
GEO. E. LONG, Vice-President.

"Our Best Advertising Medium for Reaching the Building Trade"

Jersey City, N. J., April 1, 1916.
AMERICAN CARPENTER AND BUILDER:
We class the AMERICAN CARPENTER AND BUILDER as our best advertising medium for reaching the building trade. The results of our advertising in the AMERICAN CARPENTER AND BUILDER have at all times been gratifying. As an evidence of this fact, we wish to state that we have continued advertising in your "medium" since 1906. Wishing you continued success.

NATIONAL SHEET METAL ROOFING CO.
H. E. COOPER, Pres. and Treas.

"Results Have Been Very Satisfactory"

Newark, N. J., April 8, 1916.
AMERICAN CARPENTER AND BUILDER:
Regarding our advertisement in your magazine. So far as we are able to determine the results have been very satisfactory and we expect to continue advertising in same.

THE STORM MANUFACTURING CO.
D. MINOR LAKE, Pres.

"Our Advertising Is Checked Up Very Closely. It is Paying Us"

Buffalo, N. Y., April 1, 1916.
AMERICAN CARPENTER AND BUILDER:
The service rendered us and the results obtained thru your magazine have been entirely satisfactory or we would not be with you at the present time. Our advertising, especially during the last three years, has been checked up very closely determining the results, and the fact that we still remain with you is sufficient proof that it is paying us.

THE L. & I. J. WHITE COMPANY.

"Inquiries and Actual Orders Very Satisfactory"

New York, N. Y., April 4, 1916.
AMERICAN CARPENTER AND BUILDER:
We have advertised in your journal since May, 1911, and the inquiries and actual orders received thru this medium have been very satisfactory. As you are aware, we have this year contracted for a larger space than heretofore. It is an evidence of our satisfaction.
JOHN BOYLE & CO., INC.
W. A. FYFE, Advertising Mgr.

"You Have Succeeded in Making Your Paper a Power in Its Field"

New York, N. Y., March 31, 1916.
AMERICAN CARPENTER AND BUILDER:
We believe that we are one of your original advertisers, having started with you in April, 1905. During all of these years we have watched your growth and believe that you have succeeded in making your paper a power in its field.

Our results from advertising come so indirectly that we are never able to judge of the value of a medium in dollars and cents. At times, however, when we were advertising in a number of building papers we kept track of inquiries received, and the cost of inquiry was considerably lower in your paper than any other building publication.

Our conclusion from records kept was



The Power in the General Building Field.

that your publication was a better medium in which to advertise tools to the individual carpenter than the others, so that we retained our advertisement in your paper and dropped out of the others. Wishing you many more prosperous years.

CHAS. MORRILL,
Per Wm. C. MORRILL.

"Valuable Service in Promoting the Saw Business"

Indianapolis, Ind., April 20, 1916.
AMERICAN CARPENTER AND BUILDER:
I do not know that there is any better evidence of our high regard and confidence in the AMERICAN CARPENTER AND BUILDER than the fact that we have been persistent advertisers with you for a great many years.

Personally I hope that your paper may continue to prosper, at least so long as I am interested in promoting the saw business, because it is affording this department valuable service.

Yours very truly,
E. C. ATKINS & CO., INC.
H. T. BENHAM, Adv. Mgr.

"One of the Best Advertising Publications We Use for Results, Which Means Actual Sales"

Lansing, Mich., April 8, 1916.

AMERICAN CARPENTER AND BUILDER:

Our principal reason for advertising in trade papers is to secure inquiries for the machines which we manufacture.

It is expensive to follow up inquiries properly, therefore the quality of the inquiry is more important than the quantity. We have found that inquiries received thru our advertising in the AMERICAN CARPENTER AND BUILDER during the past eight or ten years have been very satisfactory in both quality and quantity.

It is one of the best advertising publications we use for results—which means actual sales.

EUREKA MACHINE CO.
C. J. MEARS, Sec'y and Treas.

"Better Results Than Any Other Periodical"

New York, N. Y., April 5, 1916.

AMERICAN CARPENTER AND BUILDER:

Our advertisement in the AMERICAN CARPENTER AND BUILDER has given us better results than any other periodical we advertise in, and for that reason it is our intention to continue with you indefinitely.

DAHL MFG. CO.
C. M. NICHOLSON.

"We Advertise for Results. Your Paper Stands at the Top on Our List"

New York, N. Y., April 1, 1916.

AMERICAN CARPENTER AND BUILDER:

The fact of our having continuously advertised in your periodical for ten years, or very nearly so, lacking a few months, is evidence of the fact that we appreciate that your advertising brings results.

We advertise for results, we endeavor to keep careful tab on same, and of the building papers we have used we believe that yours stands at the top of the list.

We want to thank you for the attention you have given to our advertising and the favors you have shown in the past. We hope to continue our business relations with you for a long time to come.

SMITH & HEMENWAY, INC.
J. F. HEMENWAY, Treas.



Best by Every Test.



"Now for Action."

"150 Inquiries in One Month"

Cincinnati, Ohio, April 7, 1916.

AMERICAN CARPENTER AND BUILDER:

When our Mr. Parks first started in business he took a small space in your publication and we have always had splendid results from the advertisement in the AMERICAN CARPENTER AND BUILDER. During January last we received over one hundred and fifty inquiries which we could trace through our advertisement in your paper.

PARKS BALL BEARING MACHINE CO.
Per E. E. BAKER.

"Results Satisfactory"

New York, N. Y., April 10, 1916.

AMERICAN CARPENTER AND BUILDER:

The fact that we renewed our contract this year may be taken as evidence that results heretofore have been satisfactory.

NATIONAL LEAD COMPANY.
WILLIAM KNUST, Adv. Dept.

"Very Much Pleased with Your Publication"

Rochester, N. Y., March 31, 1916.

AMERICAN CARPENTER AND BUILDER:

We are very much pleased with your publication as an advertising medium. There is no better trade journal for our line than yours, else we would not have continued in your columns during the past five or six years. We are entirely satisfied with the results obtained.

CALDWELL MFG. CO.

"Trial Advertisement in 1909 Continued Without Interruption Since"

Rochester, N. Y., April 12, 1916.

AMERICAN CARPENTER AND BUILDER:

In the fall of 1909 we placed a small advertisement in your paper advertising our patent groover or dado head. This ad we placed with you as an experiment, and we are pleased to say that the results that we obtained were such that we not only continued our advertisement, but from time to time have increased the space, so as to advertise our patent jointer and moulding head for use on an ordinary saw mandrel, as well as our line of special grooving saws.

We consider the AMERICAN CARPENTER AND BUILDER ranks very high as a trade journal in the interests of the building business.

HUTHER BROS. SAW MFG. CO., Inc.
By H. G. ALDRIDGE, Vice-President.

"More Returns Than From Any Other Publication"

Rochester, N. Y., April 1, 1916.

AMERICAN CARPENTER AND BUILDER:

Our advertisement in your paper has been very satisfactory indeed and we have had more returns from same than from any other publication that we advertise in.

MACK & COMPANY.

"Best Advertising Medium We Have"

Poughkeepsie, N. Y., April 7, 1916.

AMERICAN CARPENTER AND BUILDER:

We have been advertising in your paper since November, 1905, and wish to state we consider it the best advertising medium we have. From time to time we keep careful checks on the orders we receive as a result of advertising and we have always found your paper to head the list.

JAMES L. TAYLOR MFG. CO.
B. A. MATTHEWS, Sec. and Treas.

"Excellent Results"

Buffalo, N. Y., April 1, 1916.

AMERICAN CARPENTER AND BUILDER:

We received excellent results from your paper and were advertisers with you for quite a number of years.

BUFFALO WIRE WORKS CO.
JOHN C. SCHEELER, Secretary.

"Have Advertised Continuously"

Vineland, N. J., April 12, 1916.

AMERICAN CARPENTER AND BUILDER:

The fact that we have practically advertised continuously in the AMERICAN CARPENTER AND BUILDER since it started shows our opinion of its value as an advertising medium.

GAGE TOOL CO.
JOHN P. GAGE, Proprietor.

"Articles Very Practical and of Great Benefit to Readers"

Cincinnati, Ohio, March 30, 1916.

AMERICAN CARPENTER AND BUILDER:

We have been using your publication as an advertising medium since 1910.

Of Great Benefit to Builders.



There is only one reason why we have continued to use the AMERICAN CARPENTER AND BUILDER, and that is because it has always given us successful results. We consider your publication one of the most productive in returns of any we use and shall continue to use its columns as long as it will pay us to do so.

THE WILLIAMSON HEATER CO.
By H. W. GREIFF.

"Truly the Leader in Its Field"

Columbus, Ohio, March 30, 1916.

AMERICAN CARPENTER AND BUILDER:

We thank you for recalling that we are one of your old advertisers, owing to the fact it gives us the opportunity to stop a moment and express our appreciation to you of the service rendered this company in the past.

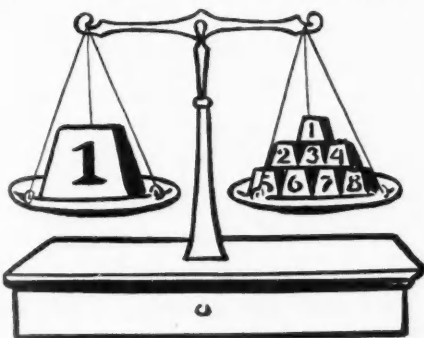
We have found that your publication is truly the "Leader" in its field and we wish you continued success.

THE JAEGER MACHINE CO.
By W. B. SIMPLER.

"Inquiries in One Month Equal to Those From 8 Other Woodworking Trade Journals. Moreover They Are of Good Class, and Mean Business"

Sidney, Ohio, March 30, 1916.

AMERICAN CARPENTER AND BUILDER:
We are pleased to be able to say that for nine years we have carried ads. in your paper, missing very few issues in that time and in regard to the results which we have obtained from these ads. we can only say that your medium is beyond the question of a doubt the best we have ever used. During normal times we advertise in about eight trade journals going to the woodworking trade, and in a great number of cases the inquiries received from your paper will equal those received from all other papers. And further than this the inquiries that we get from your paper



Equal to Eight Other Journals Combined.

generally are of pretty good class—and they mean business—and we are able to trace back a good many orders.

We are very glad to be able to give you this information. Also wish to take this opportunity of thanking you for your many past courtesies and with very best wishes for your success.

THE SIDNEY TOOL COMPANY.
B. A. GETZ.

"Inquiries and Sales as Much as From Any Other Two Publications"

Toledo, Ohio, March 31, 1916.

AMERICAN CARPENTER AND BUILDER:
We have been a constant advertiser in the AMERICAN CARPENTER AND BUILDER for about nine years and the results have always been very satisfactory. As a matter of fact, inquiries and sales from the AMERICAN CARPENTER AND BUILDER amount to as much as any other two publications we advertise in.

AMERICAN FLOOR SURFACING MACHINE CO.
W. B. FREY, Secretary.

"It Meets the Needs of the Average Building Contractor in an Admirable Way"

Columbus, Ohio, April 3, 1916.

AMERICAN CARPENTER AND BUILDER:
As to offering suggestions for the improvement of your journal, I am unable to do so, for to my way of thinking, it meets the wants and needs of the average building contractor in an admirable way.

This seems to be proven by the very excellent returns I have received from advertising in it for a number of years, much greater than any similar publication I have tried, and I have tried them all.

If you maintain the same high standards in the future that you have established in the past, there is no reason why you should not continue to grow and prosper, and your advertisers will continue to enjoy like benefits.

H. P. DIDRIKSEN.

"Continuous Advertisers Since the First Number"

Salem, Ohio, April 7, 1916.

AMERICAN CARPENTER AND BUILDER:
The fact that we have been continuous advertisers in your paper since the initial number, we believe, is the best evidence as to the result produced and our regard for your publication.

THE W. H. MULLINS CO.
J. H. BLACKBURN, P. A.

"A Very Good Advertising Medium"

Sidney, Ohio, April 8, 1916.

AMERICAN CARPENTER AND BUILDER:
We have always considered your journal a very good advertising medium.

SIDNEY ELEVATOR MFG. CO.
W. R. BLAKE.

"Subscribers Are Alert. Up-to-Date Contractors—Leading Men"

Leetonia, Ohio, April 21, 1916.

AMERICAN CARPENTER AND BUILDER:
We distinctly recall the very auspicious start made by your paper when it was established several years ago and we most certainly congratulate you on the marked progress your publication has made.

The esteem in which we hold your paper is best evidenced by the fact of our long continued advertising in it. From what little we have come in contact with your subscribers we know they are the alert, up-to-date contractors and the leading men in their respective lines in their communities.

THE CRESCENT MACHINE CO.
W. G. B.

"Consider It the Best in Field"

Ashland, O., April 3, 1916.

AMERICAN CARPENTER AND BUILDER:
Relative to the success we have had in advertising in your publication would advise that we consider it the best in the field and are using it exclusively at the present time.

ELITE MFG. CO.
By E. L. KILHEFNER.

"Fills a Special Position in the Contractors' Field"

Ashland, O., April 8, 1916.

AMERICAN CARPENTER AND BUILDER:
Our continued use of your publication should be sufficient evidence of our satisfaction with it; in fact, we are very well pleased with the results we have obtained from the advertisements we have run with you in the past.

Regarding your policy: we would not wish to undertake to make any suggestions for changes. We feel that the AMERICAN CARPENTER AND BUILDER fills a special position in the contractors' field, and would rather have it follow the plan it has been using and show its own individuality rather than to follow the course outlined by other publications.

F. E. MYERS & BRO.
J. C. MYERS.

"Brings Us in Touch with the Actual Users of a Considerable Quantity of Metal Lath"

Warren Ohio, March 31, 1916.

AMERICAN CARPENTER AND BUILDER:
We have used your publication in advertising our Sykes Expanded Cup Lath, "Self-Furring," together with our other types of Metal Lath, for a great number of years. We believe that our first ad-



vertisement appeared in your January, 1907, issue.

We have been much pleased with the results obtained from your publication, as we believe that your paper brings us in touch with the actual users of a considerable quantity of metal lath. This is particularly true at the present time on account of the great amount of stucco work that is being done, and, of course, in the small localities, this work is done by the building contractor.

We have recently doubled the size of our plant in order to take care of our increased demand, and we assure you that it will be a pleasure for us to continue to use your publication.

THE SYKES METAL LATH & ROOFING CO.
C. C. STEWART, Manager of Sales.

"A Good Friend of Ours. A Friend We Most Certainly do not wish to Lose"

Canton, O., April 8, 1916.

AMERICAN CARPENTER AND BUILDER:
No doubt it will be of some interest to know that some five or six years ago, before we first contracted with you for space in the AMERICAN CARPENTER AND BUILDER we had, prior to that time, used no publication for the advertising of our Contractors' and Builders' Supplies, i.e., Sidewalk Doors, Coal Chutes, etc.

From the start your publication proved profitable. About two years after we started our campaign with you we took space in other publications going to more or less of a similar field. About that time we started being more careful in our method of checking results, keying our advertisements, etc.

After running our advertisements in three papers for one year a careful check was made, and it was found that the AMERICAN CARPENTER AND BUILDER was the only publication pulling enough inquiries, producing enough business for us to continue it, and accordingly the other two publications were dropped.

I assure you it gives me a great deal of pleasure to make this report and I want to say that the many years we have done business with you have been pleas-

ant ones, and that all our business relations have been likewise.

The AMERICAN CARPENTER AND BUILDER we consider a good friend of ours and a friend we most certainly do not wish to lose. With kindest regards, I am

J. R. POYSER, for
CANTON FOUNDRY & MACHINE
CO.

"We Consider This Paper a Very Profitable One for Us"

Norwood, Cincinnati, O., March 31, 1916.
AMERICAN CARPENTER AND BUILDER:

We have considered this paper to be a very profitable one for us and we do not expect to change from your paper so long as the results are as satisfactory as they have been in the past.

THE CINCINNATI TOOL CO.
J. M. HARGRAVE, Pres.

**Personally Interesting to Ad-
Manager**

Cincinnati, Ohio, March 30, 1916.
AMERICAN CARPENTER AND BUILDER:

Our first advertisement in the AMERICAN CARPENTER AND BUILDER appeared in June, 1905, so by this we might say we have been steady advertisers with you ever since the publication was started.

The writer personally thinks your publication very interesting and so far as returns from the advertising that we carry have no fault to find, as our business is very largely with contractors and builders and we know of no medium reaching this class of trade as extensively as the AMERICAN CARPENTER AND BUILDER.

THE EDWARDS MFG. CO.
J. M. REYNOLDS, Mgr. Adv. Dept.

**"Actions Speak Louder Than Words
—We Continue to Advertise
With You"**

Cincinnati, Ohio, March 30, 1916.
AMERICAN CARPENTER AND BUILDER:

It is said that actions speak louder than words, and the fact that we can continue to advertise with you, since our first insertion, is all we need to say about your paper.

J. A. FAY & EGAN CO.
E. C. SCHWERTMAN, Adv. Mgr.

**"A Class of Men Who Know Good
Tools and Use Them"**

Brooklyn, Wis., April 7, 1916.
AMERICAN CARPENTER AND BUILDER:

Our first advertisement in the AMERICAN CARPENTER AND BUILDER appeared in July, 1907, and we have been with you ever since. Thru your courtesy and



Readers Know Good Tools and Use Them.

painstaking co-operation we have been able to bring the Fox floor scraping tools before a class of men who know good tools and use them. Our best wishes to you, and we hope to be with you when you celebrate your Golden Jubilee.

FOX SUPPLY COMPANY.
F. W. CAMPION, Manager.

"Your Subscribers Appreciate Quality in Building Materials"

Cincinnati, Ohio, April 10, 1916.
AMERICAN CARPENTER AND BUILDER:

We have been advertising our line of building materials in the AMERICAN CARPENTER AND BUILDER for a number of years and results have checked up very satisfactorily.

Sales made by us on inquiries traceable to your publication indicate that your subscribers are of the class who appreciate quality in their building materials.

THE PHILIP CAREY COMPANY.
V. H. SCHAFER, Mgr. Wallboard Dept.

**"Beneficial in the Distribution of
Our Material"**

Cincinnati, Ohio, April 8, 1916.
AMERICAN CARPENTER AND BUILDER:

We have been advertising in your publication for seven years and we have found it beneficial in the distribution of our material, and believe that you can make your publication of great value to the contractor if you will direct your editorials so that they will put you in closer touch with the individual contractor.

ALLISON BISHOPRIC, Pres.
Mastic Wall Board & Roofing Co.

**"The Best Medium for Advertising
Among the Building Trade"**

Cincinnati, Ohio, March 30, 1916.
AMERICAN CARPENTER AND BUILDER:

We have found the AMERICAN CARPENTER AND BUILDER, among the several we have tried, to be the best medium for advertising among the building trades.

MOORMANN & OTTEN.

**"It Is Properly Entrenched in Its
Field"**

Philadelphia, Pa., April 13, 1916.
AMERICAN CARPENTER AND BUILDER:

Congratulations on the completion of your eleventh year and upon the growth and development of your paper during that time.

That we feel that it is properly entrenched in its field is evidenced by the fact that it has carried our advertising continually, we believe, since 1908.

With best wishes for your future progress and in anticipation of a continuance of our long cordial relations, we are,

HENRY DISSTON & SONS, INC.
A. W. HILL, Adv. Mgr.

**"Many Inquiries and Also
Numerous Orders"**

Philadelphia, Pa., April 8, 1916.
AMERICAN CARPENTER AND BUILDER:

During the years that we have used the AMERICAN CARPENTER AND BUILDER as an advertising medium we have received many inquiries and also numerous orders for our ventilators, which we could trace directly to your paper. We

do not see how you could improve the AMERICAN CARPENTER AND BUILDER, as we think it has a high standard among magazines of this kind.

ROYAL VENTILATOR COMPANY
E. Voss, Manager.

**"A Live and Interested Class of
Readers"**

Pittsburgh, Pa., March 31, 1916.
AMERICAN CARPENTER AND BUILDER:

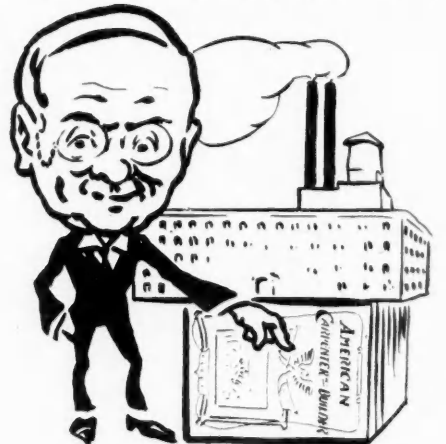
We are glad to be counted among the old advertisers of the AMERICAN CARPENTER AND BUILDER. We have used this publication regularly because it has a live and interested class of readers and because we believe it be an effective advertising medium for our products. We wish your publication continued success.

AMERICAN SHEET AND
TIN PLATE COMPANY.
H. V. JAMISON, Mgr. Adv. Dept.

**"We Lay the Foundation of Our
Business to the American Car-
penter and Builder Because It
Opened a Field for Us on
Portable Saw Rigs"**

Milwaukee, Wis., March 30, 1916.
AMERICAN CARPENTER AND BUILDER:

It will be eleven solid years this com-



Factories are Built on "A. C. & B." Advertising.

ing July that we have carried advertising space in the AMERICAN CARPENTER AND BUILDER. We have never missed one issue during all of this time and we are pleased to say that we can lay the foundation of our business to the AMERICAN CARPENTER AND BUILDER, because your paper opened a field for us on Portable Saw Rigs, and, as you know, we are the pioneers in this field.

We can show you seven direct orders which we received during the month of February, this year, which we can trace directly to your publication.

We key our advertising in your paper as 322 Mineral Street, and the writer keeps a very accurate account of all inquiries which we receive, and those publications which give us business are accordingly given larger advertising space.

If you will refer to your last four issues you will find the C. H. & E. Manufacturing Co. represented with a full page in each issue.

We can highly recommend the AMERICAN CARPENTER AND BUILDER as being the leader among the carpenter and builder publications.

C. H. & E. MFG. CO., INC.
FRANK F. HASE, Secy. and Mgr.

"Refer to Records, Enlarge Advertising Schedule with You"

Eau Claire, Wis., March 31, 1916.
 AMERICAN CARPENTER AND BUILDER:
 We have been advertising with your publication for more than five years and the best evidence of the service which your Journal has rendered this company lies in the fact that this advertising has been continuous, and we are today receiving more inquiries from advertisements in your paper than from any other journal which we use. Under these circumstances we are pleased to say that we will enlarge our advertising schedule with you for next year and add to this piece of good news our good wishes for your continued success and development.

NORTHWESTERN STEEL
 & IRON WORKS.
 W. H. KESTIN, Sales Mgr.

"Personally We Consider the American Carpenter and Builder the 'Pole-Horse'"

AMERICAN CARPENTER AND BUILDER:
 We have been advertising in your paper for the past seven years and the results which we have received from our advertising have been highly satisfactory.

There may be other good mediums going to the building trades, but personally we consider the AMERICAN CARPENTER AND BUILDER to be the "pole horse" among them.

DAVID WHITE CO., INC.
 By R. W. MARTIN, Secy. and Mgr.

"Highly Satisfactory"

Peru, Ill., April 7, 1916.
 AMERICAN CARPENTER AND BUILDER:
 While it is against our policy to give out any information that has been secured thru actual experience, will say that your paper has proven highly satisfactory.

W. H. MAZE COMPANY.
 By JOHN DOMAGALL.

"Your Advertising Columns are Live Selling Aids"

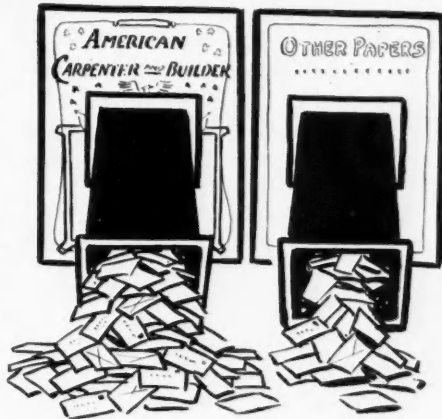
Millers Falls, Mass., Apr. 24, 1916.
 AMERICAN CARPENTER AND BUILDER:
 We value the AMERICAN CARPENTER AND BUILDER as an advertising medium. It is apparent, from the fact that it brings us many inquiries for literature referred to in our advertisements, that your advertising columns are widely read, and are live selling aids.

MILLERS FALLS COMPANY,
 F. H. ATWOOD,
 Sales Manager.

"We Have Decided to Double Our Space"

New Britain, Conn., Apr. 24, 1916.
 AMERICAN CARPENTER AND BUILDER:
 The Stanley Works has been advertising its builders' hardware in the AMERICAN CARPENTER AND BUILDER for several years. To prove how much we appreciate the AMERICAN CARPENTER AND BUILDER as an advertising medium for our goods, and how important we consider it is to win for the Stanley Works the good will of your readers, we have decided to double the space we have heretofore used in your magazine. I do not believe that anything I might add could sound quite as sincere as that simple statement.

THE STANLEY WORKS,
 A. H. DISSAN,
 Advertising Department.



"Fear You Will Raise the Price, Since Inquiries Are Almost Double Those of Any Other Paper"

Oshkosh, Wis., March, 13, 1916.
 AMERICAN CARPENTER AND BUILDER:
 The inquiries we received from advertisements in your paper ran almost double those of any other paper and you may know from this why we continue advertising with you so persistently. We don't like to tell you these things for fear you will raise the price on us, but

we are willing to take a chance. Wishing you continued success.
 OSHKOSH MFG. COMPANY.
 Wm. Ord, Sales Mgr.

"Very Well Pleased"

Grand Rapids, Mich., April 20, 1916.
 AMERICAN CARPENTER AND BUILDER:
 We are very well pleased with results obtained from the use of advertising space in the AMERICAN CARPENTER AND BUILDER.
 GRAND RAPIDS HARDWARE CO.

"We Have Used It in Almost Every Conceivable Way From Small Space to Inserts."

Racine, Wis., April 21, 1916.
 AMERICAN CARPENTER AND BUILDER:
 We are very glad indeed to tell you the experience we have had with AMERICAN CARPENTER AND BUILDER. We have used it consistently for a great many years without missing a single issue. We have used it in almost every conceivable way, from small space to inserts beautifully printed in eight colors.
 We are glad to tell you that it has always proven perfectly satisfactory. We expect to continue using it.
 S. C. JOHNSON & SON.
 Per S. JELLIFFE.

A Few Words from Our Readers

Good Word for "Directory Number"

To the Editor: Centralia, Wash.
 You do not hear from me very often, but I feel that I must say a few words in appreciation of your Directory and Buyers' Guide in the January number of the AMERICAN CARPENTER AND BUILDER. It seems to me it fills a long-felt want for any one, but among the builders especially. I think you hit the nail on the head this time. These pages are worth five years' subscription to the AMERICAN CARPENTER AND BUILDER.

I have every copy from your first number eleven years ago.
 T. HOLLINGWORTH,
 Contractor and Builder.

Still a Student at 41

To the Editor: Elgin, Iowa.
 The February number of the AMERICAN CARPENTER AND BUILDER proves that you have not forgotten the rural carpenter. Say, that was a fine and dandy number. There sure were some nifty buildings, which made the rural carpenter sit up and take notice.

Enclosed find post card picture of my favorite books, "Radford's Cyclopaedia" and of my standby, the AMERICAN CARPENTER AND BUILDER.
 ALEX PAGAN.

Finds Advertisers Courteous

To the Editor: London, Ont., Canada.
 I have found that the men who advertise in the AMERICAN CARPENTER AND BUILDER are O. K. also. I sent to Manitowoc, Wisconsin, for a mitre box, and found it just as represented.

I have received courteous replies from all those to whom I have written for circulars, etc.
 T. R. WRIGHT, Pres.,
 Provincial Builders & Supply Assn.

It Has Helped Me Greatly

To the Editor: Imbler, Oregon.
 I have taken the AMERICAN CARPENTER AND BUILDER for two years, and find it a great help. I can scarcely wait till they come each month as I devour every word. I have obtained many valuable ideas from this magazine.

H. K. LARSEN,
 Contractor and Builder.



The "A. C. & B." and the Radford Books are Well Kept, Studied and Used by Alex Pagan, Elgin, Iowa.

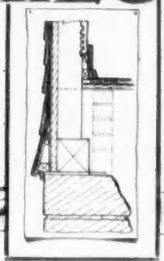


CARPENTRY DETAILS

by

E.T. HUDDLESTON - Architect

Professor - Dept. of Drawing - New Hampshire College



Double Hung Windows in Frame Walls

THE SECOND OF A SERIES OF SIX ARTICLES WITH DETAIL DRAWINGS

THE construction and installation of window frames is one of the most important phases of building construction and one of the details that receives very little serious attention. Stock windows and frames turned out by mills in car-load lots are so cheap and easily available that the ordinary contractor uses them, when he is permitted to do so by the uninformed client, rather than take the time and trouble to design them and pay a price that, altho greater in initial cost, saves money to the owner in the end in upkeep and comfort.

A large share of leakages in a house occur about the door and window frames. Windows sag and bind and a hard driving rain will get in around the casing and discolor the plaster and paper on the walls. It is all due to one of two things. Either the stud framing has been carelessly and inadequately done or the window box is not well designed, the latter reason being the most probable.

First of all, studding should be doubled about all openings for doors and windows. That is merely a principle of good building construction. Where openings have a span of 4 feet or more, the lintle or head should be trussed. If this is done, much of the trouble experienced from loose and binding sash will be overcome.

Secondly, the box should entirely enclose the space for the weights. In sections A, D, E and the left half of H are shown details of a cheap box frame. Note that the pulley-stile and yoke are made of 7/8-inch material; that the lath and plaster cover the inside of the box, and that the sill section permits of no drainage of water under the sash, which are but 1/2-inch thick.

In sections B, F, G and the right half of H the pulley-stile and yoke are made of 1 1/8-inch material. This gives strength to the two members of the frame which receive the most load and strain. For heavy windows the yoke may well be made 1 3/8 inches thick. The box is made up of the pulley-stile, outside casing and ground casing, which entirely encloses the space for the weights, insuring freedom from dirt and fallen plaster in a space that in any event is none too large when kept clear and clean. The sill is cut to form a

space under the lower sash for the water to drain out quickly, thus keeping the moisture from being retained a sufficient length of time to start rot in the sill, stool and apron.

Also note that the sill has been grooved at the bottom to permit the shingles or clapboards to enter about 3/4 of an inch. This tends to make the joint water and wind tight. The sash are made 1 3/4 inches thick, and for all work except the very cheapest this is to be recommended.

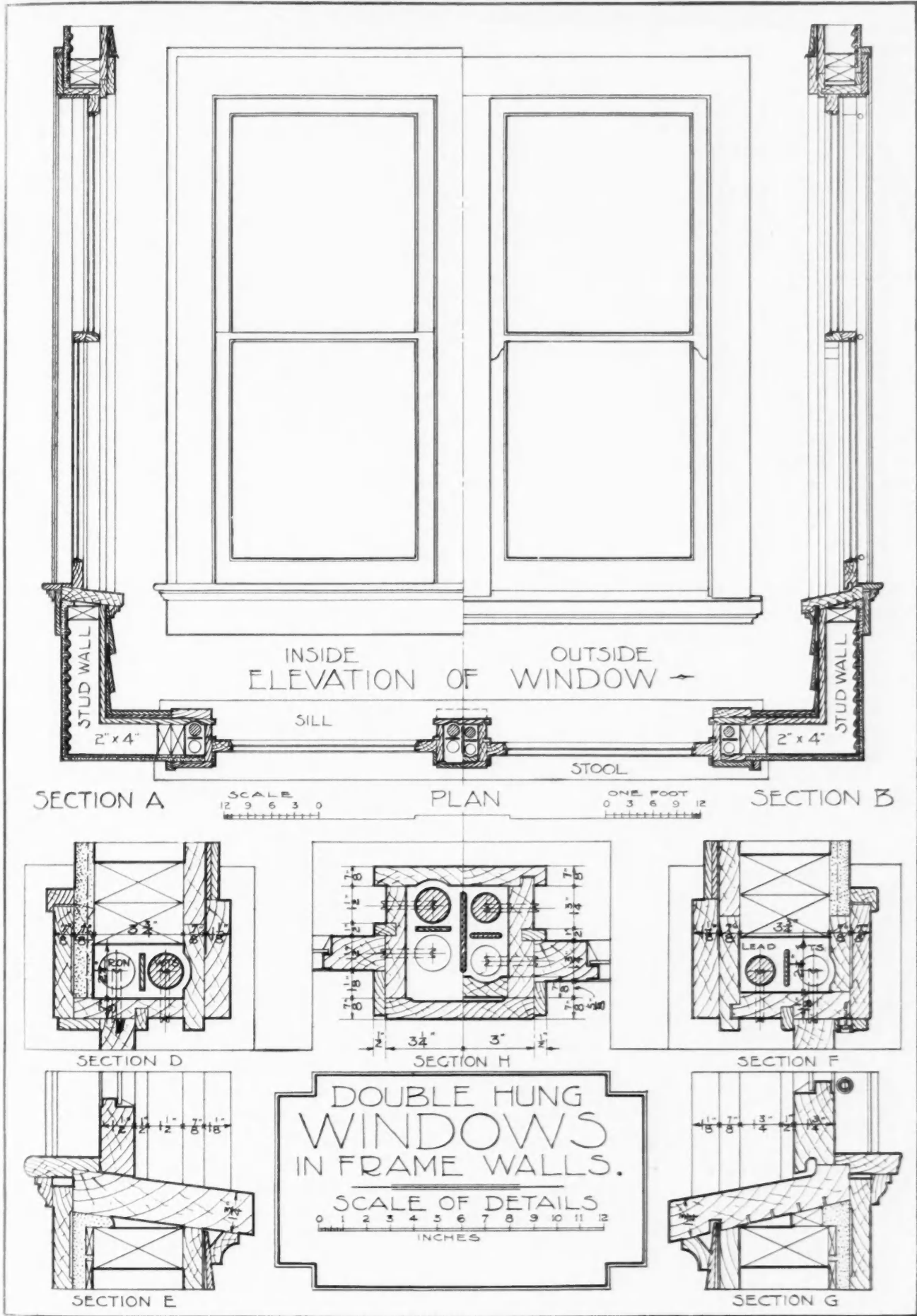
The inside stop is put on with slotted metal stop adjusters. This will give an opportunity for adjusting the sash after shrinkage has taken place and thus avoid a loose, rattling window.

In section H, which is drawn to show two methods of making a mullion, iron weights are used for the cheaper work, and lead weights for work of better grade and where the sash are large and require a heavier weight to balance. Even though the pulley-stile is made 1 1/8 inches thick, by using lead weights the mullion can be kept to 6 inches in width, altho 6 1/2 inches is better, while with iron weights and only a 7/8-inch pulley-stile, there will be required 6 1/2 inches. If for any reason the width of the mullion must be made less than the 6 1/2 inches, then it is better to omit the pendulum rather than crowd the weights.

Section D may be helped by placing a plaster ground around the inside stud, as shown by the dotted lines. This will leave a greater space for the weights, as is shown in left side of section H. The serious objection to this and a good reason for the better method of section F is that the strain which comes upon the frame when the windows are raised and lowered is in section D transferred to the inside trim, which in time works loose from the plaster and opens up at the corner miters, while in section F it is directly transferred to the studding by the ground casing.

For the sake of the finish, sash lock stops should always be put on. They cost little or nothing and certainly prove their worth in keeping the lock from marring and damaging the stop at the top when the lower sash is raised to its full height.

—Durham, New Hampshire.



Details of Double Hung Windows in Frame Walls as Designed by E. T. Huddleston, Architect. Description and Explanation are on Opposite Page.

"Kicking Mules or Kicking Men Never Get Anywhere Until They Quit Kicking and Start Pulling"

THE MAN FROM THE LUMBER YARD

Bees and Beavers Succeed in Their Structure Because They Co-operate with Fellow Workers. That Principle is Necessary with Men and Monkeys. We Commend the Thought of Co-operation that is Given in This Letter.
EDITOR.

IT chanced that I was a guest of Hotel Fowler, La Fayette, Ind., the second Tuesday of April. I learned that the state association of Horse Shoers were holding their annual convention there.

If you and I were going to select a set of men that did not need the help of an association, we would select the horse shoers. Yet these men seemed practical—sensible and very earnest in their work. They would not have spent their time and money if they had not been benefited. I know that there are various associations of different branches of the builders, but I am looking forward to the day when there will be a BUILDERS' CLUB in every town.

Its platform would have only one plank, viz: "To promote building." An interest in the promotion of building would be the only essential qualification for membership.

What would be gained by such a Club? Ask the fruit growers' association of California, as to how they have increased the consumption of oranges since their organization. Civilization is organization. The village, town or city is merely co-operation. What

makes one civilization better than another?—the standard set by the people that compose it. What makes one town better than another town?—the concerted action of a group of men in and for that town. A community advances in proportion as people learn to act progressively in groups. Our big corporations are as much more efficient than the little business of sixty years ago as the threshing machine is ahead of the flail. This is because business men learned the enormous power of co-operation. Don't misjudge me. I am not advising a business combination of those interested in the building line.

Such a combine would discourage the very thing we seek to encourage. Nor, would I advocate "price fixing," altho it is natural that with a getting together and a better understanding, local ruinous price cutting would be corrected.

The main object would be the BOOSTING FOR MORE AND BETTER BUILDING. I like to think of homes not houses. There is such a thing as making a mere house so winsome that it becomes a home.

There is such a thing as making a store building so convenient, so well ventilated and so well lighted that in place of a dungeon or barracks it becomes a place of wholesome delight in which proprietor and clerk spend their working hours. Don't let anyone think that if in any town, the plumber, the painter, the carpenter, the cement contractor, and the handlers of hardware and lumber put all of their feet under one table and spend just one hour a week in discussing the good of the town, there wouldn't be a great improvement in that town.

I want the reader in the smallest town that the "A. C. & B." reaches to stop—think and consider:

(1) What injury could it do me to be better acquainted with the other people in this town that are interested in building?

(2) Could I do some of these other people good by giving them some information that I have?

(3) Would not I be benefited by having information that some of these other people have?

Yes, you would meet your competitor there and would no doubt



Builders' Club Meeting in Lumber Yard Office Making Plans for Bigger and Better Building This Season.

do him good. At least you should try to benefit him. Get out of your mind that your competitor is your enemy. He can and should be your friend if you have the fraternal spirit. If there were more of this fraternal spirit, there would be more instances such as this which came to my notice in a Pennsylvania town.

Together they Bought Mixer and Hoist

A goodly sized factory building was to be erected. The contract was likely to go to an outside bidder because neither of the local people had a mixer or hoisting engine. The local men pooled their interests and bought these two machines. When the machines were being used by one or the other of the joint owners, he paid a rental that soon covered the cost.

Among the multitude of good things such a co-operation of local common interests brings about is the enabling of the local people to meet outside competition, whether from the adjacent city or the ready-cut house people. But I do not want to emphasize this feature of co-operation to such an extent that you would overlook the paramount gain, i. e., the stimulating of more building.

Unchangeableness of Human Nature

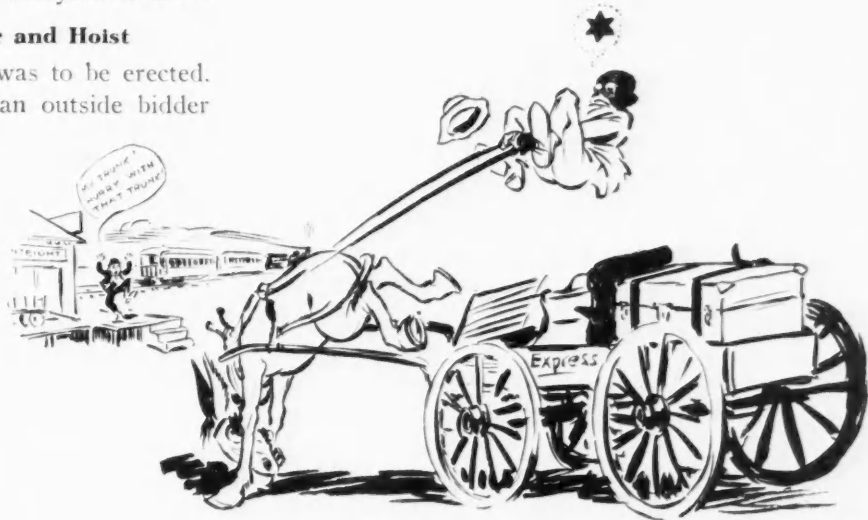
In the town of two thousand there are at least five people interested in the building line. The town of five thousand has at least ten so interested, etc., etc. You cannot estimate the influence that even so few can exert by concerted action in taking the lead.

Each reader knows that there is something wrong with his town. It is mule nature, also man nature to stand and kick. The kicking mule or kicking man never gets any where until he quits kicking and starts pulling.

The Experience of "X" Town can be Repeated in Your Town

I wish I could give the

name of a town where the pull-together spirit worked out most advantageously. My informants requested that I would not give them any publicity. The condition in this town which we will call "X" are duplicated in many others.



"Kicking Mules or Kicking Men Never Get Anywhere Until They Quit Kicking and Start Pulling."

SAW DUST

It largely depends on you as to whether your town shrivels or expands.

A little co-operative enterprise will lighten the community.

If you don't want people to neglect you, don't neglect yourself.

"In all things showing thyself an example of good works" (Titus 2-7).

You owe your town something besides your taxes. What are you doing for your town besides what you owe it?

Improving your own house will inspire some one else to do likewise.

Have you a kick coming on your town? What are you doing to straighten out the kinks?

No town is better than the people of the town.

The steady effort produces the steady income.

Don't wait for circumstances to compell you to act. Be a self starter.

Success isn't limited to a locality. It grows from a success man, no matter where he is.

People follow the style. Set the style for better building.

If you can't imitate, co-operate.

He that overcometh getteth the good things.

"Impossible" appears often in the vocabulary of the Quitter.

Is your town better or worse for your living in it?

Some men fail before they begin.

An enterprise that helps anyone in your town helps you.

Getting started is the first essential to getting anything done.

It was feeling a relapse after a boom that had been enjoyed for several years. It seemed that the farmers were putting all of their money into automobiles. A contractor who had initiative and some imagination, worked up a meeting of two other contractors, several carpenters, two lumbermen and a hardware dealer. It would over-run my space to tell of the difficulties they had in getting onto a working basis. But here are some of the net results:

(A) These eight people and the banker all made some improvements in their places of residence. The three dealers took a personal interest in seeing that every married man in their employ made improvements around his home.

(B) The three contractors made a canvass of the town and listed all the roofs that were in

bad repair. Each of the lumbermen sent these people proper literature.

(C) Thru the help of the banker several people were persuaded to improve their places by building front porches, sleeping porches, etc. This became infectious and many others did likewise.

(D) The hardware dealer was well acquainted in the country, and supplied the names of several farmers who wanted small improvements made in their houses and other buildings put up. This example was followed by quite a few others. In several cases the farmer did not have the ready money. This was gladly supplied by the banker.

(E) Nothing succeeds like success and because the town and community had a SUCCESS air, a factory was located there which made still more work.

I can hear some saying, "That can be done in some places, but it couldn't be done in this town." Nothing makes failure so certain as the THOUGHT of failure.

I say to the man that knows he will fail, "Don't tackle it." I must, however, quote a sentence I used some months since, "The man I admire most is the one that has the guts to do what everybody says can't be done." The reason I remember that sentence is because my wife said it wasn't very nice.

I am thankful that the great majority of my readers are busy and have no need TODAY of any stimulus for business or work. But even now is a good time to boost for still better buildings. In times of prosperity, (peace) prepare for adversity (war).

I would like anyone to stand up on his hind legs and tell me or sit down on his shock absorber and write me why such a local organization would not be beneficial to every town. If so, why not start it.

If you think there are unsurmountable obstacles in the way, let me hear from you.

Yours for More and Better Buildings.

THE MAN FROM THE LUMBER YARD.

Sanitary Handling of Timber

WOOD INFECTED WITH ROT-PRODUCING FUNGI DURING STORAGE IS A SERIOUS DANGER TO THE BUILDING INDUSTRY.

By C. J. Humphrey

Pathologist, Bureau of Plant Industry, U. S. Department of Agriculture.

FOR ages past wood has been one of the most important materials for building purposes, and until the introduction of steel and concrete, was almost exclusively used in forested regions. The native forests of the United States were originally much richer than now in highly durable timbers. A century and a quarter of rapid commercial development have depleted them of certain of their choicest timber species and resulted in a constantly-increasing utilization of material less resistant to decay.

This necessitates more careful attention in merchandizing in order to supply a clean, sanitary product to the consumer. The problems of human health and timber health have much in common. A vigorous man may be, and often has been, likened to the sturdy white oak—resistant to disease; while the weaklings of humanity are, like our poorer kinds of wood, susceptible to whatever disease germs they may come in contact with.

One of the most important problems confronting the lumberman, then, is the storage and marketing of his product in as sanitary a manner as possible, both to prevent direct loss to himself thru deterioration of his wares, and to protect the consumer against many avoidable outbreaks of rot after the timber is incorporated into buildings.

The investigations of this Department during the past two years have revealed many deplorable conditions in the storage of timber and, coincident with these, have disclosed many serious outbreaks of rot in

important structures. While many of these cases of rot in buildings may be due to faulty construction, particularly to insufficient seasoning of the timber before use and to the failure to provide for sufficient ventilation in basements, the fact remains that infected timbers placed in buildings are far more likely to cause trouble than sound ones.

Why Wood Rots

Decay is due to the growth of wood-destroying fungi thru the timber. These fungi consist of fine cotton-like threads which penetrate the wood cells and by the secretion of ferments dissolve many of the constituents of the wood. For their most active growth the timber must be moist and the temperature favorable. The true dry rot fungus (*Merulius lachrymans*), the most destructive fungus in buildings, grows best at 72 to 75 degrees Fahrenheit, but there are many others which thrive best at 78 to 80 degrees.

Poor ventilation favors rot by not allowing the timber to come to an air-dry condition quickly enough to prevent the development of the fungi.

The spread of wood-destroying fungi may occur in two ways:

1. By the continuation of growth from an infected stick to a sound one in contact with it.
2. By the production of spores (bodies comparable in every way to ordinary seeds, but much smaller) which are blown about by air currents and, lodging on moist sound timber of a kind susceptible to decay, germinate and start a new infection.

Conditions which Favor Decay in Lumber Yards

Many lumber yards are very lax in keeping the premises free of rotting debris which serves as a breeding ground for serious fungi, and hence a constant source of infection for sound lumber. Other dangerous sources of decay are:

1. The rather common practice, particularly at sawmills in the coastal regions, of piling timber over swampy land, subject to floods or tides, or so constantly wet as to make it very difficult or impossible to keep down the rank growth of weeds and grasses which cut off the air circulation and prevent the proper drying of the lumber.

2. Piling sticks which are thrown promiscuously about, or even piled directly on the ground, and allowed to become infected. Very few yards pay any attention to this important feature of sanitation. The almost universal practice is to throw them on the ground whenever stacks are torn down, leaving them there until needed for new piles.

3. Pile foundations of timber which in the course of a few years become diseased and produce many fungous fruit-bodies which release millions of fresh, vigorous germs in the form of spores. Many foundations do not permit of proper ventilation beneath the piles, a condition which often encourages severe decay in the base of the stacks by the gradual progress of fungi upward from the ground or debris over which the lumber is piled.

4. Improper methods of stacking lumber, which do not provide for sufficiently rapid drying.

5. Poorly constructed storage sheds, particularly with reference to insufficient ventilation beneath. A considerable number of such sheds have been investigated where very wide-spread and destructive outbreaks of some of the most virulent fungi with which the builder has to contend occurred.

6. Tramways and tracks about the yards which become severely infected with decay and permit the development of an abundance of fungous fruit-bodies and spores. This is of particular importance in the case of elevated tramways from which the spores can be distributed for long distances.

To sum up, then, the sources of decay lie in allowing rotting debris to accumulate, in allowing pile foundations, tramway timbers, track ties and supports under lumber storage sheds to become infected, thus passing the decay on directly to timbers which lie in contact, or indirectly to more distant timbers thru the agency of spores.

How to Prevent Infection and Decay in Stored Lumber

Since decay is due to the presence of wood-rotting fungi the obvious first principle is to render conditions about the lumber yard unsuitable for the growth of the organisms. This can be accomplished by attention to the following details:

1. *Location of Yards*—Wherever possible storage

yards should be on high and dry land, on mineral soil rather than filled-in debris. This will greatly simplify the weed control problem and insure proper ventilation around the base of the lumber stacks. Occasional wetting and silting of lumber by floods, tides and storm waves will almost invariably cause rot.

In all cases, weeds should be kept under control. This is frequently done by pasturing or mowing. Chemical sprays offer possibilities in this connection also. A concentrated solution of common salt* (125 pounds per 52-gallon barrel) is effective against a considerable number of weeds if applied to the younger plants twice during the year at the rate of one barrel per acre.

A 2½ per cent solution of sulphuric acid* would be much better but requires considerable care in handling and must be used in glass containers or other kinds of material which has been enameled or coated with paraffin.

According to investigations of the Department of Agriculture, sulphuric acid at the rate of 3/16 fluid ounce per square foot of soil has also proven very effective in preventing weeds in nursery beds, particularly in sandy non-alkaline soils.

2. *Cleaning-up of Yards*—The most careful attention should be given to this phase of the question. The writer has seen yards where hundreds of thousands of feet of lumber have rotted in storage and either been left in the original piles, often with new lumber piled on top, or else scattered about the yard or its immediate vicinity until completely decayed. Such material should be thoroly collected and *burned*.

3. *Greater Care in Handling Piling Sticks and Stacking Lumber*—A piling stick infected with an actively growing wood-destroying fungus can spread infection to any part of a pile of green lumber where it may happen to be placed, so the necessity for carefully guarding these strips and keeping them from contact with the ground is obvious. They should preferably be cut from heartwood of very durable timber, such as resinous pine, red gum, white oak or similar woods and dried before use.

Many lumbermen prefer to use the lumber itself for cross-strips. This ordinarily gives little trouble where the boards are properly spaced, and the narrower widths are selected for the crossers. In the larger piles, a central flue one board wide is often of distinct advantage. The edge piling of 2-by-4's, as practiced at some mills, is favorably reported.

Timber should never be allowed to lie, even temporarily, in close piles on the ground or on decayed tramways.

4. *Better Construction for Pile Foundations*—Very often pile foundations are altogether too low or are

*According to information supplied by Professor A. L. Stone of the University of Wisconsin.

(Continued to page 75.)

Can I Recommend the Pipeless Furnace?

AN INVESTIGATION AMONG WARM AIR FURNACE MANUFACTURERS SHOWS THE ADVANTAGES AND DANGERS OF THIS SIMPLE TYPE OF HEATING SYSTEM

THE pipeless furnace, so-called, is one of those things that started out small—a poor man's heating outfit—and grew and grew till presently it finds itself "in society"—the chosen heating plant for mansions—and not altogether at ease in this new role.

In other words, where the pipeless furnace has gotten into trouble, it has not been its own

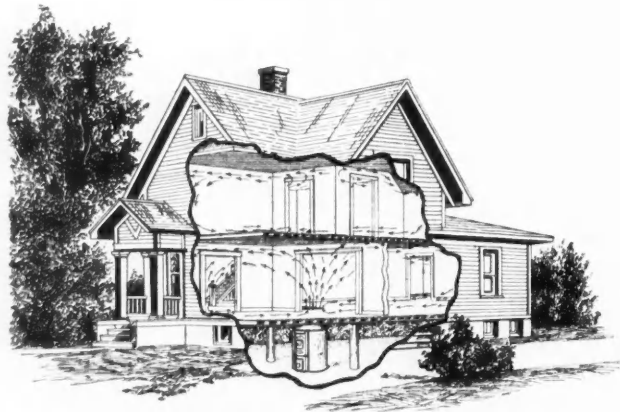
large register face directly over the furnace. This makes one pipe very short and very broad to carry the heat up into the house.

There is no lost heat, no chance for air pockets and poor draft. A very large volume of moderately warmed air is thrust up into the living rooms. Hard firing is not necessary, and the air is not overheated.

YES

This mass of warmed air wells up thru the big register, rises to the ceiling and spreads out thru all the rooms, and as it gradually cools falls to the floor. The cooled air comes back along the floor to the cool air returns, which take it down again to the air chamber of the furnace, where it is re-heated and shot upward again.

The cool air returns are located nearby the big warm air register; sometimes within the same register face, the warm air pipe coming up thru the center and the cool air returning down around the outside edges. Sometimes the cool air is returned thru its own register face, located either nearby or in an adjacent room. In any case there is a gentle tho positive circulation of



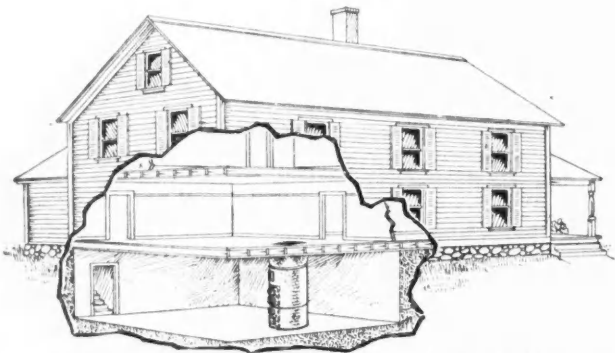
Large Volume of Warm Air Rises to Ceiling and Diffuses to Every Corner of Every Room Thru Broad Open Doors. Cooled Air Comes Back Along Floor and Down to Furnace Base.

fault; rather that of its over-enthusiastic friends, recommending it for work it was never calculated to do.

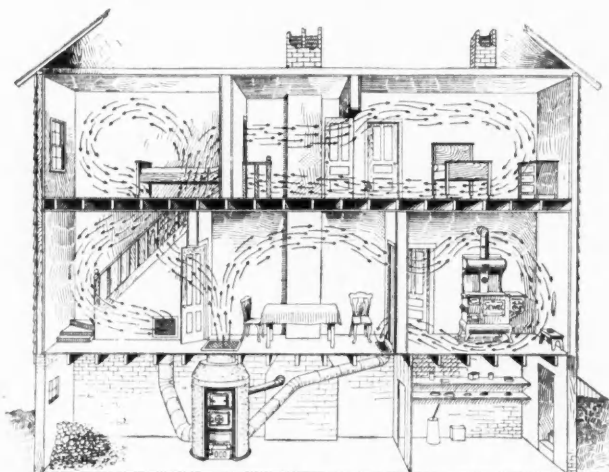
For certain types of dwelling houses and for other buildings, the pipeless furnace is the most efficient, economical and satisfactory type of heater. Beyond that it can go with fair success. And still beyond that it should not be permitted to go, since under such circumstances it could not be expected to make good.

"What is a Pipeless Furnace?"

A pipeless furnace is the simplest form of basement or cellar heating plant. There is really nothing new about it, as furnaces have been installed this way for twenty years. But the development and perfection of the idea are much more recent. The furnace is placed in the cellar directly underneath the center of the house, and the furnace casing is run straight up to a



The Cellar Excavation Need Not Extend Under All the House for Successful Heating.



Type of Pipeless Furnace that Takes the Cooled Air Back at One or More Points Somewhat Removed from Warm Air Register.

warmed air and a constant supply of cooled air at the furnace for reheating.

"Does it Work?"

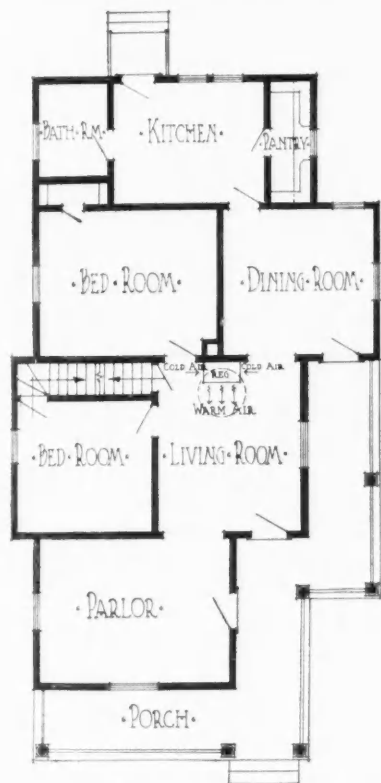
At first introduction one is inclined to smile skeptically and remark, "Yes, but will it work?"

In answer we will say that there are more than thirty of the leading warm air furnace manufacturers who have taken up the pipeless furnace and are recommending it in full confidence. Some of the biggest, best known and most conservative concerns are of this number. Their engineers would not endorse the pipeless furnace if it was not right.

A number of other furnace manufacturers, it is true, predict a sad future for those who are going into this line, and say that the pipeless furnace will demoralize



Six-Room Cottage Perfectly Heated by One Central Register. Range Sufficiently Heats Kitchen and Bath.



Note Central Location of Furnace and Free Circulation for Warm Air in This Cottage.

the entire furnace business. We cannot see how this can be so, if we admit that economy and efficient heating are good things, and if we do not try to force the pipeless furnace to heat buildings not adapted for it.

It is Doing the Work

The fact of the matter is, however, that the pipeless furnace is a tried success, is no longer an experiment. Thousands of these heaters have been in use this past winter. Those using them testify that on half the coal their houses

have been uniformly heated. They testify that the central room, where the big register is located, is *not* overheated, but that the warmed air finds its way into every corner of every room so long as the doors are left open.

The important thing with the one-register furnace is to have the rooms open together with colonnades or wide door openings in the popular modern style. In the old days when there had to be a stove in every room, each room was built with a tight-closing door so that it could be closed off entirely when not in use. With the central heating plant, however, this style of building has practically passed. Homes today are being built open and roomy, with large rooms connected with wide cased openings. There is no difficulty in heating such a house from one large register set directly over the furnace.

The Furnace for the Country Home

One of the greatest advantages of the pipeless furnace is sort of a paradox. You put this heating plant

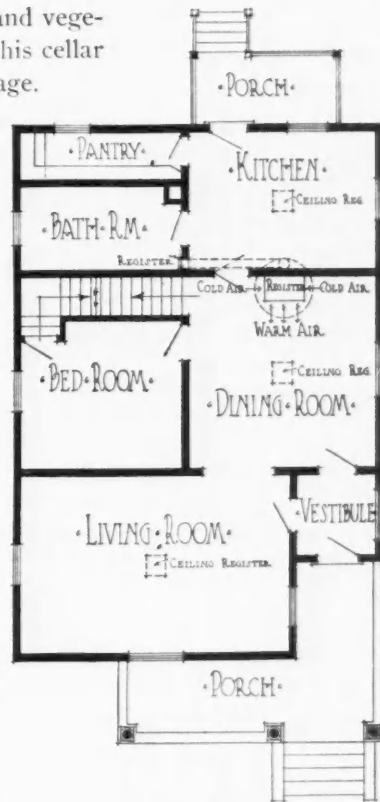
in the cellar, but it does not heat the cellar. It does not spoil the farmer's cold storage space. It is the only basement heating plant that does not rot the country man's winter store of fruits and vegetables.

The reason for this is that all of the heat is delivered quickly up into the living rooms of the house. No heat escapes into the cellar. There is no big cluster of overhead heating pipes to radiate the warmth into the cellar. Also the cold air return in very many of these pipeless furnaces comes down around the inside or warm air jacket of the furnace, effectively wrapping the heater in a blanket of cool air.

This is a point that means a great deal to the small city and town home-owner as well as to the farmer. Any one who puts in a winter's supply of fruit and vegetables does not want his cellar spoiled for cold storage.

Easy and Economical to Install

The pipeless furnace needs very little head room, as compared with the pipe system. Nothing could be simpler than the installation of the furnace. All you have to do is to cut a single hole in the floor directly above the spot chosen for the furnace; set the furnace in place; make the connection from the furnace casing to the floor register; connect the smoke pipe with



Central Register Warms All of Main Floor Except Bathroom.



This Goes Perhaps a Trifle Too Far, tho the Owner is Satisfied. Three Rooms Upstairs are Warmed thru Ceiling Registers.

the chimney; and put in the register.

For new homes this is fine; and think what an advantage it is in an old house! There is no need of cutting walls and partitions to run heating pipe thru, cutting for one register in the floor directly over the furnace is all the "muss" required.

These furnaces are so simple and easily installed that any carpenter or builder can handle the job with entire confidence. There is only one thing to be careful of, and that is to provide a furnace that is amply large. One heating specialist states that he regularly uses 50 per cent larger size than the job figures so that he will have 50 per cent reserve power, making it never necessary to crowd the fire, even in the coldest weather,—which would result in overheating the air and the register face.

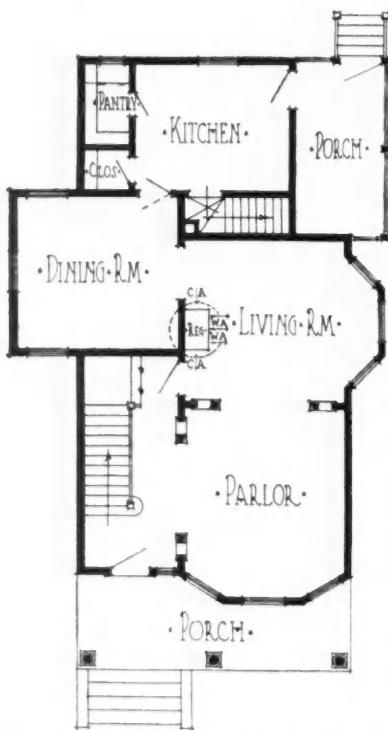
With such simple installation, the first cost of a pipeless furnace is, of course, low. Then figure the saving in fuel bills, and we see the reason why so many are boosters for this heater.

Do Away with the Stoves

There are hundreds of families in every community still using stoves who would be glad to change to pipeless furnace heating if they only understood the proposition. They have had their fill of disagreeable experiences with stove



A Pipeless Furnace Does the Work Here at Low Cost and High Efficiency.



Main Floor of Large House Pictured Below. Owner Says It's Well Warmed.



This Type of Two-Story House is Easily Heated from Large Central Register. Note Wide Openings and Open Stair.

heating; they know that a stove isn't a thing of beauty; that they take up a lot of good space in the living rooms; keep the whole house dirtied up; and make a hard, endless job of carrying coal or wood in, and ashes out. The nuisance of putting up stoves in the fall, and taking them down again in the spring, and the bother of tending several fires, make us sick and tired of stoves and grateful to the pipeless furnace folks. Besides this, they never did heat the house properly, and as for ventilation with stove heating it is a joke.

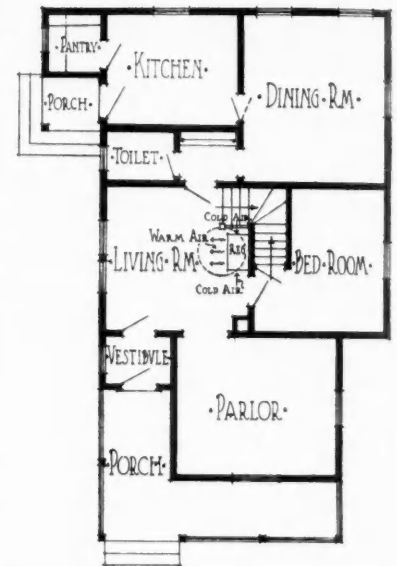
Throw out these stoves, and put in a pipeless furnace in their place.

Where Discretion is Needed

As already suggested, the pipeless furnace's worst enemy has been its over-enthusiastic friends, who in some cases have installed this heater in buildings so badly partitioned off that really steam heat would be the only system that could do the work.

Some of the types of houses to which the pipeless furnace is especially adapted are illustrated. These are all being satisfactorily heated, even in the coldest weather. Note that they are both one-story and two-story dwellings. The rooms are arranged in comparatively open style, as so many prefer today. Notice that while the main register heats practically all of the house, still it is entirely feasible to run a supplementary heating pipe to bath room or other specially enclosed part of the house by operating a damper in the duct directly over the furnace.

In two-story houses, those having open stairways are satisfactorily heated. One of these houses, however,



This Arrangement with Central Stairway is Ideal for Heating Both Floors.

has an enclosed stairway, and to insure circulation of warmth to the upper rooms, three ceiling registers are provided.

Bungalows and cottages are, of course, ideally heated from one large central register. Too much should not be expected of a one-register system in a two-story house.

We have tried to make this paper conservative and restrained, tho it is difficult to do so after having talked with the representative pipeless furnace men, and after having studied over their catalogs and hand-books. They are so filled with enthusiasm and confidence that it is contagious.

Sanitary Handling of Timbers

(Continued from page 71.)

poorly constructed, not allowing sufficient ventilation beneath the stacks. The laying of a few planks on the ground parallel to the alleys, does not make a good pile support. In the first place, it allows circulation in only one direction, and in the second place such a foundation is usually too low. Being more or less permanent structures and partly in contact with the ground, pile foundations should consist of horizontal timbers set on concrete or brick piers, or blocked up at intervals with wood, to a height of at least 18 inches from the ground. Such timber as enters into their construction should be either highly durable or else treated with some wood preservative. Coal-tar creosote will serve as an efficient antiseptic.

Sound, air-dry blocking cut from many of the low-grade species of timber having a goodly percentage of sapwood can be given a satisfactory treatment by heating in a tank at about 200 to 220 deg. F. for 4 to 6 hours, then allowing to cool in the oil. The longer horizontal timbers can be given 3 coats of hot creosote at 180 deg. F. at intervals of 24 hours. Heartwood in this case is much to be preferred to sapwood.

Concrete is finding an increased use around lumber yards, and is giving satisfaction. Reinforcing it with steel or iron is often of distinct advantage. While the initial cost is high as compared with cull timbers or old timbers removed from other structures, such as many lumbermen use, its permanence and its value in improving sanitary conditions are advantages worthy of careful consideration.

These remarks apply to the construction of storage shed foundations as well as pile foundations in the open.

5. *Preservation of Tramway Timbers and Ties*—The decay of these timbers can be overcome by treatment or some other good wood preservative. The work can be done by commercial wood preserving companies or by the lumberman himself in the ways above indicated.

6. *Dipping Stored Lumber to Prevent Infection*—Dipping green lumber in soda solutions to prevent bluing is at present a recognized practice in the United States, particularly in the southern pine belt. While

soda is more or less effective against bluing, it will hardly be of much value in preventing attacks of other fungi. A more toxic substance, such as sodium fluoride, is suggested. This substance can be substituted for the soda dip very readily and would serve the double purpose of blue-stain prevention and also protection against incipient decay.

A Word of Advice to Lumber Dealers and Builders

Timber which shows any trace of decay should never be sold or accepted for building purposes, as even dormant fungi in dry timber can often start into active growth when placed under moist, comparatively warm conditions.

Architects should see that only well-dried timber is employed, and that beams or joists are never embedded in concrete or brick without allowing for ample ventilation at the ends by "boxing." Also, particular attention should be paid to ventilating closed basements. The above are the principle seats of decay.

Lighted Colonnade Pedestals

To the Editor:

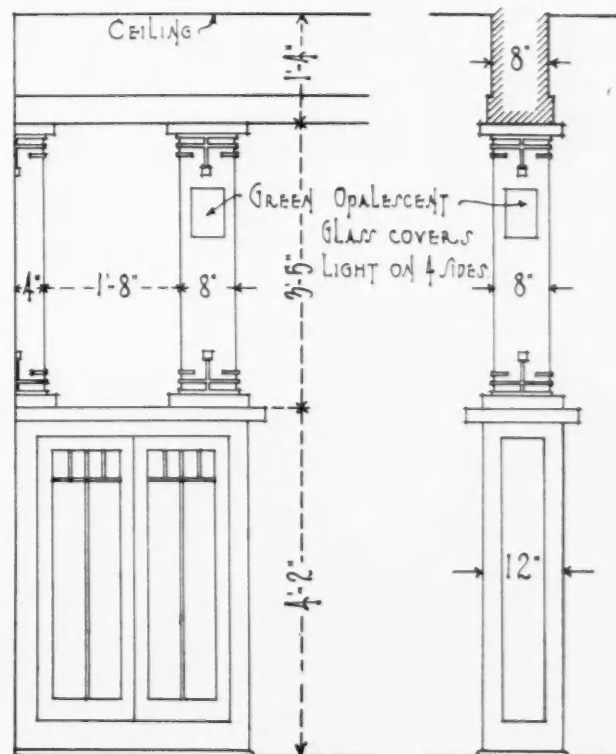
Elgin, Ill.

I want to put a pair of bookcase pedestals in my dining room, and would like to put electric light in the two posts or columns, but don't know exactly how to go about it or whether it would look all right. I am enclosing a sketch of the dimensions and shape of them, and should appreciate very much if you could give me an idea. I marked the colored glass where I thought the lights should be.

O. S. APP.

Answer—This detail sketch will show clearly how this proposition should be handled. It will make a very nifty effect to light up the columns as suggested.

EDITOR.



SIDE VIEW

END VIEW

Suggestion for Lighted Colonnade Pedestals.

School Ventilation System Keeps Pupils Well

NEW CICERO (ILL.) SCHOOL SETS ENVIABLE RECORD BECAUSE OF MODERN EQUIPMENT

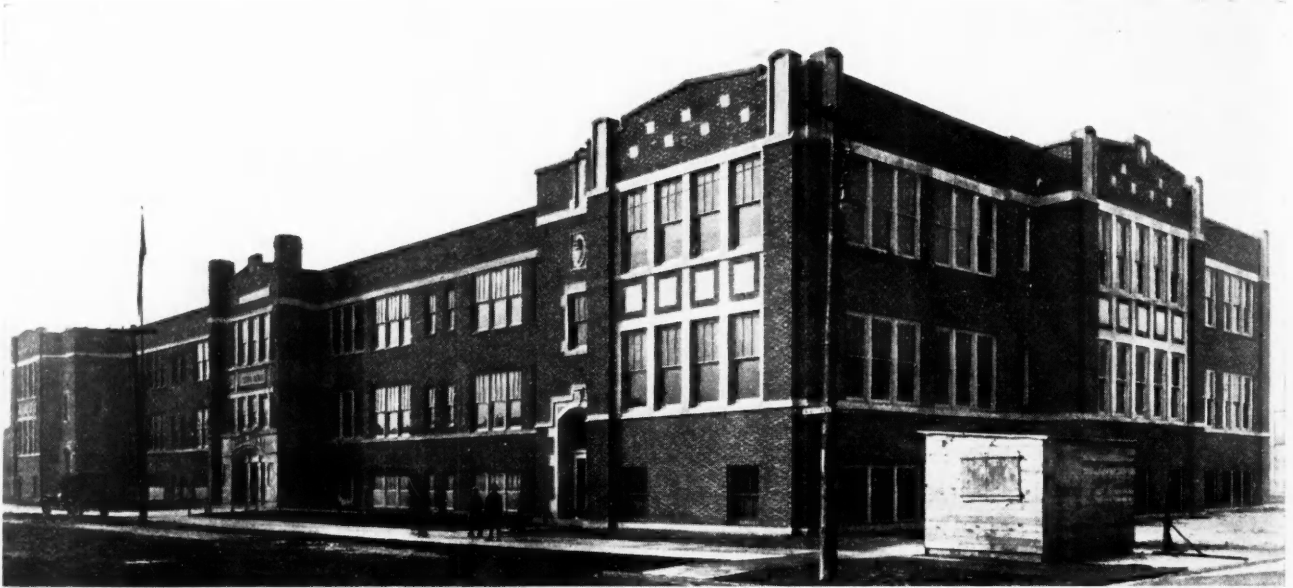


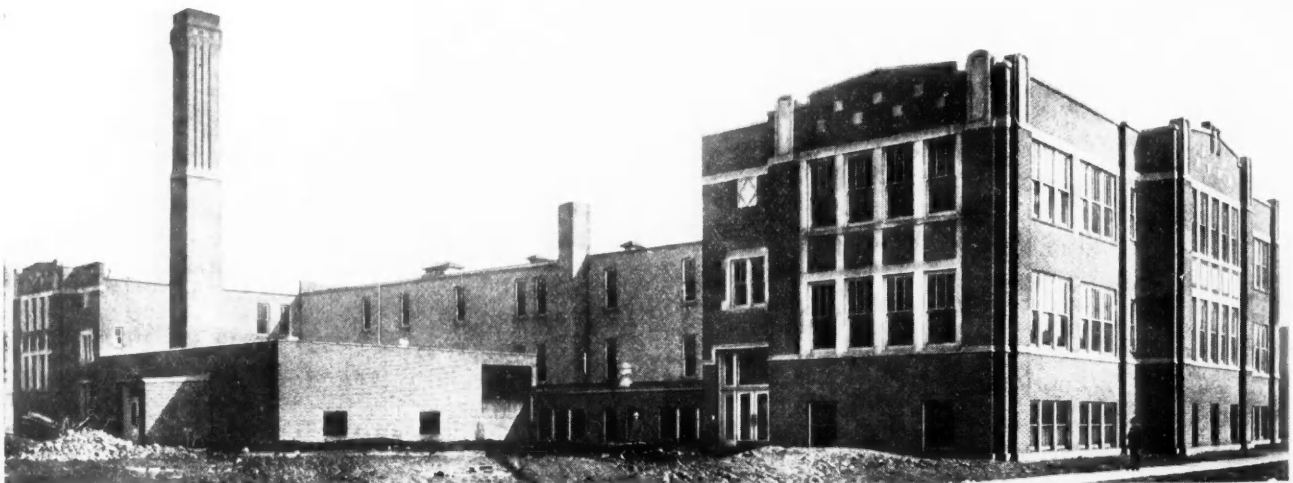
Photo of New Cicero (Ill.) School, Just After Completion of the Two Wings.

WE are beginning to realize that our public school conditions are very largely responsible for both the mental and bodily health of our children. School authorities are giving closer study to schoolroom sanitation, and there is a growing feeling that no expenditure of school funds is extravagant that goes to produce safer, more sanitary, and more cheerfully wholesome public school buildings—since they influence so mightily the bodily health and mental development of our boys and girls. Millions of dollars are being spent every year for new school buildings; and it is money well invested.

One of the most important factors in schoolhouse healthfulness is the heating and ventilation. In this new Cicero school—located in one of Chicago's western suburbs—the records show that thruout this past winter the number of children attending this school

who suffered from nose and throat troubles was less than one-third the number in other schools in the same district. The improved form of heating and ventilating used in this school is given as the cause. It is a Blower system in which 1,500 cubic feet of fresh air are delivered each minute into each classroom. The air is warmed by steam coils in the power room in the basement, and delivered to keep the temperature of the classrooms at 70 degrees. Both the temperature of the air and the humidity are automatically controlled by the Powers System Regulating devices. An immense Sirocco fan or blower, driven by a 20 horse-power electric motor, delivers the air to the classrooms, 350,000 cubic feet of fresh air each minute. There are no radiators in any of the classrooms, only in the corridors.

This is the only school building in the district equipped with a fan system, the others having direct



View from the Rear, Showing Heating Plant House in One-Story Building in Middle of Quadrangle.

indirect heating systems in which the amount of air brought in is much less.

The fan system is, of course, more expensive, but when it reduces winter sickness among the children two-thirds, is it not a good investment?

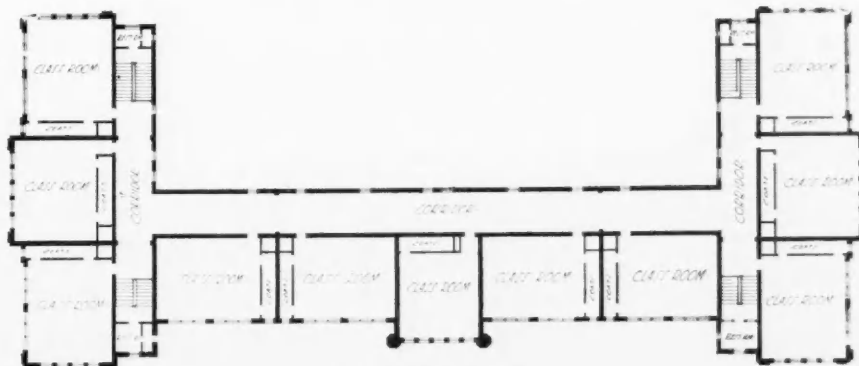
In other ways this new Cicero School is interesting. The central portion containing nine rooms was built first, constructed two years ago. The school district grew so fast that before this contract was entirely completed, the contract was let for the second section, consisting of the two wings containing six rooms each. The architect, Mr. G. W. Ashby, of Chicago, in planning this building, provided well for expansion of this kind. He has planned many school buildings for the town of Cicero during the past ten years and knows well its habit of outgrowing its clothes, it being one of the fastest growing communities in Cook County. As this building now stands it contains twenty-seven school rooms, and thirty more school rooms can be added later, completing the entire quadrangle.

All rooms comply with the Illinois State Law in that they have window glass equaling 20 per cent of the floor area; corridors and stairways are fireproof, stairs equipped with American Mason Safety Tread nosings, and corridor floors of concrete with special Master Builders' surfacing colored red. There are six fire hose on each floor. Safety from fire catastrophe is further provided by having the heating plant entirely outside the building proper. It is contained in the one-story structure at the center of the quadrangle. This prevents any possible danger from explosion. The heating plant consists of Kewanee down-draft boilers.

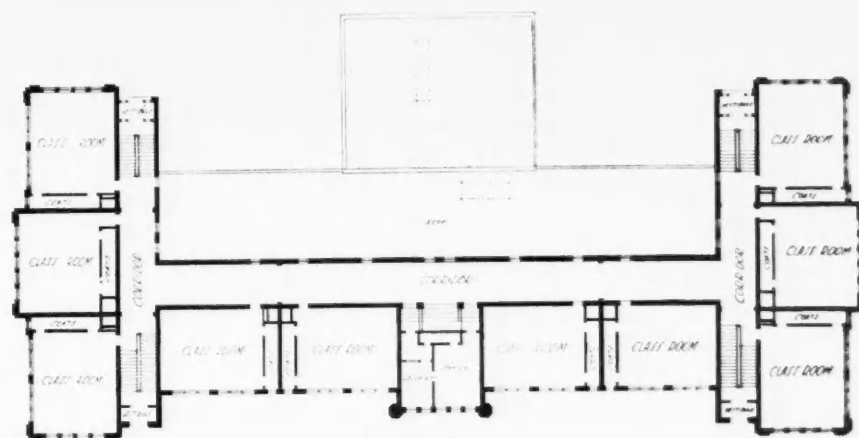
The special builders' hardware for this school building include Von Duprin Self-Releasing Fire Exit Bolts for all outside doors. With these bolts it is impossible to lock any one in the building, since by merely pushing the door from the inside will open it; but it cannot be opened from the outside. All the doors thruout the building are equipped with Norton door checks, which not only close a door quietly and positively, but also

hold a door wide open if desired. Thus no door catches or holders are needed.

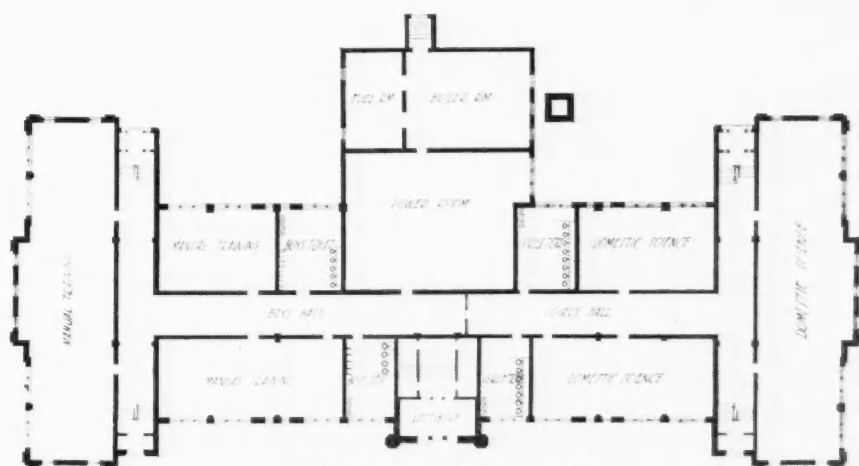
All classroom floors are maple, except in the big manual training room, where creosoted wood block flooring is used. For foundry work and other heavy



Second Floor Plan.



First Floor Plan.



Ground Floor Plan of Cicero School.

shop work, such as many manual training courses now include, a floor of this nature has many advantages.

The toilet rooms are lined with white glazed brick. Wolf plumbing fixtures were used thruout.

There is a very durable fireproof roof on this building—a Johns-Manville built-up asbestos roof composed of sheets of asbestos laid together with asphalt.

The exterior design is typical of the best modern

(Continued to page 80)



Noon Hour Talks by the Boss Carpenter

Talk No. 46. Beam Design

New Series No. 3

THE BOSS TELLS ABOUT SHEAR IN LOADED BEAMS AND SOLVES PROBLEMS.

"IN our previous talks," said the Boss, "we have taken up the method of designing a beam freely supported at the ends from two different standpoints—first, on the basis of strength in bending, and, second, from the consideration of deflections. One other calculation should be made in each case to see that the beam is safe against failure by shear. Short, deep, heavily loaded beams are especially in danger from this latter type of failure. In fact, the shear calculation often determines the size of beam to carry a given load, or the amount of load which may be carried safely by a beam of given size.

"This condition is very likely to be present when timber is used, since the shearing strength of timber along the direction of the grain is small in comparison with the bending strength of the timber when based upon failure in the outer fibers of the cross-section.

"The term 'shear' is used to indicate a sliding action such as might occur along the grain of the wood in

timber beams. It may also be used to indicate the tendency for one cross-section of a beam to slide past its neighbor, thereby setting up an action similar to the working of the blades of a pair of ordinary shears. While these tendencies do not show up to the eye as plainly in metals as in wood, they are present and active nevertheless.

"We commonly speak of two kinds of shear in beams—vertical shear and horizontal shear. Vertical shear in a beam supported at the ends is the tendency for that part of the beam between the supports to slide downward at the line of the support, leaving the ends in their original position. In other words, the beam ends would be sheared off at the supports.

"Horizontal shear is the tendency of the upper and lower parts of a beam to separate on a line extending along the length of the beam, and one part slide along the other when the beam is bent. A pile of boards placed one on top of another and supported at the ends

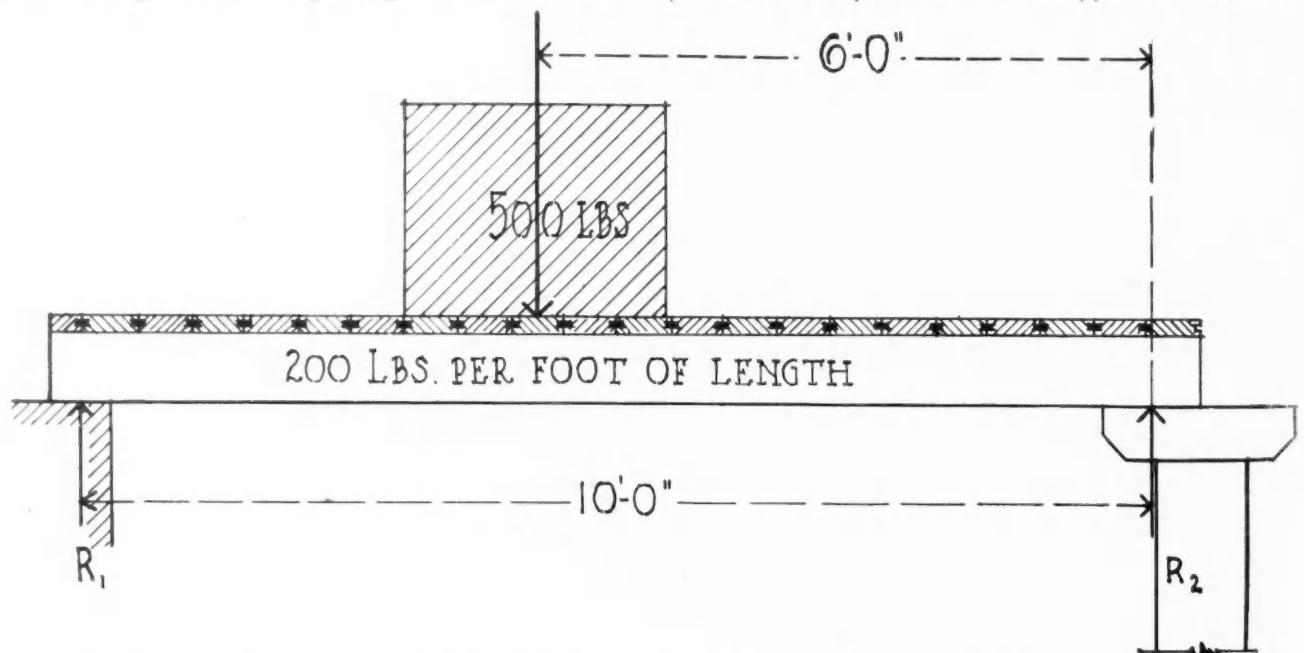


Fig. 3A. Method of Finding Supporting Forces for a Beam with Uniformly Distributed Load and Single Eccentric Load.

will show this sliding action, one over another, if a load is placed on top of the pile near the center of the length.

"The principles of mechanics tell us that a beam is most likely to fail by shear at the center of gravity of sections near the ends. Heavily loaded timber beams often show signs of this kind of failure by the presence of cracks at the center of the timber and extending along its length. If there is much deflection in such a beam, it may be possible to see that the top half of the beam has slid along on the bottom half enough to form a slight offset in the end faces which were originally straight. Do not mistake season checks which are very likely to occur in this same location for a sign of fail-

the moment of inertia of the beam cross-section in inch units, and y is the breadth of the cross-section in inches at its center of gravity. I was explained in Talk No. 44.

"Allowable values for s for timber and steel are given in the following table:

WORKING VALUES OF UNIT SHEAR	
Pine, Long-leaf Yellow.....	150 lb. sq. in.
Oak, White	200 lb. sq. in.
Pine, Short-leaf Yellow.....	100 lb. sq. in.
Fir, Douglas	130 lb. sq. in.
Spruce	100 lb. sq. in.
Hemlock	100 lb. sq. in.
Steel	10,000 lb. sq. in.

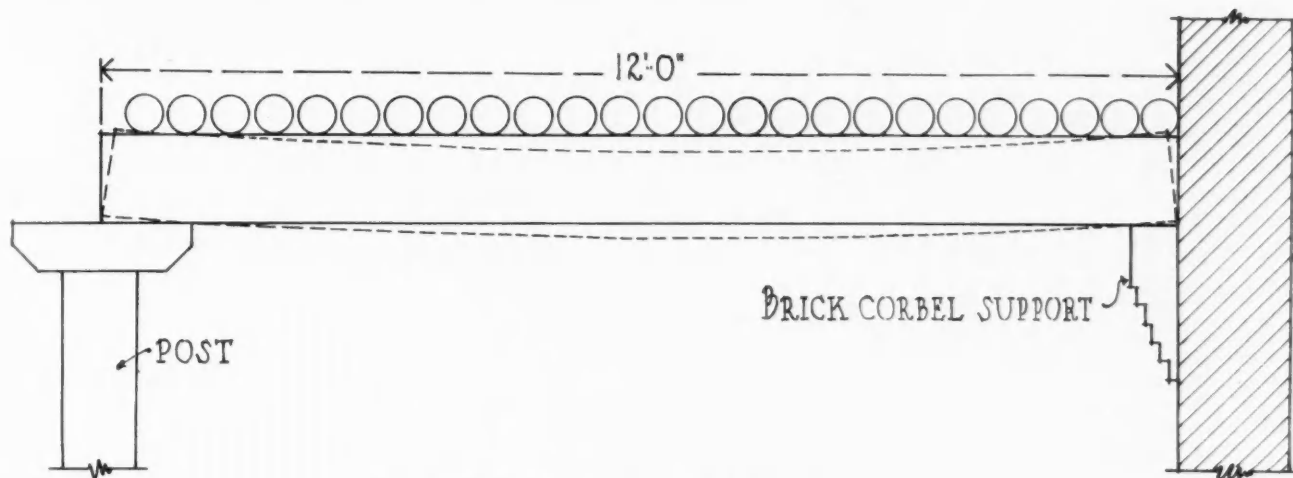


Fig. 3B. Floor Girder with Uniformly Distributed Load.

ure by horizontal shear, although the presence of large cracks will weaken the beam to a considerable extent

"Engineers and architects consider two different quantities of shear in their calculations. The *total shear* in pounds at any section of a beam is found by the following rule: Subtract from the value of the end supporting force the sum of all the downward loads between that end and the section which you are considering. Since this value will be the greatest when the end supporting force is acting alone, it results that the greatest total shear is at the edge of the support. If the two supporting forces at the ends are different in amount due to an unsymmetrical arrangement of the loading, use the larger of the two in your calculations.

"The other shear quantity used is the *maximum unit shear* in pounds per square inch. This value is found by the following formula:

$$s = \frac{S}{Iy} \left(\begin{array}{l} \text{Area above a} \\ \text{horizontal line} \\ \text{through the center} \\ \text{of gravity of the} \\ \text{cross-section in} \\ \text{square inches.} \end{array} \right) \times \left(\begin{array}{l} \text{Distance in inches} \\ \text{from that line to the} \\ \text{center of gravity of} \\ \text{the area above the} \\ \text{line.} \end{array} \right) \dots (3a)$$

In this formula, s is the maximum horizontal unit shear in pounds per square inch; S is the total shear at a support in pounds (larger value of the two); I is

"Most of the beams and girders which are used in practice are either of rectangular shape of cross-section, as in the case of timber, or are of an I- or channel shape if rolled steel is used. The center of gravity of a rectangular cross-section is at the center of the section. This is true also in the case of the ordinary steel I-beam or channel. Values of the moment of inertia for these latter shapes should be taken from the handbook of the steel companies. These books can be obtained from the companies at a very low cost, and contain a great amount of valuable information for the designer.

"The value of S in pounds is one-half of the total load on the beam in all cases of symmetrical loading, such as a uniformly distributed load, single central load, or equal loads spaced at the same distances from the ends. If an unsymmetrical loading is placed on the beam, it will be necessary to find the supporting forces at the ends and use the larger of the two, as stated above. These supporting forces are found by the following procedure: To find the left-hand force, multiply each load on the beam in pounds by its distance from the right-hand support in feet; add these numbers and divide the sum by the length of the beam in feet between the supports. The result will be the value of the left-hand support in pounds. To find the right-hand support, subtract this answer from the sum

of the loads on the beam in pounds.

"If the beam has a uniformly distributed load in addition to one or more concentrated loads, multiply the total amount of this distributed load in pounds by one-half of the length of the beam in feet.

"To illustrate this method, Fig. 3A shows a beam 10 feet long with a uniformly distributed load of 200 pounds per foot of length and single load of 500 pounds at a distance of 6 feet from the right-hand end. The supporting forces are R_1 and R_2 as shown. From the rule explained above,

$$R_1 = \frac{(200 \times 10) \times 5 + 500 \times 6}{10} = 1,300 \text{ pounds.}$$

$$R_2 = (2,000 + 500) - 1,300 = 1,200 \text{ pounds.}$$

The value for S to be used in our formula (3a) will be 1,300 pounds.

"Now," said the Boss, "we will apply these principles to a few common problems and explain all the necessary detail. First, we will take a case in which an 8-inch by 12-inch long-leaf yellow pine girder, 12 feet long, supported as shown in Fig. 3B carries a uniformly distributed load of 1,000 pounds per foot of length.

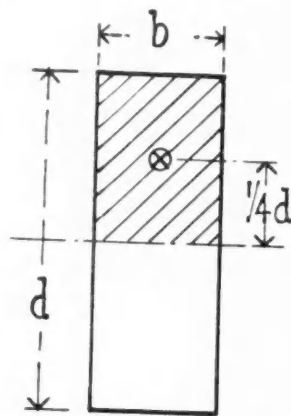


Fig. 3C. Dimensions Needed in Determining Maximum Horizontal Unit Shear in a Rectangular Cross-Section.

"The values to be substituted in formula (3a) are as follows: s for the loading given and the material used is the value we are to find.

$$S = 12 \times \frac{1,000}{2} = 6,000 \text{ lbs.}$$

I is $1/12 \times 8 \times 12 \times 12 \times 12$, as in previous problems, or 1,152. The value of y in this case is 8 inches. The area above a horizontal line drawn thru the center of gravity of the cross-section is 6×8 , or 48 square inches, while the distance from this line to the center of gravity of the area above the line will be one-fourth the total depth of the beam, or 3 inches. Fig. 3C shows these dimensions in detail.

"Placing the above values in formula (3a) results in the following equation:

$$s = \frac{6,000}{1,152 \times 8} \times 48 \times 3 = 93 \frac{7}{10} \text{ lb. per sq. in.}$$

"An examination of the values of s in the table above shows that this beam is safe in regard to failure by horizontal shear, and that the shearing stress in its fibers is well within the allowable working value.

"If this girder supported a single central load of 12,000 pounds instead of the uniformly distributed load, the value of S would be the same as in the above

problem. Since none of the other parts of the formula depend upon the loading, the value of s would therefore be the same also.

"If this girder shown in Fig. 3B carried a load of 500 pounds at a distance of 3 ft. from the right-hand end, and a load of 200 pounds 2 feet from the left-hand end, in addition to the uniformly distributed load of 1,000 pounds per foot of length, the first step in finding s would be to find the value of the larger supporting force at the ends of the girder. An inspection will show this to be at the right-hand end of the girder. Using the principle explained in the problem shown above, we find

$$R_1 = \frac{(1,000 \times 12) \times 6 + 200 \times 10 + 500 \times 3}{12} = 6,292 \text{ pounds.}$$

$$R_2 = (12,000 + 200 + 500) - 6,292 = 6,408 \text{ pounds.}$$

"Placing the value of R_2 for S in formula (3a) and solving for s , using the same values for the other parts of the formula as used in the similar problem above, we have

$$s = \frac{6,408}{1,152 \times 8} \times 48 \times 3 = 100 \frac{1}{2} \text{ lbs. per sq. in.}$$

"For rectangular shapes of cross-section, as in the case of timber beams, the general formula (3a) may be reduced to the form

$$s = \frac{3 S}{2 b d} \dots \dots \dots (3b)$$

where b is the width of the beam cross-section in inches, but formula (3a) is good for use in any case.

"Next time," said the Boss, "I will show you how to figure cantilever beams, or beams which are supported at one end only."



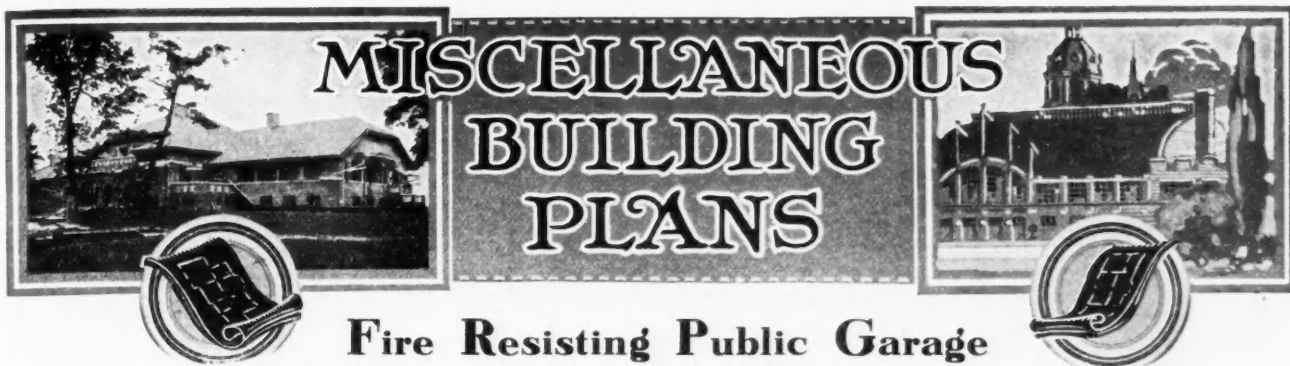
New Cicero (Ill.) Public School

(Continued from page 77.)

school building work, presenting a clean-cut, well lighted, business-like appearance that is very much favored.

The total cost of this building is as follows:
 General contract\$80,000.00
 Heating contract 15,000.00
 Plumbing contract 10,000.00
 Electrical wiring and fixtures..... 2,500.00

James Holec and Polson Bros. were the general contractors; Brady & Co., heating contractors; Thos. Witchurch, plumbing contractor; G. W. Ashby, architect, the nationally recognized authority on public school designing, of the architectural firm of Ashby, Ashby & Schultz. It is interesting to note that this Cicero School makes the astonishing total of eighty-two public school buildings that Mr. Ashby has designed for Cook County school districts outside of Chicago.



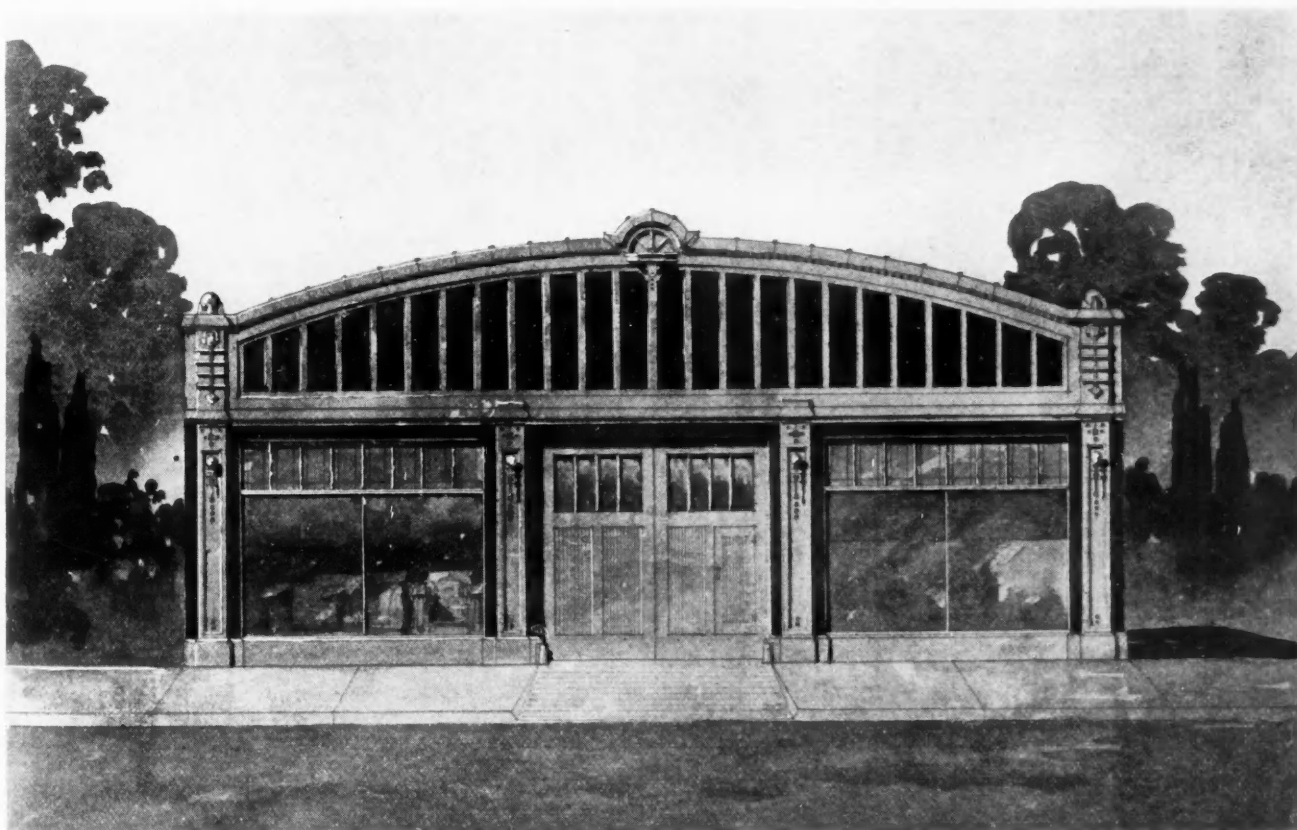
SEVENTH OF A SERIES OF MISCELLANEOUS PUBLIC AND COMMERCIAL BUILDINGS—A PRACTICAL DESIGN GIVING THE ACCOMMODATIONS USUALLY REQUIRED

THIS garage is of semi-fireproof construction built up of concrete from footings to grade line and brick masonry from grade level up to roof coping. It has a cement floor thruout garage and machine shop with a 3-foot platform raised 6 inches along each garage wall to protect the automobile owner from accidentally backing up against the masonry wall; this platform also serves to keep all cars a sufficient distance from wall radiators so that the heat therefrom will not do damage to the cars. A wrought iron pipe rail about 12 inches high can be used in lieu of platform and is claimed by some automobile men of experience to be superior to a cement curb. The backing of an automobile tire against a cement curb by a reckless driver will naturally break the fibre in the tire and consequently reduce its length of service; a pipe rail somewhat overcomes this objection.

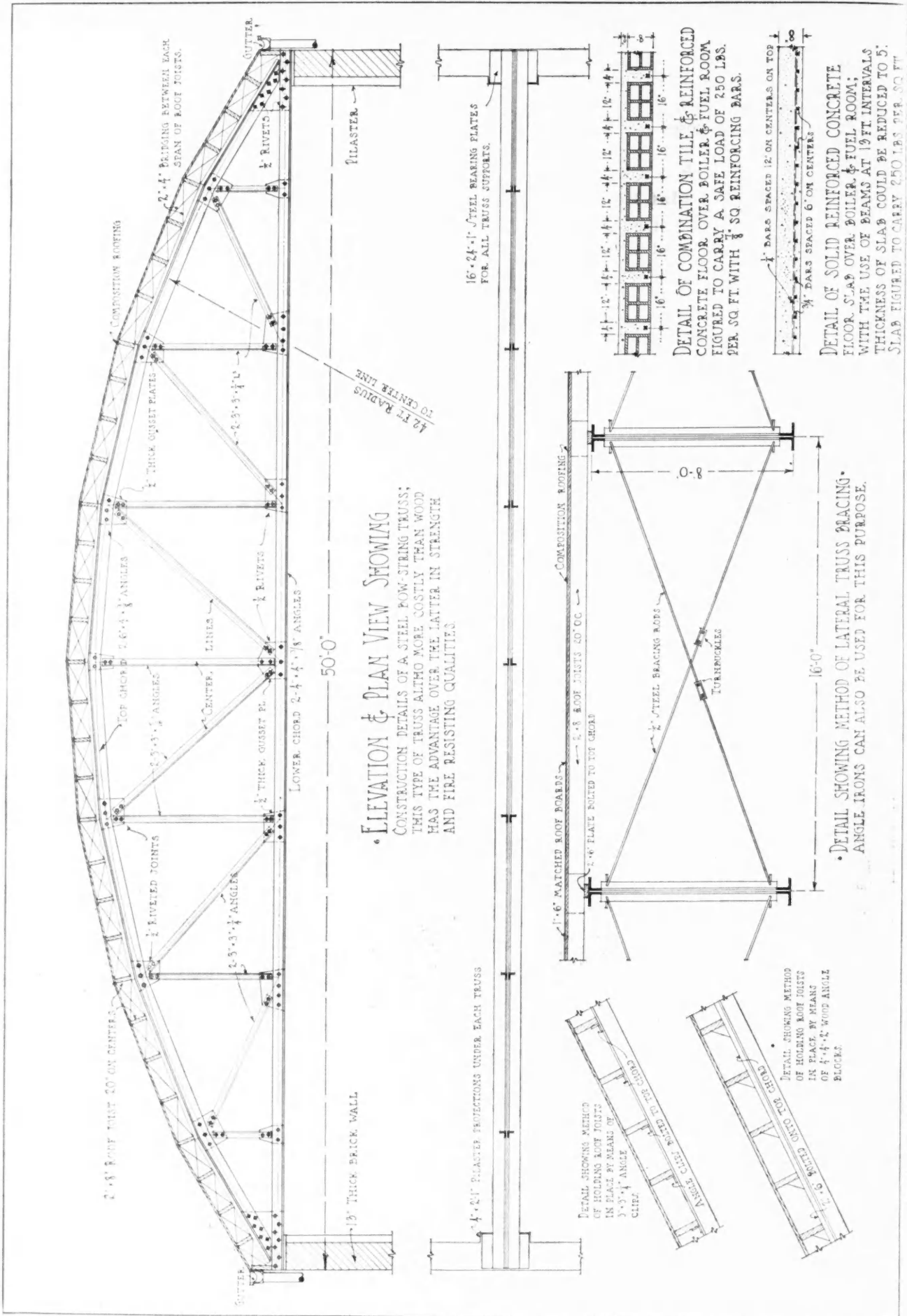
The floors of office, show room and toilet are of maple laid on 2 by 2-inch beveled pine sleepers embedded in concrete.

The boiler and fuel rooms are located under machine shop where indicated on plan. Light to same can be admitted from rear and side. The concrete floor over same is of reinforced concrete as indicated on detail sheet, and the door leading to stairway is of steel construction, with an automatic closing device so that if a fire should break out in basement the rest of the building is entirely protected from damage from this source.

The roof trusses are of steel, riveted construction, as indicated on detail sheet. This type of truss is somewhat more expensive than wood lattice trusses of similar design, such as were illustrated in our November issue. The fireproof advantage of a truss of this



Public Garage Design No. G167. It is 50 feet wide. Office is on One Side of Entrance and Display Room on the Other. Front is of Terra Cotta, Brick and Plate Glass.



ELEVATION & PLAN VIEW SHOWING

CONSTRUCTION DETAILS OF A STEEL ROW-STRING TRUSS; THIS TYPE OF TRUSS ALTHO MORE COSTLY THAN WOOD HAS THE ADVANTAGE OVER THE LATTER IN STRENGTH AND FIRE RESISTING QUALITIES

DETAIL SHOWING METHOD OF LATERAL TRUSS BRACING. ANGLE IRONS CAN ALSO BE USED FOR THIS PURPOSE.

DETAIL OF COMINATION TILE & REINFORCED CONCRETE FLOOR OVER BOILER & FUEL ROOM FIGURED TO CARRY A SAFE LOAD OF 250 LBS. PER SQ. FT. WITH 3/4" SQ REINFORCING BARS.

DETAIL OF SOLID REINFORCED CONCRETE FLOOR SLAB OVER BOILER & FUEL ROOM; WITH THE USE OF BEAMS AT 19 FT INTERVALS THICKNESS OF SLAB COULD BE REDUCED TO 5". SLAB FIGURED TO CARRY 250 LBS PER SQ FT.

Details of Light Steel Truss for 50-Foot Span Curving Roof Garage, Also of Concrete Floor Over Heating Room. Garage Design No. G167 Illustrated on Page 81.

type far offsets its additional cost in garages of modern construction.

The roof is covered with composition roofing. On the roof can be constructed skylights with ventilators in addition to side windows, or skylights can be used entirely for lighting purposes if side walls are built directly on lot lines.



A Modern 2-Flat Building

FOR investment purposes the type of two-apartment buildings illustrated on page 84 is quite in demand in the better residential sections of our large cities. Home builders are constructing this type of building in Chicago at prices varying according to the quality of work and materials used, at from \$5,800 to \$6,500 complete.

This type of building, constructed on a 30-foot lot valued at about \$1,000 to \$1,500, can realize a monthly rental from each flat of from \$35.00 to \$50.00.

Two-family apartment houses of this character are usually heated by means of either steam, hot water or vacuum systems, steam being the cheapest mode of heating of the three, owing to the use of only one pipe for flow and return of steam and condensed water to and from radiators; the radiators are somewhat smaller, made possible by the difference in temperature of steam and hot water in radiators.

The plumbing is all arranged in one wall and not scattered in two parts of the house, as is often done. The bath rooms are equipped with medium-priced modern plumbing fixtures, including pedestal lavatories with medicine cases above, water closets with low-down tank, with seat and cover of mahogany finish, which stands out in rich contrast with the white enameled bath room woodwork and plastered walls. The bath room floors are of $\frac{7}{8}$ -inch hexagonal white ceramic tile.

The dining room plate rail is passing out of favor and in its stead a continuous head casing is used over all doors and windows with 3-inch panel strips spaced 2 feet apart placed beneath. Panels are covered with canvas or muslin and tiffany finished. The wall and ceiling above head casing are papered. Two popular woodwork finishes for dining rooms are weathered oak or white enamel.

The living room fireplace is faced with speckled buff, smooth face brick, the color of which goes well with the birch-mahogany finish of living room. The living room ceiling is finished with a neat wood cornice.

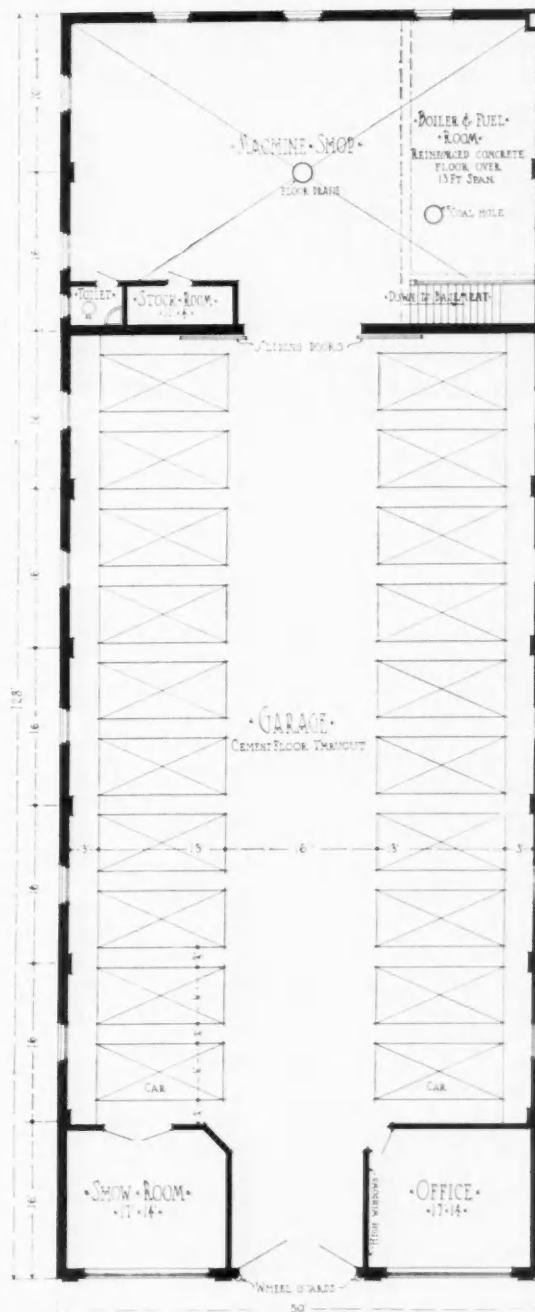
The bedroom woodwork is finished in white enamel with window sash, stool, base and door finished in mahogany. The walls are either calcimined or painted any tint desired.

The kitchen and pantry woodwork is birch varnished natural. The kitchen has a cement wainscot 4 feet 6 inches high, with neat wood cap. The plastered walls and ceiling can be either painted or enameled. On the

kitchen wall is located the bell and speaking tube connection from vestibule. The refrigerator, located in entry, is easily accessible for either ice man or house-keeper.

The vestibule is finished in birch mahogany with either white marble or tile wainscoting with tile floor. A wainscoting of "lin-o-wall" panels with wood strips and cap is considerably less in cost and just as serviceable, if desired.

The canopy over front entrance is of galvanized iron with green opalescent glass panels set in copper. This type of entrance shield is much in demand owing to its dainty appearance in contrast with a top-heavy bracket supported roof,—also on account of the variety of color effects which can be obtained. The front entrance doors and frames are birch stained mahogany. The entrance door is glazed with beveled plate glass

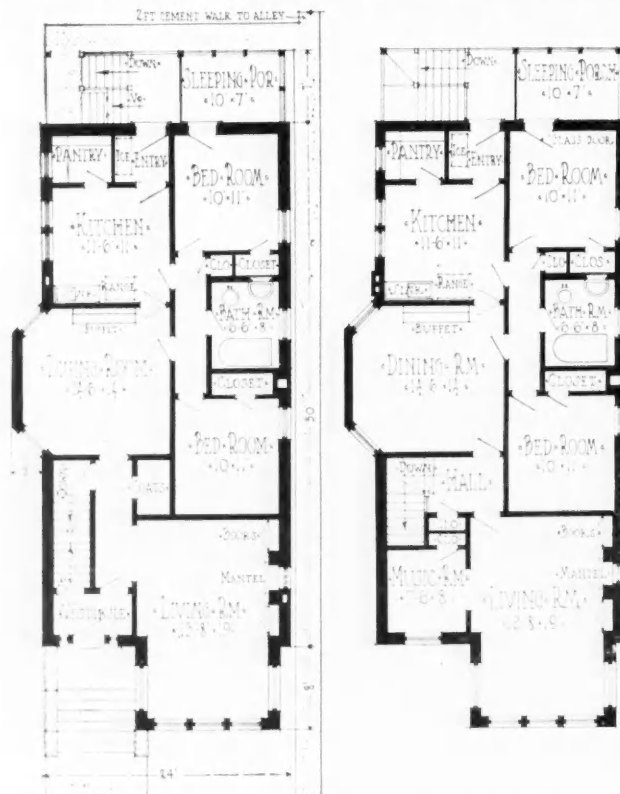


Floor Plan of Public Garage No. G167 Illustrated on Page 81.

Details of Light Steel Truss for 50-Foot Span Curving Roof Garage. Also of Concrete Floor Over Heating Room. Garage Design No. G167 Illustrated on Page 81.



Modern two-flat building of good design. Size, 24 feet by 50 feet. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$15.00 per set. When ordering, ask for Design No. 6806.



First Floor Plan. Second Floor Plan.
Arrangement of Rooms for Two-Flat Building,
Size 24 by 50 feet.

with art glass sidelights. The two rustic lanterns placed one on each side of entrance combined with the other effects enumerated give the caller that first impression so necessary in renting or selling houses of all types.

The exterior finish of front is of vertical texture face brick and either terra cotta or stone trim. The living room roof is covered with either green glazed German tile or red unglazed Spanish tile.

A Permanent Job

Caller—"Snip & Co. have employed me to collect the bill you owe them."

Owens—"You are to be congratulated, sir, in securing a permanent position."—*Tid-Bits.*

His Hope Short-Lived

A Missourian from the Ozarks recently went to St. Louis to see the sights. He had never been in a big city before so he walked down the street looking in the windows and enjoying himself hugely. At one place he saw a sign reading, "Woman's Exchange." The mountaineer hurried into the store, which was filled with various specimens of feminine handiwork.

"Be this the Woman's Exchange?" he asked.

"It is," answered a very tall, very gaunt and spinster-like person behind the counter.

"Be you the woman?" and he eyed her keenly.

"I guess I am."

"Wa'al, I guess I'll keep Sal," he said, apologetically, hurrying out.



Five-Room Bungalow with Pergola Porch

A most inviting and attractive little home is shown here as Design No. 6799. Anyone would be proud to own such a handsome little home as it would arouse the admiration of everyone that had an opportunity to examine it.

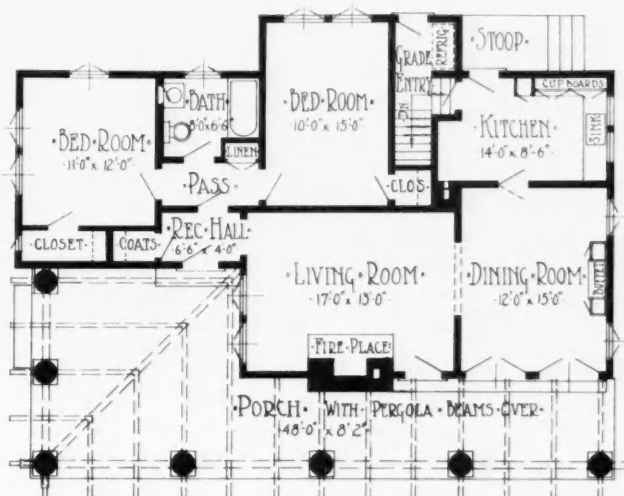
There is a certain artistic and decorative value that is possessed by a pergola. It suggests flowers, vines and the general growing things of the spring. For this reason the pergola placed around this home creates the idea of warmth, comfort, and coziness which is so essential in a bungalow. The bungalow depends for its appeal on these features more than any other type of house.

The sides of the bungalow are made of stucco up to the bottom of the windows and from there up to the roof

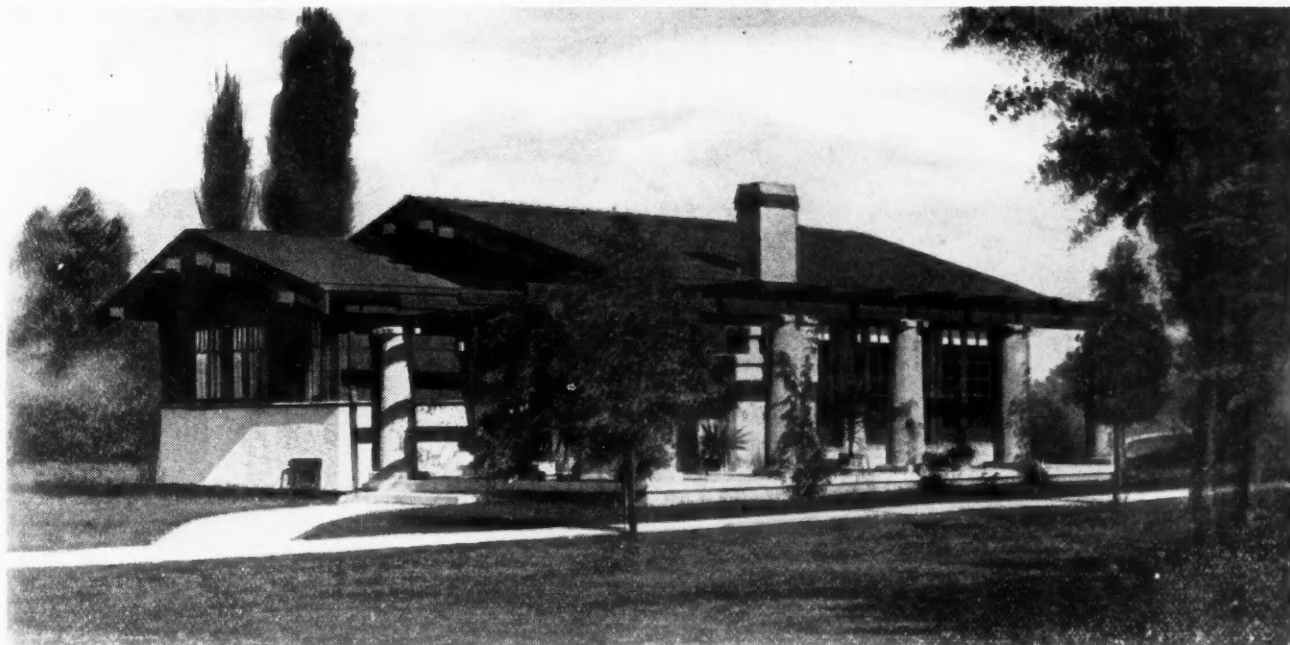
shingles are used. Another very attractive feature and one that is in harmony with the general exterior plan is the design of the round stucco pillars that support the pergola.

To make this pergola really a part of the house and to add to its usefulness, it is connected to both the living room and the dining room by several French doors. These doors also make both the rooms into which they open bright and cheerful.

The main entrance is into a reception hall that is equipped with a closet for wraps. From here a cased opening goes to the living room which with the dining room is placed along the side of the house so as to open to the pergola.



Floor Plan of Bungalow, Size 48 feet 6 inches by 29 feet 6 inches.



Artistic shingle sided and stucco bungalow. Size, 48 feet 6 inches by 29 feet 6 inches. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$6.00 per set. Blueprints consist of basement plan; roof plan; main floor plan; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6799.



Modern Dutch colonial home of pleasing design. Size, 36 feet by 34 feet. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$10.00 per set. Blueprints consist of basement plan; roof plan; first and second floor plans; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6800.

Handsome Dutch Colonial Residence of Six Rooms

A particular feature of the comfortable, stately home shown in the accompanying illustrations is the size of the living room and its general arrangement. It presents almost an ideal room in a family house such as this one.

In many living rooms it is necessary to give the effect of length by placing the fireplace in the end. This room, however, is long enough so that it can be arranged to give the impression of compactness. This idea is carried out by placing the large brick fireplace along one of the side walls instead of in the end. Such an arrangement gives plenty of inside wall space so that some well chosen furniture can be secured to fit in with the general scheme. With the double swinging doors into the sun porch open, the floor arrangement gives a large unobstructed space along one side of the house.

The connection to the dining room thru the cased openings on each side of the hall also gives considerable unob-

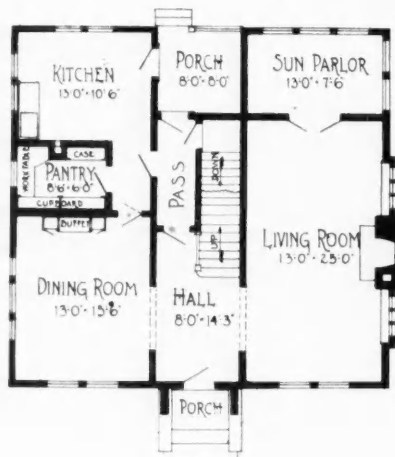
structed space along the front of the house. Many people desire such an arrangement because it makes the house most suitable for entertaining.

The hall from the front porch passes thru the house from front to back and leads to the small back porch. It makes all the rooms readily accessible. The

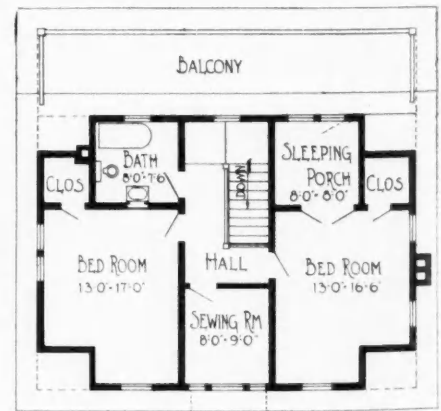
stairs to the second floor are also located in this hall.

The well arranged kitchen is back of the dining room. The convenient serving pantry is a pleasing feature.

The exterior with its gambrel roof, doorway design, and stucco walls is typically Dutch colonial.



First Floor.



Second Floor.

Arrangement of House, Size 36 feet by 34 feet.

Striking Bungalow Design of Five Rooms

A most striking impression is created by the little bungalow shown here as Design No. 6795. The combination of the porch construction and the way the front of the house is finished will cause anyone to stop and notice this distinctive design.

The porch is built with no roof and is made very inviting by the broad door, flanked by windows, leading into the house. The projecting roof with its uncovered supports is typical of bungalow construction and is in keeping with this particular design. The dark finish of this roof and also the front door provides a pleasing contrast with the white walls of the bungalow.

Another unusual decorative feature is the balcony with its ornamental iron railing in front of the French windows.

The walls of this attractive design are made of stucco which can be placed on either wood or metal lath. This method of construction is becoming more popu-

lar all the time and has many good features that will recommend it to the home builder.

The floor plan shows a room arrangement that is very pleasing—the living room especially is just the sort of a room that one would expect to find in a home with such an artistic exterior. This room is entered directly from the front porch and its large size presents a pleasing aspect. It is twenty by fifteen feet and the large fireplace is located in the center of the outside wall with double casement windows on each side. This room is connected to the dining room by double swinging doors.

The dining room is well lighted by three casement windows along the wall. Opposite these is a built-in buffet that will add to the usefulness and convenience of this room.

The kitchen is almost a model for a house of this size. It is small and compact and is arranged to cut the work that must be done to a minimum.

Two bedrooms with a hall and bathroom between occupy one side.



Floor Plan of Bungalow, Size 27 feet 6 inches by 44 feet.



Cement stucco bungalow of distinctive design. Size, 27 feet 6 inches by 44 feet. We can furnish complete set of blueprinted working plans and typewritten specifications for only \$5.00 per set. Blueprints consist of basement plan; roof plan; main floor plan; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6795.

Decorative Six-Room Bungalow

The bungalow shown here is a type that would be a delight to anyone. It is an ideal bungalow home. The exterior arrangement is very attractive and striking and the interior is a model of comfort and convenience.

In the room arrangement, two bedrooms are regularly provided for and the third can be used as a den unless it is wanted for company. Two, generally, are all that are needed, but this plan can be arranged so that the den can be used or the double sliding doors can be left open and the den really becomes a part of the living room. This room, the living room, and the dining room, should be finished in somewhat the same style as the wide openings between the rooms make the arrangement seem like one room and an effect will be obtained that is not harmonious if the rooms are not finished in the same general way. The dining room and living room really make one large room that is 16 feet by 24 feet, as the only thing separating them is a colonnade with bookcases in the lower part of it.

A particular feature of the front rooms of the house is the lighting. To fit in with the attractive appearance of the exterior it is necessary to have a bright and cheerful interior. This is accomplished in good style in this design. A broad window opens to the porch from the living room and there are also two smaller windows

placed on each side of the fireplace. Three windows occupy most of the outside wall space in the dining room.

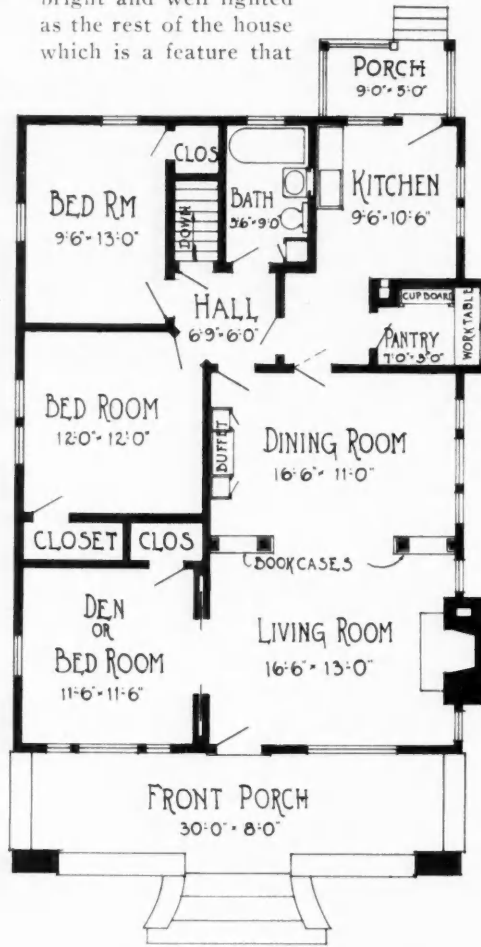
The kitchen is small and compact and arranged to reduce the useless labor to a minimum. It is made as bright and well lighted as the rest of the house which is a feature that

will be appreciated by all housewives. Three large windows accomplish this purpose in good style. The little serving pantry between the dining room and the kitchen forms a valuable annex to the kitchen and helps in reducing the amount of work that has to be done in this part of the house. The back porch will be appreciated in the summer time when it can be used as a part of the kitchen.

A good basement is provided with sufficient headroom so that a heating plant can be installed. The walls should be of concrete and should be carried down below the level of the basement floor. The floor should also be of concrete as this material can be readily made waterproof and will keep the basement dry and in the best possible condition.

The back hall is a convenience that is most necessary in a house of this size. It insures privacy in all the rooms and yet any part of the house can be readily reached from any other part. The dining room, kitchen, basement, bathroom and the two bedrooms all have doors opening into this hall.

The exterior of the bungalow has many features that will recommend it to the person who wants a distinctive home. The porch construction is particularly striking. There is nothing more attractive and inviting than a low broad porch roof especially if built in the form of an arch as in this case. The porch walls and pillars are built of stone and brick.



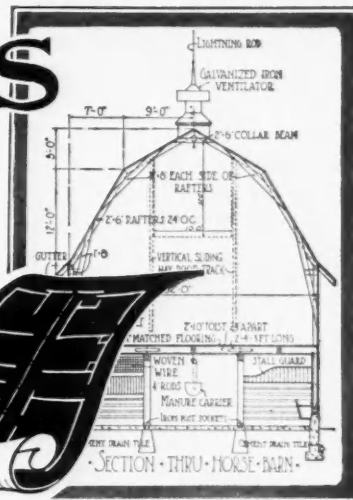
Floor Plan, size 30 by 42 feet.



Bungalow with distinctive porch construction. Size, 30 feet by 42 feet. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$6.00 per set. Blueprints consist of basement plan; roof plan; main floor plan; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering ask for Design No. 6798.

FARM BUILDINGS

Arranged For Convenience -



Farm Ice House

An ice house designed especially for farm use is shown in Design A325. It is 12x16 feet in size on the ground and is 12 feet high to the eaves.

Ice may be easily kept all summer on the farm in a house built after this plan. The first consideration is drainage. The ground either must have good natural drainage or it will be necessary to put in tiling. If water accumulates in the bottom the ice will melt rapidly.

measure about 10 feet one way and 14 feet the other way, and it should be 12 or 14 feet high when the filling is finished.

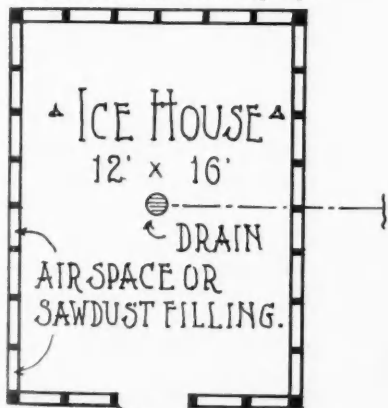
Under ordinary farm conditions ice keep better on sawdust than on any other material. The drip from the ice as it melts packs the sawdust close together, but there are still spaces enough so the water will percolate away and be drained off to a safe distance.

In taking out ice in the summer it is better to take a sufficient quantity to last

two or three days, if possible, so as not to disturb the covering unnecessarily.

There are three outside doors, one above the other. After filling, the two lower doors are closed tight and are not opened until necessary. The upper door should be opened for inspection once a week, to see that everything is all right.

Inside of these doors are boards fitted between cleats placed at the sides of the door opening. The boards are removed as the ice lowers.



Cross Section of Ice House A325

The construction of this ice house is a little different than the ordinary farm ice house, but there is no expensive insulation attempted. Sawdust or chopped hay or straw is depended upon to preserve the ice, but the walls are made double with a dead air space to keep the building as cool as possible without a great deal of expense in the construction.

The space between the inside and outside boarding may be filled with sawdust, but sawdust is unsatisfactory for this purpose. It settles unevenly because it becomes compact in places and there may be an unsuspected hole. It is better to use building paper both inside and outside and to cover the building paper with good boarding put on and driven as close as possible.

The roof is made in the same way as the sides, especial attention being given to the corners and the lapping of the building paper around the turn.

Ice put up in the winter time and well packed in the house will keep with very little loss. The block of ice will



Inexpensive farm ice house, Design No. A325, measuring 12 x 16 feet. There should be an ice house on every farm.

Horse and Implement Barn

A barn 30 by 62 feet in size, divided into two compartments, is shown in design A311. The general construction of this barn is similar to other modern barns intended for the stabling of stock, with storage for feed overhead. About one-third of the lower floor of the building is given over to the storage of farm implements and farm machinery, as it seems easier to add a few feet to the length of the barn than to put up a special implement shed. The expense probably is not much more.

There is a good concrete foundation wall and concrete floor the full size of the barn. The floor is made level from one end of the building to the other.

It is customary to make a ceiling nine feet high for horses. Farm implements require about the same height, so that the storage floor also is made level and even.

In the horse stable end there are standing stalls for six horses besides two box stalls, each ten feet in width, that may be used for any purpose.

There is a splendid harness room with dustproof cupboard

for hanging the harnesses when not in use. It is built at the side of a passageway which is used as a side entrance to the horse stable.

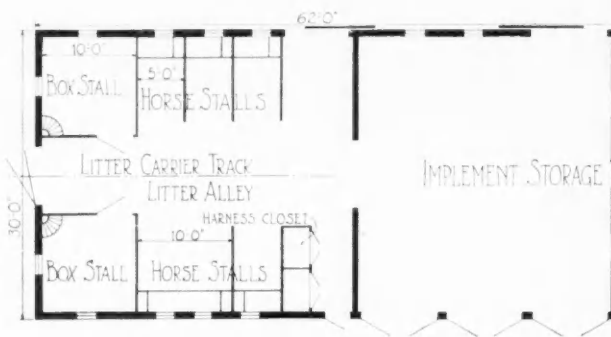
There is a convenient horse door at the side of the building which opens into a lane. This lane connects with several small pasture paddocks, so that the horses may be turned out to find their way directly into the pasture lot, or they may be driven thru the lane directly into the stable instead of chasing them several times around the barn.

The passageway thru the center of the horse stable is made wide enough for

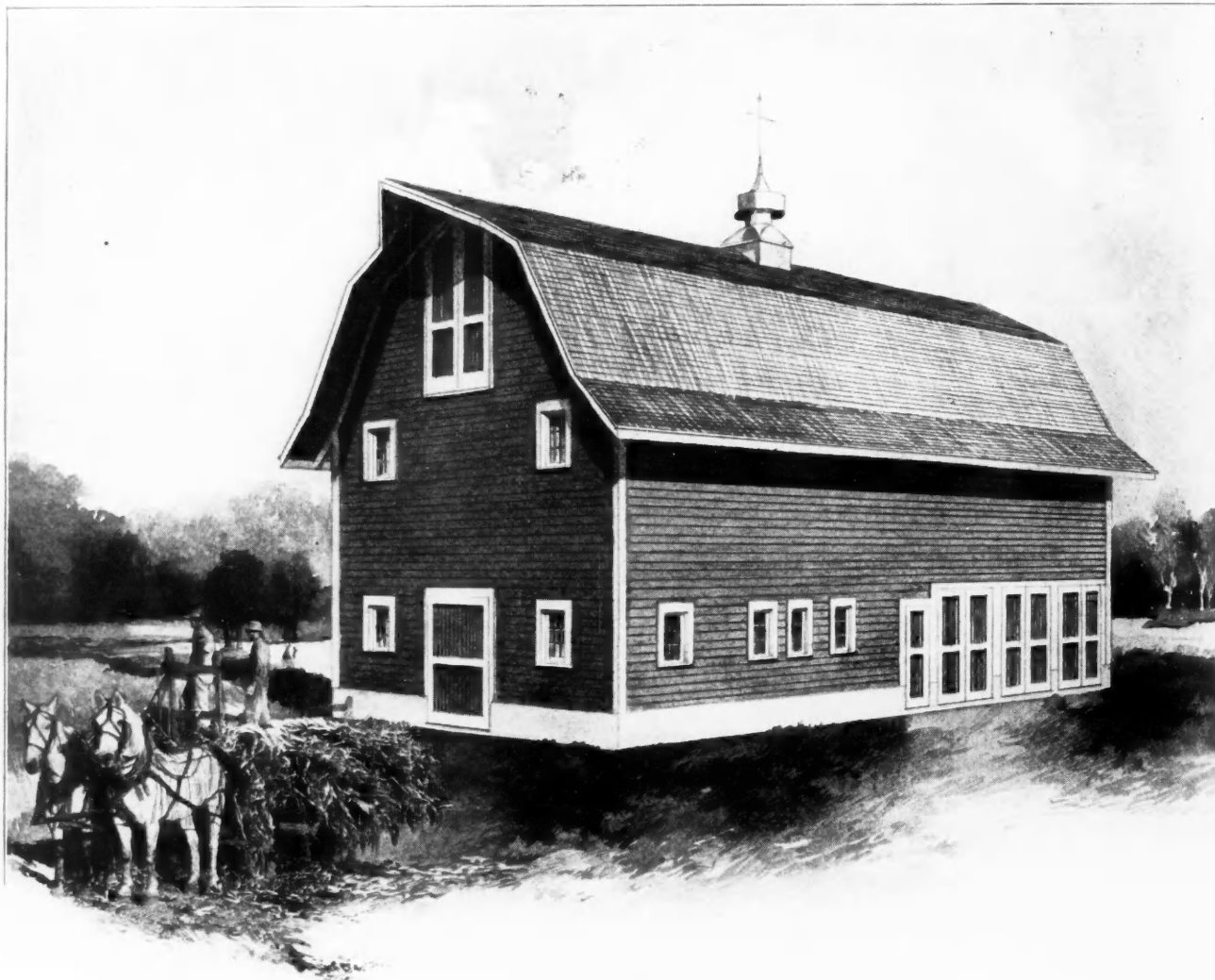
a carriage or wagon to pass thru. The buggies or sometimes a wagon or two are stored in the implement shed, so the horses are hitched on under cover and driven out thru the handiest door.

The intention is to make a workshop in the far corner of the implement shed, where the large sliding door is placed. A room will be partitioned in this corner large enough to include the first window. There will be a vise, bench, and tools to do cold tinker work. There will be no forge in this shop, because straw enough gets scattered around such a building to start a fire from the sparks from the anvil.

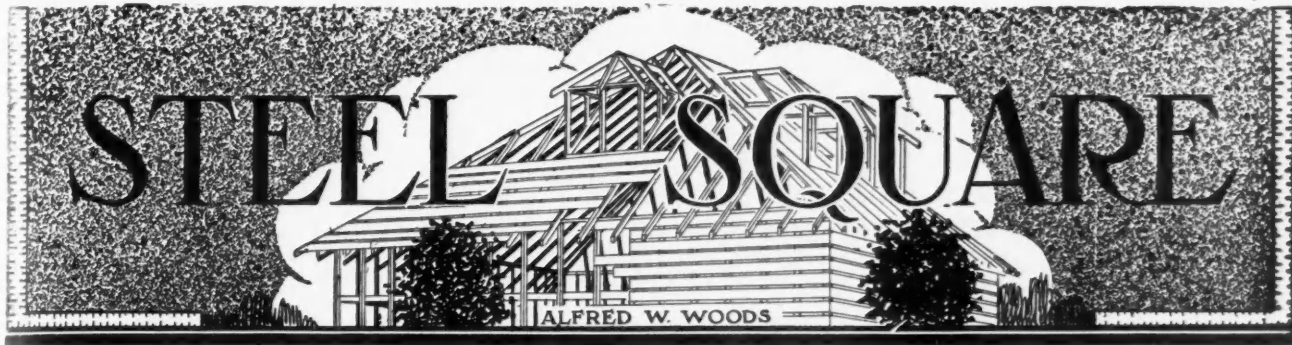
The six doors are intended for the easy handling of farm implements, to put them in or take them out, and for this reason they are hinged to the posts, which arrangement permits opening of all the doors at once, or any one, or pair of them as needed. Hinged doors in a place of this kind are all right, because they are not opened frequently. The large sliding door at the front of the stable and the small swinging door at the side are the ones mostly used.



Ground Floor Plan of 62'x30' Barn No. A311.



Combined horse barn and implement storage shed. A satisfactory type of farm building, giving immense amount of mow space. Size of barn, 62 by 30 feet. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$8.00 per set. When ordering, ask for Design No. A311.



Possibilities of the Steel Square

SHOWING HOW TO FRAME A PYRAMID BOX WITH THE AID OF THE STEEL SQUARE, AND ALSO HOW THE SAME MAY BE ACCOMPLISHED BY A SIMPLE DIAGRAM.

By A. W. Woods

SUPPOSE you were asked to frame a pyramid box right side up, or upside down, big or little. It does not matter which, but in doing so, to be done with the aid of the steel square, and that without hesitation. How many can do it? We fancy we see, not the majority, but instead a small minority getting in action. Yet this is not an unusual problem, but rather a usual one, and is contained in all hip roof framing; and one who understands how to handle the square in this kind of work should experience no trouble in framing this box.

The roof is built on a large scale composed of many pieces, while in the case of the box it is on a small scale, comprised of but four like pieces. To make this clearer, suppose the roof sheathing to be cut from one

wide piece and when put together it would show just the same as the inverted pyramid box, but on a larger scale. By cutting off the peak, we would have the same thing on a smaller scale.

In the illustration is shown the parts to take on the steel square for finding the required angles, also how the same may be accomplished by a graphic method. Both are shown here in the way of comparison.

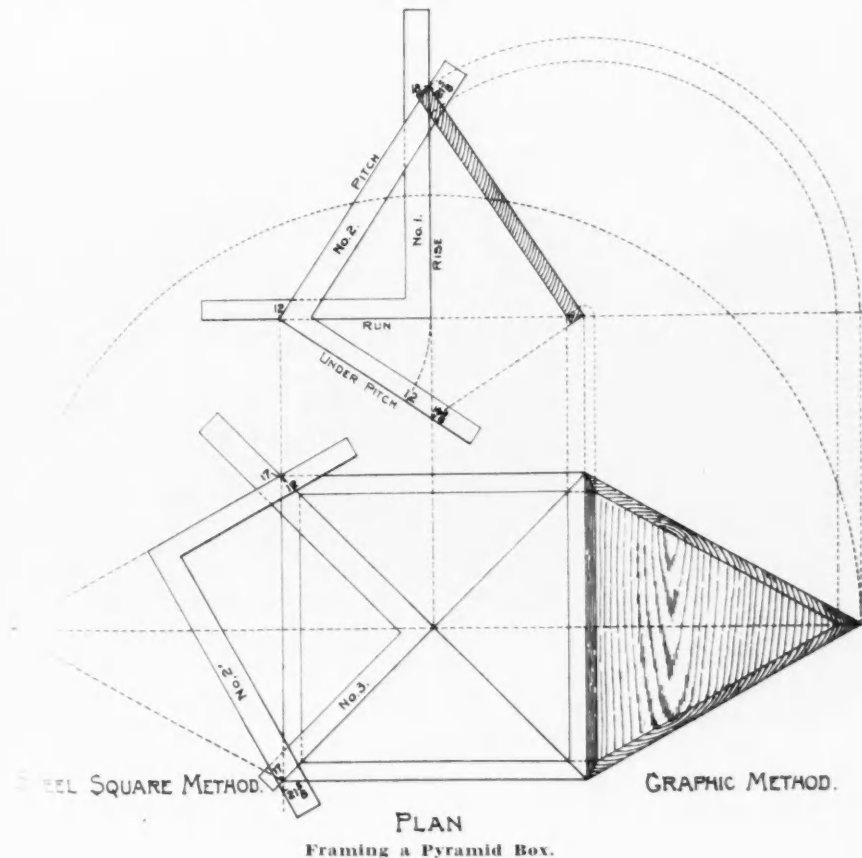
Beginning at the top: Square No. 1 shows the rise to the foot run, which is shown to be 18 inches. To the left is shown the relative pitch of the board to form one of the sides.

Square No. 2 shows the pitch lines and is shown to be $21\frac{5}{8}$ for the pitch proper and $14\frac{3}{8}$ for the under pitch.

Now, to obtain the angle across the face of the board we must take proportions as found on squares Nos. 1 and 2, as follows:

Twelve, as shown on No. 1 (not because it represents the run, but because it is equal to one-half of the length of one of the sides) and $21\frac{5}{8}$, because it is the length of the pitch, and these proportions as shown in the application in No. 2 prime, gives the required angle, as shown by the tongue.

Going back to Square No. 2 in the first instance, the pitch lines are at right angles to each other because the edge of the board is square to its face. In other words, these pitch lines are governed by the relative position of the edge of the board to its face; if these are not at right angles to each other, then the pitch lines cannot be at right angles. If the lower edge of the board is first beveled to coincide with a level plane when in position, then there can be no un-



PLAN Framing a Pyramid Box.

der pitch, because in the cutting away process the cause has been removed, thereby leaving the lower edge or base level and the miter becomes 45 degrees, and like parts taken on blade and tongue will give the required angle.

For illustration purposes, we have used 17 and 17 to illustrate this angle, as shown by Square No. 3.

To obtain the same result on the unbeveled edge of the board, we proceed just the same as for obtaining the bevel across the face of the board, as described above, but using the figures that represent the length of the under pitch, which in this case is $14\frac{3}{8}$, and half the length of one of the sides (12) will give the required angle, the side on which the lesser number is taken giving the angle. The application of the square is not shown here because the illustration does not readily admit of it.

As to the graphic method, we trust that it needs no further explanation, as it is self-explanatory by simply following the dotted lines from the elevation to the shape of the side, as shown in the layout.

If this could be raised up in place, it would be found to cover the angle in the plan, just as the square No. 3 does on the opposite side.

It should be remembered that the foregoing is for a square pyramid, but the principle involved remains the same as if it had any number of sides, even running into the infinitesimal and die out in the true circle from whence the angles are determined.

In conclusion we wish to call attention to an oversight in our article in the April number. In Fig. 2, the angle marked $63\frac{7}{11}$ degrees should read $167\frac{7}{11}$ degrees.



Pickups on the Job

By H. J. Blackledge

HOW MUCH WOULD IT COST?—During the first two years of our carpenter life we kept accurate tab on all kinds of separate jobs, figuring exactly their cost to us. When figures on half a dozen jobs were secured we average them up and thus secured "about the cost" of various pieces of work. In this way we were enabled to give off-hand a fairly close "guess" as to "what would it cost to build a bay window on the front of my house and reshingle the porch?" or "Say, could you give me some idea of how much it would cost to put hardwood floors in my front room and dining room?" Nothing inspires more confidence in a prospective customer, I find, than a quick answer to the everlasting question, "How much would it cost?"

If you can give a quick, close estimate of the cost of what he wants done, nine times out of ten he will order it then and there. While if you have to take down all measurements and then go home and figure it out to the last nail,—well, usually he has "changed my mind and don't think I will do it this winter." I know men here today can tell you within fifty dollars

the cost of any building that has been put up in the last five years. I know others that do not know what the actual cost was of the last one they built THEMSELVES.

TOOL LISTS PREVENT FORGETTING—I saw a little stunt that looked pretty good to me the other day. A young carpenter had about a dozen different lists of tools glued up in the lid of his chest. My curiosity got the best of me and asked him the why and wherefore. He said that he used to have a bad habit of finding himself on a job fifteen blocks from home minus some tool that he ought to have known he would need. So he made up these lists of tools for various jobs, such as "Setting Frames," "Putting in Window," "Hangmg Doors," "Repairing Flooring," and so on, thru quite a list of standard jobs. Now when he has all tools ready to start for any particular job, he glances at the list, and is Sure instead of Sorry.

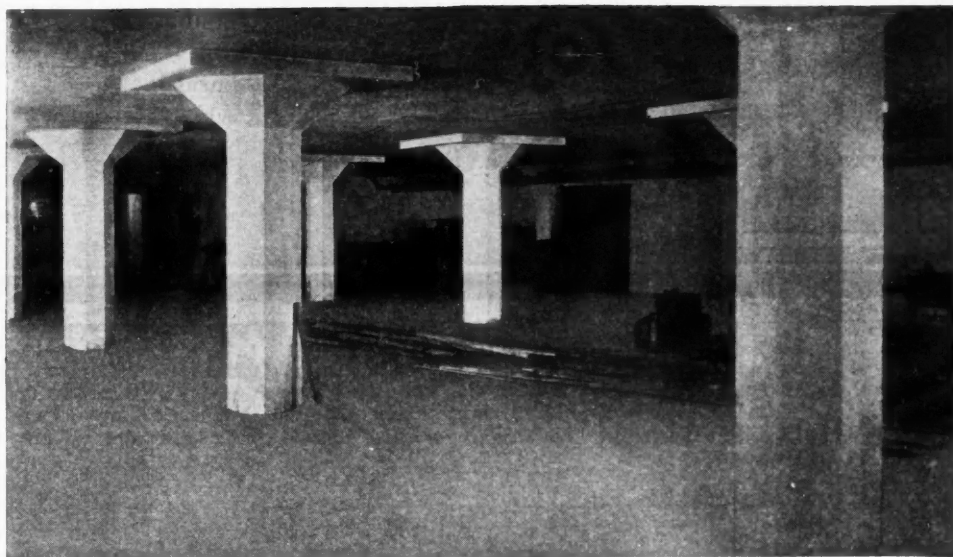
A PLACE FOR EVERY TOOL—Likewise this same fellow can go to his chest at midnight and get any tool or tools almost as well as he can at midday. He has one certain spot in that box for each individual tool! And the Lord pity anybody that puts anything in where it does not belong! He is the crankiest I ever saw. But after all, I believe it pays. There is an appalling amount of time lost in pawing over and rooting around in tool boxes.

A POCKET FOR THE NAIL SET—Never, NEVER, carry your nail set in with the nails you are using. Perhaps not often, but SOMETIMES, you will throw it out with the nails when you change. And then you have to go back and hunt for it. If there is not a middle, small pocket in your apron, at least carry the set in the right-hand pocket (if you are right handed. South-paws vice versa.)

SYSTEM AT THE WORK BENCH—A lot of time can be saved at the bench by always putting planes back near the "head" of the bench. Have a thin strip lying crosswise to prevent the cutting edge coming in contact with dust, nails, or other "foreign substance." Always replace the plane there after using and then you can reach for it automatically. I have seen a man dig around among the shavings for a minute or more, looking for a try square, rule, pencil, or other small tool. Keep the shavings cleared off. It takes only an instant to sweep them off with your forearm when they begin to accumulate. And then your bench is giving you its best returns.

HANDY NAIL SUPPLY—Don't have the nails way off at the back end of the lot or under some lumber at the far side of the house, or down in the basement. Keep them close up, where there is no need of "making a journey" every time you need some.

MEDUSA WATERPROOFING



Basement of Treleven Building, Fond du Lac, Wisconsin. Made water-tight by Medusa Waterproofing

Are You Building *Dry* Basements?

PRACTICAL BUILDERS today are making basements that can be used for practical purposes. That means that they must be *dry*—that they must be damp-proof. Furthermore they must retain these water-resisting qualities *permanently*.

Medusa Waterproofing

in powder or paste form—makes concrete absolutely water-tight. It keeps moisture out of the side walls and floors. Keeps walls from discoloring. Prevents the appearance of hair-cracks on the surface.

2% of Medusa Waterproofing in the mix is enough—or better still use *Medusa Waterproofed Cement*—a combination of Medusa Cement and Medusa Waterproofing mixed at the factory.

Remember Medusa is the *original* Concrete Waterproofing. One trial convinces that it is a true preventive of dampness in concrete.

See what others have done with Medusa Waterproofing. Write today for our testimonial booklet, "Medusa Waterproofing."

If you can't get the Medusa products in your town—send us your dealer's name.

The Sandusky Cement Company

Waterproofing Dept.

Cleveland, Ohio

THE SANDUSKY

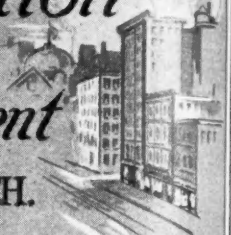


CEMENT COMPANY

MODERN STORE FRONTS

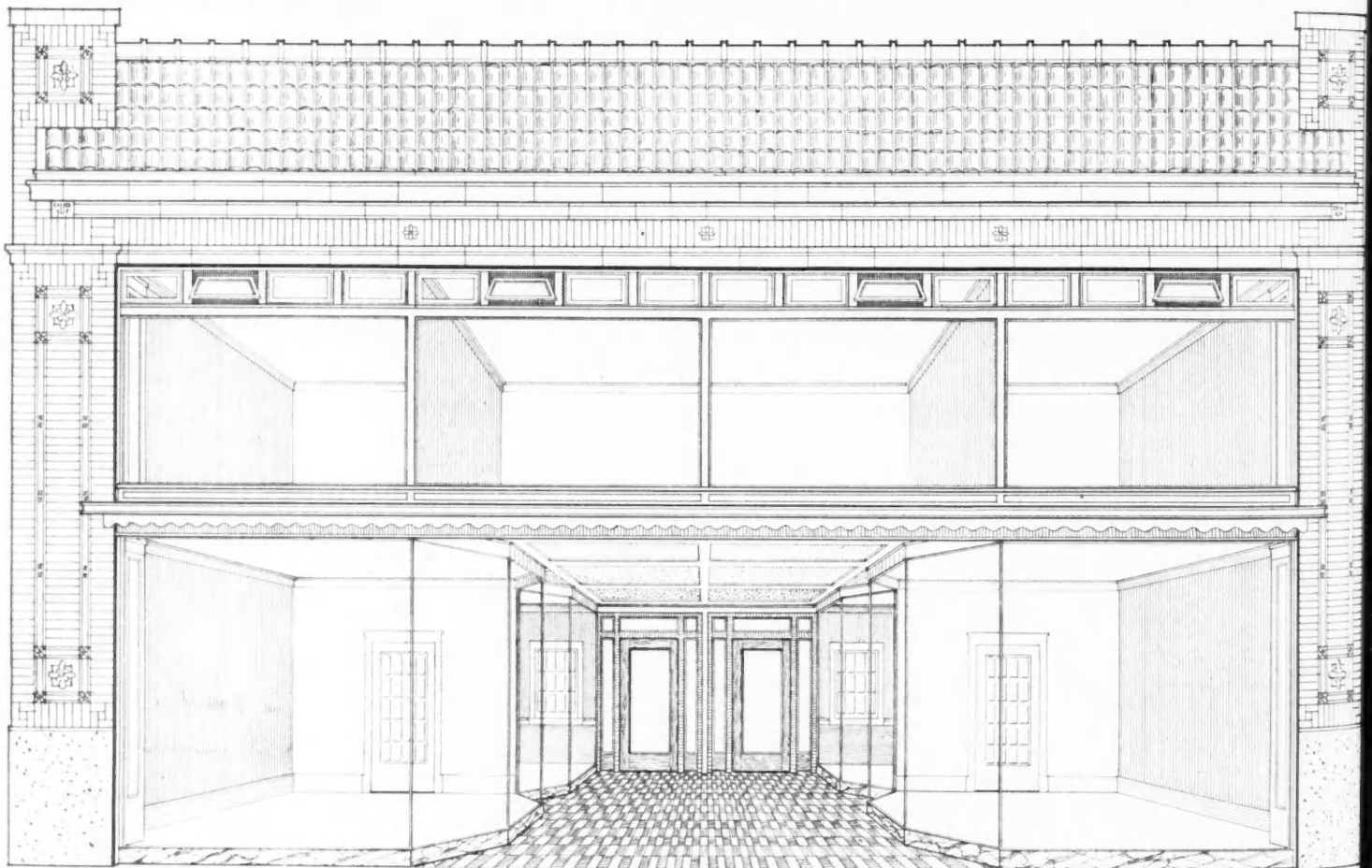
Their Design and Construction

By
Francis J. Plym, President
of **KAWNEER MFG. CO., NILES MICH.**

IN 17 PARTS, PART 4. (SEE FEBRUARY, MARCH AND APRIL ISSUES FOR OTHER DETAILS.)

NOTE: Mr. Plym desires this Department to be of greatest practical benefit to contractors and builders. He will gladly answer letters of inquiry, giving any special store front information desired. He has also prepared a very instructive illustrated booklet on modern store fronts which he will mail free of charge to any architect, contractor or builder desiring a copy. Under this heading is appearing a series of 17 typical store front designs, also a series of 17 plates of half size details of Kawneer store front construction.



TYPE N° 40

TYPICAL ELEVATION OF FURNITURE STORE

COPYRIGHTED BY
KAWNEER MFG. CO.

A PROPERLY designed Furniture Store should have a low bulkhead, so that the articles displayed have the same appearance as in use.

The display windows should, as nearly as possible, reproduce a room, and they should permit of the display of each suite as a unit instead of indiscriminately mixing dining room with kitchen or parlor furniture.

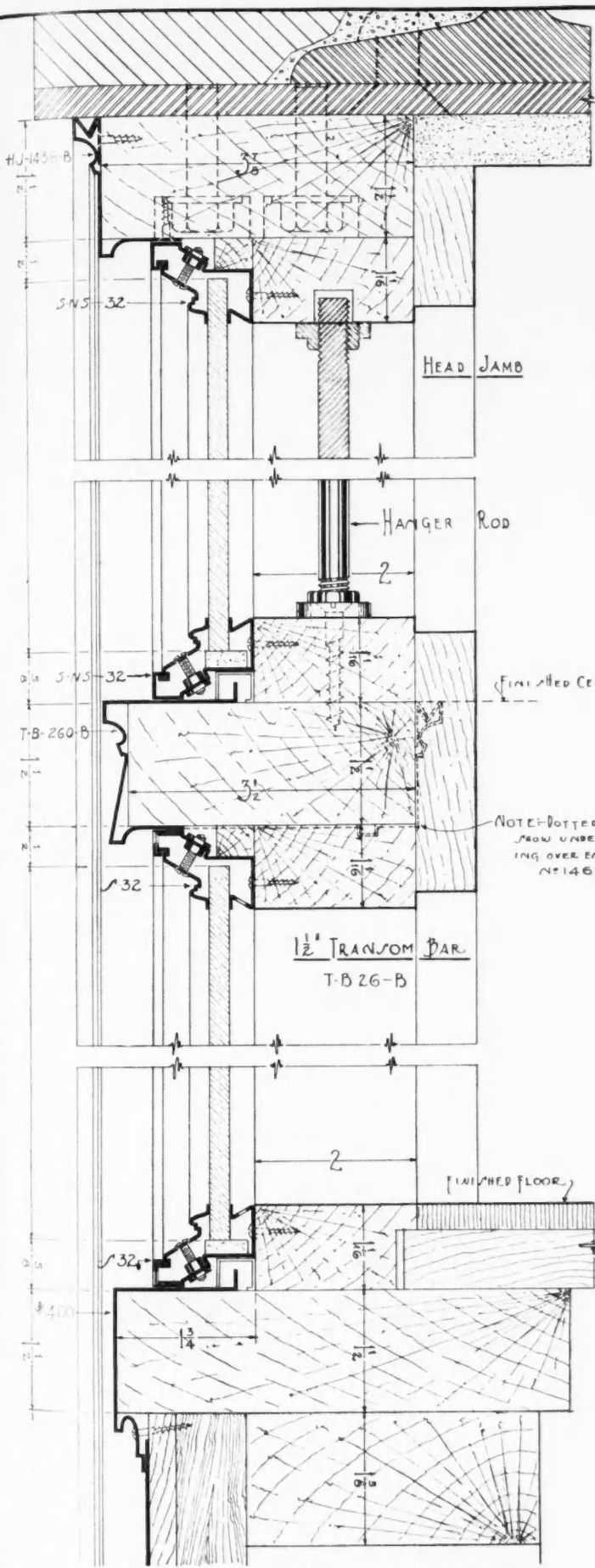
Notice how well this front meets the requirements above stated. The bulkhead is 6 inches high, with 9-foot plate. The windows are 12 feet deep. The permanent backing reproduces the interior of a four-room apartment; parlor, dining room, bed room and kitchen.

Behind a front like this, furniture will sell itself.

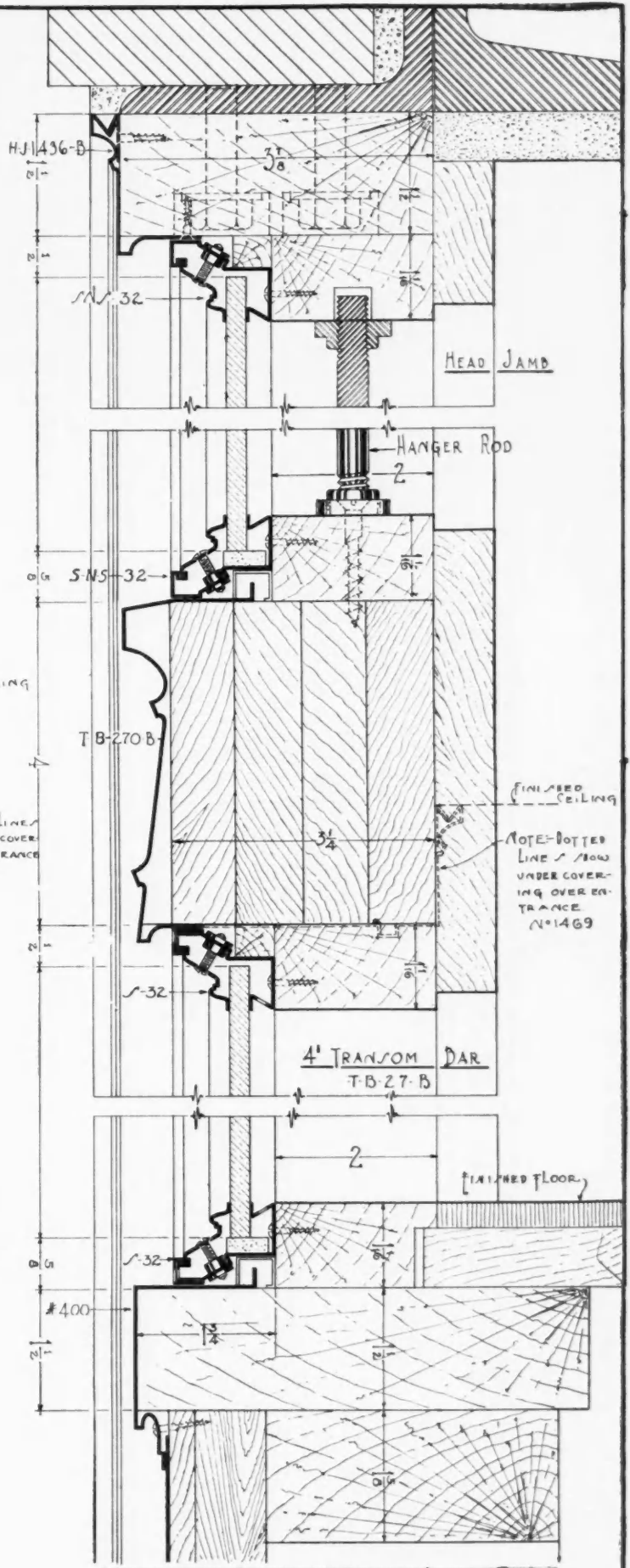
The jogs in the floor plan emphasize the division between rooms, without seeming to do so; while the suspension rods concealed in the mullions carry the mezzanine floor, making columns in the show windows unnecessary.

The Kawneer Manufacturing Company will, from time to time, show different "up-to-date" KAWNEER STORE FRONT designs, for various types of business, such as Jewelry, Candy, Clothing, Millinery, etc.

The details on the opposite page, drawn half full size, show some of the members which constitute KAWNEER STORE FRONTS. Readers are asked to cut these out, as they will prove to be a valuable reference asset to them in the future.



VERTICAL SECTION THRU STORE FRONT



VERTICAL SECTION THRU STORE FRONT

PLATE No. 4



KAWNEER MFG. CO. — NILES, MICH.
MANUFACTURERS OF KAWNEER PATENTED STORE FRONT CONSTRUCTION.



Kawneer
STORE FRONTS

CORRESPONDENCE



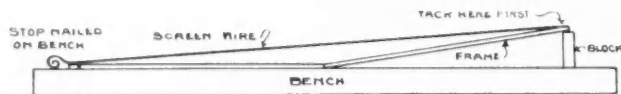
Questions Answered and Ideas Exchanged.

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

Screen Wire Stretcher

To the Editor: Blytheville, Ark.
I have just been looking over Ray Colburne's letter on how to stretch screen wire, and will therefore describe my way.

I use a bench of 2x6, on trestles, long enough to hold



Single Screen Stretcher.

two frames, placed end to end. Tack end of wire to one frame at extreme end and elevate about 10 or 12 inches and draw moderately tight and tack to opposite end, then let elevated end draw. If wire is trimmed straight and care

used in tacking the two ends, this will make a smooth stretch.

Trust this may in part pay for the much good I have derived from the "A. C. & B."

W. T. RIFA.

What Woodworker Can Tell?

To the Editor: Butte, Mont.

Will you please ask thru the columns of your valuable paper how I can make a movable table for my woodworking machine, or a scheme by which to carry long stuff so that I can handle it by myself? I have a portable house to cover my machine, and I want a frame at each side so it will not interfere with my house. I used to clamp a frame to the table top, but it was not satisfactory as I had to take it down every night to cover the machine.

It may be that some Brother has this attachment all worked out and would send a sketch.

A. P. STONE.

CONCRETE FOR PERMANENCE

New Business for You

Develop new business in your locality—build stucco and concrete garages, for instance. Automobile owners are quick to see the advantages of permanent, fireproof garages. Make an effort to get orders for porches, dairies, pavilions, pergolas. This business you develop is yours and pays the best profits.

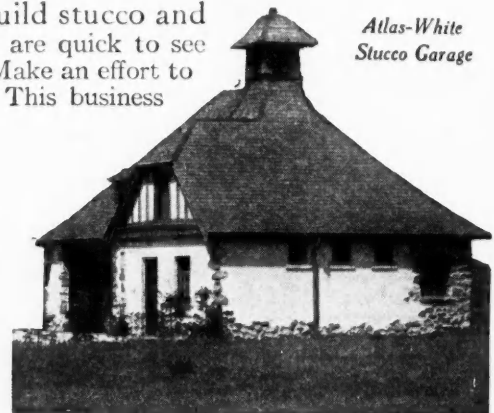
Atlas Co-operation

We will furnish you, without charge, information and suggestions to help you develop new business. Write for our helpful monthly publication—the Contractor's Atlas—free. Also "Guide to Good Stucco" with specifications—use coupon below.

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other makes are measured"

The Atlas Portland Cement Co., 30 Broad Street, New York, or Corn Exchange Bank Building, Chicago.

Send book "Guide to Good Stucco," together with specifications, and your free monthly contractor's Atlas to name and address signed on margin of this advertisement.

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER



Sound Deadening Plaster

Put quiet conditions into these homes. It makes a big difference in deadening sound when a home is plastered with

Hydrated Lime Plaster

For Scratch and Brown Coats

It is the ideal plaster for interior walls, and is recognized as the material to use for standard practice. It is

STANDARD PRACTICE

To use the best material when it costs no more than others. Try it on the buildings you have under construction and you will decide it is the best. Ask us for specifications today.

Here's What You Will Get

SOUND—Finished walls that absorb sound and provide quiet conditions in the home.

LATH—Hydrated lime plaster is a slower setting plaster that permits plasterers to eliminate lath cracks.

STRAIGHT WALLS—All walls and angles can be made straight and true. Permits the baseboards to fit tightly

against the plaster, improving sanitary conditions.

ECONOMIES—All droppings can be picked up, re-tempered and used either the same day or the day following. Also the true and even brown coats require less lime in white coating.

CONCRETE—Hydrated lime plaster may also be applied to concrete surfaces.

Ask us for the complete facts



HYDRATED LIME BUREAU
of the National Lime Manufacturers' Association

1610 Arrott Building PITTSBURGH, PA.

HYDRATED LIME BUREAU, Pittsburgh, Pa.

Am interested in having your plastering specifications. Please send them at once.

Name

Address

City & State



BUILDERS of attractive homes have long needed this book.

It not only contains eight attractive designs for homes costing \$1,200 to \$12,000, but in addition supplies complete information on the uses, adaptability and finishing of

Arkansas Soft Pine

Send us your name—we'll send you the book. If especially interested in White Enameled Woodwork, please indicate the fact in your request. Address Department D.

Arkansas Soft Pine is Trade Marked and sold by dealers. See that yours supplies it. He can.

Arkansas Soft Pine Bureau
Little Rock, Arkansas



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

Improved "New Way" Wardrobes

To the Editor: Aurora, Ill.
The "New Way" wardrobe was illustrated in the October, 1914, number of the AMERICAN CARPENTER AND BUILDER, and considerable stress was placed upon the space saving features of this improvement. I wish to offer a suggestion in reference

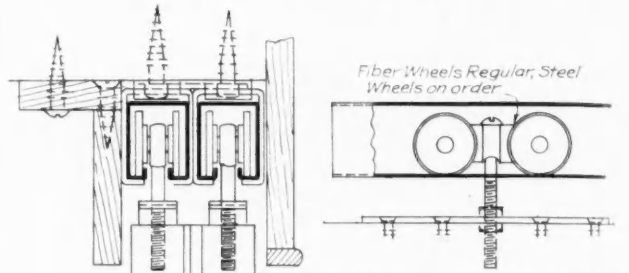


FIG 2 ELEVATION OF CABINET DOOR HANGER



FIG 1 SECTION THRU DOOR HEAD

to the doors, which would still further increase the value of this type of clothes press as a space saver.

The original illustration showed swinging doors, causing a large amount of waste floor space directly in front of the wardrobes, as well as along the side walls of the room.

An improved design shows two doors sliding on parallel tracks for each wardrobe. A small door hanger and track, designed especially for light doors of this class, is shown in Figs. 1 and 2. The tracks, which are of the trolley type, are attached to the ceiling of the wardrobe. The head casing extends down far enough to lap over the top of the doors. This is clearly illustrated in the larger vertical section, Fig. 1. A two-piece member attached to ceiling of the wardrobe just inside of the tracks, completes the track pocket and makes the top of the doors dust proof. This member should be

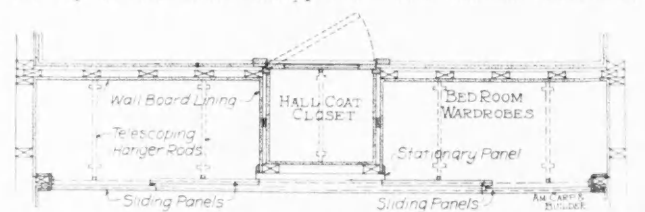


Fig. 3. Cross Section of Closets and Door in Improved "New Way" Wardrobe.

attached with screws so it can be easily removed. Small hardwood strips attached to the floor and operating in grooves plowed in the bottom of the doors serve as guides and also prevent dust from getting in at the bottom. Small strips may be attached to the side of the doors where they overlap at the center.

With sliding doors either half of each wardrobe can be opened at the same time, but the design in Fig. 3 permits one entire wardrobe and half of the other wardrobe to be opened at the same time.

In this case the two tracks are continuous from wall to wall and the center panel is set back far enough to let the doors pass in front of it. This center panel may be plastered

(Continued to page 100.)



“ It is a
RITE-GRADE
Red Cedar Shingle
BUNGALOW ”

Service Done—Money Saved

If you build to Sell, if you build to Rent, or build to own and live in, you point with pride to the fine roof and walls, and say:

“It is a Rite-Grade Cedar Shingle Bungalow!”

Your Roof and Walls of Rite-Grade Cedar Shingles have absolute value back of them. You can say: “A roof of Copper at a Cedar Shingle price!” Each Rite-Grade Shingle is a good, honest shingle, from live red cedar. Inspection Bureau inspected for no Sap, for Drying, for Grain, for Quality to last 40 years—**or a century.** The best that man can manufacture from the best Nature makes. The

Rite-Grade label has the guarantee of Forty Associated Mills of the Pacific Northwest.

RITE-GRADE Red Cedar Shingles are made in six styles; 18-inch Perfects, 18-inch Selects, 16-inch Perfects, 16-inch Selects; Perfect 6/2s, 16-inch Extra “A” and dimension grades for the above 16-inch shingles 5 inches wide.

WE WOULD ADVISE USING THE PERFECTS AND SELECTS FOR YOUR ROOF AND THE PERFECT 6/2s AND EXTRA “A” FOR YOUR WALLS.

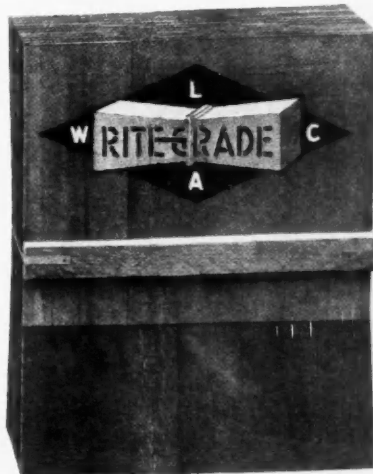
Demand this label on each bundle

The Big Four Building Library—FREE

SPECIAL NOTICE
We have blueprints, complete specifications, and full working details for each of our twelve Bungalows designed. They cost you only \$1.00 each. Send for Bungalow Book first and then order from this.

- Shingle Branch, 1022 White Bldg., Seattle, Wash.**
Please send me books as marked in squares. I enclose 2 cents stamp for each book to defray postage.
- BUNGALOW BOOK:** Twelve of the prettiest Bungalows ever designed to help you build a home costing from \$1000 to \$2500.
 - FARM BUILDINGS:** Some valuable new things by practical barn architects never published before, with detailed working plans.
 - DISTINCTIVE HOMES BOOK:** Twelve beautiful and distinctive American Homes, very practical, costing from \$2500 to \$4500.
 - THE BOY'S BUILDER:** Boat Houses, Dog Houses, Pigeon Coops, Bird Houses. A bundle of shingles, a hammer and nails will keep the boy busy.

NAME.....
ADDRESS.....



West Coast Lumbermen's Association, 1022 White Bldg., Seattle

or it may be a stationary door fixed permanently in position as indicated by the illustration.

Some of the advantages of the sliding door which may be noticed in this particular case are that the side walls are not obstructed by doors; the doors require no space in the room while being opened and do not extend into room at any time; and neither the doors nor furniture, which may be close to the wardrobe, is in danger of being scratched or marred as the result of a collision.

E. J. G. PHILLIPS,

Engineer, Richards-Wilcox Mfg. Co.

Preparedness for Builders

To the Editor: London, Canada.

I enclose order for \$2.00 for 1916 for the AMERICAN CARPENTER AND BUILDER. During the year I see many good suggestions. In the MAN FROM THE LUMBER YARD article in this month's I read about Preparedness—which I have always practiced.

I am never idle during the winter. All my spare time is put in getting various things ready, such as saw benches, step ladders, extension ladders, nail boxes, derricks, and other articles necessary to the carrying out of work on a building. I have seventeen men working on one job last fall, and one man over sixty years old paid me a compliment by saying in his experience he never met a boss before who had everything on the job that was required.

I have found out that the men who advertise in the AMERICAN CARPENTER AND BUILDER are O. K. I sent for a Kawalle Mitre Box to Manitowoc, Wis., and found it just as represented. I think it has no equal on the market. Have received courteous replies from all those to whom I have written for circulars, etc.

I would like to see more designs in the AMERICAN CARPENTER AND BUILDER, for one-and-a-half and two-story houses,

containing hall, den, parlor, dining room, kitchen, and three or four bedrooms, water closet separate from bathroom, water closet in cellar and side entrance. Wishing all the readers of the AMERICAN CARPENTER AND BUILDER a prosperous year.

T. R. WRIGHT,

President Provincial Builders and Supply Association,
London, Can.

A Pattern Makers' Trick

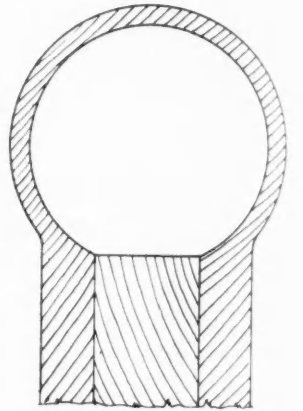
To the Editor:

Philadelphia, Pa.

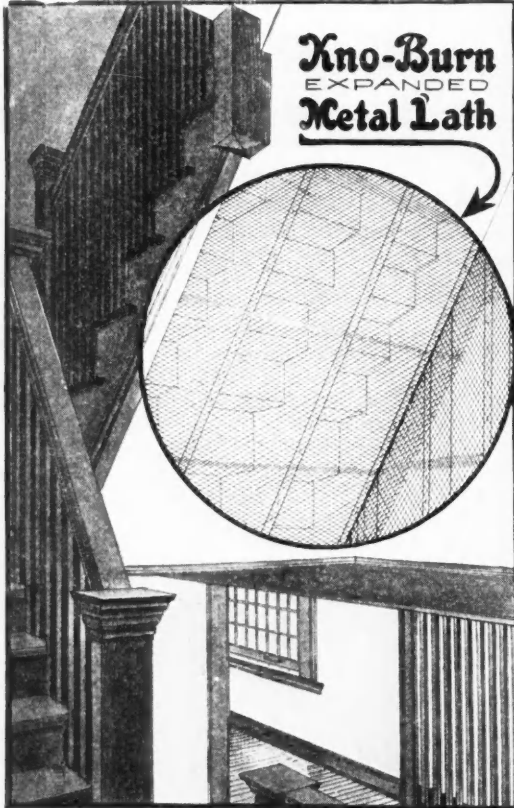
In your October number, I saw an article written by one of your correspondents, commenting on the tricks of a patternmaker. We patternmakers are full of them because we have to be.

There is no branch of woodwork that calls more for accuracy and forethought than this branch. However, I think the patternmaker did wrong in sending the pattern to the molder in the condition that was described in the October number. The patternmaker should have provided a piece of wood the length of the slot, $1\frac{1}{4}$ inches wide and $\frac{1}{2}$ inch thick, and the molder should have placed this piece in the slot loose, and withdrawn it after the outside was rammed up. The inside could then be packed with sand, without danger of spreading or contracting the arms.

WM. COWPERTHWAIT.



Improvement in Pattern as Described in Our October Issue.



For Fire Resisting Stair Soffits and Walls in Factories, Buildings, Stores, Etc.

The building laws of many states recognize plaster over metal lath as suitable construction for this type of work. It is the cheapest and most practical method and, if metal lath is used, the ideal brand is

Kno-Burn Expanded Metal Lath

The fine mesh of "Kno-Burn" cuts down the amount of plaster. The smooth surface of "Kno-Burn" is easy and quick to plaster over. You can be sure that the plaster will stay "put" because the mesh of "Kno-Burn" keys the plaster firmly and permanently to it.

There are many other uses for "Kno-Burn" Expanded Metal Lath in special ways that save you money on work. Let us send you "Kno-Burn Expanded Metal Lath," a complete book on our full line, ask for booklet 33



Northwestern Expanded Metal Company
Manufacturers All Types of Expanded Metal 903 Colony Bldg., Chicago, Ill.

*“The Carpenter could do more
with it, and with less effort,
than with any other wood.”*

United States Government report on _____

No experienced carpenter need be told that the report from which the above quotation was taken was on

WHITE PINE

White Pine has always been the preferred wood with carpenters because it works easier, and lasts longer and “stays put” better in the exposed covering of a house, than any other wood.

A FREE MAGAZINE FOR CONTRACTORS

We are now publishing a bi-monthly architectural magazine, every issue of which is full of valuable and helpful information for contractors and builders. If you would like this magazine, write us and we will be pleased to place your name on our mailing list.

*Address, WHITE PINE BUREAU,
1535 Merchants Bank Building, St. Paul, Minn.*

Representing
The Northern Pine Manufacturers'
Association of Minnesota, Wisconsin
and Michigan, and the Associated
White Pine Manufacturers of Idaho

The Farmer of Today Wants Better Buildings

The farmer of today is keeping pace with the times. He realizes that he can no longer live in a shack or house his cattle in a shed. He is demanding a *real* house, built of *good lumber*—and barns equally as good.

North Carolina Pine

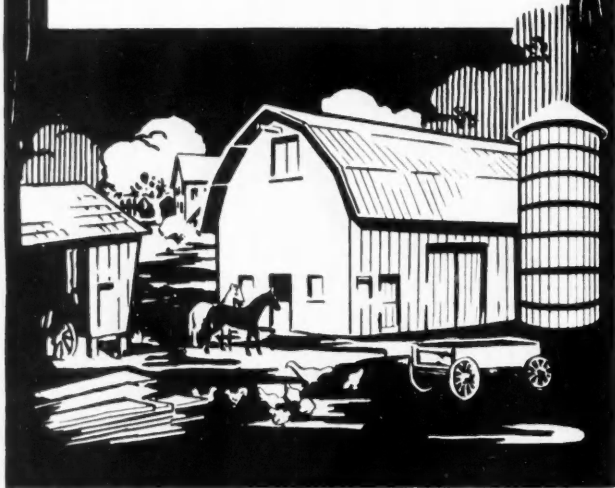
"The Wood Universal"

is splendidly adapted to almost every farm requirement—for homes, barns, silos, poultry-houses or dairy-houses. It is beautiful, strong, enduring and easy to work. And its low cost proves an added factor in its suitability for farm construction.

WRITE FOR NEW FREE REFERENCE BOOK

It is filled with information on North Carolina Pine, and will prove an asset in your every-day work. Free—just drop a postal. Ask for Book A.

North Carolina Pine Association
Norfolk, Virginia



Hood Over Back Door

To the Editor:

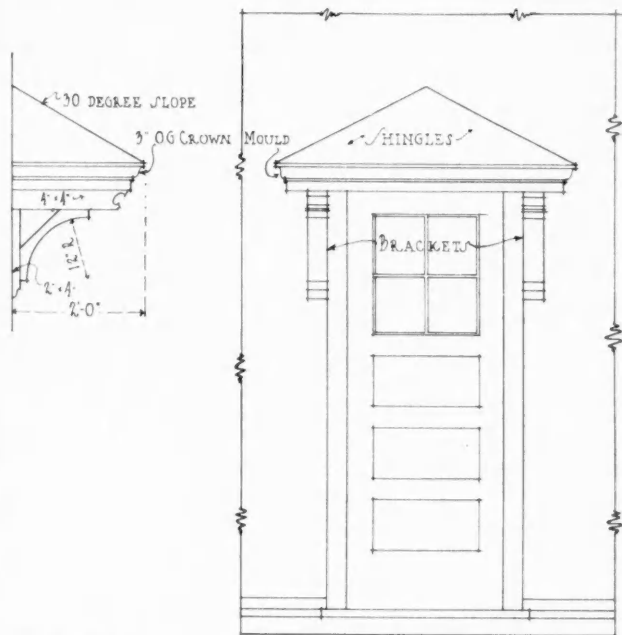
Geneva, Ill.

I would like a working sketch and explanation of the proper way to construct a hood over a back door—one that will look neat on a square hip roof house. Would like something as to size, shape, etc.

Have just received the February AMERICAN CARPENTER AND BUILDER and will say that it is a "gold mine" for information. Can hardly wait until the fore part of the month for it to come.

E. L. BRADLEY.

Answer—There are various methods of protecting grade entry doors from the weather. One is by means of a galvanized



Hood Design for a Door that is Particularly Suited to a House with a Hip Roof.

ized iron canopy supported by iron chains, and another is some sort of frame construction supported by wooden brackets covered with either composition roofing or wood shingles. We are submitting a design which we consider practical, economical, and good looking.

This wooden shield is constructed of 2 by 4 framing finished with a crown mould cornice with a shingled roof, the underside covered with 5/8-in. matched and beaded ceiling, supported by 4-in. by 4-in. brackets. The whole projects two feet beyond the door opening, properly metal flashed against building.

EDITOR.



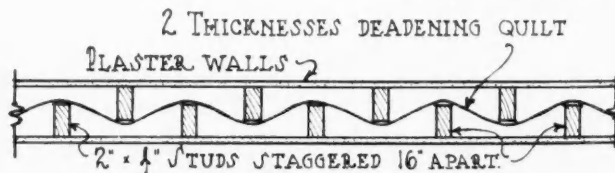
Sound Proof Frame Partition

To the Editor:

Albany, N. Y.

I wish to make sound-proof a party wall partition of frame construction. Can you give me any information, or suggestions?

CHAS. J. DAVIS BUILDING CO.,
General Contractors.

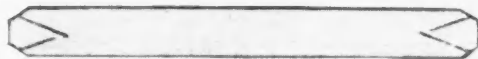
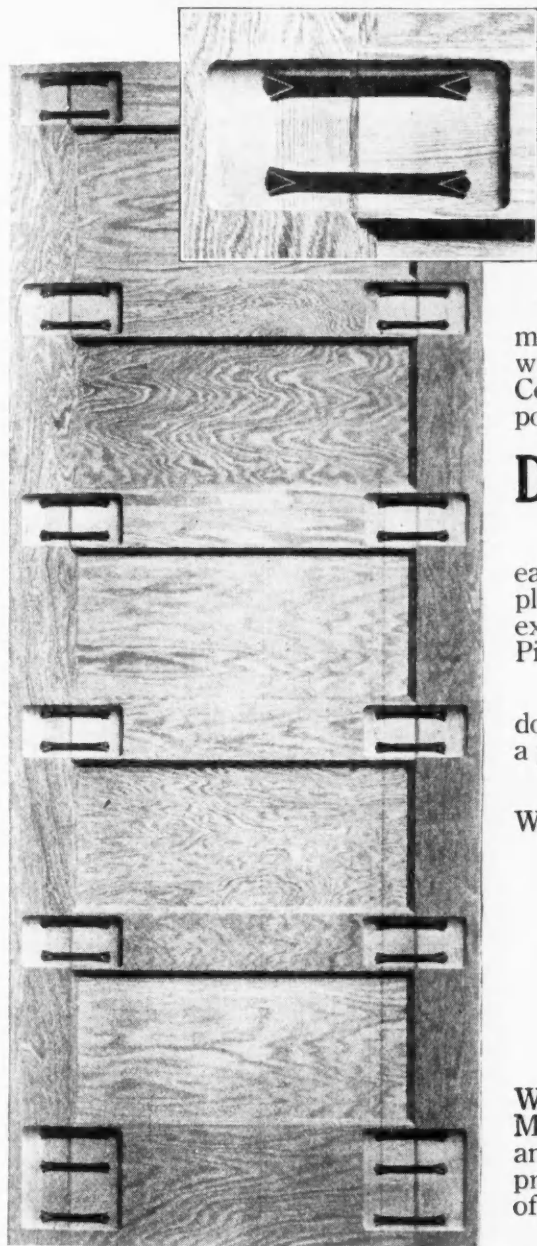


Construction Features of Sound Proof Partition.

Answer—We submit detail of a sound-proof frame constructed party wall. Note the way the 2 by 4 studs are

(Continued to page 104.)

-and now the Wedge Dowel



Manufactured under U. S. Patent No. 1,060,543

The Latest Evidence of Morgan Leadership

In addition to the features of construction which have always made Morgan supreme in the veneered door field, Morgan Doors will in the future be built exclusively with the Wedge Dowel Construction. That means additional insurance against any possible annoyance or trouble. It means

Doors That Can Never Come Apart

The Wedge Dowel made of hard wood is slit obliquely at each end as shown in illustration above. When clamped into place, the wedge formed by the slits is driven into the dowel, expanding the sharp ends and driving them into the soft White Pine core, locking stiles and rails together in a vise-like grip.

No pockets are left to gather glue at the ends of these wedge dowels. Instead the glue is forced along the dowel, thus making a perfect bond between dowel and core.

Morgan Doors are the only hard wood doors made with Wedge Dowel Construction.

Think what this improvement means to



Already safe in their leadership because of the exclusive All White Pine Core, this latest forward step in the building of Morgan Doors means even greater satisfaction for the owner, and means greater assurance to you that once a Morgan Door is properly hung it will give perfect service without the necessity of constant retrimming and rehanging.

Now more than ever Morgan Doors are the doors that safeguard your reputation as a high-class contractor.

Morgan facilities assure prompt deliveries

May We Send the **FREE?**
MORGAN Millwork Handbook

Every contractor, carpenter and builder can profit by the helpful information in this instructive book of up-to-date designs. Write for it today.

MORGAN SASH AND DOOR COMPANY
Dept. A-23, CHICAGO, ILL.

Factory: Morgan Co., Oshkosh, Wis.; Eastern Branches: Morgan Millwork Co., Baltimore.

Displays: 6 E. 39th St., New York; 309 Palmer Building, Detroit.

Building Exhibits: Insurance Exchange, Chicago; Soo Line Bldg., Minneapolis.

If your Dealer hasn't Morgan Doors, write us

staggered and separated from each other so that no connection whatever can be had for sound transmission between the two independent wall constructions, and to make this wall absolutely sound-proof, two thicknesses of deadening quilt are inserted between this staggered stud construction. This to our mind is the most successful way of constructing a sound-proof frame party wall.

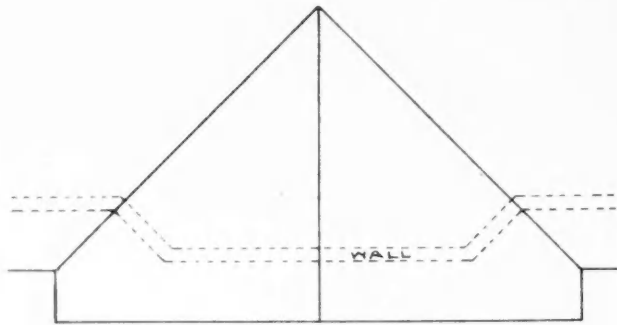
EDITOR.



How to Roof the Dormer

To the Editor: Lexington, Neb.
 In regard to inquiry of Mr. J. B. Sydeman, about finishing of a bay window ending on the roof, as a dormer, I would like to suggest that he extend his side plates straight out over the angle on his cornice, thus making an ordinary gable. I finished a bay window dormer in this manner and know that it looks neat.

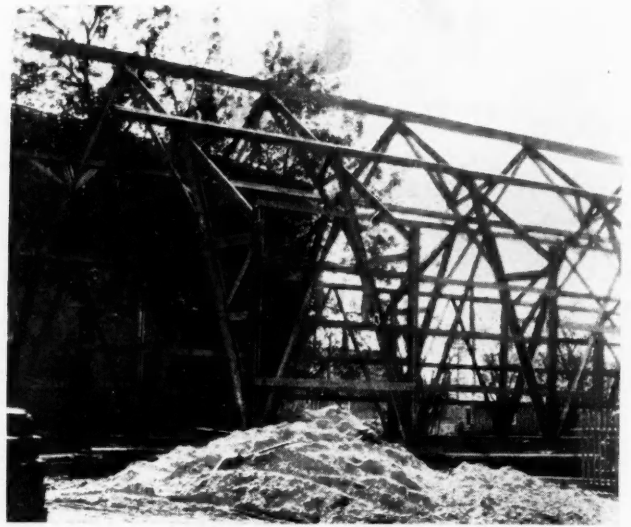
The accompanying little sketch will show what I mean.
 FRED W. KOCH.



Gable Over Dormer or Bay Window Ending on a Roof.

Framing a Barn

To the Editor: New Holstein, Wis.
 Enclosed find photo of barn I built after sketch I saw in your paper.



Barn Frame which was Raised in Four and a Half Hours.

The barn is to have a front out of square to match street, and it is 36 by 84, shortest length. It took one hour for four men to nail together one truss, and one hour to put in bolts. It was raised with pike poles. We started at ten thirty in the forenoon and finished at three o'clock in the afternoon.

HERMAN J. BARTELS,
 Building Contractor.

For All Concrete, Cement and Stucco Work

You will always find CERESIT Waterproofing Compound to be the one UNFAILING water-proofer for new or old basements, stucco walls, silos, tanks, water towers, engine or boiler pits, conduits, etc.

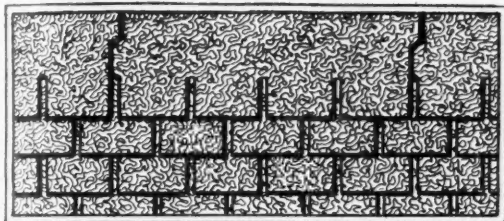
Be a Waterproofing Contractor. Take advantage of our co-operative service—it will mean MORE business for you. Get copies of our monthly "Waterproofer"—just the thing to send to your prospective clients. Also get our free "Movie" slides and run them in your local theatre—sure business getters. Write for our proposition today and new catalog just off the press.

CERESIT WATERPROOFING COMPANY, 910 Westminster Building, CHICAGO

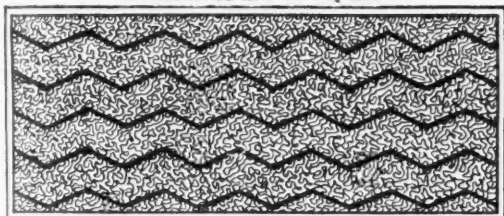
Branches: New York, Philadelphia, Boston, Atlanta

Vulcanite

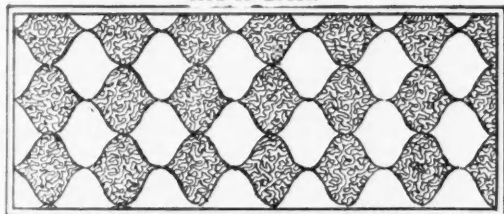
Ornamental Roofing and Shingles



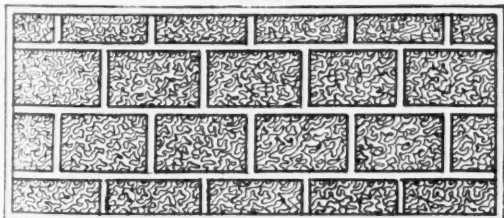
Vulcan Slab Shingles Self Locking in Red or Green 10"x32" or 12 1/2"x32"



Vulcanite Strip Shingle Style B Either in Red or Green



Vulcanite Mosaic Style H Two Colors Red or Green



Vulcanite Mosaic Style K Two Colors on One Roll

For permanency, durability, beauty, economy, fire and weather protection, they have no equal.

Heretofore, lack of something better has necessitated the use of wooden shingles, in spite of the fact that they crack, warp, draw the nails, and burn up like tinder.

But now, **Vulcanite Roofing** furnishes a material that perfectly combines the qualities of safety, comfort and beauty at so low an initial cost as to prohibit such a flimsy, highly combustible and temporary covering as a wood shingle Roof. **Vulcanite** roofing outlives wood shingles, two to one. Twenty years' service is a reasonable expectancy.

And you can obtain a most pleasing variety of effects in colors and designs. **Vulcanite** comes in rolls and shingles in several patterns that can be worked into any number of artistic finishes. The colors will withstand sun and rain for any length of time. They are as permanent as the granite itself from which they are made.

*We would like to send you our catalogs and samples; and show how you can use **Vulcanite** to boost your business, and increase your profits.*



Patent Vulcanite Roofing Company

CHICAGO, ILL.



A fireproof weatherproof roof for the residence

If your clients appreciate artistic effects they will want wood shingles. If they dread fires they will want slate. But when they consider the inflammability and short life of wood, and the great cost of slate, they will want

J-M Transite Asbestos Shingles

J-M Rough Edge Asbestos Shingles are especially appreciated by architects and homebuilders who know their artistic attractions. And houses roofed with J-M Transite Asbestos Shingles need never fear roof-fires. These shingles, made solely of pure asbestos and Portland Cement, are absolutely fireproof. And they become tougher and more enduring with every year of exposure to weather—they can't deteriorate.

J-M Transite Asbestos Shingles are examined, approved and labeled by the Underwriters Laboratories, Inc., under the direction of the National Board of Fire Underwriters. Laid American method they are given Class "B" rating. Laid French method they are given Class "C" rating.

H. W. Johns-Manville Co.

Boston	New York	San Francisco
Chicago	Philadelphia	Seattle
Cleveland	Pittsburgh	St. Louis

THE CANADIAN H. W. JOHNS-MANVILLE CO., LIMITED.

Toronto	Montreal	Winnipeg	Vancouver
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A Brick Retaining Wall

To the Editor: Council Bluffs, Iowa.
In response to a request some time ago for photos or sketches of current work, I am enclosing photo of a retaining



Brick Retaining Wall Decorated with Recessed Panels.

wall I completed last fall. It is decorated with recessed panels. This wall is twenty-two feet high from bottom of footings at highest part, and holds a loose fill.

W. P. FOLSOM.



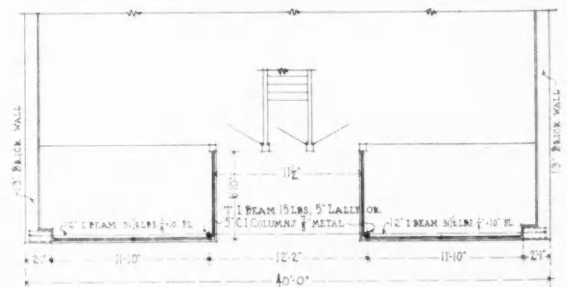
Supporting a Store Front

To the Editor: Middletown, Ill.
Enclosed find tracing of store front I am planning for a customer.

What size I-beam would be safe for the front? Would it be practical to carry the whole front on the beam or have



• STORE FRONT ELEVATION •

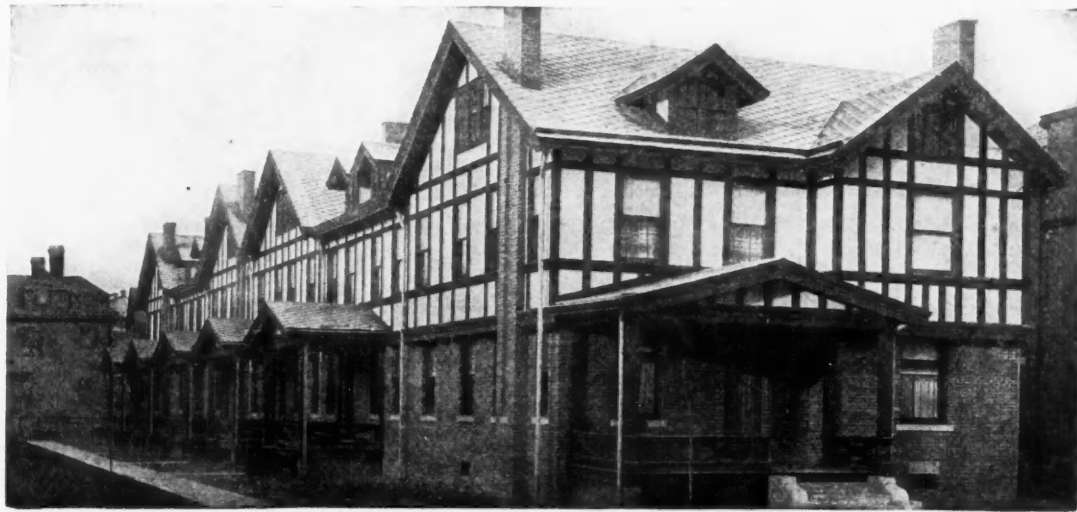


• STORE FRONT PLAN •

Store Front Plan and Elevation with I-Beam Across Front.

two posts, one in each corner of plate front?
How would you use beam with plate riveted to bottom and plaster up to frame of plate glass, as shown on tracing?
I would like to have a sketch of same. Please give me size of beam, if one or two, weight per foot; and if column

(Continued to page 108.)



ROOFED WITH ASBESTOS "CENTURY" SHINGLES

Sold or Rented Before the Builder Could Complete Them

Six of these houses on the left side of the street were first erected. All were sold or rented before they were finished, however. Then the builder erected six on the opposite side. This is the way houses covered with Ambler Asbestos "Century" Shingles and Asbestos Building Lumber go. And that is the way you or any other builder or architect like to see them go.

Property owners are no longer satisfied with mere roofing, they want roofing material that is "bigger than weather"—that can stand the terrific strain of rain, wind and weather—and that will stand up under extreme changes of temperature. They want roofing material that **cannot burn** or carry **fire**—that cannot warp or curl or split. That's why more than 100,000 home owners have demanded—

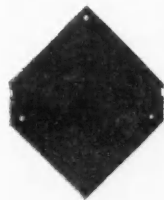
Ambler Asbestos "Century" Shingles

They form an imperishable advertisement for the man who lays them. As a witness of their own as well as the builder's reliability they will outwear the building.

You may specialize in churches, schools, garages or houses; it makes no difference, you will serve the owner and yourself

best by using Ambler Asbestos "Century" Shingles.

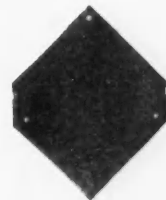
We have samples for your inspection. We shall gladly send these and trade prices. A line from you brings them.



KEASBEY & MATTISON CO., Factors

Dept. B1, Ambler, Pa.

Branch Offices in Principal Cities of the United States



are used, could we use steel columns, and what size? The smaller the better for looks, but want a solid job. Don't want beam exposed on outside.

SAMUEL MORRIS,

Contractor and Builder.

Answer—We are submitting floor plan, elevation and detail of your store front problem, illustrating the most practical method of constructing same.

In our calculations, we find that a 12-inch I-beam weighing

31½ pounds per foot, will be sufficiently strong to carry the overhead brick work (two-story building), with a ¼-inch 10-inch steel plate riveted to bottom, and with two intermediate supports, one at the angle of each show window, which can be either 5-inch cast iron columns, ¾-inch thick metal; or 5-inch "Lally" columns; or 7-inch I-beams, weighing 15 pounds per foot.

For store fronts of the most modern construction, round columns are most suitable. Therefore, we would suggest either the cast iron or the "Lally" columns for supporting the overhead beam. In the detail showing a section thru the head construction of store front, you will note that the sash are screwed onto a 1½-inch by 12-inch jamb piece, fastened onto side and head jambs. The head jamb piece is fastened onto the overhead steel beam by means of expansion bolts spaced 12 inches apart (staggered), and finished on the outside by means of a casing as shown.

EDITOR.



Urges Double Glass Windows

To the Editor:

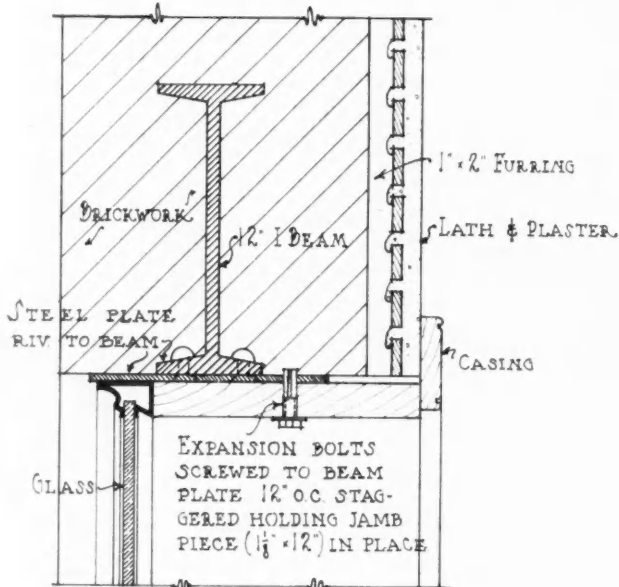
Cedar Rapids, Iowa.

Here is something worth considering by those who contemplate building a dwelling.

It is strange that windows are not universally made with double layers of glass with an air space between layers. That they are not made thus is because people, in general, are not aware of the advantages. Anyone familiar with the properties of heat will see at once the advantages of having windows with double panes.

The figure shows a practicable plan of construction. The figure represents a cross-section of a window frame with two panes. The panes are put in the frame from one side with a strip of wood between the panes. The last pane is fastened with putty in the usual way. The panes should be not less

(Continued to page 110.)



SECTION THRU STORE FRONT HEAD CONSTRUCTION

Cross Section Showing Construction Thru Head of Store Front.

MORE YEARS!

You can buy Roofing Terne Plates with the positive assurance of lasting and satisfactory service—if you demand plates made from **KEYSTONE** Copper Steel.



Prime Plates—accurately resquared.
Coating Uniform—8 to 40 pounds.

Look for the stamp of quality—"Keystone Copper Steel" in addition to brand and weight of coating.

Send for booklet, "Copper, Its Effect Upon Steel for Roofing Tin." We also manufacture Apollo-Keystone Copper Steel Galvanized Sheets, unequalled for all forms of exposed sheet metal work, Corrugated and Formed Products, etc.



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GENERAL OFFICES: Frick Building, PITTSBURGH, PA.

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Export Representatives: UNITED STATES STEEL PRODUCTS COMPANY, New York City
Pacific Coast Representatives: UNITED STATES STEEL PRODUCTS COMPANY, San Francisco, Los Angeles, Portland, Seattle

This ROOFING CATALOG

(The Largest and Most Complete Ever Printed)

WILL HELP YOU



The *Rex Products* catalog contains 112 pages and more than 180 pictures and illustrations. Besides complete instructions for laying all styles of asphalt shingles and prepared roofings, you will find in it a full description of each one of the 27 different *Rex Products* which we manufacture. You will also find much helpful information about slate, tile, asbestos shingles, tin and corrugated steel roofings.

We will send you this splendid catalog and a set of samples without cost or obligation to you. Write—



Flintkote Manufacturing Co.

90 Pearl St., Boston, Mass.
1102 Equitable Bldg., New York, N. Y.

659 Peoples Gas Bldg., Chicago, Ill.
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REX STRIP SHINGLES

Will not blow up in the wind because the spaces between the shingles do not extend under the shingles in the course above, and so there is no opening for the wind to get under them and lift them. This is why Rex Strip Shingles make a tighter roof than any individual shingles.



Will This Be Your Biggest Month



THERE'S no question at all about the *amount* of business you can get during May if you want to *go after* it. But why not make up your mind to get the *greatest profit* out of the business you do get? Every installation of

UTILITY BOARD

that you make means a nice, clean, clear, long, liberal profit for you. No worry about deliveries, no trouble to handle, no "grief" of any kind. And the way you can use **UTILITY BOARD** in cases where you used to depend on other materials is surprising.

The Only Asphalt Pasted All Wood Stock Board

UTILITY BOARD laughs at temperature changes. It resists moisture and wet. Cuts readily to any required size and once properly laid is on to stay. **UTILITY BOARD** is honestly made of the best materials obtainable. The fact that it is the only all wood stock board on the market in which the layers are pasted together with waterproof asphalt makes it particularly desirable for contractors and dealers who know good building materials and insist on getting them.

Write Today for Samples and Business-Getting Hints

Put your problems up to our experts. We'll help you in every way possible. Don't delay another minute. Get that May business and get lots of it. Time's getting short, remember. Write today.

THE HEPPESS COMPANY

4503 Fillmore Street, Chicago, Ill.

Flex-A-Tile Diamond Point Slab
Flex-A-Tile Roll Shingles *No-Tar Asphalt Paint*
Other Guaranteed Heppes Products

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

than three-eighths inch apart.

Windows constructed as described will have the following advantages:

They prevent the loss of a great amount of heat, and therefore, houses built with them can be heated with a saving in fuel. How much fuel would be saved by having a house built with double paned windows cannot be stated exactly, but it is safe to state that enough would be saved on the cost of fuel in one or two months in winter to pay for the extra expense of having windows constructed with double panes.

The rooms will be heated more uniformly with the absence of cold floors, thus giving greater comfort.

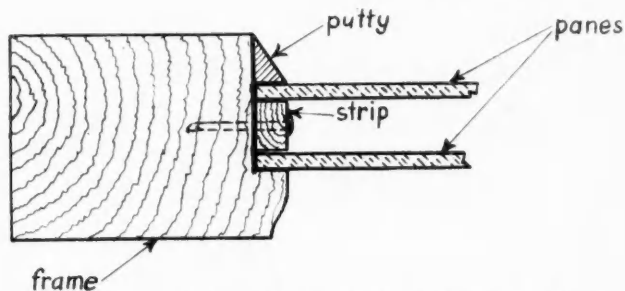
The windows do not become covered with frost and moisture, except to a slight extent during extremely cold weather.

They do not interfere with ventilation like double framed windows do.

They do not harm in summer, but rather tend to keep the rooms cool.

The glass between the panes does not become soiled and needs no cleaning; precaution should, however, be taken in constructing the windows that the panes of glass are clean on the inside before putting them in the frame.

A room is heated mainly by the circulation of the air and partly by the radiation of heat from its source. In a furnace heated house it is especially obvious that the rooms are heated by the circulation of the air. In a room with single paned windows the air in contact with the panes loses heat rapidly and gives up its moisture in cold weather. As the air in contact with the panes becomes cold it shrinks and de-



Construction of Window Frame Fitted with Double Glass as Suggested by Mr. P. F. Schulte.

scends to the floor; thus there is a constant flow of air downward along a window to the floor and the air constantly loses its heat by coming in contact with the window panes. This produces cold floors which means cold feet for a person sitting in the room. If window panes are double with an air space between the panes, the inner pane becomes partially warmed and the loss of further heat of the air in contact with the window panes is prevented. Air is a very poor conductor of heat and the dead air space between panes prevents the conduction of heat from the inner to the outer pane. Some people close the cracks around windows with felt. This is a bad practice because it keeps out all fresh air, while ordinarily more cold comes in thru the glass panes than is brought in by air coming thru cracks. P. F. SCHULTE.



Why Does it Sweat?

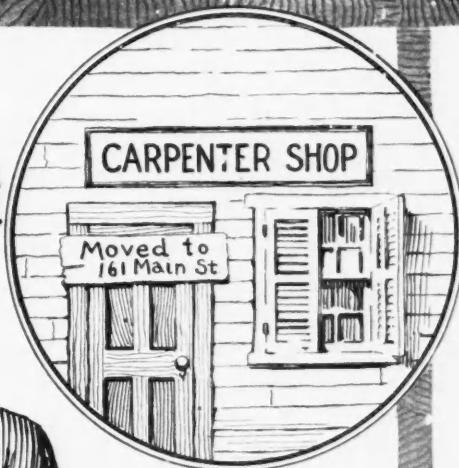
To the Editor:

Louisville, Ky.

I built a garage out of corrugated iron, the two sides, ends and roof. Now, the under part or the inside of the garage is wet; especially the roof is so wet that the water drips down all over the building. I would like some one to give me a remedy to stop it. I have tried ventilators.

I am still a reader of the AMERICAN CARPENTER AND BUILDER, and always expect to be. C. DEBERRY.

**"Im on
Main Street
Now!"**



"Neponset put me there; my roofing business got so big that I had to move. Neponset Shingles have made me—they will make you, too, if you become the Neponset man in your town.

NEPONSET SHINGLES

"The architects like them, the customers like them. It does me good to walk around and see those fine-looking Neponset roofs—my roofs—and to know that several thicknesses of Paroid weather-proof roofing are protecting my customers from storm, sun and fire. Neponset Shingles are made in red and gray.

"Send the coupon right now, while Neponset is on your mind."

DEPARTMENT C

BIRD & SON
EAST WALPOLE, MASS.

ESTABLISHED 1795



**Send
This
Coupon
Today**

BIRD & SON, Department C, East Walpole, Mass.

Please send me information and samples of Neponset Shingles and Neponset Wall Board. Also a copy of your book "Repairing and Building."

This request does not put me under any obligations whatsoever.

Name

Address

NEPONSET WALL BOARD

For Walls and Ceilings

in the beautiful new Quartered Oak finish need only be shown to get you lots of wainscoting jobs.

It is waterproof—can be cleaned with a damp cloth. Need not be painted, but can be; the waterproofing makes a priming coat unnecessary.

It has hundreds of uses in business as well as at home. Write for booklet.

Trussed Ceiling Joist for Garage

To the Editor:

Adair, Iowa.

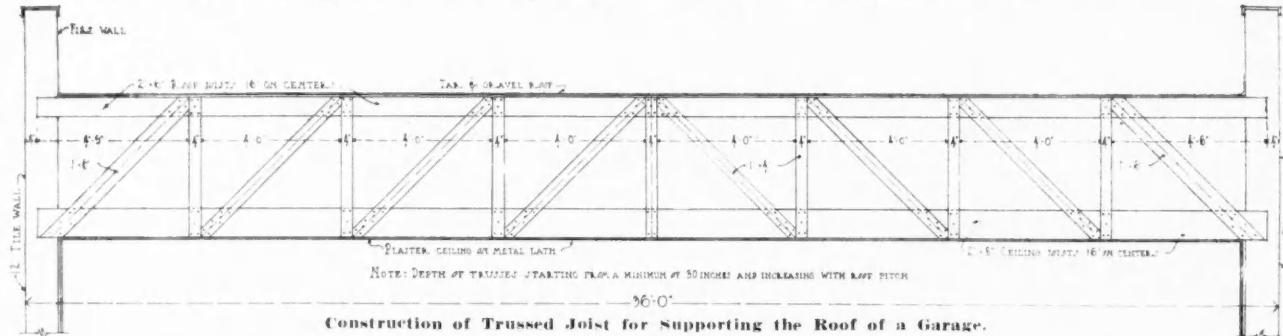
I have in mind a roof for a garage. The garage is 120 ft. by 36 ft., 12-ft. ceiling. The man wishes to make the truss as follows:

Using 2-in. by 8-in., space 16 inches on centers for ceiling joists. Bridge three times the whole length of building, and then 2-in. by 6-in., space 16 inches on centers directly over the 2-in. by 8-in. ceiling joists, bridge three times. Now we wish to tie these two pieces together with 1-in. by 4-in., or

In this construction it will be necessary to use No. 1 yellow pine thruout, placing all roof and ceiling joists 16 inches on centers, with a series of 1 by 4 lattice bracing between each individual upper and lower joists; all bracing being nailed on one side, starting from the lowest point of roof, with a minimum depth from top of roof joist to bottom of ceiling joist of 30 inches. This will eliminate any possible deflection causing the plaster to crack.

Where joints occur in either ceiling or roof joists, place a fish plate corresponding in size with joists 4 feet on each side of joint securely nailed in place.

EDITOR.



Construction of Trussed Joist for Supporting the Roof of a Garage.

1-in. by 6-in., as the diagram below will indicate, using coated nails. Will these joists, bound together as mentioned above, carry a 1-in. by 7-in. shiplap board, a 4-ply tar paper for roof, and a two plaster coat of plastering on ceiling?

WM. S. BARNEY,

Manager Big-4 Cement Works.

Answer—We consider your method of latticing roof and ceiling joists together, a very economical and practical method for spanning this garage without the use of independent trusses.

A Hand Screw Grip

To the Editor:

Houston, Tex.

There is no doubt that you had sore hands from tightening hand screws while glueing up work in the carpenter shop especially when the grip of the hand screws are full of dry glue which is just like glass coated, and it cuts the hand very easy, and at the same time it prevents you from tightening the hand screw as tight as is necessary.

(Continued to page 114.)



The most completely equipped Wall Board Plant in America

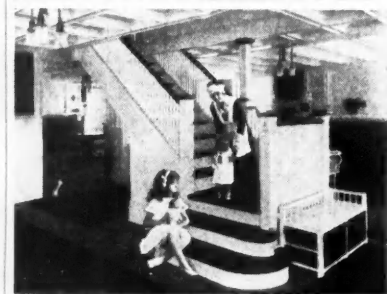
Maybe you've a "grouch" against some wall boards you have used.

Inferior grades may be so soft and punky that you can't handle them. They gum your saw or crumble under it, or cut with a ragged edge.

But do you know that there are as many "grades" of wall board as there are of lumber? You wouldn't judge all lumber by inferior kinds. Nor is it fair to judge all wall boards by some that have fallen down on the "job."

UPSON PROCESSED BOARD is the **highest-grade** wall board made. It is a **DEPENDABLE**, satisfactory wall board—in every way.

Upsonized Interior



Find the proof—in a thorough test of the samples we send you. There's **PROOF** in its absolutely satisfactory use in the thousands of Upsonized homes. **PROOF** in the fact that scores of prominent architects specify Upson Board for the interior lining of every kind of building. **PROOF** in the

hundreds of carpenters who have built up a thriving, all-year-round trade and good reputation by recommending and installing Upson Board.

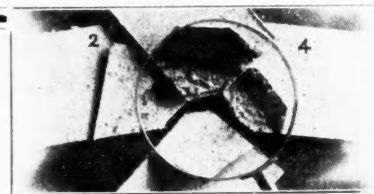


64-inch Upson panel which minimizes paneling to the utmost. **A board for every purpose!**

Then, Upson Board is the only wall board that is **SCIENTIFICALLY PROCESSED—kiln-cured**, like interior trim: thoroughly **water-proofed, surface-filled**.

Don't pass up the steady, highly profitable trade that you can easily get with **DEPENDABLE** wall board. Upson Board is here to stay, and **YOU** might as well cash in on its rapidly increasing use everywhere.

Write us today and we will give you a line on the big money-making possibilities in wall board that will surprise you. We shall also send Upson Board samples and give you all particulars.

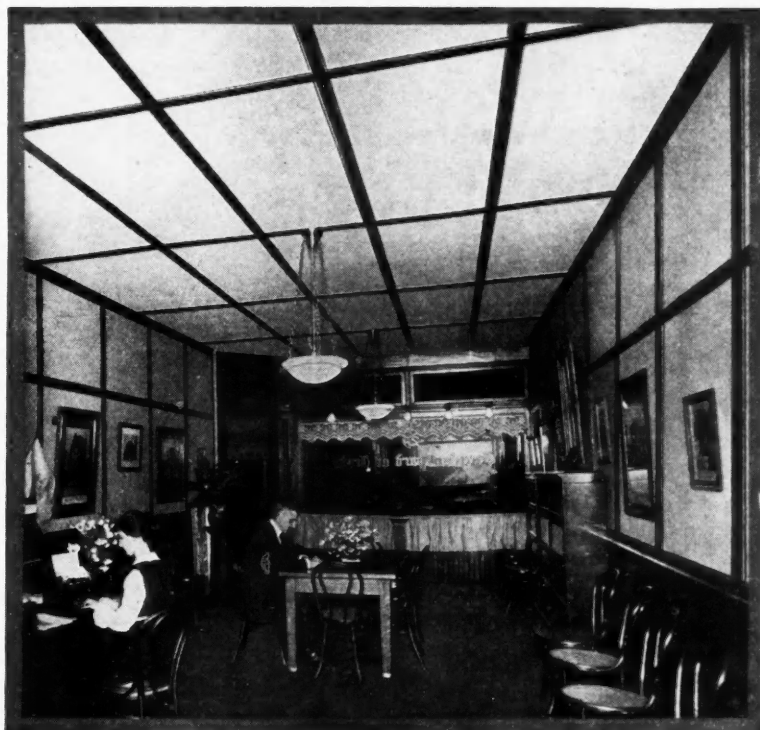


The bottom sample is Upson Board. Note the punky, easily broken character of the other three samples.

For this is the board that is made good to make good. Only long, wiry, pure wood fibers are selected. These are combined and compressed, under the Upson formula, into harder, stiffer and more wood-like panels. Made in five thicknesses, ten lengths and three widths, including the great new

The Upson Company
Fiber Board Authorities
14 Upson Point
LOCKPORT, NEW YORK

Fiberlic WALL BOARD



De Witt Clinton Pond, M. A., of Columbia University, well and truly states that it is the architect's "duty to know enough about all the things that are required to make a complete building in order to properly protect his client." This applies not only to the architect, but to the contractor, carpenter and builder as well. Comparative tests made by disinterested authorities have determined that FIBERLIC WALL BOARD is superior in bursting strength, tensile strength, shear and compression, as well as limit of elasticity—and why? Because it is made from a chemical fibre, and is not like a wall board made from a mechanical pulp that is short fibred and filled with starch and other vegetable matter that will harbor mould growth.

*"All the fibre
in Fiberlic"*

You Have "All the Fibre in Fiberlic"

FIBERLIC is thoroughly vermin-proof and sanitary, and, therefore, it is being used in the home, hospitals, doctors' offices, stores, business offices, theatres, etc. Fiberlic is thoroughly sized throughout.

Fiberlic Wall Board is the only patented, chemically treated, long-fibred board manufactured.

Fiberlic is fire resisting.

There is **no unpleasant odor** about Fiberlic. This means something to the *home builder*.

Write for samples. All *Fiberlic samples* are cut from **stock** and the board that we ship is **absolutely the same** as our samples.

THE FIBERLIC COMPANY, CAMDEN, N. J.

LONDON (England) BRANCH: MacAndrews & Forbes Ltd., Finsbury Court, E. C.



TWO ATTRACTIVE STORES

trimmed
with
white
enamel
stock
terra
cotta
made
by the

MIDLAND TERRA COTTA COMPANY

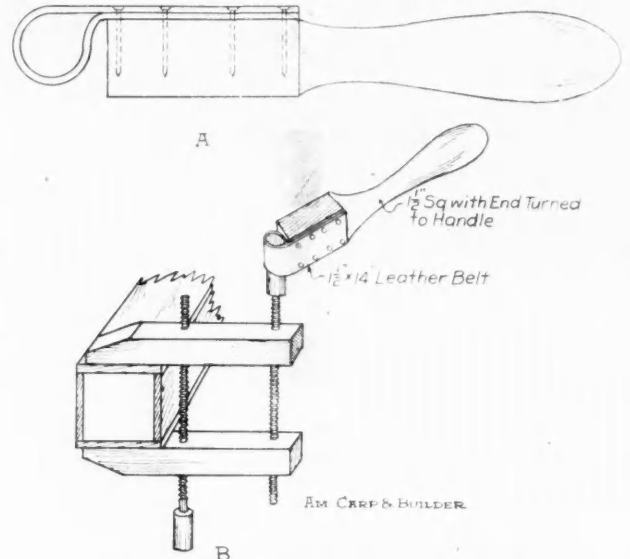
1515 LUMBER EXCH.
CHICAGO, ILLINOIS



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

This little grip shown in the illustration is very simple and it is one of the best things ever put in the shop. It is made of a small piece of wood with a piece of leather belt nailed on one end, the piece of wood is $1\frac{1}{2}$ by $1\frac{1}{2}$ by 12 in. long, turned part way for a handle, and $4\frac{1}{2}$ in. from the end is left square for the piece of leather belt to be nailed on. The piece of leather is $1\frac{1}{2}$ in. wide and 14 in. long, nailed to one side of the handle which was left square.

Sketch (B) shows how it is put on the handle of the



Easily Made Grip for Operating Hand Screws

hand screw and drawn round to tighten the screw. This grip takes such a tight hold to the handle of the hand screw that there is no possible chance of it to let go, and as you draw it round it binds itself and gets a firm hold, and the length of the handle is long enough to give a very good leverage. This grip can draw the hand screw so tight that a man can twist the hand screw in two with ease.

It is a handy grip to have in the carpenter shop where there are newel posts, stair cases or a lot of inside finish work done.

CHAS. SCHADEL.



Published Errors in Roof Framing

To the Editor:

Rochester, Minn.

May I mention a matter which seems to me important? Many incorrect rules for roof-framing have been—and are being—published.

In one book,* of which more than two million copies have been sold, there appears a rule for marking the side-bevel on a valley rafter. This rule is entirely wrong; yet carpenters and contractors, to my personal knowledge, are using it, and wondering why the timbers cut by it don't fit.

In your April number, on page 78, in a table giving lengths of rafters, the very first hip length given—for a one-quarter pitch—is incorrect, and if used to get the length for a run of 20 feet and one inch, would make the rafter more than two inches too short.

All of this table has not been looked thru, but each of the next half dozen hip lengths are also incorrect.

Very many other instances could be cited, so it would seem that editors could confer a great favor on their readers by taking every opportunity to call attention and correct these mistakes, even when they appear in the correspondence columns.

JOHN PARKHILL,

Manufacturer of The Universal
Pitch Gauge for Roof Framing

*Hodgson's.

**The Stiff
4-Ply
Wallboard—
Black Rock**



**Build Your
Reputation
on
Black Rock**

The last word in wallboard

AT LAST—HERE IS A WALLBOARD that will win the enthusiasm of every conscientious contractor. For Black Rock (in addition to being as-stiff-as-lumber) is the only wallboard with a *moisture-repellant black centre*.

As a man who knows lumber, you will recognize that the *veneer* process of combining the four plies, makes Black Rock the *stiffest* and *strongest* wallboard. That's why it looks, works and lasts like high-grade, kiln-dried finishing lumber.

And here's good news for the progressive contractor who has his future reputation at heart. Black Rock will not warp, buckle, bulge, or pull away from the nails. For, in addition to the moisture-repellant black centre, the new scientific process of *moisture-proofing* the front and back surfaces of Black Rock removes the principal causes of contraction and expansion.

These are a few of the reasons why Black Rock pleases permanently. Moreover—the well sized, smooth, “sanded-like” surface of Black Rock needs less paint (no priming coat necessary) and *keeps* that fresh-painted look.

The price of Black Rock will interest you.

BLACK ROCK WALLBOARD CO.
1510 Ontario Place
Black Rock - - - New York

Black Rock Wallboard is something *new, different*—the very last word in wallboard.

It will boost your reputation as a builder. It will bring you “repeat” business. You cannot afford not to know about Black Rock. Send postcard, or coupon, for free book and sample.

When you see a plaster-crack like this in wall or ceiling—think of **Black Rock**

COUPON

Mail today to
Black Rock Wallboard Co.
1510 Ontario Pl., Black Rock, N. Y.

Send me free book and actual sample.

Name

Address

Process, trade-mark and black centre, fully protected

Wants Masonry Articles

To the Editor: Lockport, N. Y.
As I am not in the carpenter business, I would suggest that, if it were not too much trouble, a few more pages of your valuable magazine be devoted to masonry. I feel quite sure that it would be appreciated by a good many of your readers.

A. C. O'BRIEN.



Chimney Experts Attention

To the Editor: Volga, So. Dak.
Here is a new one on chimney building; at least it is new to me. A man who is putting in vacuum heating plants at Brookings, South Dakota, builds a chimney with a flue 8 by 8 for a house of from 8 to 20 rooms.

The heating plant and kitchen range are both connected to this chimney. Just above the thimble of the heating boiler he places a slide the full size of the chimney, and after the gas has burned from the coal, he closes this slide, leaving a space 1 inch by 8. The heating plants seem to work properly, but according to all the rules of chimney building they should not. Can you tell me why they do?

Do any of the concerns selling heating plants specify this kind of a chimney?

D. R. PHILLIPS,
Contractor & Builder.

Answer—We never heard of any. It certainly looks to us like poor building practice.

What do the Brothers think?

EDITOR.



Wants to Build an Invalid Chair

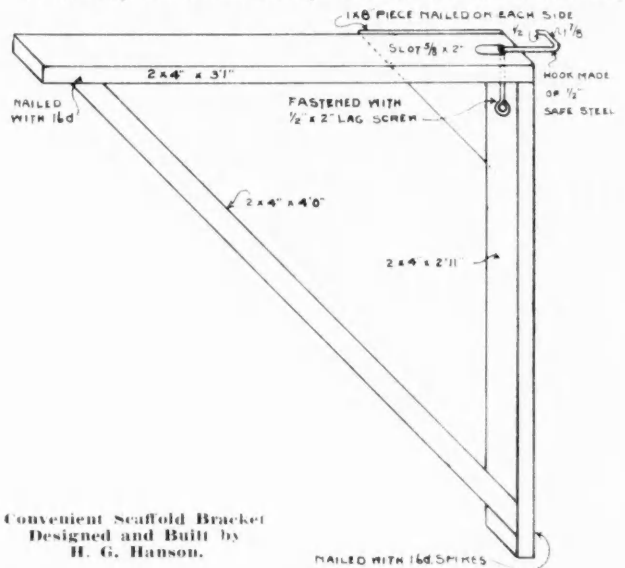
To the Editor: St. Louis, Mo.
Will some of the brethren please tell me how to make a cheap, comfortable and convenient invalid chair to be used in the house only?

C. E.

A Scaffold Bracket

To the Editor: Spring Valley, Wis.
Am enclosing a sketch of a scaffold bracket designed and built by myself.

Altho they are not as handy as steel brackets, I find they



Convenient Scaffold Bracket
Designed and Built by
H. G. Hanson.

answer the purpose well enough. I made 36 at a cost of \$12, or 33 $\frac{1}{3}$ cents apiece, which is about one-fifth the price of a good steel bracket. Used them on two jobs last year and they paid for themselves twice over on these two jobs. They are rigid when put in place, require no nailing and are absolutely safe, if made of good material.

Material required for this bracket is as follows:

(Continued to page 118)

EVERY PAGE CARRIES A MESSAGE OF INTEREST AND PROFIT

The most complete reference book on Sheet Metal Building Materials



The new WILLIS CATALOG No. 7 illustrates in an interesting way THE WHOLE of the big variety of POPULAR WILLIS PRODUCTS. Tells you about their construction, describes and illustrates everything in the line of Sheet Metal Building Materials.

IF IT'S MADE OF SHEET METAL, YOU CAN GET IT HERE

That's why you should have our catalog—it saves you from ordering from several places when you can get it all at one. In addition to quality and low prices, we give you unequalled service; prompt shipments always.

You should write at once for this book; it's awaiting your sending for it. DO THIS NOW. You are missing some good profitable business by not using it.

Dept. "B"

WILLIS MANUFACTURING CO.
GALESBURG, ILLINOIS

Straight from the Shoulder

Cornell-Wood-Board

* Service

Cornell service is the unbroken chain of satisfaction that binds manufacturer, dealer and user together in mutual interest. It means quick deliveries at lowest cost — guaranteed sales for the dealer — guaranteed satisfaction for the user — fair and square dealings in every particular.

Cornell-Wood-Board

We make the unqualified assertion that Cornell-Wood-Board is without superior among wood fibre wall boards. And we back up this assertion with this "double guarantee":

- to the user we guarantee that Cornell-Wood-Board will not warp, buckle, chip, crack or fall.
- to the dealer we guarantee satisfactory sales and profits or stock taken back and purchase price refunded.

The strength of the \$3,500,000 Cornell organization backs up this "double guarantee."

Yet the price of Cornell-Wood-Board is less!

We invite dealers, contractors and users to send for samples and full particulars.

C. J. McBride President

CORNELL WOOD PRODUCTS COMPANY
Executive Offices, 173-175 West Jackson Boulevard
CHICAGO

*Cornell designers and architects will furnish ideas, designs or complete blue print plans and specifications with cost estimates to any dealer, contractor or user without charge or obligation. **Write today.**



SAVE 30%
in labor and material costs by
using **Keezon Cellular Lath**

To firmly fasten a four foot length of Keezon requires but eight strokes of the hammer. Studding can be placed 16" apart instead of 12". Plaster can be more easily applied and less of it used. In every way Keezon has proved itself the best lath for all building purposes.

Keezon is manufactured in standard units and consists of a cellular structure, formed of fibre board and wood heavily coated with a creosote preparation. It is fire-resisting and may be specified in slow-burning construction.

Keezon is rust-proof and moisture-proof; can't warp, buckle, expand or contract. These qualities make it especially desirable for outside stucco work. Keezon has all the good points of both wood and metal lath, and none of the bad ones.

The largest and best known builders and plasterers in St. Louis use and recommend Keezon. And, for a limited time, to promote the sale of Keezon out-of-town we make a

SPECIAL OFFER

To Architects, Contractors and Builders

Write for full particulars regarding this offer and booklet thoroughly setting forth the many Keezon advantages. This proposition will interest you exceedingly. Don't fail to use the coupon.

Cellular Lath Company

417 Wainwright Bldg., St. Louis, Mo.

Factory:—5126 No. 2nd St.



Lath after it has been plastered. Note the perfect key.

Keezon Lath showing first coat of plaster. Second coat can be applied with out waiting for first coat to dry.

Cellular Lath Co., 417 Wainwright Bldg., St. Louis Mo.

Please send catalog and special proposition.

My dealer is _____
Name _____
City _____
State _____

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

- 1 piece 2x4 inches, 10 feet long.
- 1 piece 1x8 inches, 2 feet long.
- 15 16d. spikes.
- 20 8d. nails.
- 1 hook.
- 1 1/2x2 inch lag screw.

There are no patents on these brackets, to my knowledge so anyone can make them without fear of infringement.

If there are any "A. C. & B." readers who want any further particulars on these brackets, will gladly furnish same.

H. G. HANSON,
Contractor and Builder.

Who Understands the "Boston Hip"

To the Editor:

Easton, Pa.

I would like if some brother carpenter or the editor would explain how to shingle a "Boston Hip." There are different ways to shingle a hip, but I and a lot of other carpenters do not know which is the proper way to shingle the "Boston Hip."

L. A. TRITTENBACH.

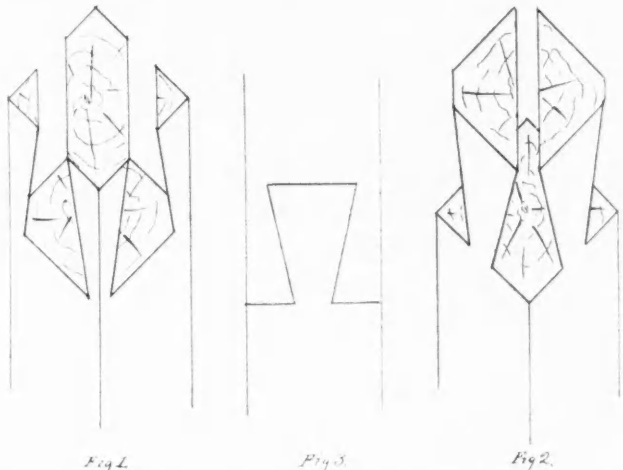
Nothing Mysterious about this Joint

To the Editor:

Houston, Tex.

There are but few say that a dove tail can show the same on all four sides of a piece of wood. But it is possible that it can be done and it makes a good strong joint.

There is a high school building in a Georgia town that has the main stair case rail made this way, and all the students of the school wonder how this joint is put together, and it



Making a Dove Tail Joint that Looks the Same on All Four Sides of a Piece of Wood.

is put together so easy when you know how. How to make this joint: Take the two pieces and cut them on a band saw or cut them by hand; cut one end the same as shown in Fig. 1, and the other end as Fig. 2, and then slip them together from one corner to the other with a little glue on the joints, and it will hold as tight as any joint made. Fig. 3 shows the two pieces when put together.

The hand rail in the Georgia town high school was made of two different colors of wood, and it was a very fine piece of work.

CHAS. SCHADEL.

What About It

To the Editor:

Minonk, Ill.

There is another matter that I would like to see threshed out in the A. C. & B. That is, would it not be a benefit to require of contractors a State license? Don't you think if same was a law that it would abolish a lot of abuse in the profession?

FRED TUCKER.

YOUR JOB IS NEVER WELL DONE 'TIL YOU MAKE GOOD SCREENS

GOOD screens afford health and comfort to the house holder—they make the house livable.

Finish up every job of building with screens and screen porches—*good* ones that will last.

You might as well make the screens first as last. Up-to-date people *will* have them, and the modern anti-fly crusade is creating new customers all the time.

But screens *must* keep flies out, not only this year but next year and *every* year. Screens that rust full of holes are false protection—no protection at all.

Reynolds Rust-Proof Alumina (electroplated *after* weaving) keeps holes and flies both out. It is sold on a quality guarantee by both manufacturer and jobber. *And it costs no more!*

Sun-Red Selvage Black is positively the best painted Screen Cloth you can buy, but we urge you to add a few cents to the cost of each screen and furnish **Alumina**. It will satisfy every owner for years—and will add to your profit and your reputation for good work, too.

For matching black screens, use our Rust-Proof Alumi-Namel—same ten-zinc-coat quality as Alumina, with special black enamel finish.

Every cloth we make is the best of its kind at any price—no other maker furnishes such a guarantee of quality as our Sun-Red Selvage trade-mark. Look for it on every foot of every roll. Your dealer has it.

*10 Coats of Zinc after Weaving
Give More than Double Life*

*Reynolds Rust-Proof
Alumina*



*Look for the
Sun-Red Selvage*

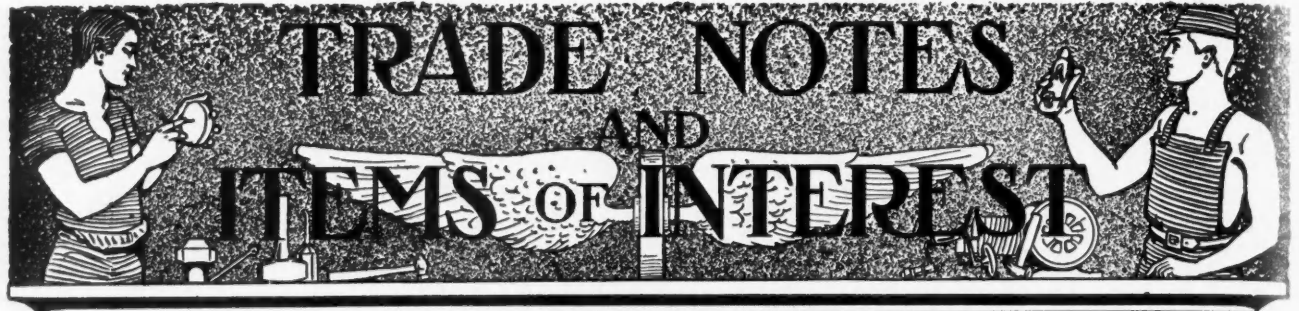
REYNOLDS WIRE CO.

Quality Cloth Since 1893

102 River St.

Dixon, Ill.

*Makers of Sun-Red Selvage Black, Rust-Proof
Alumi-Namel and Novide Bronze and
Reynolds Rust-Proof Alumina.*



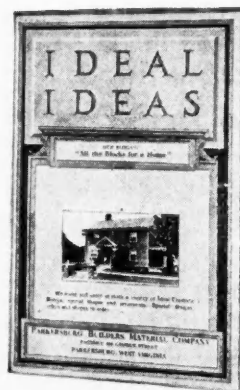
THROUGH this department the Editors aim to keep builders, contractors, carpenters and architects in touch with what their friends, the manufacturers, are doing for them in new or improved tools and machinery, methods and materials—pertaining to building. These items are offered here as interesting information for our readers; they are not advertising. Take full advantage of the Bargains offered. Write for catalogs and booklets, and become thoroly familiar with these Improvements and New Goods.

A Booklet to Help the Dealer in Ideal Blocks

One of the difficulties that has been encountered by the man who goes into the concrete products business has been found in getting his product before the public and in making the public believe that the product he is making is dependable.

One of the best helps for these dealers that we have seen is a booklet that is being issued by the Ideal Concrete Machinery Company for the makers of their blocks. This booklet is attractively made up and shows some of the many installations of "Ideal" blocks so that the builder can use this material in showing the prospective customer that most satisfactory buildings of all kinds have been constructed with his product.

The illustrations in the book show residences, churches, factory buildings, garages, business blocks, porches, and farm buildings of all kinds. All of the buildings shown have been



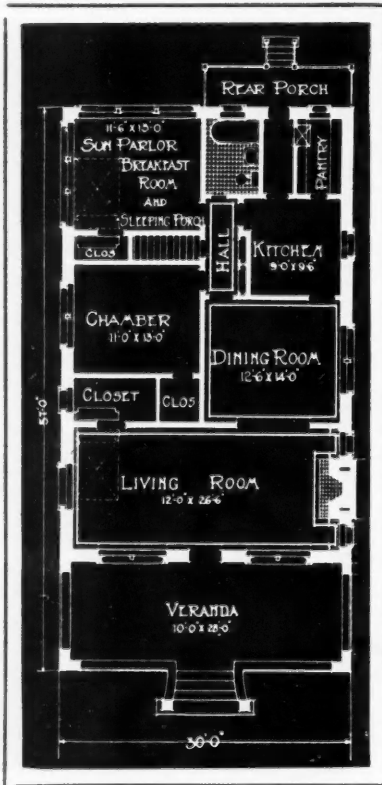
Booklet as Furnished to Cement Products Makers

constructed with "Ideal" blocks.

The only advertising that is used in the booklet consists of the dealer's name and address. These booklets are furnished to the makers of "Ideal" blocks at cost and he can distribute them among his prospects and customers.

More complete particulars of their plan for those who have their machines or who are thinking of going into the block business can be secured from the Ideal Concrete Machinery Co., 1308 Monmouth Ave., Cincinnati, Ohio.

BUNGALOW BUILDERS



Build 7 or 8 Rooms at the Cost of 5 or 6 by Using Murphy In-a-Dor Beds

Each Murphy Bed in any home adds a room without expense. This FIVE room bungalow has SEVEN room efficiency, living room, dining room, kitchen, sun parlor-breakfast room and THREE bed rooms.

There is not even the hint of a bed in the living room, but merely a door just like any other door, which might lead to another room or to a closet. Yet when this door is opened a made-up, standard size, brass bed can be swung into the room. Another similar bed may be let down into the sun parlor-breakfast room, converting it into a sleeping porch.

SLEEPING PORCHES

The Murphy In-a-Dor Bed is the only one that can be used with entire satisfaction on sleeping porches—the only one that is kept out of the dust all day, yet is perfectly aired, DRY and WARM when you want to use it, no matter what the weather.

REMEMBER THIS:—

- each Murphy In-a-Dor Bed means an extra room without the expense of building it.
- It is **more economical to furnish** a bungalow equipped with Murphy In-a-Dor Beds.
- it is **less work to care for** a bungalow equipped with Murphy In-a-Dor Beds.
- the Murphy In-a-Dor Bed is really and truly **concealed** behind an ordinary narrow door, just like any other door.
- the Murphy In-a-Dor Bed is **vastly superior** to any substitute.

BUILDERS:—We will be glad to send our booklet, "How to Use the Murphy In-a-Dor Bed," to anyone contemplating building.

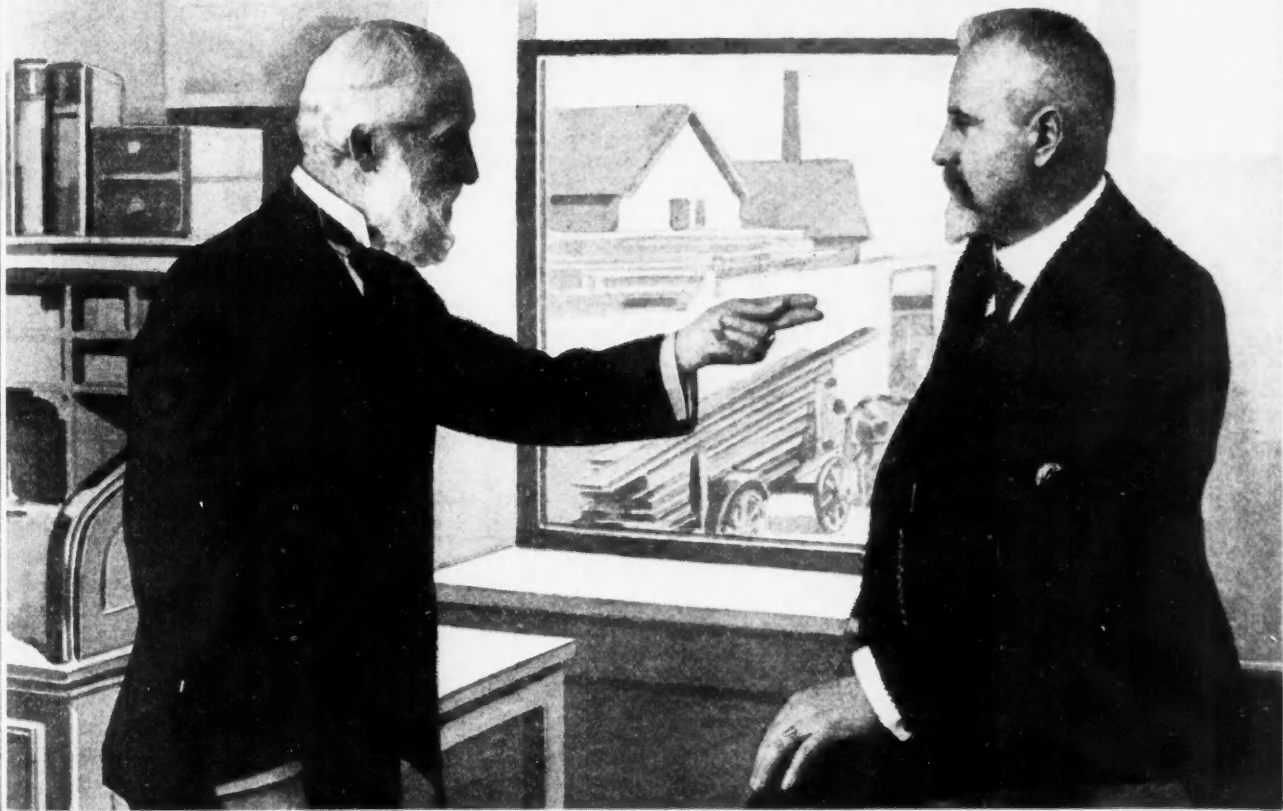
MURPHY DOOR BED CO.

110 So. Dearborn Street, Chicago, Ill.
659 Leader News Building, Cleveland, O.

Chemical Building, St. Louis, Mo.
Glendale Building, Kansas City, Mo.

“THAT WAS IN 1856”

CLINTON WIRE LATH



“I HAVE USED CLINTON WIRE LATH SINCE IT WAS first offered to the public. That was in 1856. I am an old man and I can truthfully say that the entire history of light fireproof wall and ceiling construction has been enacted in my time.”

“I give credit to *Clinton Wire Lath* for inaugurating this era and having been a most potent factor in accomplishing the wonderful advance of fireproof and slow burning construction that has been made in the last sixty years. I always specify *Clinton Wire Lath* because I know it is the best.”

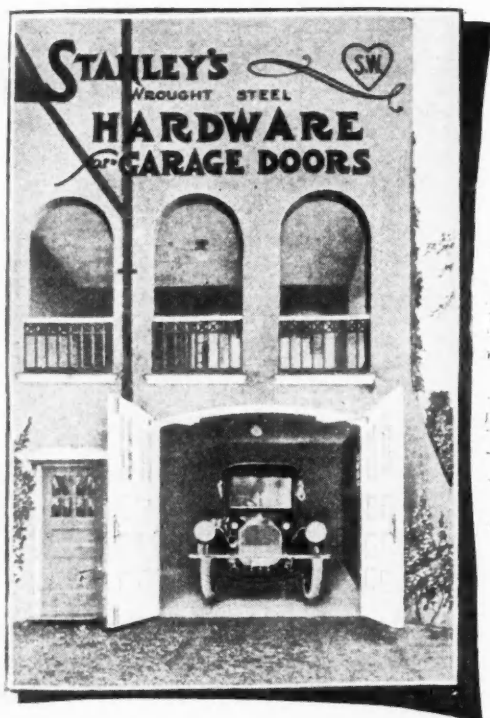
Send for our profusely illustrated book, “Successful Stucco Houses;” also “Clinton Handbook on Lath and Plaster.” Both mailed free.

CLINTON WIRE CLOTH COMPANY

First Power Loom Weavers of Wire Cloth in the World

69 PARKER STREET :: CLINTON, MASSACHUSETTS
NEW YORK :: BOSTON :: CHICAGO

Makers of “Pompeian” and “Golden Bronze” Screen Cloth, Clinton Painted Wire Screen Cloth, Clinton “Silver Finish” Screen Cloth, Clinton Poultry Netting, Clinton Electrically welded Fabric for reinforcing Concrete, Hunt Corner Bead, Tree Guards, Fence Gates, Clinton Perforated Steel Rubbish Burners, Perforated Metals, Perforated Grilles for all architectural purposes.



POSSIBLY you have not given the matter of Garage Hardware very much thought. It will be of interest to you to know that

Stanley Garage Hardware

manufactured by the largest and oldest makers of Wrought Steel Hardware in the world is especially designed for modern garages—concrete, stone, brick or wood.

Stanley Garage Door Holder No. 1774

This is strong and simple in construction. It holds the door open, prevents it from banging shut and damaging the car.

A pull at the chain and the door is free to swing shut.

This is a necessity for every garage and owing to the great number of automobiles being purchased and the large number of garages being built it is particularly worthy of note now.

Write for the Garage Hardware Catalog illustrated above. It is really interesting. Stanley Garage Hardware may be had at most hardware dealers.

STANLEY S.W. WORKS
NEW BRITAIN CONN., U.S.A.

New York
100 Lafayette Street

Chicago
73 East Lake Street

The Value of Union Metal Columns

A particularly striking feature of the new catalog of the Union Metal Column Company, is the attractive appearance of the many buildings shown due to the use of columns in the construction of porches. Both with new houses and with houses that have been made over, the most striking and attractive feature of all of them is the porch construction.

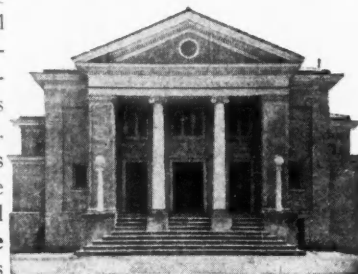
The illustrations in the catalog are most complete and show buildings where Union Metal Columns have been used in all parts of the country. The comparison of several buildings that have been made over, with Union metal columns, with their original condition is particularly striking, and shows well the value of columns.

The many different parts of the country where these columns have been used with success is a tribute to their lasting qualities and durability.

The accompanying illustration shows a reduced view of one of the buildings shown in their catalog.

In addition to showing the many different types of work for which metal columns are suited, there are directions given for installing under various conditions such as might be encountered, and also descriptions of the construction of Union metal columns and of the materials from which they are made.

Copies of this catalog will be sent to our readers on request. Every builder and architect should have a copy for reference purposes on all kinds of construction work. Copies can be secured from the Union Metal Mfg. Co., Canton, Ohio.



First Church of Christ, Scientist, Canton, O. White & Christie, Architects, Chicago.



The Fine Art of Enameling

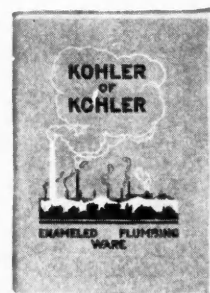
KOHLER CO. PUBLISHES AN INTERESTING BOOK ON THE SUBJECT.

An interesting book which deals with the art of enameling has recently been published by the Kohler Company, of Kohler, Wis. Few people have any idea of the process of enameling the iron castings of bath tubs, lavatories and sinks, and fewer still know anything about the history of enameling.

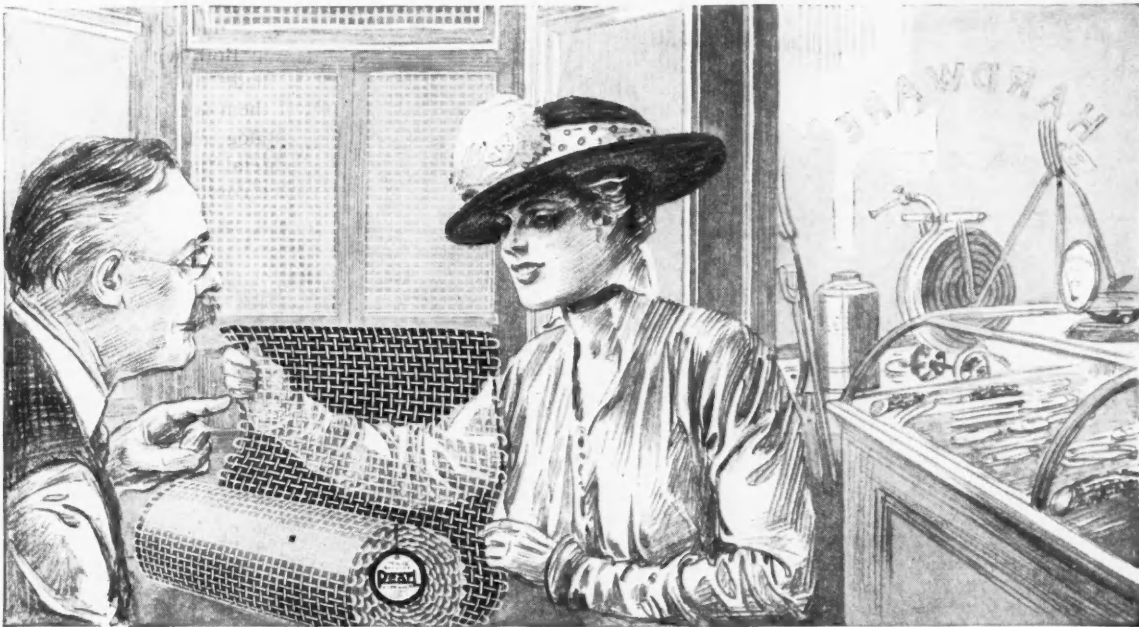
This interesting book, entitled "Kohler of Kohler," traces briefly and entertainingly the progress of enameling from the time of the early Phoenicians down to the present perfected method employed in the great Kohler plant. The book is profusely illustrated, the color plates showing the construction of a bath tub from the time the pig iron is lifted by the electric magnet, thru the various stages of its completion until it is ready for shipment.

To any one who has never been in such a factory as that of the Kohler Company, the description and illustrations of the casting, enameling, etc., will be most interesting. Those, too, who are informed concerning the art of enameling will find the book well worthy of perusal.

In addition to the interesting story of the development of enameling, the book contains a comprehensive catalog of Kohler products. It is sent free to those who write for it.



Interesting Book on Enameling.



Ask Your Dealer Why He Recommends
G. & B. PEARL for Screening —

YOU'LL find genuine G. & B. PEARL Wire Cloth handled by the best hardware dealer in your vicinity. Ask him why he sells and recommends it for *permanently* screening doors, porches and windows. He will tell you that —

—genuine G. & B. PEARL Wire Cloth ends painting and repairing and replacing screens — once up it is there to stay. Rust, not wear, ruins screens — and PEARL is rust-proof. The metallic coating which gives PEARL its wonderful durability is a secret process of this Company which is one reason why imitations don't wear anywhere near as well as the genuine article. The meshes are smooth and clean—offer least resistance to the vision and become less visible the longer used. Cost of G. & B. PEARL is far below the value it offers in wear and appearance. The one choice of the householder who wants 100% service from his screens is this wire cloth.

*For Permanently
Screening Doors,
Windows and Porches*



*Made in Two Weights—
Regular and
Extra Heavy*

No bag, sag or bulge to a G. & B. PEARL Screen. The cloth holds up, looks as well and protects as efficiently after years of wear as it does the first day. There are PEARL Screens in your town. Talk to the owners. You don't have to take our word or that of our dealer. Users gladly tell of their experience. The time you spend investigating will pay big dividends in money and trouble saved.



Every roll of G. & B. PEARL has two copper wires in the selvaige and a Round Tag bearing our name. Insist on the genuine. Call on the hardware dealer in your vicinity who sells PEARL or write us for his name, samples and particulars.

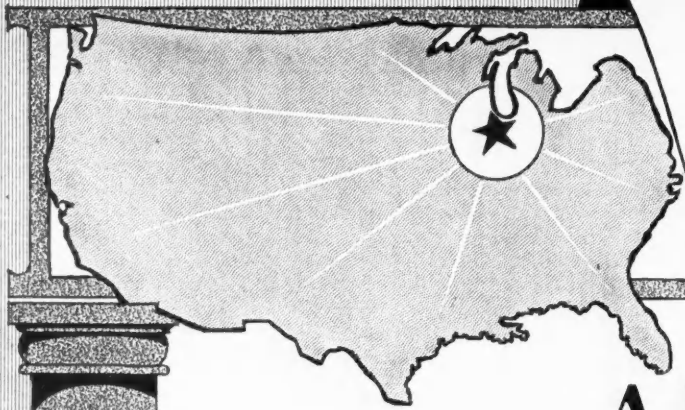
*Conscientious Carpenters, Contractors and Architects
recommend and use Gilbert & Bennett PEARL Wire Cloth*

The Gilbert & Bennett Mfg. Co.

Dept. A, (Established 1818) Dept. A,
277 Broadway, New York 38 S. Dearborn St., Chicago
Georgetown, Conn. Wireton, Ill. Kansas City, Mo.



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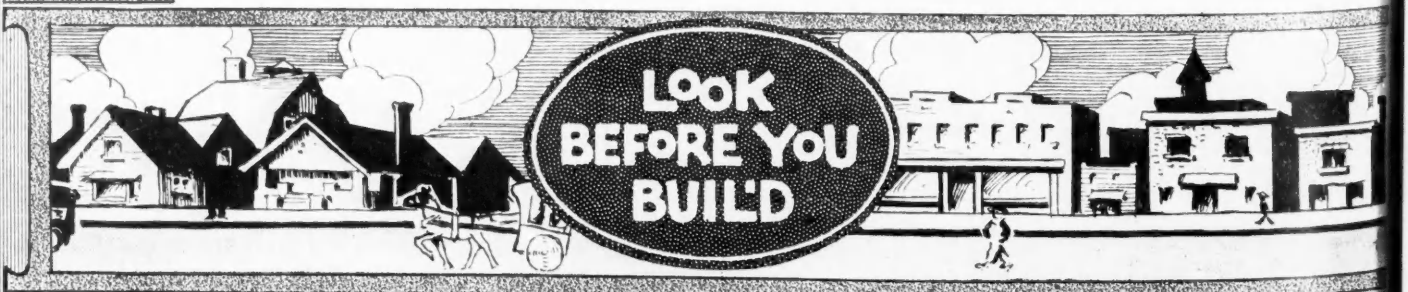
LIME.

Garden City Sand Co.
Thomas Moulding Brick Co.
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When writing or visiting any of the above firms, please mention the American Carpenter and Builder.

BUILDING MATERIAL EXHIBIT,

Entire Second Floor, Insurance Exchange
CHICAGO, ILL.



Look Before You Build

On these two pages are the names of the most responsible and progressive Manufacturers in Building Materials. Use these pages—they will appear every month—as your Buyers' Guide. When in Chicago make this Exhibit your headquarters. A few hours on this one floor will save you days of time. Our location is central—Jackson Boulevard and Fifth Avenue and is right in the heart of things in Chicago. We are in business to save you time and money. Remember, "It's Free to See" and you will be cordially welcomed.



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Ideal Ventilator Co.
Plate Glass Window Ventilator Co.

WIRE AND IRON.

Angert Wire & Iron Wks.

WIRE GLASS.

Mississippi Wire Glass Co.

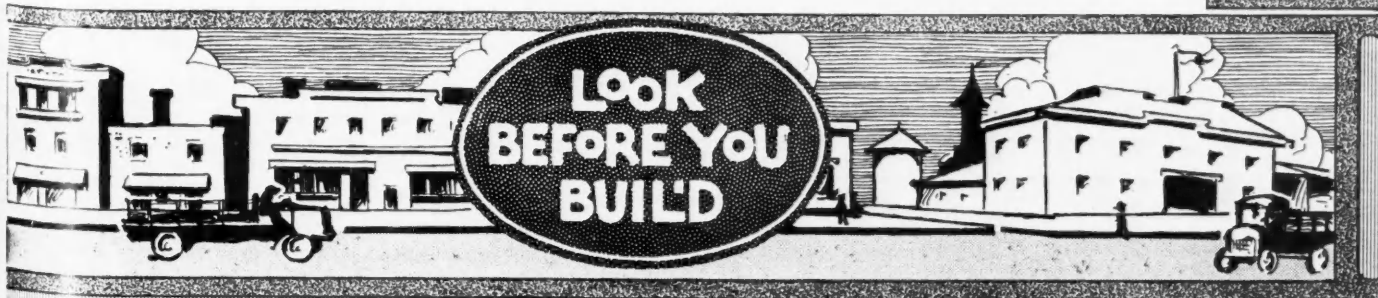
WALL TILE.

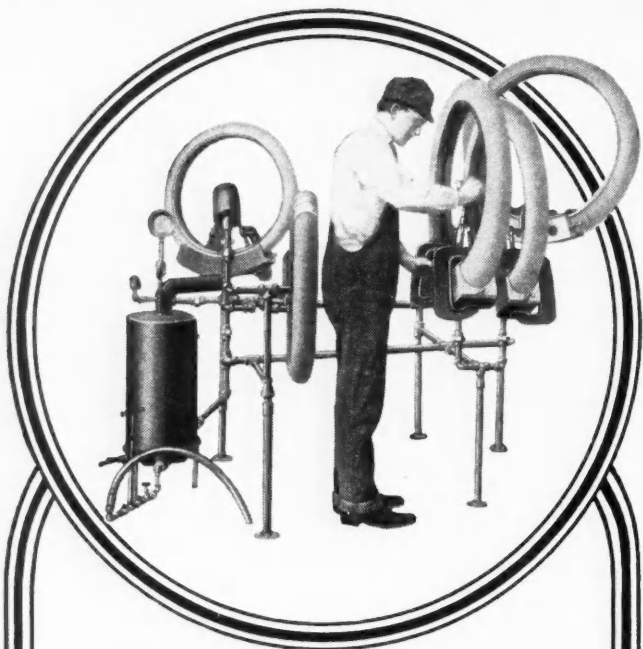
The Clay Products Co.
National Fireproofing Co.

When writing or visiting any of the above firms, please mention the American Carpenter and Builder

BUILDING MATERIAL EXHIBIT,

Entire Second Floor, Insurance Exchange
CHICAGO, ILL.





MAKE THIS YOUR BUSINESS AT \$3,000 PER YEAR

Repairing and Retreading Automobile Tires. There isn't a business you could get into that offers such sure possibilities of **success and fortune.** One man and a Haywood Tire Repair Plant can **make \$250 a month and more.** Scores already have done it and this year there is a greater demand than ever for tire repair work

"15 Million Tires to Repair"

That's not a myth nor some man's dream. It's an actual fact. Tire factories everywhere are building new buildings—enlarging their plants for the biggest period of prosperity in the automobile business. **15 million tires will be manufactured and every one**

Punctures and Blow-Outs are Common will need repairing. Why not cash in on this opportunity? Start in the business while it is yet young. A business that's growing and getting bigger and better. As it grows it will make big money for you.

No Experience Necessary

No previous training, no apprenticeship, is required to enter this business—not even the faintest knowledge of tires. If you have a little mechanical turn of mind, you can quickly become an expert. We teach everything. **You learn in a week.** Handle all kinds of jobs—figure prices at big cash profits. Nothing is easier to master completely.

A Rich Opportunity for Carpenters

Awaits ambitious men everywhere. No city too large—no town too small—everywhere the same opportunity exists. **A moderate investment** starts you. Get one machine and build the business from there. Business comes easy. We show how to get it. You grow and grow. You're soon a **real manufacturer—a success—a mighty big factor** in your community.

Write for the Facts

INVESTIGATE. Send the coupon below, a letter or postal. This brings full information—and a big interesting catalog. Tells all about tires and how to repair them. Shows how to make money—to become independent. Do this today—NOW—before you forget it.

HAYWOOD TIRE AND EQUIPMENT CO.
660 CAPITOL AVE. INDIANAPOLIS, IND.

FREE CATALOG COUPON

Haywood Tire and Equipment Co.
660 Capitol Ave., Indianapolis, Ind.
Gentlemen:
Please send me your catalog, details and plans for starting ambitious men in the tire repair business.

Name

Address

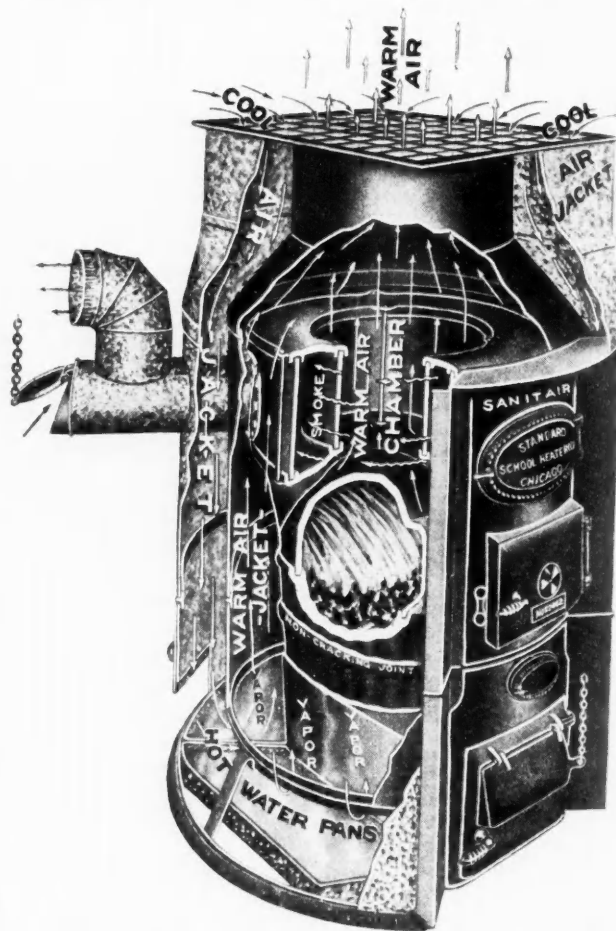
The "Sanit-air System"

A most important consideration in heating a house is the question of humidity. It is being recognized that the heated air in a house must be kept moist, since dry warm air is very irritating to the air passages to the lungs.

The arrangement that has been provided in the "Sanitair System" for making the air moist is positive in its operation and has been very successful for the purpose. The water is warmed by the operation of the furnace so that vapor rises above it. The air supply for the house goes thru this vapor and in addition to being moistened, all the dust and dirt is removed.

The arrangement that has been provided in the "Sanit-air" so that there is a continuous and smooth flow of heat from the register when the furnace is in operation. If the air pipe is not proportioned right for the furnace, the heat will escape into the house in puffs instead of in a smooth stream such as is desired and accomplished in this furnace.

The construction of this furnace is such that the basement will never be overheated and can be kept cool for the storage



The "Sanit-air" One Register Furnace Cut Open to Show Construction of Furnace and Circulation of Air.

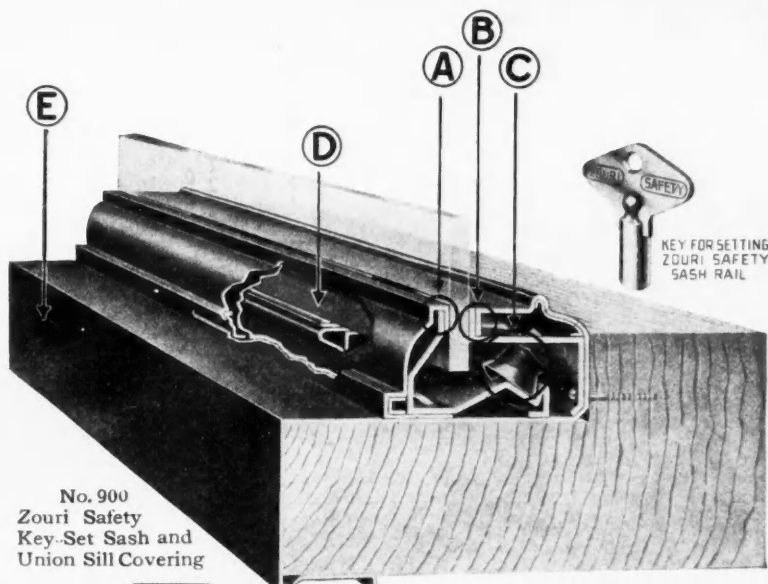
of perishable food stuffs. This is due to the cool air passage that completely surrounds the furnace. The insulating value of air is well known and this blanket of cool air prevents the escape of any heat, which is therefore all carried up thru the hot air passage to the register and from there into the house.

There is also a feature of the service furnished by the Standard School Heater Company that is unique. They absolutely guarantee the satisfaction of their furnaces when installed according to their directions. To make it possible to put in a heater, both as to size and location, that will be of the most use, they are sending out a special sheet on

(Continued to page 128.)

Examine These Vital Parts in A Zouri Key-Set Window Sash

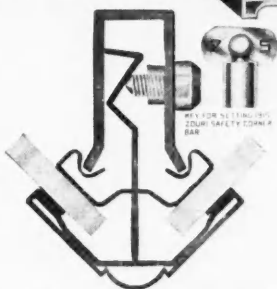
Then You May Guarantee Your Client
A Safe and Permanent Window Setting



No. 900
Zouri Safety
Key-Set Sash and
Union Sill Covering

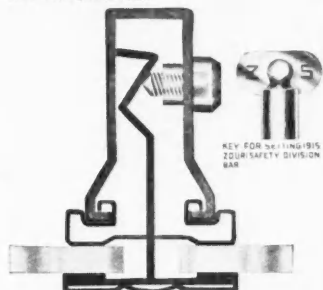
A is the point where the outer member presses against the glass; when the delicate watch-like turning of the key at **C** brings the glass into contact with the rabbet **B**, sliding on the anti-friction Murnane Self-Adjusting Setting Block **D**.

The Union Sill Covering **E** extends from the inner side of the rabbet to the lower edge of the sill, eliminating joints — perpendicular screws or nails — positively protecting the wood against deterioration, for leakage is impossible



No. 200 Safety Key-Set Corner Bar
made in Angles from 85° to 145° incl.

These Corner and Division Bars are free from direct screw pressure. They are proof against the carelessness of workmen. They can be set only with the small special socket key shown, so that undue pressure cannot be exerted by the tools used in the building line, the power of which is beyond control. These bars are specially constructed so that the edges of the glass cannot come in contact with the metal.



No. 301 Safety Key-Set Division Bar
Recommended for plate glass
up to 108 inches long.

You have — as you see at a glance — a workmanlike construction of Imperishable Copper, in which there are **no** exposed screws — no direct screw pressure or resilient rabbet.

Write for Our Cooperative Plan
for Architects and Builders

We will give prices on entire store front construction work — including iron, tile, mosaic, woodwork, prism-glass, plate glass and marble bulk-head. We will furnish blue prints to assist in correct installation. Complete information sent on request.

COUPON

Zouri Drawn
Metals Company
Chicago Heights, Ill.

Send me a sample of
your Zouri Key - Set
Safety Sash.

Name _____

Address _____

Zouri Drawn Metals Company

1811-1821 East End Ave., Chicago Heights, Illinois

which the floor plans of the house can be drawn, which will enable their engineers to furnish a heater that will be suited to the conditions.

The pages for making the floor plans are in triplicate. The upper two sheets are transparent and the bottom one is made of cross section paper which allows the laying off of the floors to scale without a rule. The bottom sheet is for the first floor, the next for the second, and the top transparent sheet is for the basement.

If sketches are given of the different floor arrangements, the engineers of this company can design and place the furnace to secure the best results.

Copies of these sheets for making the sketches of the floors and also copies of their interesting circular illustrating their One-Register Furnace can be obtained by writing the Standard School Heater Co., Chicago, Ill.



Floor Finishing Made Easy

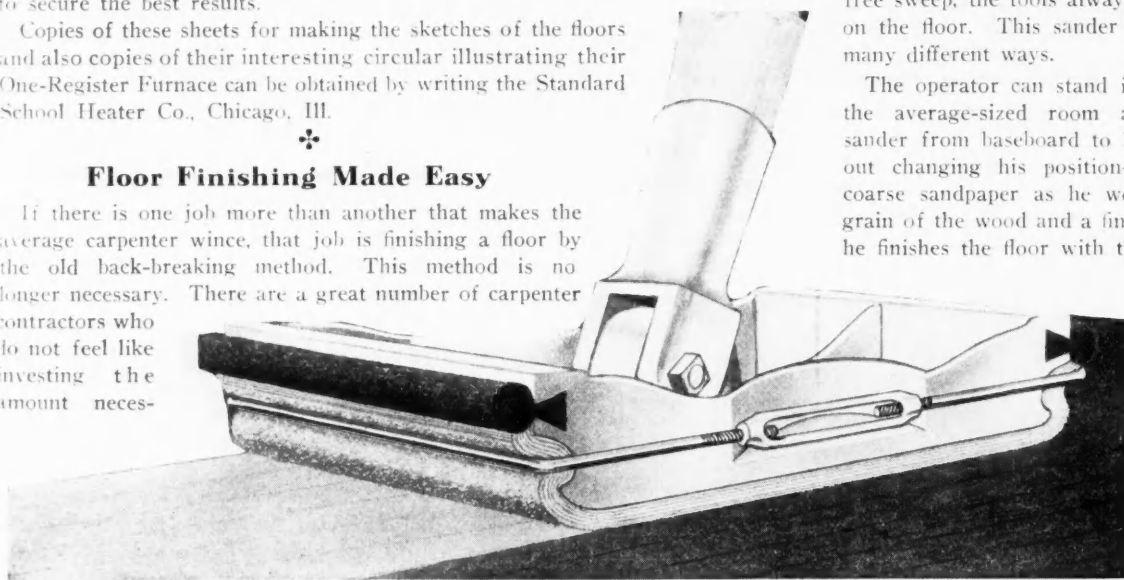
If there is one job more than another that makes the average carpenter wince, that job is finishing a floor by the old back-breaking method. This method is no longer necessary. There are a great number of carpenter contractors who do not feel like investing the amount neces-

sary to equip themselves with expensive power machines.

The Imperial Pump & Tool Company, 2442 W. 12th St., Chicago, Ill., are putting on the market a device that they are calling the "Imperial Sander." This sanding device is unique, and will finish a floor with a minimum amount of energy.

The "Imperial Sander" is a metal weight on which are placed several sheets of sandpaper. This is very securely fastened on by 1/4-inch iron binding rods drawn together by turn-buckles. To the top and in the center of this tool a 5-foot handle is fastened by a knuckle joint which allows a free sweep, the tools always remaining flat on the floor. This sander can be used in many different ways.

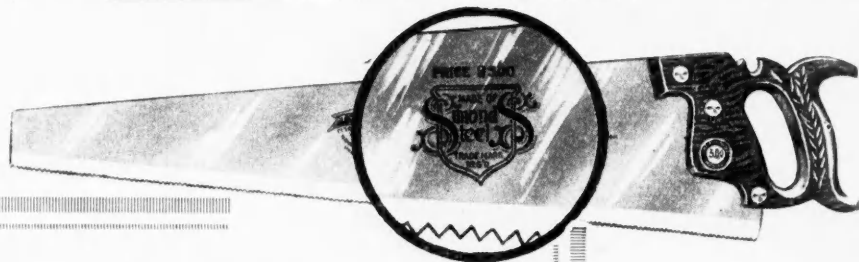
The operator can stand in the center of the average-sized room and swing the sander from baseboard to baseboard without changing his position—using first, a coarse sandpaper as he works across the grain of the wood and a finer sandpaper as he finishes the floor with the grain of the wood. This sander positively eliminates wavy floors. There are other methods that can be used in surfacing a floor with the "Imperi-



The Construction of the Imperial Sander and the Clamp for Holding Sandpaper are Shown Here.

(Continued to page 130.)

It's Not Just a "Saw"



A Simonds Saw embodies more than the term "saw" ordinarily implies. It stands for 84 years of successful saw making; of making the word "Simonds" synonymous with "saw satisfaction"; of backing up the guarantee on a Simonds Saw with the best Quality, Temper and Workmanship.

The steel in our Saws, made in our own factory by our own exclusive tempering process, gives the saws a toughness and hardness which enables them to hold their quick-cutting edges under long, hard usage. You can't keep saw-teeth sharp if they are not tempered right, and a dull saw is worse than none.

And a Simonds has the right "hang" and the right "feel" so quickly detected by a master carpenter.

We want you to know about this saw; to know why "you can't own a Simonds Saw and be dissatisfied." Write for our catalog.



"I tell you it's a great saw"

SIMONDS MFG. CO., Fitchburg, Mass.

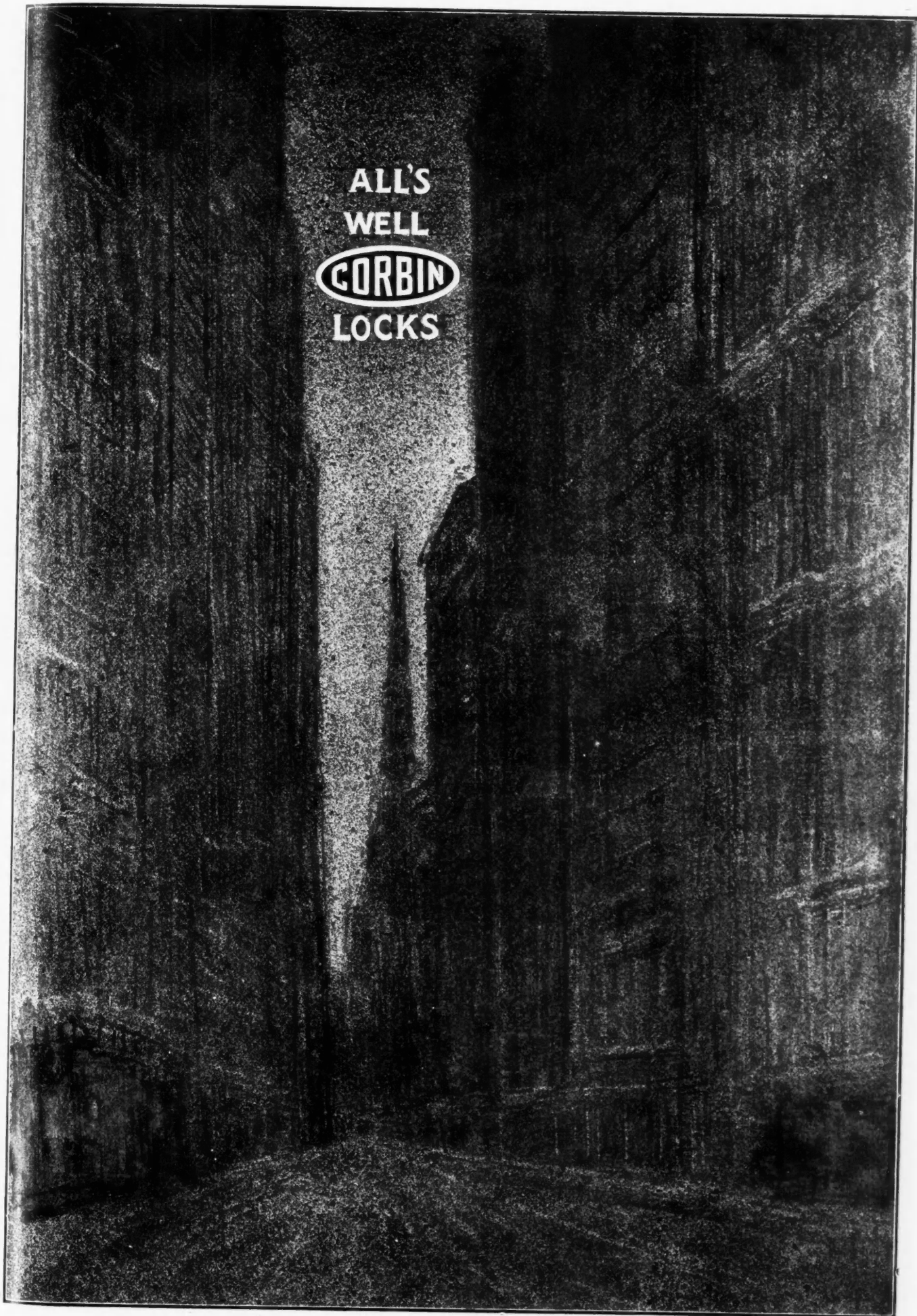
FIVE FACTORIES

"The Saw Makers"

ELEVEN BRANCHES

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

ALL'S
WELL
CORBIN
LOCKS



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

Better Roofs-



with
**ZINCLAD
 NAILS**



Zinclad
 RUSTLESS NAILS

Zinclads are the most economical shingle nails to use, not the cheapest, mind you, but the most economical when measured by the time you save in driving, and the years of roof service they insure the owner. Let us send you a free box of samples, you will then know what real shingle nail perfection means.

W. H. Maze Co
 PERU — ILLINOIS

Various Styles of Nails that Will Last

The necessity for good nails in building a house or any other structure expected to last for some time is being appre-



Rust Proof Shingle Nails come in sizes from 2d, 1 inch long, to 4d, 1½ inch long.



Rust Proof Slating Nails come in sizes from 2d, 1 inch long, to 8d, 2½ inches long.



Rust Proof Flooring Nails, come in sizes 4d, 1½ inches long, to 20d, 4 inches long.



Rust Proof Common Nails, come in sizes 2d, 1 inch long, to 60d, 6 inches long.

ciated more all the time by builders, architects, and owners. No one can expect shingles to stay on a roof for the entire length of their life if they are not held on by nails that will last.



Rust Proof Clapboard Nails come in sizes 4d, 1½ inches long, to 8d, 2½ inches long.

The different types of nails shown here are made particularly to last as long or longer than any of the materials that they are holding in



Rust Proof Fence Nails come in sizes 5d, 1¾ inches long, to 20d, 4 inches long.

place. These nails are old fashioned cut nails, hot dipped in zinc. This gives a coating that fills all the irregularities and effectually protects the nails from rust.

Of late years nails have received scant attention in the construction of houses; and the shingles and siding that have apparently gone to pieces are blamed for being of poor

quality; when in reality it has been the fault of the nails rusting away.

Further information on the durability of these zinc-coated nails, shown here, can be secured from a booklet called "Nail Knowledge," that is being issued by the Malleable Iron Fittings Co., Branford, Conn. Copies will be sent on request.



Good Roads

By GEORGE A. KISSEL,

President Kissel Motor Car Co.

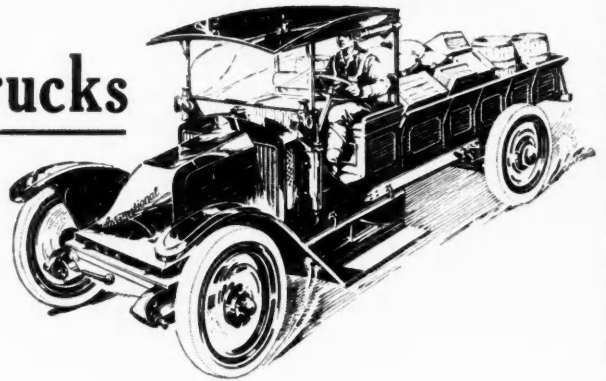
If automobiles had never been built, there would be comparatively few good roads.

And the good roads laid because of the automobile have created a demand for more automobiles.

Good roads have put new life into trade by annihilating time and distance. They have brought great dividends in pleasure. They are an economic success.

Everyone has benefitted, the farmer, the merchant, the manufacturer, all in a business way—and socially as well.

Outstanding Facts About International Motor Trucks



1. Over 13,000 Internationals are now in use — more than of any other motor truck made.
2. International service branch organization is the most complete in the United States.
3. International trucks were awarded the Medal of Honor at the San Francisco Exposition, 1915.
4. In Michigan, the home of the motor truck, the registration shows 324 trucks in use, as compared with 259, the next highest in trucks of all classes.
5. In Chicago, St. Louis, and other big truck using centers, Internationals outnumber all others.
6. Volume of 1915 International sales gained 100% over the 1914 sales.
7. Two new large 6-story additions to the factory at Akron, O., have doubled the capacity.
8. The International Harvester Motor Truck Works is the largest buyer of solid rubber tires in the world.
9. All International models may now be had with either solid or pneumatic tires.
10. International Motor Trucks are sold and used consistently and satisfactorily everywhere, in city and country, on the level and in the hills.

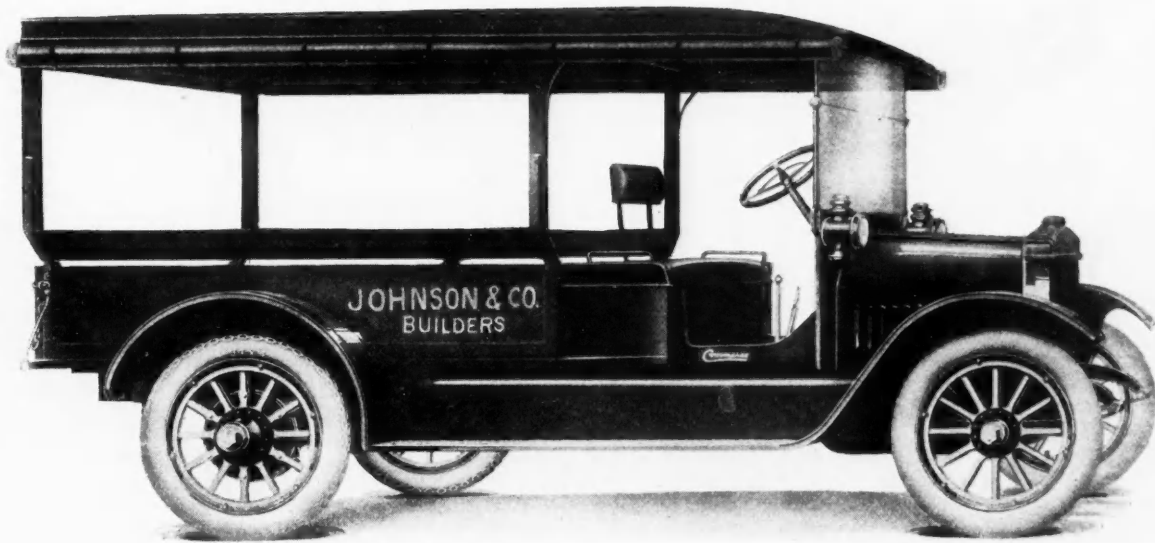
Popular Models—Low Prices

Model M—1000 lbs. capacity	\$ 710
Model E—1500 lbs. capacity	950
Model F—2000 lbs. capacity	1500

All Prices Cash f. o. b. Akron, Ohio.

Write now for Catalogues.

INTERNATIONAL HARVESTER COMPANY OF AMERICA
 70 Harvester Building (Incorporated) Chicago U S A



The Cost of a Man— and a Commerce Truck

is no more than the cost of a man and a truck that does half the work. The **COMMERCE TRUCK** means **ECONOMY** when buying, means **ECONOMY** in up-keep, means **ECONOMY** in service, means a **PROSPEROUS** showing.

Let the **COMMERCE** truck talk for you as your deliveries are being made—**GET** your material on the job in time—**INCREASE** the productiveness of your men.

The **COMMERCE** is built to stand hard usage—to climb hills—to give long service, and over 8,000 satisfied users in the U. S. testify to its productive value. Your material is fully protected by dropping the curtains. Loading space is 84 inches by 44 inches by 54½ inches. Made in three other types.

The interest on the investment in this truck is less than 20 cents per day—the **PROFIT** on this investment will cover the cost many times.

FULL INFORMATION for the asking.

Write for catalog or come in and see us.

Commerce Motor Truck Co. of Illinois

2015 South Michigan Avenue, Chicago, Ill.

日本建築業に
 理想の動力



*Just a few
thousand miles
from home*

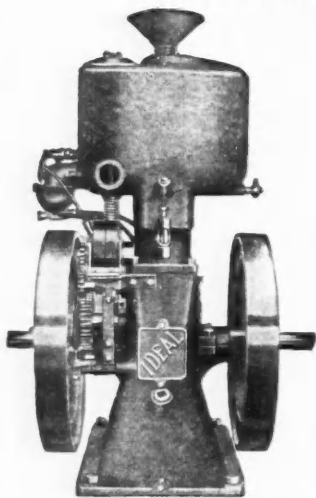
Here are two Ideal pumping rigs working in Tokyo, Japan, for K. Sakai Company. It is interesting to note that out of the world's market, "Ideal" power was chosen. This selection speaks for itself.

To be used several thousand miles away from the factory clearly defines that in Ideal Engines an extremely reliable unit is to be had.

For constant service—for reliability—for economy—for simplicity—for durability you can't beat that what is to be had in

IDEAL ENGINES

Power for all contracting work



*Now before you
turn this page
drop a postal
for Booklet 516*

**THE IDEAL
ENGINE CO.**

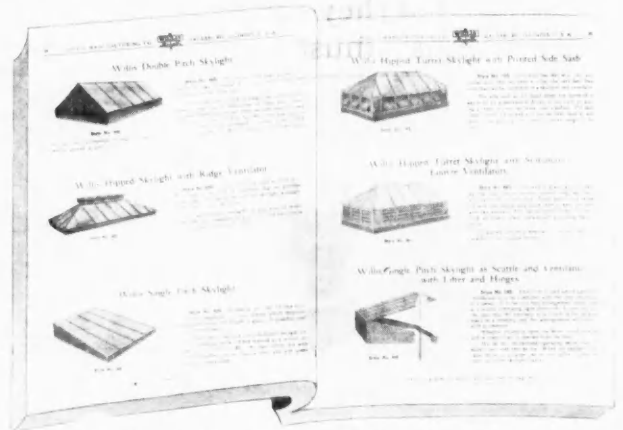
R. E. OLDS, Chairman

Formerly
The Original Gas
Engine Co.

630 East Kalamazoo St.
Lansing, Mich.

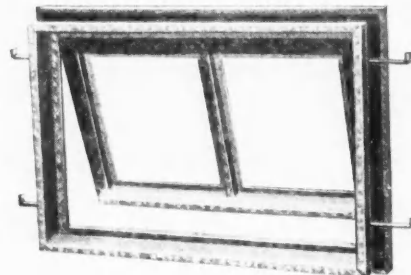
Willis Specialties

The smaller illustration shows the Willis Style 105 Window. In the Willis double page announcement last month this was accidentally turned wrong side up and we are showing it here in its proper position. A window such as this



The New Willis Catalog is Full of Information.

with a sheet iron frame is particularly suited for placing in basements.



Style No. 105.

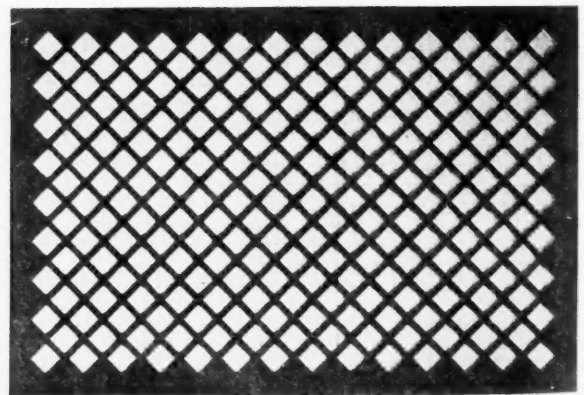
The other illustration gives an idea of the contents of the new complete Willis catalog, and shows some of the many features of their most extensive line of sheet metal specialties.

This catalog is ready for distribution among our readers and will form a valuable reference volume when sheet metal work of any kind is being considered.

Copies can be secured by writing to the Willis Manufacturing Company, Dept. B, Galesburg, Ill.

Perforated Metal Grilles

A most complete line of perforated metal grilles of all kinds is shown in the catalog that has been recently issued by the Clinton Wire Cloth Company. This concern does not make cast grilles of any kind, but only those which can be



Artistic Perforated Grille Having 60.9 Per Cent Openings

made of perforated metal. These grilles are especially suitable for register or ventilator faces of all kinds.

The many different designs that are shown make it possible to select a style that will fit in with the general plan.

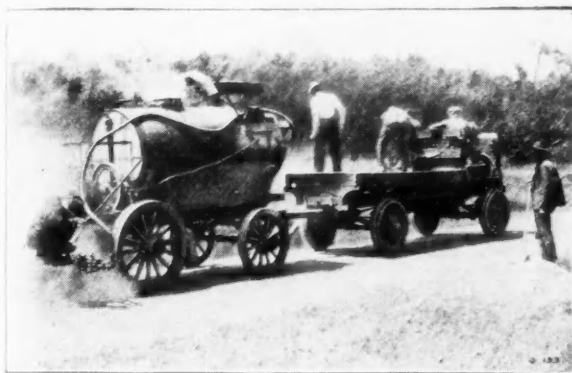
(Continued to page 136.)

Standard Contracting Equipment

Motor trucks are a part of standard contracting equipment. But they must be of such type that they can be kept working all the time—must be adapted to all sorts of conditions—must be *all-purpose machines*—must be Jeffery Quads—in order to



Oyster shells are used for road building in Mobile County, Ala. This Jeffery Quad, with trailer, does the hauling for the County Road Board.



A 5-ton road oiler, with heater attachment, being trailed behind one of the three Jeffery Quads owned by the California State Highway Commission.



A Jeffery Quad bought by the City of Winston-Salem, N. C., for use in road building, because of the success of a Quad owned by the neighboring city of Greenville, N. C.

pay the good dividends that every contractor or builder must get from standard equipment.

The Quad is reliable because it is Jeffery built for army use—for the most exacting and efficiency-demanding service in the world. When the U. S. troops went after Villa the Government truck order placed included 168 Jeffery Quads to carry supplies through the desert and mountains.

Service for All Conditions

It gives the most extraordinary service under conditions which cause the laying off of ordinary means of hauling—because power is transmitted to all four wheels—or to any wheel which can get traction. So the truck can go where no rear drive truck can go—through hub-deep mud, through sand and snow, over steep grades and seemingly impassable country. *It can turn in forty-two feet* and always has abundant reserve power for any emergency.

This remarkable service the Jeffery Quad gives at unusually low cost because it stands up under the most strenuous working conditions, because of freedom from vibration and because the duplex governor—the “automatic chauffeur”—regulates the supply of fuel so that just enough is automatically supplied to the motor no matter what the truck is called on to go through.

No matter what happens the truck is never long out of commission, because all parts can be easily and economically replaced.

The 1½-ton Jeffery All Purpose Truck, the ¾-ton Jeffery Rapid-Service Truck offer low-cost solutions for many construction haulage problems.

In two years 3500 Jeffery Quads have been built, sold and put into service—a record never equalled anywhere for a truck of similar capacity. For further particulars address THE THOMAS B. JEFFERY COMPANY, Dept. AC5, Kenosha, Wis.

Jeffery Quad

Power on All Four Wheels

and finishings that are selected for various rooms.

The grilles can be had in any size up to 58 by 156 inches in one piece. The grilles are made in various different kinds of metal such as steel, brass, copper, and bronze. When made of steel, they can be plated with various electro-plate finishes.

The makers say that the perforated grilles are very strong and light and will take a very good finish of any kind.

In the catalog, with the various designs, is given the percentage of open space that is provided in each plan.

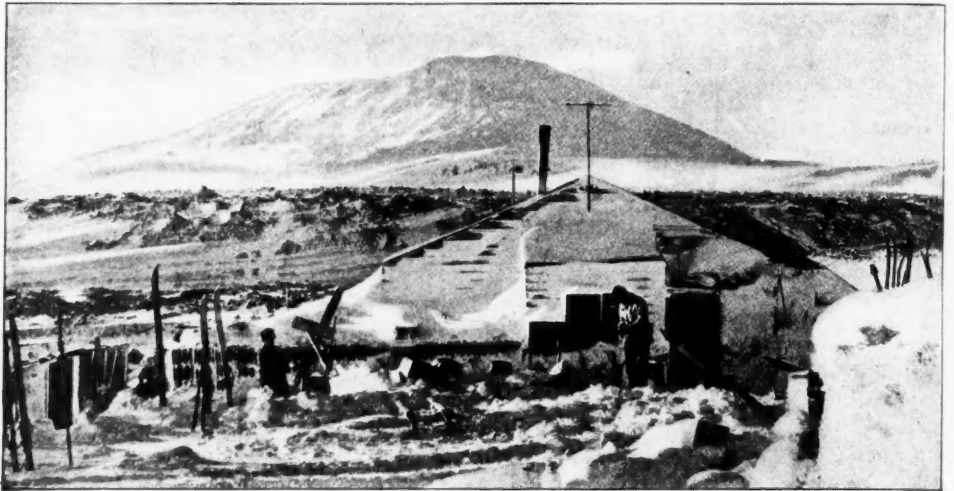
The illustration shows one of the designs that is included in the list in the catalog.

Copies of this catalog can be secured by writing to the Clinton Wire Cloth Co., Clinton, Mass.



At Both Ends of the Earth—North Greenland and the South Pole

Cabot's Quilt has proved its power to make warm houses in every habitable climate in the world; but just to show that its abilities are not confined to the habitable parts of our terrestrial sphere it has voyaged to the South Pole and to Greenland, and demonstrated in both places that it will make any kind of a house in any kind of a climate, no matter how



This is One of the Shelter Huts of the Scott Antarctic Expedition. It was Lined with Cabot's Quilt Especially Made for the Purpose, and is Referred to Here in Captain Scott's Journal.

cold and bleak, warm and comfortable. The quotations given on page 138 from statements of two distinguished explorers of the Arctic and the Ant-arctic, and the photographs of the buildings in which Cabot's Quilt was used with such satisfactory results, can hardly fail to prove that every house built in the temperate or frigid zones will be tremendously enriched in winter comfort and in saving of fuel by a lining of Quilt. It will save its entire cost in fuel in two winters, and it will make the house comfortable and draughtless for all time. This experience in cold climates also proves that Quilt is equally effective in keeping out the heat of the sun in hot climates. Roofs lined with it will make rooms beneath them cooler and

(Continued to page 138.)

Your Business Needs This Kissel Truck

MOST of the trade requires haulage capacities of about a ton.

Here is a truck that measures up to this requirement and is economical in carrying loads.

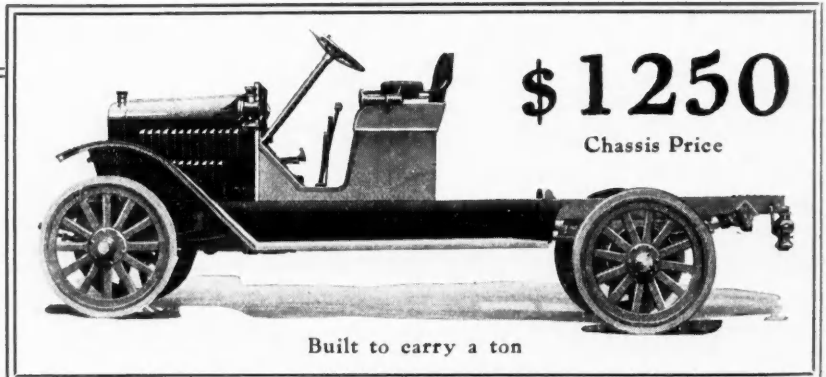
It is the most modern truck on the market—the newest design with worm drive rear axle.

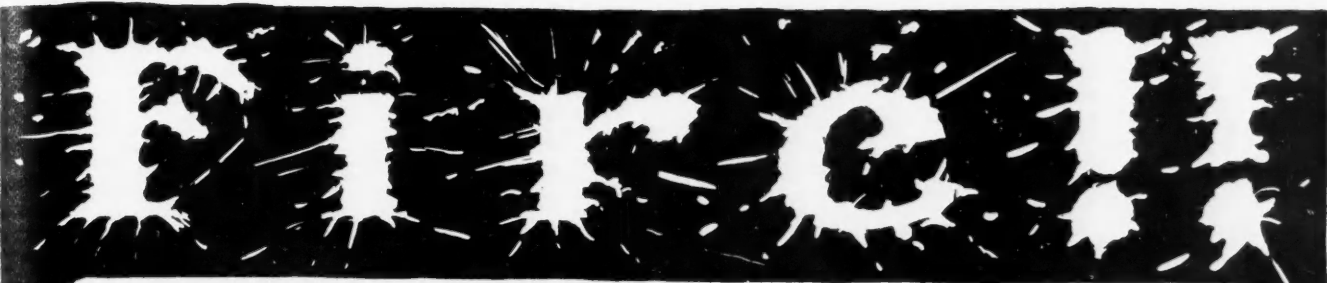
The value of this truck at this price is apparent—its solid construction is in evidence at every point. Five other sizes. Chassis Prices \$950 to \$4350.

KISSELKAR TRUCKS

Its Kissel-built motor and many other exclusive units are quality features that make the price \$1250 more surprising. Let us tell you more about it. Ask for big truck portfolio.

KISSEL MOTOR CAR CO., 546 Kissel Ave., Hartford, Wis.
AGENCIES AT LEADING POINTS





But the word has lost its terror for the builder who paints with

Pyrolin

Fire-resisting
Pure Linseed
Oil Paints

Watch for our June Advertisement—It will Contain the Most Important Announcement to the Trade in 100 Years



Pyrolin is of immense importance to the contractor. It not only means the protection of his buildings against fire, but it also means the reinstating of wood as the primary building material.

Only Building Left Saved by PYROLIN

Mr. E. L. Cavanaugh, Clare, Iowa, writes the following letter:

"In 1906 we had our implement building at this place painted with the PYROLIN Fire Proof Paint, which gave satisfactory results so far as appearance, covering capacity and durability are concerned.

"We had no test of its fire-resisting qualities until December 11th, 1911, when almost the entire business portion of the town of Clare was destroyed by a severe conflagration. Our implement building was just eight feet from the nearest building in the direct path of the flames, which beat against the side of our building. The fire was so hot that it did not seem possible it could be saved. The woodwork charred and blackened but the flames did not carry, and the building was saved and the fire was stopped. We are using the building every day."

And his experience is only a repetition of daily tests to which Pyrolin is subjected.

Send for our Booklet. It will explain to you the tests of the U. S. Government; the advantages of Pyrolin as a paint, and the money and peace of mind it will save you as a fire-resistant. Write today for your copy.

PYROLIN PRODUCTS CO. FORT DODGE IOWA

Exclusive Western Agents for
**McCLOSKEY VARNISH CO.'S
SUPERIOR VARNISHES**

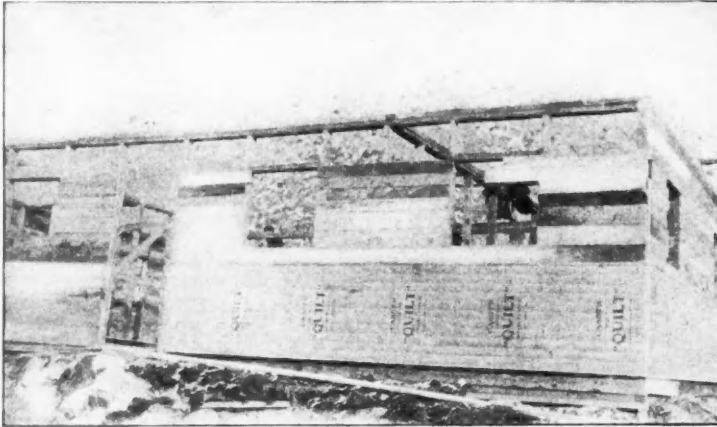
The Varnish of satisfaction. Get our prices before buying. Our Water-proof Varnish is the finest in the world.

Pyrolin Products Company, Fort Dodge, Ia.

Gentlemen: Kindly send me your Pyrolin catalogs.

Name

Address



McMillan House During Building. Showing How Cabot's Quilt was Applied to Walls.

habitable when they would otherwise be too hot to be endurable.

A letter, dated August 8, 1914, written by Mr. McMillan to a friend in Boston, contained the following:

"The Cabot Sheathing is wonderful stuff. Jot (Small) swore that we would freeze to death in our house with only one stove going. We are thirty-four feet square, eight rooms on the ground floor, and ten windows; and we have never been cold, but many times too warm and obliged to throw open the doors. I placed this sheathing all over the outside of the building.

DONALD B. McMILLAN."

Extract from Journal of Capt. R. F. Scott, R. N., pages 76-77, Volume 1, "Scott's Last Expedition":

"Tuesday, January 10, 1911.—The hut is progressing apace, and all agree that it should be the most perfectly comfortable habitation. It amply repays the time and attention given to the planning. The sides

have double boarding inside and outside the frame, with a layer of our excellent quilted seaweed insulation between each pair of boardings. The roof has single match-boarding inside, but on the outside is a match-boarding, then a layer of 2-ply 'ruberoid,' then a layer of quilted seaweed, then a second match-boarding, and finally linoleum."

Upon the return of the survivors of the Scott expedition the following letter was received from Commander Evans, who also verbally praised the Quilt most enthusiastically:

"I have much pleasure in informing you that the patent Quilting supplied by your firm for insulating the Antarctic huts at Cape Evans, McMurdo Sound, and Cape Adare, Victoria Land, Antarctica, proved highly satisfactory. It was thoroly efficient, and I am convinced that it is the best material for the purpose.

EDWARD G. R. EVANS,
Commander, R. N."



House Built by Donald B. McMillan, the Explorer, at Etah, North Greenland.



EMPIRE PIPELESS THE ONE REGISTER WONDER

*Adaptable to Houses with High or Low Cellars
Burns Hard or Soft Coal, Wood or Natural Gas*

Shipped complete with casings, including square and round pipe to Register, smoke pipe tee with check damper complete, combination duplex register, water pan, 10-lb. can asbestos furnace cement, and chain and pulleys.

Quick, Easy and Inexpensive to Install

because it does away with all extra cutting through floors, walls and partitions. No expert needed to do the work.

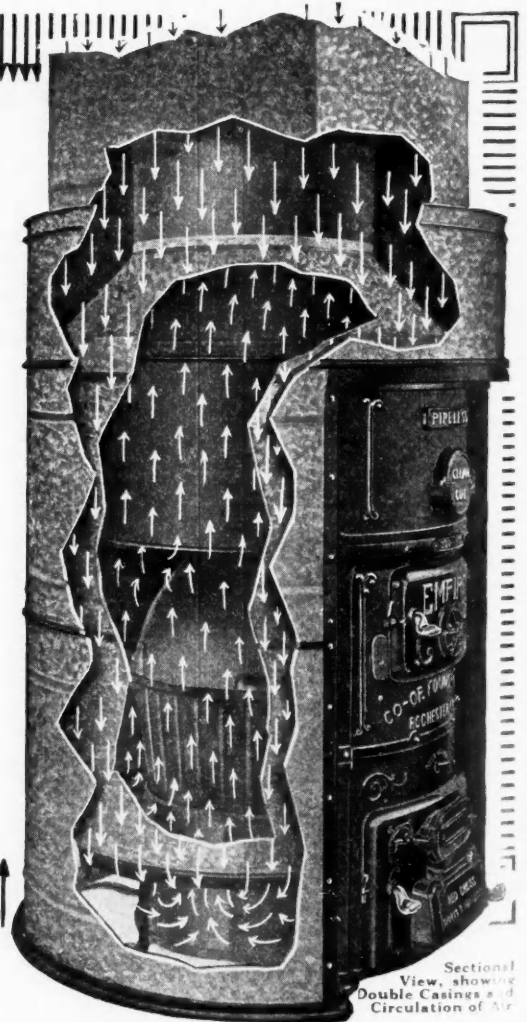
Features and Equipment

- Ash Pit**—Unusually deep and roomy.
- Joints**—Deep cup joints, thoroughly cemented and gas tight.
- Grates**—Triangular pattern. Easily removed. No bolts used.
- Fire Pot**—Heavy and ribbed. One-piece or two-piece, as desired.
- Radiators**—Cast iron or steel.
- Feed Door**—Opening larger than in ordinary furnace.
- Hot Water Connections**—Through openings at left of feed door.
- Gas Rings**—For natural gas, furnished when ordered at a small advance in price.
- Chains and Pulleys**—For regulating drafts and checks.
- Cement**—10-lb. can Asbestos furnace cement.

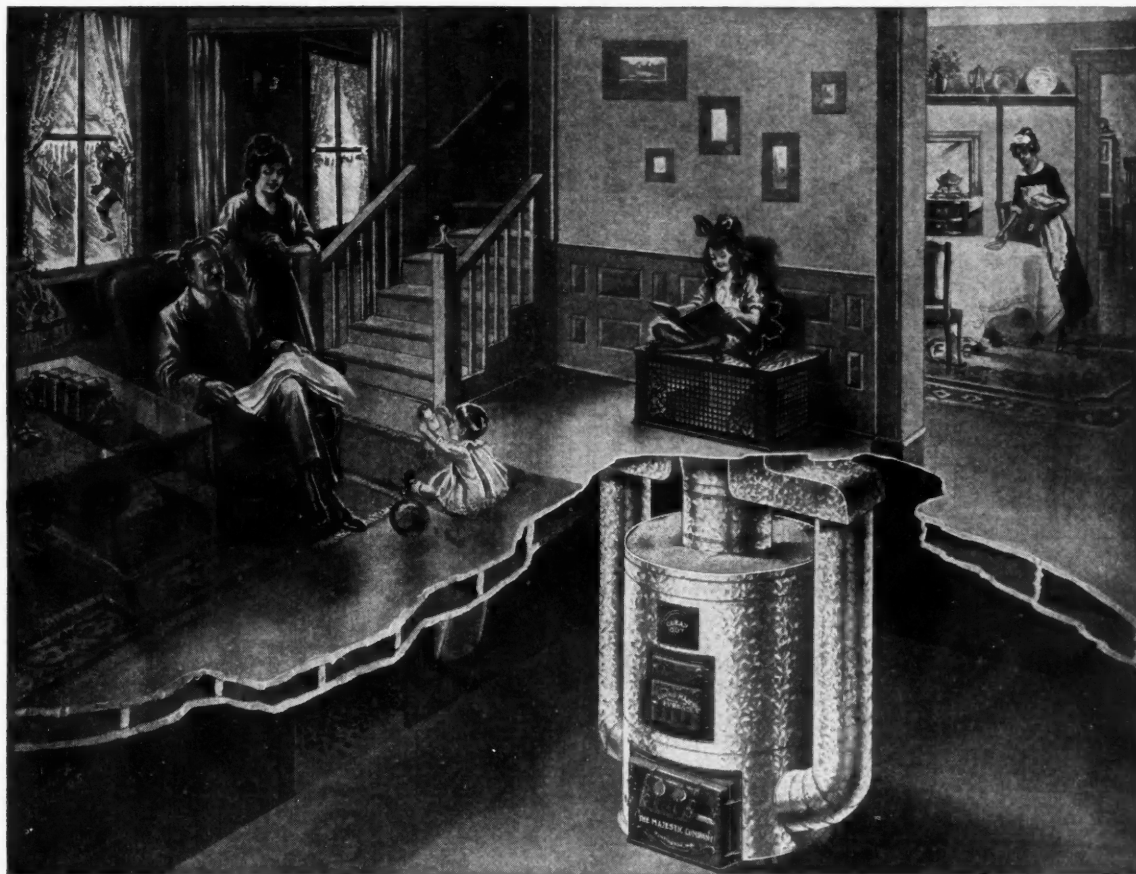
No waiting. Prompt shipments from CHICAGO Guaranteed. We carry a large stock at all times.

Co-operative Foundry Company
Rochester, N. Y.

WESTERN BRANCH: 505 SO. CLINTON ST. (Phone Harrison 6373) CHICAGO, ILL.



Sectional View, showing Double Casings and Circulation of Air.



You Can Recommend This Pipeless Furnace

It's the "MAJESTIC" with the Patented Projecting Register. The MAJESTIC has all the advantages of ordinary pipeless systems without the disadvantage of the floor level, dirt-catching register, so common to the usual pipeless furnaces. This projecting register is one of the big talking points of the MAJESTIC. But only on the MAJESTIC can it be secured. No other pipeless furnace gives you this big, important selling feature.

Majestic

One Register Duplex Heating System

The projecting register does away with the danger of creeping children getting burned, as is common with the floor level register. The grill work on the MAJESTIC Register never overheats because of its greater surface for diffusing the heat. This projecting register can be set at the side of the wall and opening into two rooms, and the heat diffused evenly. Or it can be placed between two rooms in the base of the colonnades. Built-in bookcases can be placed directly on top of this new type register.

Do not compare the MAJESTIC DUPLEX ONE-REGISTER

HEATING SYSTEM with the ordinary pipeless furnace. The MAJESTIC is brand new and entirely different from any other pipeless furnace.

We are furnace specialists and build one of the best lines of standard type in America. The popular MAJESTIC Down-Draft Furnace is famous the country over and is in use in thousands of homes. When you sell the MAJESTIC you are selling a furnace that gives universal satisfaction. Be the one in your community to show the MAJESTIC and get all the "pipeless business."

SEND FOR CATALOG AND DEALERS' OFFER

Get the complete story about the MAJESTIC PIPELESS FURNACE. It is the first really practical furnace of its kind that you can sell easily and profitably, and at the same time give your customers complete satisfaction. Write today for our catalog and Dealers' Terms.

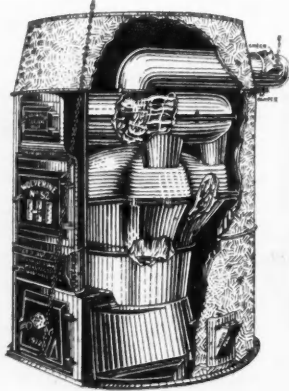
THE MAJESTIC CO., 610 Erie St., Huntington, Ind.

Manufacturers of Coal Chutes, Garbage Receivers, Milk and Package Receivers, Metal Basement Windows, Rubbish Burners, Street and Park Refuse Cans, Metal Plant Boxes, Pipe and Pipeless Warm Air Furnaces, Hose Reels, etc.

WOLVERINE FURNACES

and the **WOLVERINE SYSTEM** of Heating and Ventilating are something you want to investigate. You buy direct from our factory at manufacturers' prices—furnace, registers, cold air faces, pipe and fixtures already cut and ready to put together. We send our own mechanics to install complete if you are in our local territory. If not we send complete plans and specifications that any good mechanic can follow.

We have been making furnaces and nothing else for 36 years. Our experience is at your command.



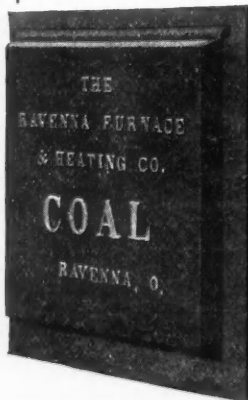
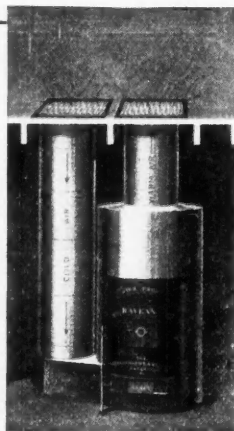
It costs you nothing to get our plans for you; building and receive our written proposal.

Wolverine Furnaces are constructed on scientific principles which makes them durable and economical in fuel. Easy to clean and operate and sold under the most liberal guarantee ever given with heating apparatus. Write for large 32-page illustrated catalog that describes and shows these furnaces. It is **FREE**, a postal card will fetch it. Ask for catalog No. 63.

MARSHALL FURNACE COMPANY
12 Dobbins St. - - Marshall, Mich.

Our Pipeless System of heating is the only practical single, warm air conveyor system, in line with scientific principles. The system provides for advantages as follows: warm air velocity, which saves both fuel and furnace, requires little basement room; lowest cost of installation.

Send for descriptive circular. Also get circulars on our Window Chute



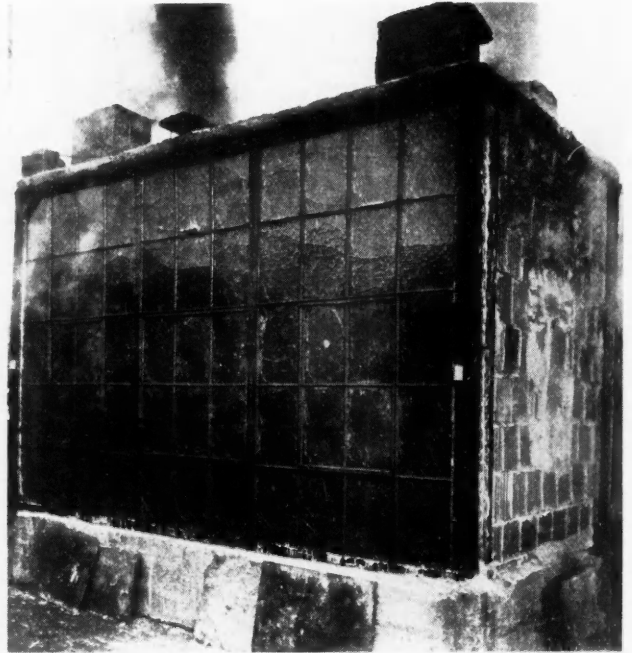
for coal. Absolutely air-, water- and burglar-proof. No catch, screw or bolt to make it possible to be opened from outside. Simplest cast construction made. Sizes 20x15" and 20x18".

The RAVENNA FURNACE & HEATING CO.
RAVENNA, OHIO

New York Industrial Commission Approves Fenestra Solid Steel Windows as Fire Resisting

The New York Industrial Commission at a meeting held in New York City in March placed its stamp of approval on Fenestra Solid Steel Windows as a fireproof window meeting all requirements of the industrial code.

The action of the Industrial Commission was based on

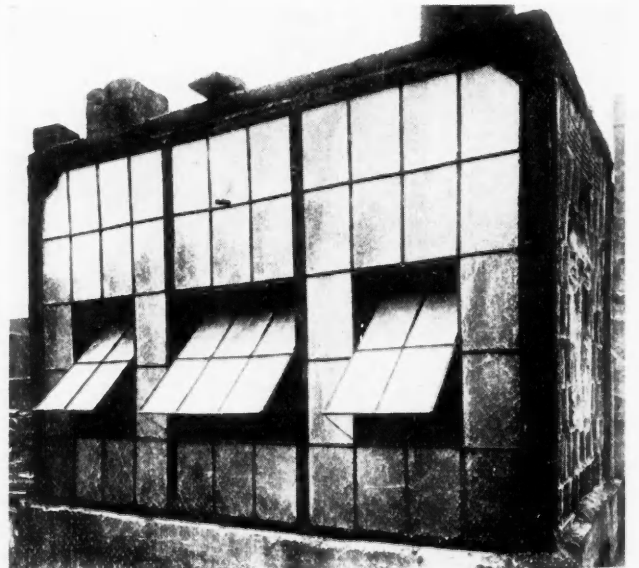


Three Standard "Fenestra" Windows Being Tested in 1600 Degrees of Heat.

the result of a fire test in which three standard Fenestra windows, joined by mullions, were subjected to a temperature of 1600 degrees for 63 minutes and then immediately subjected to a stream of cold water under pressure.

The test was conducted by Professor James S. MacGregor, M. S., at the Columbia Fire Testing Station, New York. Its purpose was to prove that solid steel windows of the Fenestra type would resist any degree of heat it might be called upon to meet in an ordinary fire.

The following final paragraph from Professor MacGregor's
(Continued to page 142.)

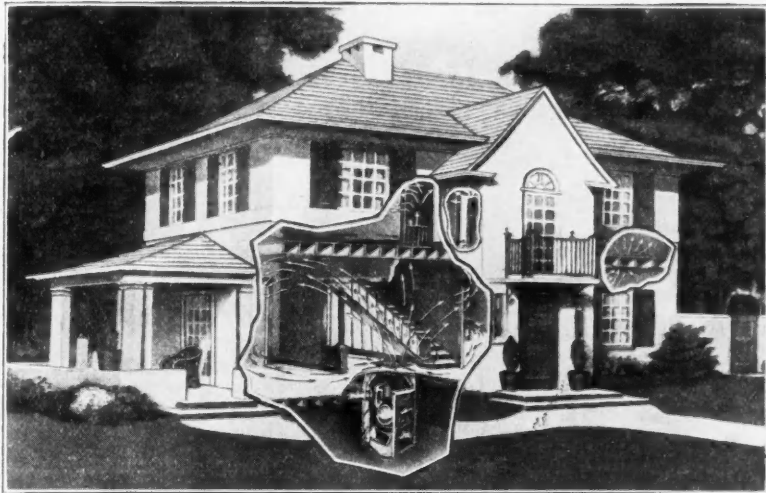


After the Test the Windows Operated Easily.

THE ONE REGISTER PIPELESS SANIT-AIR SYSTEM

Has 20 Extraordinary Features of Interest to You

Pure air, properly moistened is quickly circulated through one powerful direct register. Air cleaned and purified in circulating through the air washing system covering the bottom of the heater—insures health, comfort and cleanliness. Therefore, and rightfully the name "SANIT-AIR SYSTEM."



The "Sanit-air System" circulates pure, warm air throughout the home—the picture tells the story. The warm air spreads through the doors between the breathing line and the ceiling—throughout the house, returning between the breathing line and floor to Register and Furnace to be cleansed and heated.

Important to You

"Sanit-air Systems" heat your house with all common objections to furnaces removed.

We use no hot air pipes, we use no cold air ducts, we waste no heat in your cellar—we do NOT damage your cellar storage.

The fuel bill to run a "Sanit-air System" does not exceed $\frac{1}{2}$ that required for any other heater, and the serious objections named above are entirely eliminated.

"Sanit-air Systems" are designed for healthy, happy homes.

Air washing system guarantees perfect freedom from smoke, dust and dirt in the building and its cost is no more than for stoves, and even less cost for fuel.

Its location in the cellar or basement (only 4 feet square) allows the full space of every room for living or other purposes and for this reason alone, will be appreciated in every home, place of business, church or school.

With our card of complete instructions for installing the "Sanit-air System," one man can put it in place, ready for operation in one day.

The Standard "Sanit-air System" with its wonderful air purifying vapor system is the *only genuine*, sanitary heating system on the market that effectively combines *heating power and perfect ventilation*. It insures evenness of temperature and a continuous flow of pure, properly moistened air—all this with low fuel consumption. It requires but little thought to realize that it is the proper and logical heating system. *No other system has so many distinct and decided advantages.*

Guaranteed by Standard Bond

We guarantee the "Sanit-air System" with our combination hot and cold air register necessitating that only one register opening be cut in the floor, will heat your house more perfectly and with much less fuel than any other Heater yet in use. If after a fair trial it is not found to be more efficient and economical than any other system, if paid for, it may be removed, and the entire purchase price will be returned. (See our Guarantee Bond.)

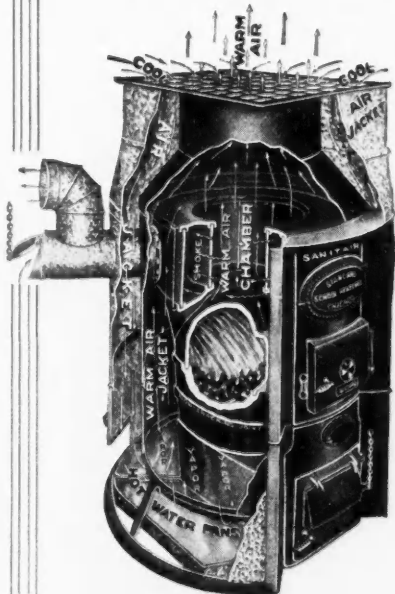
"Sanit-air Systems" Sell on Merit—Not in Competition or Comparison

Why worry with steam, Hot water or Hot air Furnaces—Solve your troubles with a "SANIT-AIR SYSTEM"—best that money can buy.

A "Sanit-air System" cleans, purifies, moistens and warms the air, giving forth an overflow of soft, balmy, delightful warmth throughout.

More Clean Heat—Less Fuel

The cold air passing down into and over the hot water surface through the rising vapor cleans the air of all dust, lint, foreign matter, and impurities of the air, as well as moistening it to the proper degree for health and comfort. Best that money can buy.



**Health, Comfort
and Economy
in Heating**

Standard School Heater Co.
CHICAGO

Write for Honest Advice on Heating

SECURE THE AGENCY FOR YOUR TERRITORY

**Special Offer
FREE PLANS**

Also 20 extraordinary features of Sanit-air Systems free if you return your addressed coupon at once.

Name

Address

report on the test is significant:

"After the test all three vents of the windows used were opened without difficulty and could be swung and locked and closed with ease."

The results of the test are of interest to building owners, architects and the manufacturers as well, as it removes a handicap to the use of such windows, especially in the State of New York. An old state law practically limited the sale of solid steel windows to units not exceeding five feet wide and nine feet high. The demand of manufacturers and building owners, however, was for a steel window such as Fenestra that could be used singly or in combined units of practically any size needed. The approval of the Industrial Commission of this type of window is an added assurance to building owners that they can use solid steel windows with assurance of safety against the fire hazard.



A Booklet on Pipeless Furnaces for Contractors and Builders

A Pipeless Furnace booklet that will be of interest to contractors and builders is being offered by the Hess Warming and Ventilating Co., 1220 Tacoma Bldg., Chicago, Ill. This is for the use of builders exclusively, as their furnace is not offered to dealers.

It is a twelve-page booklet and contains much information in regard to the value and installation of pipeless furnaces.

A copy will be sent to any of our readers on request.



The Marshalltown One-Register Furnace

The object to be attained in a warm air heating plant is to secure a large volume of warm air that is moving at a comparatively low velocity. If such a condition can be

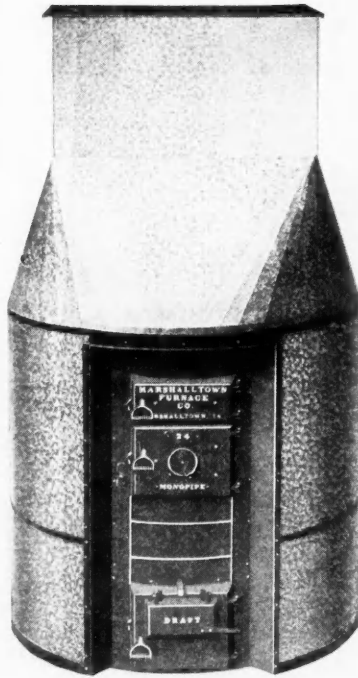
secured, there is very little danger of the furnace overheating or of causing an excessive hot blast near the register.

In the one register furnace it is especially important to have a large enough register face so that the large amount of heat can move at a slow enough velocity so that there will be no overheating of the register.

The Marshalltown Furnace Company have made a special study of this and are particularly careful to have a large enough space for the heat so that there will be no danger of the velocity becoming high enough to be objectionable. Their furnace is shown in the accompanying illustration.

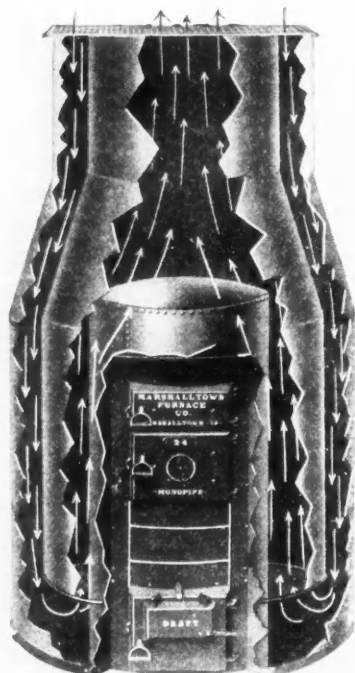
It is made of very heavy steel plate and is riveted absolutely gas and dust tight. It is made very strong so that durability and service can be secured.

More complete particulars as to prices, etc., can be secured from the Marshalltown Furnace Company, Marshalltown, Iowa.



The Monopipe Furnace.

A Large Volume of Warm Air



Riveted Dust and Gas Tight

Advances this one pipe furnace beyond all others

THE MONOPIPE ALL STEEL FURNACE

Does the work easier with less fuel due to its construction and large air passages and register.

Delivers air free of dust and gases.

Marshalltown Furnace Co.
Marshalltown, Iowa

The Hess Pipeless Furnace



The new idea for heating bungalows, small houses and single large rooms, such as stores, churches, etc., for avoiding the usual horizontal pipes, air ducts and separate registers; and especially to reduce the cost to equal that of the ordinary base burner.

Compares favorably in price with the cheapest stove method, doing away at the same time with the dust, inconvenience and labor occasioned by carrying fuel and ashes to and from the stoves.

And the heat currents released by this furnace create a healthful and pleasant atmosphere such as can never be obtained from stoves, from steam or hot water radiators, or even from the ordinary type of furnaces.

We do not offer the Pipeless Method as entirely suitable for all classes of buildings; but we do maintain that the Hess Pipeless Furnace furnishes the logical heating method for buildings where a number of smaller rooms open into one or two main living rooms, and for large single rooms. Logical because it is the cheapest, most sanitary, and most economical of space and fuel.

Send us a rough sketch of a floor plan. Let us show you the method of installation; and in what particular cases this furnace should be specified above all others.

Any carpenter can install it. No cutting of partitions, replastering, etc. Just one hole in the floor of one room. And we guarantee the Hess Pipeless Furnace to do all that it is claimed to do.

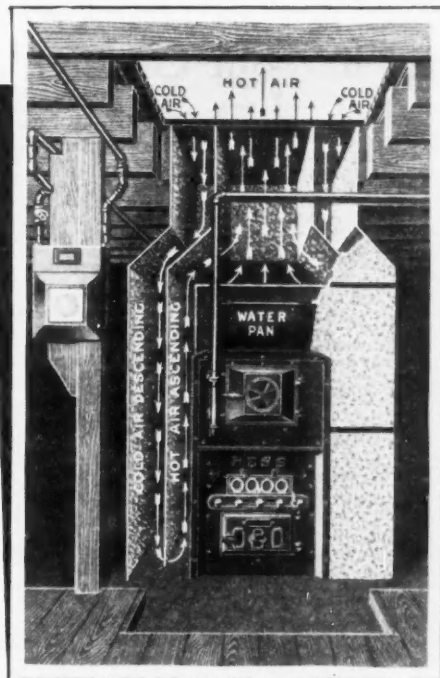
Send in your plans, or write for specifications and prices.

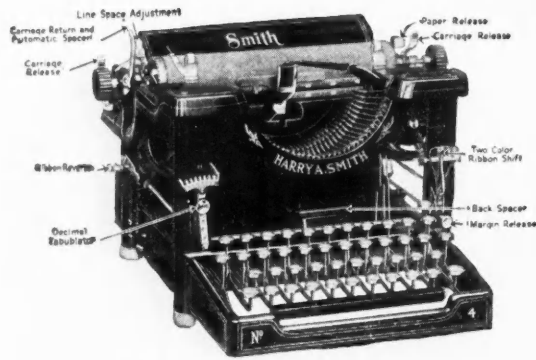
Hess Warming & Ventilating Co.

1220K Tacoma Bldg.

CHICAGO

Furnaces also, with separate pipes and registers, for houses to which the Pipeless Furnace is not adapted





TYPEWRITER SENSATION!

Free Trial—Use as You Pay

Send Me Only \$2.00 a Month Until the Low Total Price of \$34.15 is Paid, and the Machine is Yours

This is absolutely the most generous typewriter offer ever made. Do not rent a machine when you can pay \$2.00 a month and own one. Think of it—Buying a \$100.00 Typewriter for \$34.15. Cash price, \$32.30. Never before has anything like this been attempted.

Standard **SMITH** Model Visible No. 4

Perfect machines, Standard Size. Keyboard of Standard Universal arrangement, 42 keys writing 84 characters—universally used in teaching the touch system. The entire line of writing completely visible at all times, has the Decimal tabulator, the two-color ribbon, with automatic reverse, the back spacer, ball bearing carriage action, in fact every late style feature and modern operating convenience. Comes to you with everything complete, tools, cover, operating book and instructions, ribbon, practice paper—nothing extra to buy. **You cannot imagine the perfection of this beautiful typewriter until you have seen it. I have a thousand of these perfect late style Model No. 4 typewriters at this bargain price, and each purchaser fortunate enough to secure one of these beautiful machines must try it out in home or office before deciding to buy.** I will send it to you F. O. B. Chicago for five days' free trial. It will sell itself, but if you are not satisfied that this is the greatest typewriter bargain you ever saw, you can return it at my expense. You won't want to return it after you try it—you cannot equal this wonderful value anywhere.

You Take No Risk—Put in Your Order Now

When the typewriter arrives deposit with the express agent \$6.15 and take the machine for five days' trial. If you are convinced that it is the best typewriter you ever saw keep it and send me \$2.00 a month until my bargain price of \$34.15 is paid. If you don't want it, return it to the express agent, receive your \$6.15 and return the machine to me. I will pay the return express charges. This machine is guaranteed just as if you paid \$100.00 for it. It is standard. Thousands and thousands of people own and use these typewriters and think them the best ever manufactured.

The supply at this price is very limited, the price will probably be raised when my next advertisement appears, so don't delay. Fill in the coupon today—mail to me—the typewriter will be shipped promptly. There is no red tape. I employ no solicitors—no collectors—no chattel mortgage. It is simply understood that I retain title to the machine until the full \$34.15 is paid. You cannot lose. It is the greatest typewriter opportunity you will ever have. **Do not send me one cent. Get this coupon in the mails today—sure.**

HARRY A. SMITH, Room 721, 231 N. Fifth Ave., Chicago

-----**Tear Out—Mail Today**-----

H. A. SMITH, Room 721, 231 N. Fifth Ave., Chicago, Ill.

Ship me your Model No. 4 typewriter F. O. B. Chicago, as described in this advertisement. I will pay you the \$28.00 balance of the SPECIAL \$34.15 purchase price, at the rate of \$2.00 per month. The title to remain in you until fully paid for. It is understood that I have five days in which to examine and try the typewriter. If I choose not to keep it I will carefully repack it and return it to the express agent. It is understood that you give the standard guarantee.

Name

Address

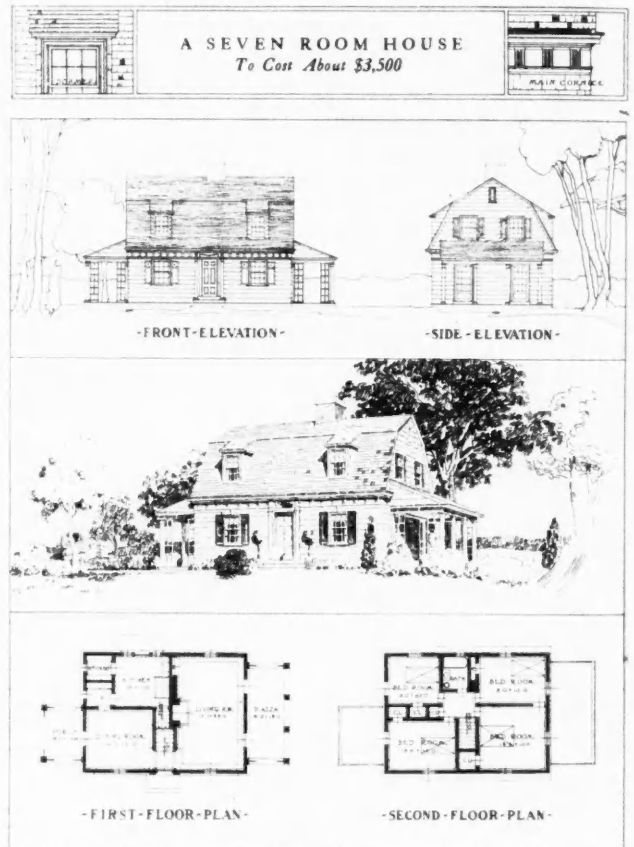
“Not a House, but a Home”

A most attractive and unusual book is the new one of the name given above that is being issued by the Arkansas Soft Pine Bureau. For artistic appearance and make-up this book is one of the finest examples of advertising literature and should be a model for material of this kind.

The cover is a sketch of a house and yard done in colors and gives the impression of a hand-colored pen and ink drawing.

In addition to the unusually artistic way in which this book is gotten up there is also much material of interest and value to the home builder. This is shown particularly by the eight house designs that are included. These designs are the work of Aymar Embury II, Architect of New York City. These pages of designs are made up in the sketchy, attractive style as shown in the illustration, which is a reproduction of one of the pages much reduced.

The cost of the houses that are shown varies from twelve hundred to twelve thousand dollars as figured in the rough estimate on the page opposite the design.



Reduction of Book Page Showing One of the Popular Style Homes.

The first part of the book contains much good general advice on the construction of a home. There is also one page devoted to a description of the various finishes that can be secured with Arkansas soft pine, and the methods to follow in securing these effects.

In keeping with the completeness and striking appearance is the large sheet of details that is featured in the back part of the book. These details include both interior and exterior features that are suitable for the houses shown in the eight designs.

It is a pleasure to see a book of this kind that is so well

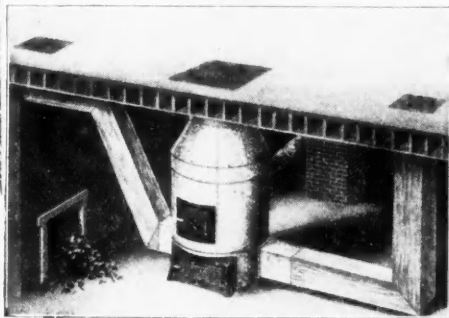
(Continued to page 146.)



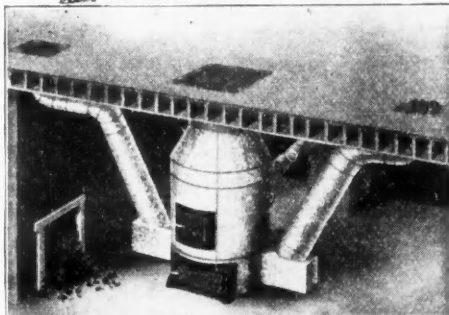
Get the
Manufacturer's
Price

Make Big Profits Installing This Kalamazoo Pipeless Furnace

BIG profits because you get the complete furnace at manufacturer's *wholesale price*. Shipped to you direct from the Kalamazoo factory. Quality of the very highest sort. Castings made from pure, new pig iron. Big fire pot—*grate operates on ball bearings*. Easy to take care of—big radiation surface. Built by people who have made a long, thorough study of home heating. Satisfied users everywhere. Let us refer you to some near you. Get in touch with us. Install this popular type of heating plant in the homes you are building—please your customers more—make your homes sell quicker—make more money for yourself.



Installation No. 1 Can be installed with wooden flues for cold air return. Build them yourself.



Installation No. 2 Also installed with metal flues for cold air—we can furnish piping.

Write Us

Or mail the coupon—or a postal if more convenient. Get our prices on this furnace in different sizes. We pay freight and ship without delay. Also allow full year approval test. Our guarantee protects you and your customer, too. \$100,000 Bank Bond backs our guarantee. But, write us. This opportunity is too big to miss. An unbeatable quality at a low factory price. There's money in it for you—better pleased customers—better contracts and better prices for the homes you build. Write today.

Ask for Catalog No. 947

KALAMAZOO STOVE CO.
Manufacturers
KALAMAZOO MICHIGAN

We Also Make Pipe Furnaces With Heating Plans Free

300,000 families using Kalamazoo Stoves, Ranges, Gas Stoves, Furnaces, White Enameled Metal Kitchen Cabinets and Tables. We have four catalogs. If interested in other lines please say which you want.

Mail the
Coupon
Today
For This
Book
Free

**Kalamazoo
Stove Co.**
Kalamazoo, Mich.

Gentlemen—Please send me your catalog No. 947, on Kalamazoo Pipeless Furnaces.

Name _____

Address _____

A Kalamazoo
Trade Mark
Registered **Direct to You**

arranged and constructed that the instructive value is brought out to the best advantage. The men who are responsible for this have certainly achieved a triumph in the field of advertising literature. The usefulness and value of Arkansas soft pine could not be presented in a better way.



The Trailer that Tracks and Backs

Any improvement is worth the investment to a contractor or builder if it will earn its upkeep and pay dividends besides.

This statement is particularly true of a trailer which can be used to handle materials for the job.

The Rochester "Hi-Speed" trailer car has several features that will recommend it to the contractor. In the first place

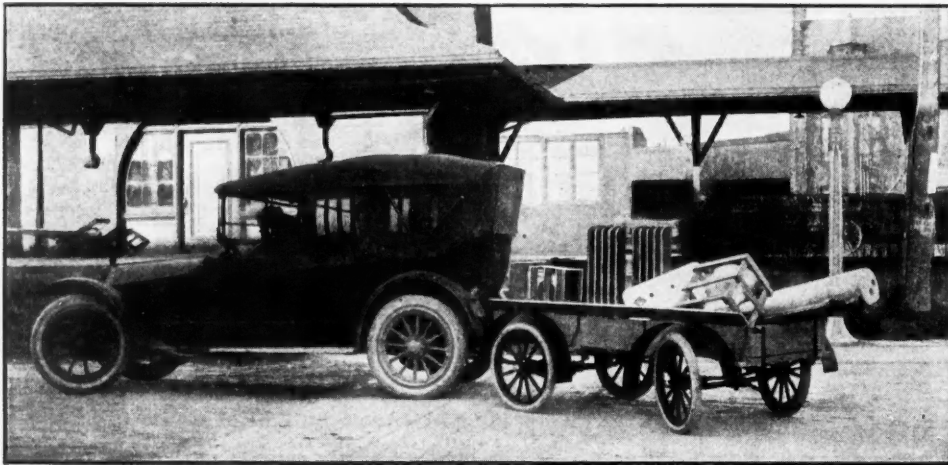
it is constructed so that it will track perfectly. The manufacturers also say that it can be backed in any direction desired as readily as it can be pulled ahead. This is a special feature that is peculiar to the construction of Rochester trailers.

The construction of the trailer is such that it is especially adapted to the high speeds that are ordinarily used with automobiles. The axles are made of the highest grade steel and are drop-forged with tungsten steel ball bearings. The wheels are 30-inch, of first quality hickory. Regular pneumatic 30 by 3 or 3½-inch tires are used which save damage to the load and also wear and tear on the car. The trailers are made in 1,000 and 1,500-pound sizes.

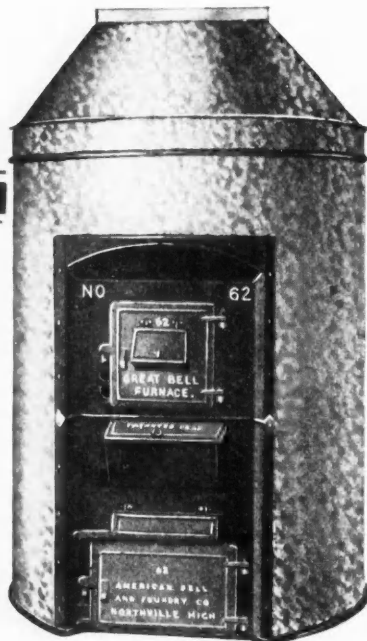
The trailer makes it possible for the motor car to earn its upkeep. For instance, the men can be carried to the job

in the quickest possible time in the car and the tools and materials can be handled in the trailer. This practically adds the equivalent of a light truck to a contractor's equipment at small expense.

We suggest that our readers write to the Rochester Trailer Co., East Rochester, N. Y., and get more complete information concerning the uses and construction of their trailer. It presents great possibilities for the wide-awake man who wants to get the jump on competition.



This is the Way a Contracting Plumber Uses the Trallercar. Note How Easily He Backs It.



THE GREAT BELL

The Original PIPELESS FURNACE—Father of Them All

We have thousands in use. Sizes, styles and prices to suit all. \$38.00 to \$94.00

Made for the building where a furnace is needed, but where the cost has been prohibitive.

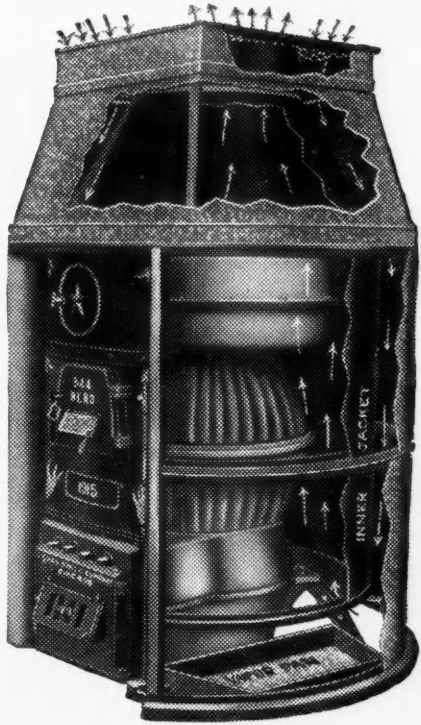
The GREAT BELL PIPELESS FURNACE will heat any one or two-story building in the most efficient manner with the least effort, and the lowest relative cost. While *Cost* is secondary to *Service* in this furnace, our methods of production and sales have reduced the cost so low that no builder can afford to overlook our proposition.

And we guarantee our furnaces to be and do all we claim for them in both catalog and correspondence.

Write for our catalogs, describing the various styles, prices and specifications of the Great Bell Furnaces. You will need them on file for future use.

American Bell & Foundry Co.
Northville, Michigan

THE HERO PIPELESS FURNACE



HEAVY CAST IRON
Good for 20 Years

Let us help you with your
Heating and Ventilating

We make a complete line of warm air furnaces and room heaters.

Good commissions paid to Contractors and Builders.

CHAS. SMITH COMPANY
 180 N. Dearborn St. Chicago, Ill.

Construction Loans

In financing the construction of your new building you naturally are thinking of a loan. In borrowing from us you receive not merely the money we offer to loan on proper security, but the services of a thoroughly equipped and highly experienced organization.

Immediate investigations—prompt decisions—payments on owners' and architects' certificates without delay and technicalities.

Construction loans (first mortgage bond issues) in amounts of \$100,000 and up, secured by office, mercantile, apartment and hotel buildings in the larger cities of the United States. We also purchase loans on completed buildings.

Write for Booklet "L" explaining the Straus Plan in detail.

S. W. STRAUS & Co.

Straus Building, CHICAGO

DETROIT MINNEAPOLIS NEW YORK

Uncle Sam Says:—

Lightning Rods

"Reduce the fire hazard from Lightning by 80 to 90% in the case of houses, and by as much as 99% in the case of barns."
 —(U. S. Government's Bureau of Standards.)

Our Star Section Galvanized Iron Lightning Rods are 100% Efficient

Unequaled for practical application, durability, appearance and safety

It is your work to install them, and we will make it profitable for you

Write for our Proposition

Reyburn, Hunter & Co.
 412-432 No. Sangamon St.
 CHICAGO





CON-SER-TEX is the most economical material to lay on porch roofs, floors, and sleeping balconies. It is the ideal covering for all flat surfaces or wherever the pitch is less than four inches to the foot. CON-SER-TEX is a scientifically treated cotton fabric that will not

Rot, Shrink, Stretch, Curl or Peel

It's easy to lay—clings to the surface, makes a neat, clean, smooth, durable covering. When properly laid it will last as long as the house itself.

Send for our new illustrated booklet, "Roofing Facts and Figures." It will show you where CON-SER-TEX can be used to advantage—how you can save money by installing it, and will give you some new ideas on lining wood box gutters, covering valleys and hips and making durable, cheap, satisfactory flashings. CON-SER-TEX has rendered satisfaction on thousands of homes in all parts of the country.

William L. Barrell & Co.

8 Thomas Street New York City

CHICAGO DISTRIBUTOR:
George B. Carpenter & Co.,
Wells and Michigan Sts.

CALIFORNIA DISTRIBUTORS:
Waterhouse & Price, Los Angeles
Pacific Building Material Co., San Francisco



Equipment for Garage Doors

A new booklet that has been issued by the Richards-Wilcox Mfg. Co. takes up the garage door problem very completely. The first part of the book deals with the many different arrangements of the garage door that can be had to suit the many different conditions that arise in handling the garage door problem.

One, two, and three car garages are considered and the different kinds of sliding and folding doors that are suitable are fully described and illustrated.

The Richards-Wilcox Mfg. Co. can furnish all the material that is needed for any of the various styles that are shown. The central part of the booklet is devoted to a description of this garage door equipment including tracks, hangers, handles, locks, etc.

The back part of the booklet takes up the locking of all kinds of garage doors and gives much valuable information on this most important feature.

Every builder and architect should have a copy of this booklet as it will enable him to give expert advice on the complete arrangement of the garage door, including the locking device that will be best suited to the plan adopted.

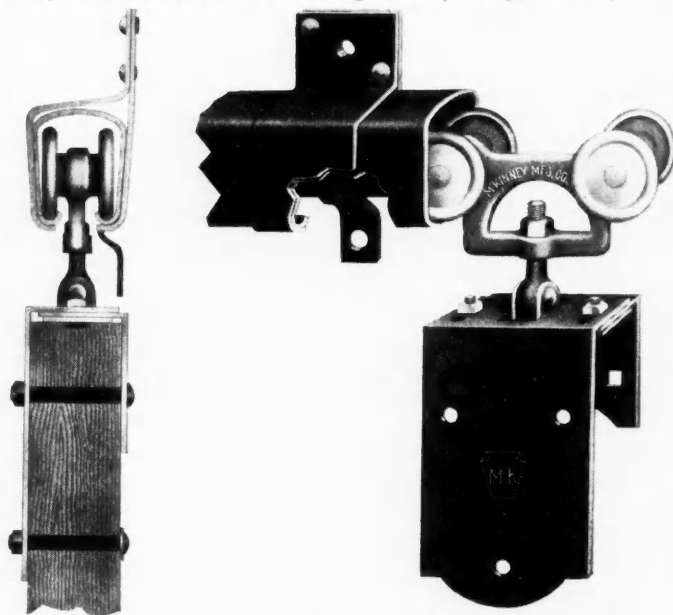
Copies can be secured by writing the Richards-Wilcox Mfg. Co. at Aurora, Ill.



"Pittsburgh" Trolley Hangers

For a trolley hanger to be a success it must be adjustable or available for various conditions. Each door that is hung presents a different proposition and, if the hanger cannot be fitted to these changeable conditions, its value will be decreased. The changes that are needed in making the hanger fit its work must also be of a kind that can be easily made so as to cut down the amount of work.

The several adjustments of the "Pittsburgh" Trolley hanger, as shown here, make it available for nearly any door. Two adjustable screws and a sliding steel plate permit adjust-



Two Views of the "Pittsburgh" Barn Door Hanger and Track—ment to fit doors varying in thickness from 1½ to 2½ inches. The extra steel plate, acting as a clamp, makes the hanger absolutely independent of either strap. The door can be adjusted to and from the floor by the threaded bolt that joins the pendant to the carriage. The flexible hinge joint permits the door to swing out so that a sudden blow will not harm the track or trolley in any way.

The wheels are of pressed steel with cold rolled axles and are equipped with roller bearings to insure permanent, easy

(Continued to page 150.)

BAYONNE

Makes Happy Home Owners Because

it is so far superior to other prepared roof and deck coverings, to tar and even metal roofings. Besides assuring actually perfect results—such as copper roofing, for instance, could not possibly give—the economy of BAYONNE as compared with the rapidly rising cost of coppers cannot fail to make an especially strong appeal at the present time.



BAYONNE

is above all absolutely waterproof—it never leaks. Does not contract or expand with changing temperature as metals do, consequently it cannot bulge or warp. Can be sluiced with water without corroding or crumbling.

Laid on the *dry boards*, tacked only on the edges, and requiring only one coat of paint, BAYONNE is more economical than others, and the hardest and most constant use cannot wear it out.

Write for Sample Book "N" giving prices and laying instructions. See Sweet's, page 539

JOHN BOYLE & COMPANY, Inc.

112-114 Duane St. NEW YORK CITY 70-72 Reade St.
Branch House: 202-204 Market St., St. Louis

This Is—



The Stairway that Banished the Attic

— and transformed it into a livable room. For with the Bessler Movable Stairway you can make use of any attic, loft, storeroom, etc., without wasting space in the room below with a stationary stairway. This cut shows stairway in position. Rolls up into ceiling with only a neat panel visible. Quickly and conveniently ready for use. A child can operate it.

Why Every Architect and Builder Should Know More About The Bessler Movable Stairway

—Because he can save space in every type of structure from a bungalow to an office building, with the Bessler Movable Stairway. Because the Bessler Movable Stairway is practical, simple and inexpensive. A positive necessity in many buildings.

Write us for booklet.

The Bessler Movable Stairway Company
Department 1 Akron, Ohio

The Bessler Movable Stairway

Don't Lay Another Roof Until We Send You a

Winthrop Tapered Asphalt Shingle

Just ask for a sample shingle. See how tough, how pliable and how durable it is. See how it is made like a wooden shingle—thick at the butt and thin at the top. See how easy to lay it is. See what a beautiful roof it will make—red, green or slate-black. Then you will understand why owners want the Winthrop when they know about it.

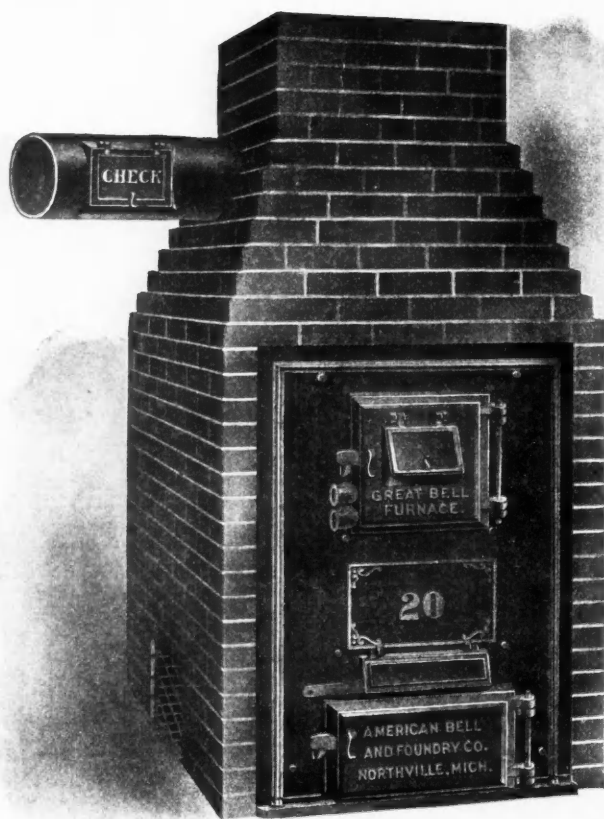


Winthrop Tapered Asphalt Shingles will enable you to get most of the roofs in your town. They win out with less argument than anything you ever tried to sell, for they look better than wood shingles and they have all the protection of asphalt.

The Beckman-Dawson Company
ASPHALT SHINGLES

Factory: Argo, Ill. 1413 Y. M. C. A. Bldg., Chicago, Ill.

The Only Tapered Asphalt Shingle



The Great Bell Pipeless Furnace with Brick Casing.

running qualities. The carriage and wheels fit snugly in a water-proof track.

The "Pittsburgh" Trolley Hanger and Track is one of the McKinley Manufacturing Co. products. A most complete line of track brackets and other barn door hardware is offered by this concern.

Catalogs and circulars describing their various products can be secured on request. Their address is McKinley Mfg. Co., Pittsburgh, Pa.

Great Bell Pipeless Furnaces

The makers of the Great Bell Pipeless Furnace were the first to use this term in connection with furnaces. Eight years ago they developed this type of heater, and have sold many thousands of them with uniformly good results. A feature which they particularly emphasize is the necessity for considerable weight in the furnace and the use of castings instead of sheet metal to a large extent.

The model shown here is made to be bricked up, which confines the heat and makes a very successful heating plant. They also make a model that is enclosed with a casing of galvanized iron lined with asbestos and corrugated tin.

The cold air supply is taken in thru slides in the base of the furnace. These slides can be either connected up to an outside air supply or the air can be taken in from the basement or registers can be placed at far corners of the house and the air supply secured from them. The hot air register is 14 by 20 inches.

The American Bell & Foundry Company will be glad to take up heating problems with our readers and suggest the best type of furnace for each particular problem. A card addressed to them at Northville, Michigan, will bring full particulars.

LOOK INTO

Compo-Board

Trade Mark Reg. No. 93745

—you'll never find another building material or wall lining like this—none so flat and strong, with so slight a tendency to warp or shrink, none so easily handled, sawing so clean and smooth; none so durable; none with such a stubborn resistance to air, cold, heat, moisture and fire. None so adaptable to so wide a range of uses.

Compo-Board has all these features as a result of its patented wood core construction.

How important it is, then, that you **get Compo-Board**, when you ask for it. You can't be fooled, if you look for the wood core, for it is easily and quickly identified.

You can get just the amount you need for any job in strips four feet wide and in even length up to 18 feet long.

Sold by Dealers Everywhere
Write for interesting book and free sample piece

The Compo-Board Company
5777 Lyndale Ave. No. Minneapolis, Minn.

Specify for All Openings in Fire and Division Walls
"EVANS" ALMETL FIRE DOORS
(AND SHUTTERS)
PATENTS PENDING

Typical Installation—Sliding Type

Approved by Underwriters' Laboratories, Inc., Chicago

All metal—strong—light—attractive
also

"Star" Ventilators, "Merchants' Old Method" Roofing
Tin, Metal Tiles and Shingles. Everything in Metals.

MERCHANT & EVANS CO.

<small>WORKS: Philadelphia Chicago</small>	<small>Wheeling (Warwood)</small>		<small>Offices and Warehouses: Philadelphia Baltimore Cleveland Chicago</small>	<small>New York Wheeling (Warwood) Kansas City</small>
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LOOK! You Don't Find Other Wall Boards Like This

A Panel of Waterproof Plastergon 48x120 Stands Straight Without Bending

That's due to the chemical treatment of the wood fibre by which it is actually converted into lumber. With this unusual stiffness, great strength and hardness is gotten so that WATERPROOF Plastergon may be handled and worked like lumber.

Waterproof Plastergon Wall Board

"The chemically treated board that does not shrink"

Freedom from shrinkage is obviated by surrounding each individual fibre with waterproofing gums and oils to protect it from the constantly changing atmospheric conditions.

Hard, Stiff, Waterproof and Sized

This treatment of the fibre also perfectly prepares the surface of the panels for decorating. It stops the "suction" and eliminates further sizing, saving the user from \$4.00 to \$6.00 per M sq. ft. Get our samples and prices before buying.

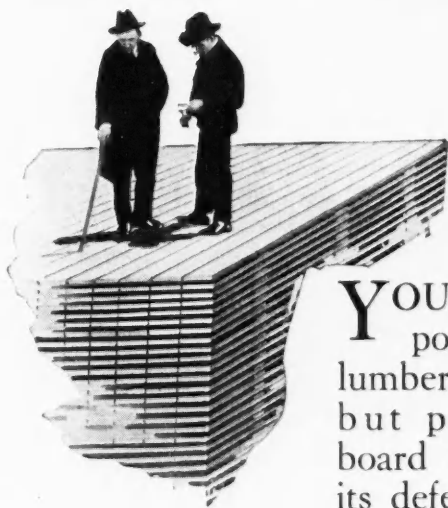


PLASTERGON WALL BOARD CO.

101 PHILA. AVE., BUFFALO, N. Y.

(Note this change in address—Formerly Tonawanda, N. Y.)

PLASTERGON
TREATED WOOD FIBRE
WALL-BOARD



YOU can tell a poor piece of lumber *in the pile* but poor wall-board only shows its defects *on the finished wall.*

Don't expect Beaver Board results unless the board you buy has the Beaver trade-mark plainly printed on the back of every panel.

The BEAVER BOARD COMPANIES
563 Beaver Road - - Buffalo, N. Y.
Branches in Principal Cities



BEAVER BOARD

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER



Send for Booklet — on this — CAMP COTTAGE

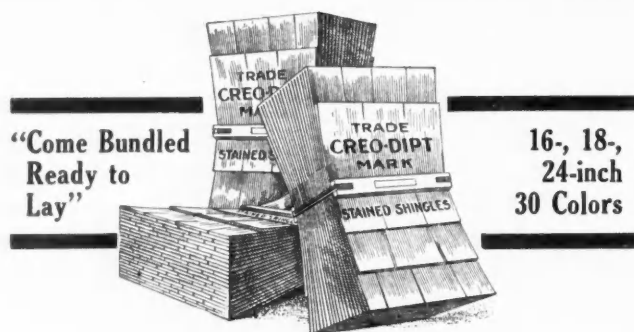
An ideal vacation bungalow, 32 ft. x 13 ft. 4 in., three rooms, screened openings, wood floors and frame work, crushed slate composition roofing and side walls of beautiful, durable

CAREY
Ceil-Board
SUPERSEDES PLASTER FOR WALLS AND CEILINGS

You can buy the materials from your local lumber dealer for about \$140. That customer of yours who likes to take his family camping beside the near-by stream, lake or mountain will be delighted with this opportunity to get a real, livable cottage at a price that he can afford to pay. Your profit will be generous.

Write today for our FREE BOOK, giving details and telling how to get these plans, specifications, bill of materials, etc., without cost. Just say, "Send me the Carey Camp Book FREE."

The Philip Carey Company
1021 Wayne Ave., Lockland, Cincinnati, Ohio



The Builder O.K.'s These Shingles

because he is **absolutely** sure of pleasing both owner and architect.

The soft-toned colors are most artistic; they do not fade or wash out in streaks; the quality is "even better than the best" the open market affords.

"CREO=DIPT" STAINED SHINGLES

—easiest to lay

Every shingle sawed from selected live cedar timber, not stumpage; no wedge shapes—all parallel widths. Fit like matched boards.

—bundled, ready to lay

Stained, dried, inspected and bundled at the factory. Save all the muss and odor. Carpenters like to work with them.

—profitable

Cover more surface, lay faster and without waste—cost even less than staining on the job. Make fine-looking, tight and lasting roof or side walls.

Get your lumber dealer

to stock three or four standard colors. On reshingling and remodeling jobs, you can make good money and give best satisfaction by using "CREO-DIPT" Stained Shingles.

Standard Stained Shingle Co. 1028 Oliver St., North Tonawanda, N. Y.

Factory in Chicago for the West

Residence of David Kahn, Beechwood Ave.,
G. C. Burroughs, Architect, Rose Hill, Cincinnati.
Roof, one color; side
walls, another color
of "CREO-DIPT"
Stained Shingles.



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

Sash Operating Savings

With the big rise in price of lead, zinc, iron and, in fact, all metals, the contractor, builder and architect must look about and find some device to install in place of metals for sash weights.

Automatic Sash Holders on the market for ten years are cheaper than sash weights, cord and pulleys, at any time and particularly now. They are simple, cannot get out of order and have no loose parts. Just a mortise in either the sash or frame, insert Holder and the window can be raised and lowered at will. Can be installed wherever there are no pocket frames and are ideally suited for economical window construction.

Circulars and prices can be had from the Automatic Sash Holder Mfg. Co., 52 Church Street, New York City. They have a special advertising set they are furnishing to inquirers, which will be forwarded at a low price. Details can be secured on request.



Interesting Construction Methods Used in Building the Second Infantry Armory, Chicago

The Second Infantry Armory now nearing completion on West Madison Street, between Rockwell Street and Washtenaw Avenue, Chicago, is the largest National Guard structure in the west, and presents several interesting features in its design and methods of construction.

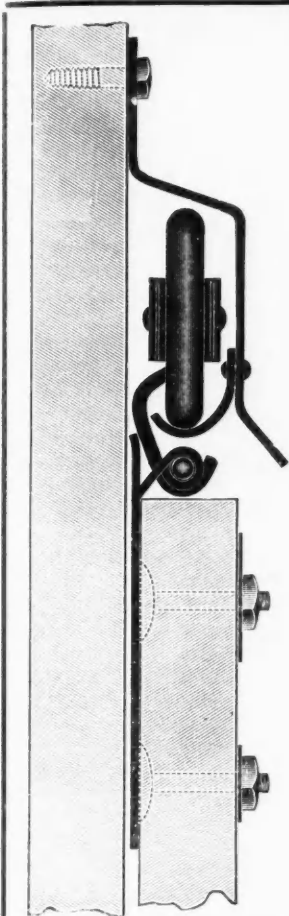
This building fronts 236 feet in West Madison Street, and extends thru to Monroe Street, a distance of 266 feet. An alley leads thru the center of the block parallel with West Madison Street and for the privilege of building across this alley it was necessary to supply alleys on both sides of the building extending from the center of the block to Monroe Street. This produces a T-shaped structure, the West Madison Street frontage of which is three-story and basement with a large central tower five stories high and a rear arched drill hall 200 feet wide, 126 feet long and 90 feet high.

The building is of fireproof construction thruout with reinforced concrete foundation, basement walls, and floors, including a balcony which extends around three sides of the drill hall. The lower half of the first story is faced with blue Bedford stone above which the facing is red velour brick with Bedford stone trim.

The construction features of greatest interest are the methods used in erecting the large arched frame for the drill hall and placing the concrete in the large area covered by this building.

The roof and balcony of the drill-hall are carried by three hinge arches. These arches have a span of 198 feet and a height of 89 feet measured between the pins. They are spaced at 37 feet apart and are connected by deep latticed struts on which are carried the curved purlins which support the roof. The arches were assembled on the ground and completely riveted to make two complete segments each about 120 feet long. They were erected by a steel traveler 38 feet square and 38 feet high on which was mounted two 90-foot booms. The heels of the segments were first lifted into the cast supporting shoes and the heel pins driven. Each boom was then attached to a segment near the crown pin and the two segments lifted simultaneously by rocking them back on the heel pins until the crown pin holes registered, permitting the crown pin to be driven. By this method the booms were required to lift only about one-fourth of the weight of the

(Continued to page 154.)



NOTICE

BEWARE of INFRINGEMENT

Our "Glide" Track is covered by United States reissue patent No. 13,497, and we now also own U. S. Letters patent No. 923,706.

We have spent a great deal of money in developing this track, which has proven to be very popular with the public, and we wish to warn the trade against any and all infringements thereof. We do not, of course, desire to bring suit against innocent purchasers of tracks which we regard as an infringement of our patents, but shall be compelled to take action if the infringement is persisted in after due warning. It should be understood that, under the law, our patents give us the right to bring suit against not only the maker of an infringing track, but also against the user or seller thereof. We desire, therefore, to call attention at this time to the above patents, and to caution the trade and public against infringement thereof.

Frantz Manufacturing Co.
STERLING ILLINOIS

Myers Hay Unloading Tools Best for Every Barn

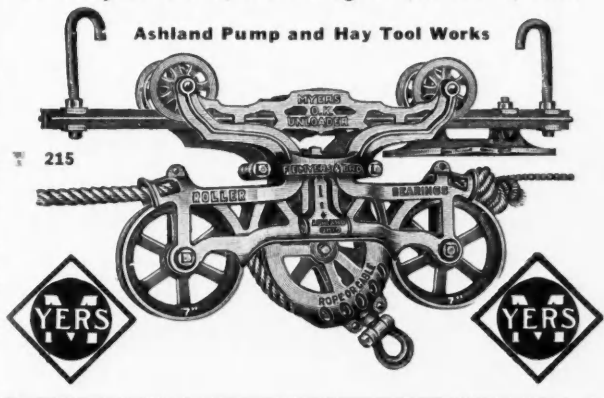
The name MYERS on any implement is the sign of SATISFACTORY SERVICE. Myers Unloaders are well made and will handle two forks or slings. Trucks are long, distributing the load on the track. Rope sheaves are large, and have plain steel or roller bearings.

The locks are double making them absolutely positive. Frames are Malleable giving great strength and light weight. Opening to receive the fork pulley unusually wide, admitting fork pulley when swinging at any angle.

Farmers are thinking of putting their equipment in shape for the busy season. This is also building time and Myers Hay Unloading Tools will be placed in many new barns.

Write for booklet which describes Myers Unloaders, Forks, Slings, Pulleys, Etc.

F. E. Myers & Bro., 360 Orange St., Ashland, Ohio



Put Good Equipment
in Good Barns

HARRIS Barn Equipment

because of its simplicity, its durability and many improvements is becoming most popular with farmers.

Harris Barn Equipment because of its profit-making possibilities and ease of installation is finding great favor with builders.

The Harris line includes the famous HARRIS Stanchion, several styles of Stalls, Feed and Litter Carriers, Hay Tools, Ventilators and miscellaneous equipment.

In order to get clear ideas of our products and their installation you should write for our large catalogue—it shows and tells all.

HARRIS MFG. CO.

Box 224

Salem, Ohio

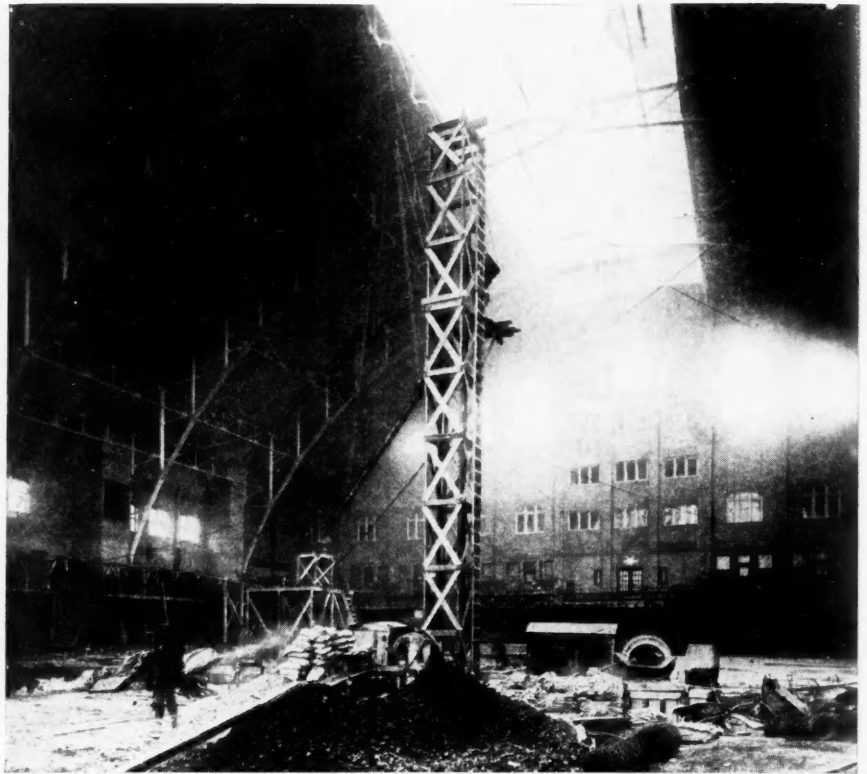


arch, the total weight of which was about 36 tons.

All of the large quantity of concrete required in this building was mixed in two one-third yard "The Standard" Low Charging Mixers made by The Standard Scale & Supply Co., Chicago and Pittsburgh. Material for the concrete was delivered by motor trucks around the building near where it was to be used and the mixers moved along as the work progressed. This permitted a considerable quantity of the concrete to be spouted directly from the mixers into the forms and when delivering carts it was necessary to wheel the concrete only a short distance. The portability of the mixers also enabled them to be moved several times during the construction work by being picked up bodily by the travelers and carried to a position where it was desired to mix additional concrete. When laying the concrete for the floor of the drill hall, material was delivered in the building by motor trucks in locations very near where it was required and the mixers moved along as the work progressed. This made it unnecessary to wheel any of the material or concrete a long distance. For placing the concrete in the balcony a mixer was stationed near the center of the drill hall and equipped with concrete tower and spout. The spout was suspended from the steel frame of the drill hall and delivered concrete to a bin on an elevated platform from which it was gated into barrows for distribution. It will

be readily seen that the economy of a large part of this construction work was obtained principally thru the portability of the mixers used as this afforded a great saving in the

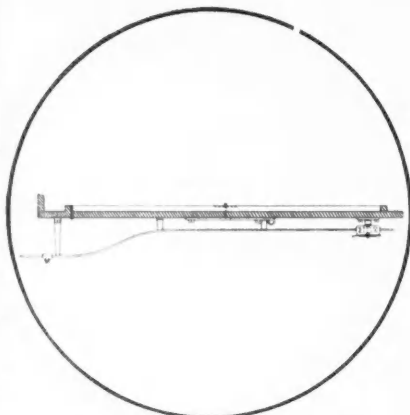
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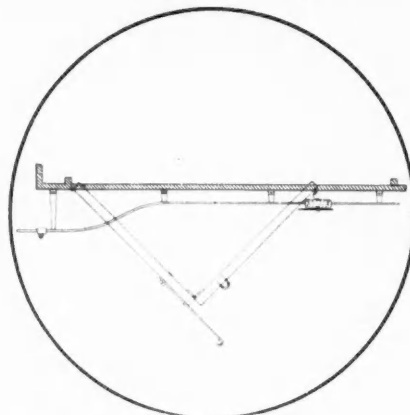
View of Interior of Huge 2nd Infantry Armory, Chicago, During Construction.

Topping's Folding Garage Door Hanger

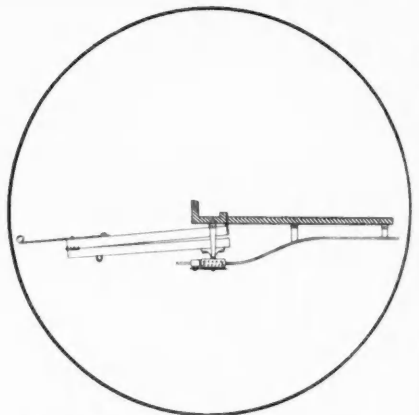
Patent Pending



Section Thru Doors, Closed



Doors Swung Out Partly Open



Doors Fully Open and Out of Way

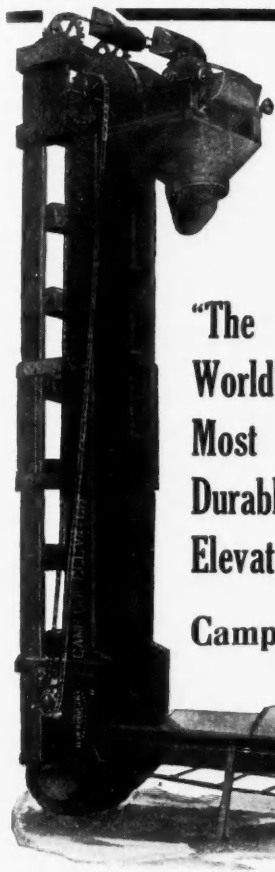
Can be used in single or double sets, and its simple design, combined with ease of operation and ability to withstand rough usage, make it a practical outfit.

You do not have to purchase a garage holder with this outfit, for its movable stop and lock permit of the doors being held full open, half open or any set position the operator desires without further attention on his part. There is an easily operated adjustment on the hanger to care for any sag which may come in the doors after years of use.

Simple, Practical, Durable. Write for trade prices now or ask your dealer.

SAFETY DOOR HANGER COMPANY, Ashland, Ohio

"We make nothing else but Door Hangers"



"The World's Most Durable Elevator"

The Only Hydraulic Grain Dump Made

Be in a position to give the farmer practical grain elevator advice—get our catalog and all information and be convinced that the

CAMP

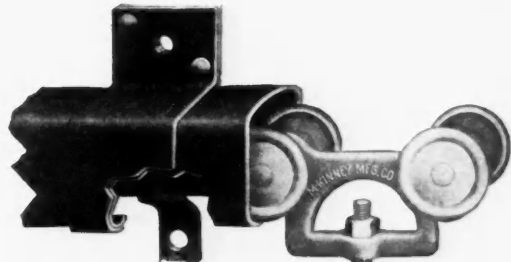
is the grain elevating equipment that should be installed in every crib or granary that you build. Let us send you details for your file reference.

Camp Brothers & Company
Washington, Illinois

"Made Right to Stay Right"

McKINNEY

"Pittsburgh" Trolley Hangers No. 50



Not Afraid of Wear, Weight or Weather

These hangers were not devised overnight by a long shot—they're the result of years of hanger making experience. Just look at the illustration. Ever see a more clean-cut hanger than this one? Well, hardly! No jim-cracks to impair its easy running qualities and durability.

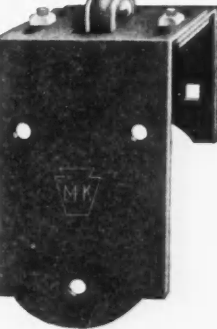
The "Pittsburgh" Trolley Hanger, though simple in construction, has three adjustments. It's adjustable to doors varying in thickness from 1½ to 2½ in., and has


lateral and vertical adjustments. The door straps are of heavy wrought steel; carriage is malleable iron; wheels are pressed steel, equipped with roller bearings; axles are of cold rolled steel.

Ask your hardware dealer to show you these hangers. We also make trolley track and track brackets for use with "Pittsburgh" Trolley Hangers. Just try these hangers and track on the next barn or garage door you have to hang and see for yourself.

Write for illustrated folder "J-11" showing complete line of hangers and track

McKINNEY MFG. CO., Pittsburgh, Pa.
Hinges, Butts, Hardware Specialties





Valuable
FREE
BOOK
for
Carpenters
and
Builders

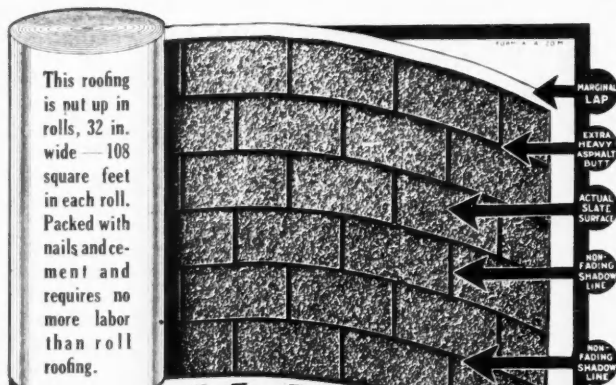
Go after the barn building business in your neighborhood.
Show your farmer customer how he can have a modern barn at moderate cost.
Save time and trouble in planning barns for cows, horses, combination barns, hog houses, etc.

"LOUDEN BARN PLANS"
A Book of Building Facts

Not a Catalog. Contains 51 representative designs with full description and estimated cost; 194 drawings, plans and photographs. Tells about grading, drainage, concrete work, strength of materials, framing, lighting, ventilating, etc.

The book is absolutely free and will prove helpful to you. Write for it today. No obligation.

THE LOUDEN MACHINERY CO.
5504 Court St. Fairfield, Iowa



FLEX-A-TILE ROLL SHINGLE (PATENTED)

ALL the ornamental effect of a slate or shingle covered roof—durable, easy to handle and easy to lay, decidedly economical—these are exclusive advantages that the new Flex-A-Tile Roll Shingle offers you.

It's just the same as having a Flex-A-Tile Asphalt Shingle roof when you use the Flex-A-Tile Roll Shingle—in fact, it is a Flex-A-Tile Asphalt Shingle roof except that the shingles are laid in long, 32-inch wide strips or rolls instead of individually. Each shingle is a separate unit, regular, full size with 5x10-inch butt—each one stands out by itself, yet they are all in one piece.

Flex-A-Tile Roll Shingles come in two colors, red and green—the permanent natural colors of their slate surfacing. Neither the pattern nor the color can wear off—they're on to stay; neither paint nor any other imitation process is used in producing this roll. You have to see it to appreciate it.

Liberal Sample Sent Free

Write at once for liberal sample of this new Flex-A-Tile Roll Shingle. Let us quote you prices and supply complete information. Remember the Flex-A-Tile Roll Shingle is patented and made only by The Heppes Company. Write today—our capacity is limited.

THE HEPPES COMPANY

1010 Kilbourne Ave., Chicago, Ill.

Flex-A-Tile Diamond Point Slabs
Utility Board *No-Tar Asphalt Paint*
Other Guaranteed Heppes Products

amount of manual labor required both in delivering material to the mixer and the mixed concrete to the forms.

This structure was designed by State Architect James B. Dibelka, and the general contractor is C. E. Carson Co., City Hall Square Bldg., Chicago.



Black Rock Wallboard

What has been hailed as the "stiff-as-lumber" wallboard has just been put on the market. It is called "Black Rock," taking its name from its place of manufacture—Black Rock, N. Y., on the Niagara River. Its manufacturers—the Black Rock Wallboard Company—claim that this name was chosen because "Black Rock" describes, in a way, exactly what they aimed at in making this new wallboard—weight, strength and permanence.

The name also seems to fit well the new wallboard's structure or composition—four plies, combined by a veneer process, with moisture-repelling black center.

"Black Rock Wallboard," say its manufacturers, "will not warp, buckle, bulge, or pull away from the nails; first, because of its structure; secondly, because of its weight and strength; and thirdly, because, being so strong and heavy, carpenters will find it easily to work, and consequently will be able to put it on the walls in first-class shape."



Black Rock Wallboard is sold only thru dealers. The company's plan is to have in practically every town, one representative who alone will have the exclusive sales rights. As the Black Rock Wallboard Company intends to adhere rigidly to this rule and policy, they believe that these exclusive dealers will find the handling of their product a big and ever-growing proposition.

That Black Rock Wallboard is cheap in price, when permanence is taken into consideration, is also the claim of the manufacturers. They believe that its heavy weight, strength, permanence, and easiness to work will win it great popularity, and in due time bring in repeat orders. In all advertising, a big point is being made of the Black Rock Wallboard's distinctive feature—its moisture-repelling black center.

In this connection, the manufacturers' claim is that the center requires treatment just as much as the outside surfaces. For the center they have selected certain well-known waterproofing agents which are black in character. This gives the Black Rock Wallboard its distinctive black center.



An Interesting Berger Exhibit

At the Greater Building Show, held at the Wigmore Coliseum, Cleveland, on February 16th to 26th, many interesting exhibits were presented by manufacturers in the allied building lines.

The exhibit of the Berger Manufacturing Company, Canton, Ohio, was unusually instructive, inasmuch as it showed their various products installed in a practical way, so that architects, engineers, contractors and builders could readily understand their uses and applications.

In the foreground at the left is shown Berger's Metal Lath, attached to Metal Lumber studs and partly plastered. Also the Berger's "Raydiant" Sidewalk and Vault Light construction, showing the form used as a base, the reinforcing rods

(Continued to page 158.)



SEND FOR THIS FREE FLOORING BOOK

FINE HARDWOOD FLOORS are a necessity in every modern home. Fine Hardwood Floors must be made from the best DRY lumber, carefully manufactured and shipped.

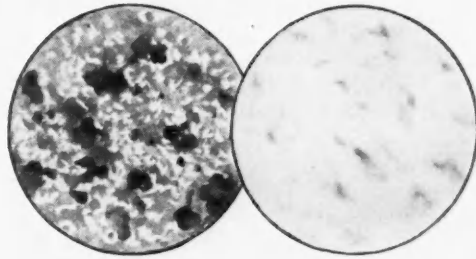
Let us send you FREE this

Fifty-Page Flooring Book

which illustrates in the natural colors of the wood the best flooring for every room. It explains WHY our flooring is BETTER than the common kind. This book should be in the hands of every contractor and home-owner. Write for it NOW. We have an especially attractive offer for contractors who write QUICKLY.

THE INTERIOR HARDWOOD CO.

1309 BEECHER STREET
INDIANAPOLIS, INDIANA



Ordinary concrete, uncoated, showing its porous character.

Concrete weatherproofed with Bay State Coating.

Building for Beauty

To fully realize the possibilities of concrete and stucco, you should know the ideal effects which are get-able with

Bay State Brick and Cement Coating

This Coating overcomes the dull blue-gray of concrete. It gives a permanent finish in white or tint. It doesn't sacrifice the distinctive texture of concrete.

Also—Bay State Coating makes an absolutely weather-proof wall. Rain can't seep through the pores.

Architects and builders in all parts of the country have tested this, the original Bay State Coating. We'll be glad to pass along what they say of it. Write for booklet 30.

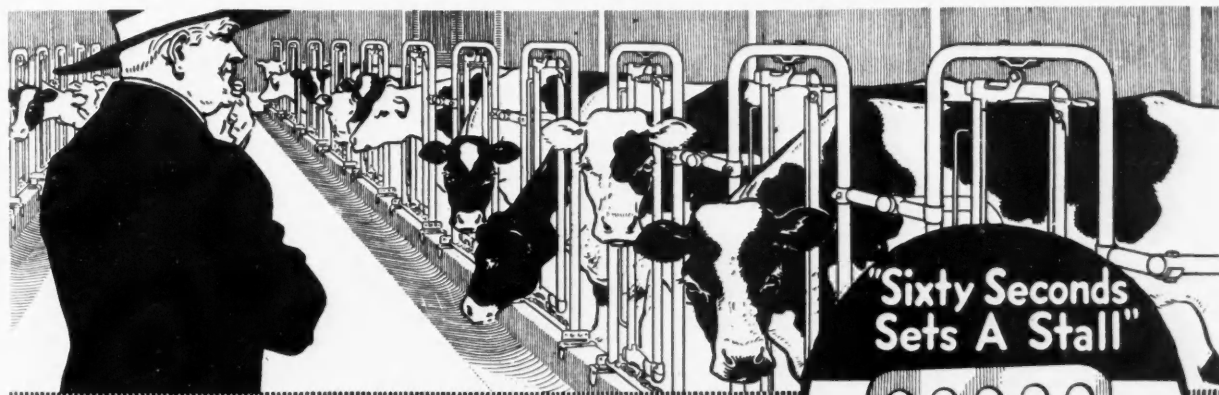
Or, test it yourself—we will send you a sample can of the original Bay State Coating free for the asking. Say what tint you prefer.



WADSWORTH, HOWLAND & CO., Inc.

Paint and Varnish Makers
Boston, Mass.

New York Office: Architects' Building



"Sixty Seconds Sets A Stall"

Cut Your Work With The New Star Curb Clamp
(Patented)

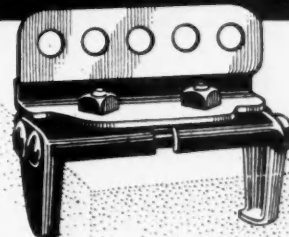
Enables You to "Set a Stall in 60 Seconds"

The new Star Curb Clamp enables you to go right ahead and finish up the curb with the rest of the concrete work—you don't have to wait for the arrival of the stalls—you don't even have to make provision for them!

No more templates—no more anchors—no more chance of mistakes. All Star Steel Stalls now come equipped with Star Curb Clamps. All you have to do to set the stalls is—drop the clamp over the curb and tighten the bolts.

Write Us for Detailed Description and Circular

Hunt, Helm, Ferris & Co., 305 Hunt St., Harvard Ill.



The STAR Curb Clamp
(Patented)

Details of Construction

The STAR CURB CLAMP is as simple as "A-B-C." Just two malleable jaws, adjustable to the curb by means of draw bolts. Hold as securely as the Rock of Gibraltar, yet can be removed instantly if you want to take out a stall. Fully protected by patents.

and the Malleable Coated Tanex Glass—half being cemented to show a finished installation and the other half to show the detail of construction.

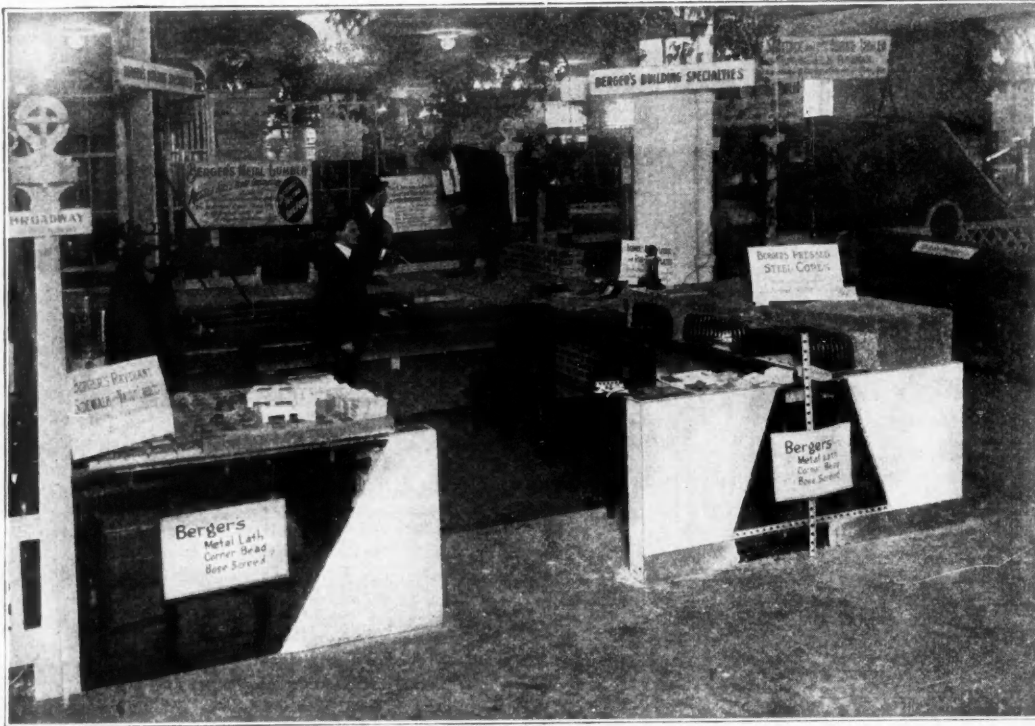
In the foreground, on the right, are shown Berger's Metal Lath, Corner Beads and Base Screed. Corner Beads are used to protect corners of plastered walls, preventing crack-

ing, chipping and breaking, while Base Screed offers a permanent ground for the plaster above and the cement base below. Directly above this are shown Berger's Pressed Steel Cores for displacing concrete and forming concrete joists for long spans in light or heavy constructions, also Rib-Truss

and Ferro-Lithic Reinforcing Plates, used for floors, roofs, partitions and side-walls for all classes of buildings.

In the background is shown the Metal Lumber floor construction, which was used in the first floor of the \$6,000 prize home given by the management of the show.

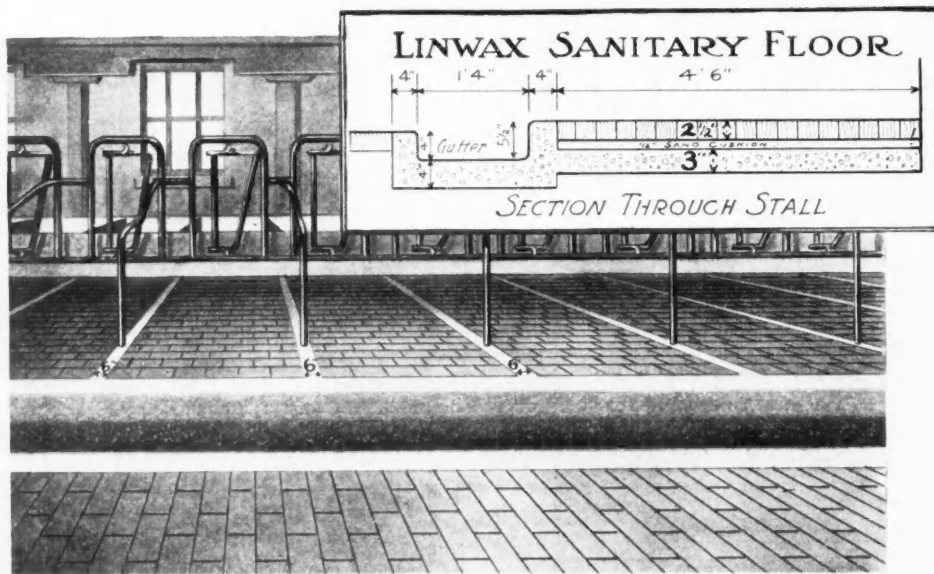
In the rear of the booth is shown an I-Joist used in the fire, load and water test made by Columbia University, New York City, some time ago, for the benefit of the New York Building Bureaus. This test proved Berger's Metal Lumber to be absolutely fireproof and indestructible.



View of Interesting and Instructive Berger Exhibit at the Cleveland Building Show.

LINWAX—THE FLOOR INDESTRUCTIBLE

Linwax Floors are restful The vertical fibres of the wood provide a resilient and comfortable resting place for hoof and limb. In this respect Linwax Floors are the nearest approach to natural turf



It is the Permanent Floor for

- Dairy Barns
- Horse Stables
- Bull Pens
- Hog Houses
- Garages
- Carriage Houses
- Wash Rooms
- Work Shop Floors

Linwax Sanitary Floors are the cheapest of all floors in the long run. Full information free for the asking.

LINWAX MANUFACTURING CO., Indianapolis, Ind.



Elastic Glazing Composition

For bedding and glazing skylights, conservatories and glass construction generally, setting tiles in floors, walls, etc., KUHLS' ELASTIC GLAZING COMPOSITION is unequalled.

FOR POINTING UP stone work, terra cotta, granite, etc., made specially to match any stone. A special liquid is made to paint in between stone, etc., before applying ELASTIC GLAZING COMPOSITION.

IT IS ELASTIC and as it never sets hard, retains its elasticity indefinitely, hence saves breakage of glass, as it yields slightly to atmospheric conditions and always makes a tight joint.

Sample on request. Send for booklet giving agents in U. S.

Manufactured by

H. B. FRED KUHL

3d Ave. and 65th St.

Brooklyn, N. Y.

A LIFE-SAVER FOR OLD LEAKY ROOFS

Hetzel's Elastic Rubber Roof Cement and Paints

Actually increases the life of a roof several years. It works wonders with old, cracked and seamed roofs, making them water-tight. Use it when laying all your roofs, whether they be slate, tile or prepared roofing and thus prevent leaks and trouble.

It is also very excellent for pointing around leaky windows, skylights, and chimneys.

Write for Descriptive Booklet and Prices

ESTATE OF J. G. HETZEL
65 MAINE ST. NEWARK, N. J.



ALPHA-

More than Four and a Half Million Bags of it

used in the New York Aqueduct, the greatest water tube of the world. It is 111 miles long, has a diameter up to 17 feet and at points runs 500 to 1100 feet below the surface. Will deliver 500,000,000 gallons of water daily and is expected to meet the needs of the metropolis for several generations.

Such undertakings call for the highest type of engineering skill and the most dependable materials.

ALPHA, the hourly tested and guaranteed Portland Cement, as usual, made an enviable record for itself.

Art Envelope No. 10 containing views of Aqueduct work, Galveston Sea Wall and other famous undertakings sent free on request.

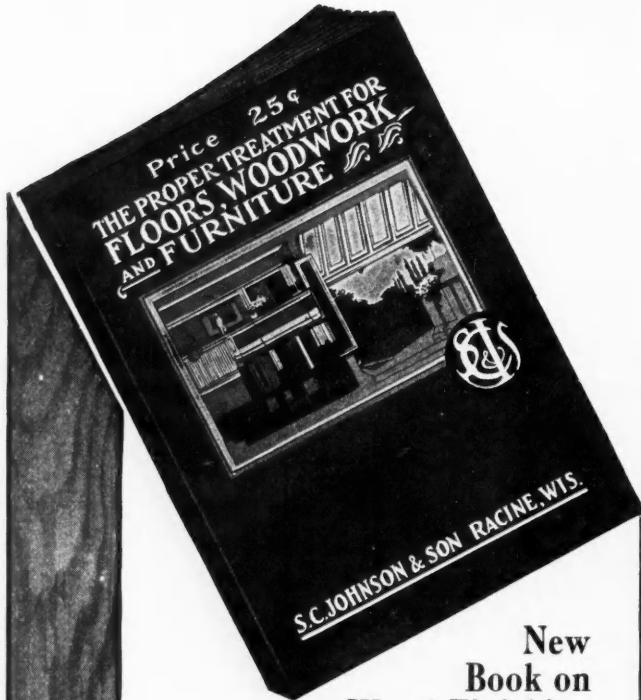
Alpha Portland Cement Company

General Offices: Easton, Pa.

SALES OFFICES:

Boston New York Philadelphia
Pittsburgh Baltimore Savannah





New Book on Wood Finishing

EVERY architect, contractor and builder is entitled to one of these new books free for the asking. It is a valuable handbook on interior finishing, beautifully illustrated in nine colors.

It tells how to finish inexpensive soft woods as beautifully as hardwoods and gives complete specifications for finishing woodwork and floors with

Johnson's Wood Dye

These dyes are not pore-filling varnish stains but coloring matter that penetrates deeply into the wood without raising the grain.

Johnson's Prepared Wax

is the most extraordinary polish for interior woodwork and floors. It gives a hard, dry, glass-like surface that does not collect dust.

If you are not familiar with Johnson's Wood Dyes and Prepared Wax we shall be glad to send you samples for experimental work or finished wood panels showing the various shades of Johnson's Wood Dye.

A.C.B.-5

Please send me free and postpaid my copy of your new 25c Instruction Book, "The Proper Treatment for Floors, Woodwork and Furniture."

Name _____

Address _____

City and State _____

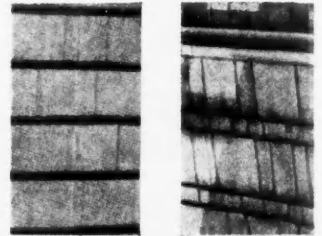
Fill out this coupon and mail to

S. C. JOHNSON & SON
"The Wood Finishing Authorities"

RACINE WISCONSIN

Look for the "Rite-Grade" Brand On Your Red Cedar Shingles

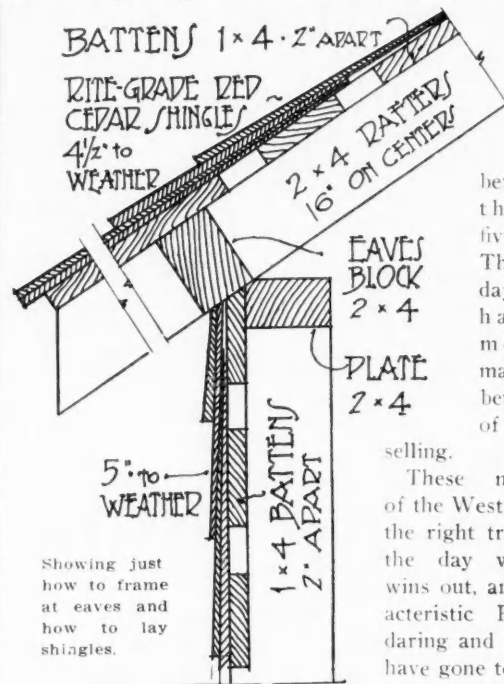
The lumbermen of the west coast have done the wise thing. They know that the best Red Cedar Shingles ever produced are being turned out today and they propose to protect the users of shingles and also to protect Red Cedar Shingle reputation by carefully inspecting and branding the shingles that they manufacture.



Different Ways of Laying Red Cedar Shingles May be Laid Up on Walls and Roofs in Numerous Ways, as Shown on Residences in This Book. These Two Photos Show the "2-inch and 8-inch alternate," and the "straight 6-inch" to weather styles.

What is known as the Shingle Branch of the West Coast Lumbermen's Association, consisting of forty mills manufacturing, it is said, three billion shingles per year, has established this Inspection Bureau for the purpose of positively maintaining perfect grades. All shingles inspected and O. K.'d by them are identified by the registered trade mark, "Rite-Grade."

There is no need of harking back to olden times when you are talking shingles. These Red Cedar shingles are made



Showing just how to frame at eaves and how to lay shingles.

One of the Helpful Details in the "Boys Builder" Book.

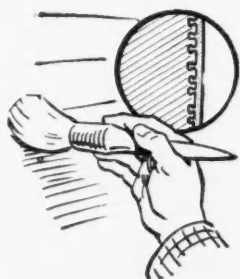
better today than twenty-five years ago. The present-day huge output has demanded more efficient machinery and better methods of drying and selling.

These manufacturers of the West Coast are on the right track. This is the day when quality wins out, and with characteristic Pacific Coast daring and honesty, they have gone to the expense of thoro inspection and branding in order to protect the good name of Red Cedar Shingles, and to protect shingle users.

The lumber manufacturers have also undertaken a huge advertising campaign to interest the general public in building and to secure the full co-operation of the carpenters and builders and the lumber dealers in this enterprise. The booklets that they are sending out in connection with this work are really exceptional in point of information contained and general inspiration toward building improvements. There are four of these little books. Every one of our readers ought to have the entire set, and every prospective builder should have one or more, depending on the kind of structure he is thinking of building. Their "Bungalow Book" shows twelve very pretty bungalows, costing from \$1,000 to \$2,500. Their "Distinctive Homes Book" gives photographs and floor plans of twelve beautiful shingled residences, costing from \$2,500 to \$4,500. Their book "Farm Buildings," is

(Continued to page 162.)

LEAD PAINT Dovetailed On



PURE white lead is metal lead in another form. Under a blow-pipe flame, it returns to the metallic state.

A building painted with strictly pure white lead and pure linseed oil, like

Dutch Boy White Lead

and Dutch Boy linseed oil, is sheathed in a solid coating which, while not lead, is derived from this durable metal and has many of its characteristics.

This lead-like sheet, instead of being nailed on, might be said to be dovetailed fast, for it is held by thousands of tiny tentacles of the coating material itself. It is only as thin as paper but plenty thick to withstand the extreme changes of wet and dry weather and of burning heat and biting cold.

Folders Our handy, general painting specifications and useful chart of color combinations should be in your catalogue file. Write nearest branch for **"A"** **F R E E** Folders "A".

NATIONAL LEAD COMPANY



New York Chicago Boston Cincinnati Buffalo Cleveland San Francisco St. Louis
John T. Lewis & Bros. Co., Philadelphia
National Lead & Oil Co., Pittsburgh

All that a Copper Nail Can Do

At Half the Cost

M. I. F. Co. Zinc Coated Iron Cut Nails

Save the expense of roof repairs caused by rusty nails. Guaranteed to outlast the best grades of wooden shingle.

It will pay you to write for free samples and price list.

Malleable Iron Fittings Co.
BRANFORD, CONN.



Paint Guarantee
The paint in this package is full measure and is composed of
50% Pure White Lead
50% Pure White Zinc
With the proper amount of
Pure Linseed Oil
Pure Turpentine Dryer
and nothing else.
DEVOE
FOUNDED 1754

Varnish Guarantee
Absolute Uniformity Assured by Our Guarantee
This Varnish has been properly aged, and is composed of:
Fossil Gum 9.0%
Pure Linseed Oil and Dryer 45.5%
Pure Turpentine 45.5%
100.0%
and nothing else
DEVOE
FOUNDED 1754

and nothing else
This Nothing Else is the point
Guards your customers-
Insures their satisfaction
Paint DEVOE Paint
— The paint that requires fewer gallons and wears longer
DEVOE
FOUNDED 1754
F.W. Devoe & C.T. Reynolds Co. New York Devoe & Reynolds Co. Chicago
The oldest manufacturing concern in the United States. Continuously in business for 162 years.

The Answer to the Outside, Painting Problem

ZINOLIN

NAME the most difficult-to-meet requirements you ever made of any paint before using it or specifying it. Then, from the below list, see if Zinolin, the "Arnold-ized" Zinc, has not only met but exceeded any expectation you ever dared hold concerning a paint.

This Revolutionary Paint—

- 1—Permanently holds its luster.
- 2—Gives a whiter white than ever before known for outside.
- 3—Holds its colors absolutely fast.
- 4—Covers 30 per cent more surface per gallon than white lead.
- 5—Does one coat work which quite often equals two.
- 6—Hides jet black with two coats of pure white.
- 7—Gives a tougher, more durable coat.
- 8—Does not crack, chalk, blister or peel.
- 9—Is easier and quicker to apply.
- 10—Breaks up easier than white lead saving the painter's time.

The full facts are given in our LEAFLET and you ought to have this LEAFLET at once. Send for it now.

Keystone Varnish Company

Makers of justly famous Keystona, the original washable wall paint.

2002 Keystona Building BROOKLYN, N. Y.

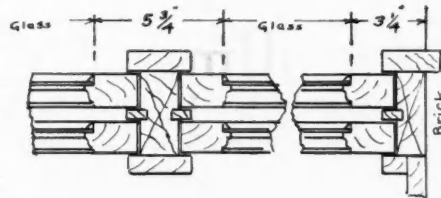
more than ordinarily interesting; several designs for shingled barns and other farm buildings are given. The details are especially helpful. Each of these is a book of twenty pages on fine paper, handsomely illustrated.

The fourth book is unique. It is called the "Boy's Builder and Garage Book." It is, so far as we know, the only work of this sort yet produced. It gives ideas for building dog houses, pigeon coops, bird houses, garages, play houses, chicken houses, etc.

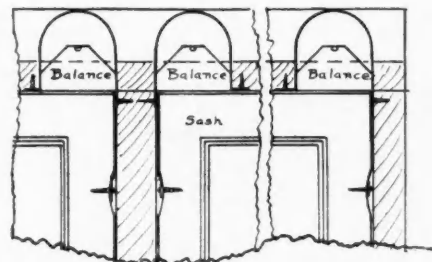
The Association has gone to large expense in getting these books ready, and they are asking that a 2c stamp be sent for each book requested to defray postage. The address is West Coast Lumbermen's Association, Seattle, Washington.

Reducing the Amount of Woodwork in Windows

Modern home construction requires plenty of glass. The old house with its wide frames and small glass area is a thing of the past and in its place we have the house with broad rows of windows set close together, also sun parlors for securing cheerful interiors.



Arrangements that secure the maximum amount of glass area for a certain size opening in a wall are always of interest to the up-to-date contractor and architect.



Detail of Sash Using Pullman Balances.

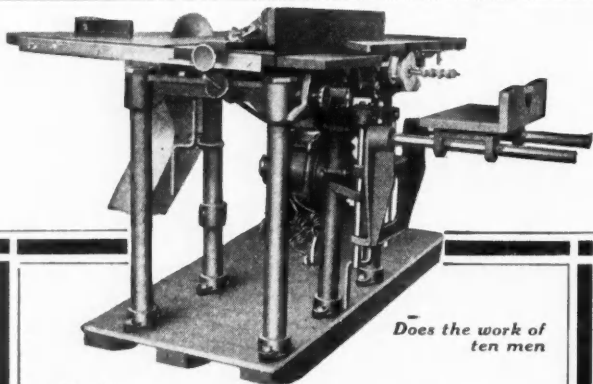
The accompanying illustration shows an arrangement that has been recently developed by the Pullman Manufacturing Company to reduce the amount of woodwork in screened porch windows, dining room windows, etc.

The frame is of the simplest possible construction, as can be seen from the illustration, and at the same time it makes a very tight and satisfactory window. This frame is made of a 2 by 4 and is rabbeted to receive the parting strip. Both the inside and the outside trim are fastened directly to this 2 by 4.

Pullman top pattern balances are used so that no unnecessary space is provided in the woodwork between the sash. This type of construction only requires 18 inches of wood, including the sash stiles, for a group of three double-hung windows. All the rest of the opening is glass.

Many other plans for cutting down the amount of woodwork and adding to the convenience of window construc-

(Continued to page 164.)



Does the work of ten men

A Machine for all purposes

BERLIN

Portable Woodworking Mill

is the biggest labor-saver you can buy. Because of the present labor shortage, good men are at a premium. Don't let high-priced labor eat up your profits. This mill will do the work of ten men, and soon pays for itself in money saved.

Consists of a Rip Saw, Cross Cut Saw, Dado Saw, Grooving Machine, Jointer, Jig Saw, Boring Machine, Sander and Emery Wheel. Comes equipped with either gasoline engine or electric motor mounted on its own base. Guaranteed for two years. Write for information on this machine.

SCHAEFER MFG. CO.
American St. Berlin, Wis.

**No Obligation
No Expense**

We have something of interest to discuss with the best contractor in each community and we suggest that you act today.

Save Money in Building Barns

Obtain authentic and practical data regarding the construction, lighting, ventilation and equipment for the modern barn. Simply fill in and detach the coupon, forwarding it to us with the names of parties who will build or remodel barns.

Our COMPLETE BARN EQUIPMENT CATALOGUE and BARN PLAN BOOKLET will be mailed you promptly upon receipt of this information.

J. E. PORTER CO., 620 Fremont Street, Ottawa, Ill.

J. E. PORTER CO.,
620 Fremont St., Ottawa, Ill.

I attach herewith the names of parties who will build or remodel barns. Send catalogue with barn plan booklet and complete detailed information.

Name.....

City..... State.....

Noiseless,
Smooth-Running,
Unbreakable

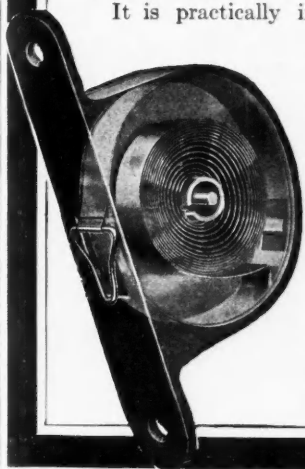
Pullman Unit Sash Balances

are guaranteed to give perfect satisfaction. Made of pressed steel throughout, with all the moving parts encased. Nothing to rub on the woodwork.

It is practically impossible for the Unit Balance to get out of order; and it is equally impossible to interfere with the action of the spring by squeezing the balance in the tight mortise.

Send for catalog, giving specifications and prices of Unit Sash Balances; also blue print drawings showing the installation.

PULLMAN MFG. CO.
10 INDUSTRIAL ST.
ROCHESTER, N. Y.



Stearns

No. 10



Try This Scraper on Your Floors at Our Expense

Here's a Scraper that scrapes clean and smooth. In the corners, close up to the walls, and scrapes without those wavy lines so often caused by "chatter". Our knife with double edge wears twice as long as any other Scraper knife. Our adjustable handle, rubber tires and the way the weight is thrown on the knife are all exclusive features of the Stearns No. 10.

We don't ask you to "beware of other Scrapers", but we do ask you to accept this machine on a fifteen day FREE TRIAL OFFER, so you may "compare it with other Scrapers," for by test the Stearns is best.

There are fifteen days in which you can test its easy running, smooth shaving and sturdy qualities at our expense.

Write us about it. Sold by dealers, direct from the factory or on fifteen days' trial. Particulars will interest you.

E. C. STEARNS & CO.

500 Oneida St. Syracuse, N. Y., U. S. A.

\$2 a Box SPECIAL OFFER—BY MAIL ONLY

3 DURO Guaranteed Shirts sent post-paid on receipt of \$2. Handsome tie included for names and addresses of 5 friends. You owe your pocketbook a trial of this famous box of shirts guaranteed not to shrink, fade or rip in 6 months' wear or new shirts free.



Made of fine white percale with neat stripes of blue, black and lavender. One shirt of each color same size to the box. Cut in the popular coat style, cuffs attached, hand laundered and very fashionable. Sizes 14 to 17. If not satisfactory on arrival we will gladly refund your money. Highest Bank References.

GOODELL & COMPANY, Room 213, 158 East 34th St., NEW YORK
Largest Mail Order Shirt House in the World

BE PREPARED with a JACKSON Floor Scraper

Built from practical experience. Does perfect work on any floor—old or new, hard or soft wood.

Attractive price. Write for booklet and Special Offer. Seven days' trial.

A. A. Jackson Floor Dressing Machinery Co.

1764 Broadway, Denver, Colorado



UNIVERSAL HEAD

CABINET SCRAPER

PLANE

SANDING, WAXING & POLISHING DEVICE

GERMANTOWN MASTER BUILDER

HATCHETS

Are in the Kits of MASTER-BUILDERS Everywhere



In the beginning the steel from which they are made is of the finest selected quality. They are forged under the most modern conditions, and thoroughly tested at every step of their manufacture. Handles are made of the sturdiest second-growth hickory and will positively not come loose or break under the hardest service. Perfect hang and balance combined with the keenest of cutting edges.

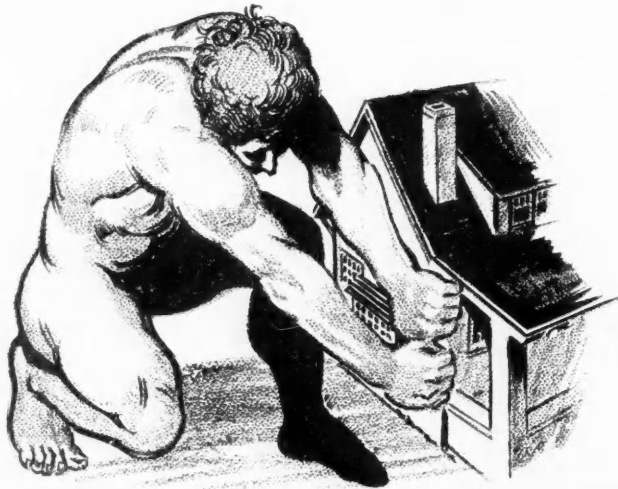
Price \$1.50

Two sizes, Nos. 319 and 320.

GERMANTOWN TOOL WORKS

Philadelphia, Pa.

Branch: 62 E. Lake Street, CHICAGO



Time nor Weather Can Not Break the Bond

BEFORE the advent of Kellastone there was **no other** exterior coating, cement, lime or other stucco that would not come loose from its base, and fall off on account of expansion and contraction due to changes in temperature and by the disintegration due to ingress of moisture.

There is one, and only one, stucco that can be depended upon to overcome these results, and that is

KELLASTONE
IMPERISHABLE STUCCO

It bonds with extraordinary tenacity to stone, wood, tile or brick. It hardens like stone, yet has an elasticity which permits it to "give" with the settling of walls to an extent **which would ruin** other stuccos. You find no separation of the stucco from window and door casings when you use Kellastone. It is practically water-proof, rain-proof, fire-proof,—the only stucco that resists the attacks of time, temperature, stress and weather.

Kellastone is your positive dependence. It is being used by the U. S. Gov't., by factories, hospitals, and finest homes everywhere. For beautifying and renovating old houses, it is the one perfect material.

Kellastone Composition Flooring is superior to concrete, tile, wood, rubber-tile or other flooring. Has no seams or cracks; deadens sound. Used in schools, factories, hospitals, homes.

Let us give you all the facts about this wonderful material. Write today.

The National Kellastone Co.

504 Association Bldg., Chicago, Ill.

Kellastone Mfg. Co., 412 Union Oil Bldg., Los Angeles, Calif.,
Licensed Distributors for Southern California.

tion and operation are shown in their catalogs of the various types of Pullman sash balances.

A card addressed to them at 10 Industrial St., Rochester, N. Y., will bring full particulars.



Modern Metal Store Front Construction

Successful architects and contractors are those who specify or supply the best value for the money invested. One branch that is deceptive both as to quality and price is store front construction, because so many things must be taken into consideration, in judging the value.

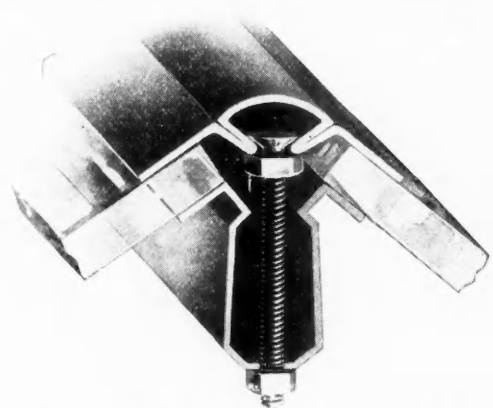
The construction illustrated in the accompanying drawings is interesting.

Exceptionally quick service in delivery and its two-piece



A Modern Store Front.

simplicity and ease in installing, mean the saving of considerable time to the architect and contractor. The heavy copper material used gives additional strength and safety and greatly lowers the insurance rates. This new metal construction ventilates the window, preventing frosting and fogging of the glass, and gives an unobstructed view to dis-



Detail of Detroit Show Case Co. Corner Bar.

play. It adds an inviting appearance to stores and its plainness does not detract from the window display, but makes a strong appeal to the "lookers."

The Detroit Show Case Co., of Detroit, Mich., the manufacturers, will gladly furnish complete information and detail sheet to any architect or contractor who is interested in this modern store front construction.

Our Free Plans Will Help You—

Meadows
TRADE MARK REGISTERED

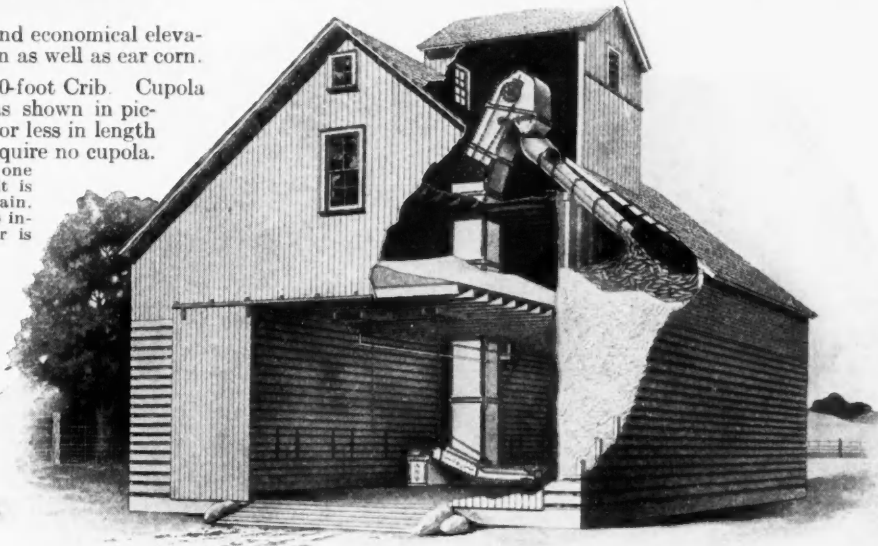
Don't figure on any crib or granary without consulting our Free Plans. They will show you how to get greatest capacity at least expense by installing Meadows Inside Stationary Cup Elevators.

The most convenient and economical elevators, carrying small grain as well as ear corn.

The picture shows a 40-foot Crib. Cupola need not be as large as shown in picture; and cribs 36 feet or less in length with half-pitch roofs require no cupola.

Elevator is confined to one side of driveway. No pit is necessary for dumping grain, just a hole 16 inches deep into which boot of elevator is set. The wagon jack is entirely overhead, fastened to the joists.

But write in today for our free Crib and Granary plans, catalogs and large posters telling all about our outfits and their application. Valuable information for the builder, and writing for it obligates you in no way.



Meadows Mfg. Co.
Pontiac, Illinois

Improved Convertible Level



A level that can be instantly converted into a transit for taking vertical sights. Our patented Axis makes this possible in half the time required by the old type instrument.

It is an accurate, durable instrument at a moderate price. Write for Circular A—also catalog of drawing material.

New York Blue Print Paper Co.
58 Reade Street, New York



AT LEAST 75c for every American Carpenter and Builder Reader

The King of Hand Saws

“VANADIUM”

20"	22"	24"
\$2.00	\$2.15	\$2.30
26"	28"	30"
\$2.50	\$2.70	\$2.90

Straight or Skew Back, in Hand, Panel or Rip—any Teeth Desired. All Styles.

Vanadium Steel Saws made of Vanadium High Speed Steel, hardened and tempered by our special process. If the Vanadium Steel Saw does not give better service than any other saw you have ever had, return it and your money will be refunded.

VANADIUM STEEL SAWS

have proven so satisfactory to every user, that once you try them you will always use them. OUR PROPOSITION—In order to get at least one Pennsylvania Vanadium Saw into the hands of every American Carpenter and Builder tool user we offer a reduction of 75c cash from prices shown herewith on every saw ordered on coupon attached—and it will come prepaid, too.

Send in for Your Trial Saw **PENNSYLVANIA SAW CO., Frackville, Pa.**
Chicago Office: 56 East Randolph Street



Pennsylvania Saw Co., Frackville, Pa.

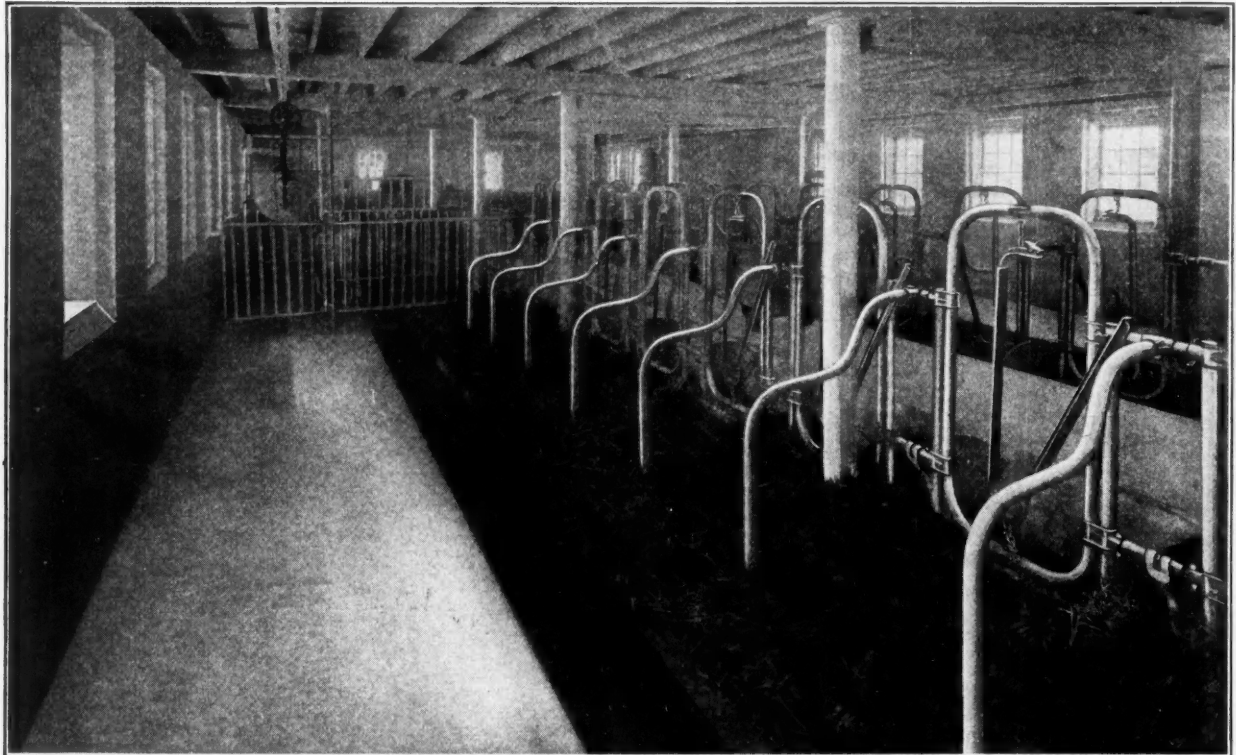
Gentlemen:—I enclose \$..... for a trial ^{saw} saws. Length..... inches. Teeth..... pts. Narrow or Wide Blade.....

Straight or Skew Back..... prepaid. I am an American Carpenter and Builder reader.

Name.....

Address.....

Name of Dealer.....



Exceptionally Well Equipped Dairy Barn Showing Harris Mfg. Co. Stanchions.

Simplicity a Feature of this Barn Equipment

Any contractor or builder who expects to install barn equipment in connection with the building of dairy barns, desires to get barn fixtures that are easily installed and that are simple and positive in their operation. It is also a good feature if the stanchions are adjustable so that the small errors in placing can be easily taken up.

A particular feature of the barn equipment shown in the illustration is its simple construction and installation. The stanchions can be adjusted to length in one minute with the cow in position. No small bolts are used, which is a feature that will be appreciated by contractors and builders. The frame is held firmly clamped together by six one-half inch steel bolts. There are no complicated parts to be set in the

cement to hold the stanchion at the bottom. The upright pipes are imbedded nine inches in the concrete and the stall partitions five inches. This makes a very strong, substantial construction.

These Harris stanchions are made of genuine standard weight, 1½-inch inside diameter, steel pipe. The stall is quickly and easily adjusted by loosening six ½-inch bolts. Any adjustment from 2 inches off center to 7 inches can be made in either direction. The manger partitions are made of heavy malleable iron which is filled with high grade galvanized sheet iron.

The illustration shows the interior of a barn that has been equipped with Harris barn fixtures. The simple construc-

(Continued to page 168.)

SLATE WE HAVE WHAT YOU WANT

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Structural and Plumbers' Slate*

SATISFACTION GUARANTEED in QUALITY and PRICE

Ask for Delivered Prices

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Best Roof Under the Sun

Montross Metal Shingles for House or Barn or buildings that require durable, economical roofs. Easily applied. Fire, lightning and storm proof. Nine different designs. Write for illustrated catalog and testimonials from satisfied customers who have used Montross Roofing for a "Quarter Century." Liberal commission to good, live agents.

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Miners, Makers and Shippers of all Styles and Colors of Roofing Slate. Write for Prices.

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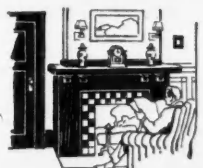
ROOF SLATES
STRUCTURAL SLATE BLACKBOARDS

E. J. JOHNSON
38 Park Row New York

Quarry Operator
BLACK, GREEN, PURPLE, RED

Booklet, Samples and Prices on Application

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

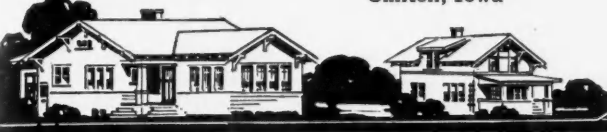


1866 CURTIS WOODWORK

THE CURTIS COMPANIES
Clinton, Iowa

WRITE for convincing reasons why you can save labor, time and needless expense by using Curtis 1866 Woodwork and Built-in Permanent Furniture.

Any reputable lumber dealer can supply Curtis products. Go with the owner and look over Curtis designs. Both of you will be better satisfied. Let us prove it. Write today to Service Bureau.



Genuine Franklin Tunnel Roofing Slate
For Real Roof Protection

How can artificial roofing protect your building from the elements of the weather, if the roofing itself must be protected and stored away in a dry place to preserve it before being placed on the roof?

G. F. T. Slate

is stored in stock on our slate bank without covering of any kind, always exposed to the weather. The only ROOFING that need not be stored in a dry place to prevent it from rusting, decaying, or disintegrating. Samples and catalogue sent on request.

SLATINGTON SLATE CO.
SLATINGTON, PA.

Get a Sample of this Composite Metal Lath

A wire mesh, covered with brick-clay, under heavy pressure and baked presenting a surface of TERRA COTTA upon which to plaster.

Very flexible and easily handled. **THE ONLY LATH WITH SUCTION** assuring a positive and permanent bond and eliminating DROP.

Superior for STUCCO and all outside work as danger from rust is overcome. Low original cost and positive saving in labor and material.



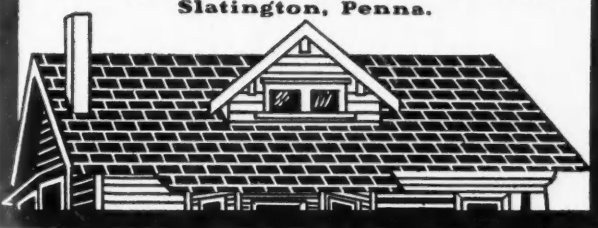
Write for samples and full information to

Composite Metal Lath Co., 128 Broadway, New York, N.Y.

UNFADING ROOFING SLATE and Slate Blackboards

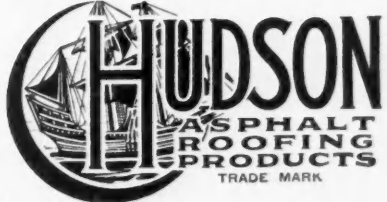
Best to be had and made in Slatington — Buy from us

Slatington-Bangor Slate Syndicate, Inc.
Slatington, Penna.



A former Railroad Official

once connected with one of the large trunk lines, but on account of his fitness and ability, chosen by Uncle Sam to serve the Interstate Commerce Commission's Railway Valuation Department, was inspecting a railroad building in Maryland and saw therein some roofing labeled



and said, "Here is an old friend. That is the roofing which I found would stand up when I was railroading. Many a square have I specified and used with good results."

- Protection Brand Roofing**— Mineral surfaced. Has 6-inch lap (Pat. Nov. 18, 1902). Laid with all nails covered. Joints absolutely tight.
- Hudson Asphalt Shingles**— Slate surfaced (red, green or mottled).
- Rockland Roofing**— Mineral surfaced (red, green and gray).
- Arrow Brand Roofing**— Sand or Gravel surfaced.
- Hudson Brand Asphalt Felts**— For sheathing buildings. For reinforcing Slate and Tile Roofs.

Materials used by railroads are very carefully selected for merit, quality and reputation for the service which they have given in the past. If you want samples of roofings and shingles which are reliable and which will protect as well as beautify the houses which you are building, just cut out this advertisement, write your name and address on the bottom lines and send it to

ASPHALT READY ROOFING CO.
Room 453, 9 Church Street, New York

Name.....

Address.....

Put an X in the square opposite the materials which you are interested in.

THE ROCK OF AGES CLEFT FOR YOU

SHELDON'S SLATE

RED GREEN PURPLE BLACK

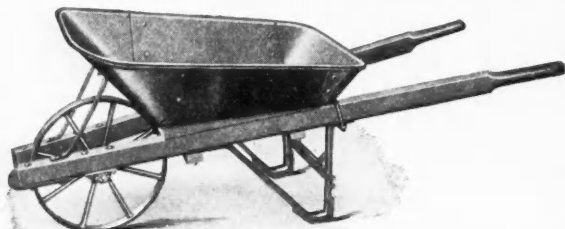
THE ROOF FOR AGES ALWAYS NEW

ECONOMICAL — ARTISTIC — FIREPROOF

Outlast the building. First cost, only cost. The only roof you can afford to consider for a permanent investment. Artificial substitutes bring endless expense for upkeep. Post a postal and get posted.

F. C. SHELDON SLATE CO., Granville, N. Y.

Your Wheelbarrow Expense Can Be Greatly Reduced



Wheelbarrow expense is getting higher and higher per thousand yards of material carried. What is the reason?

Just one: Wheelbarrow Manufacturers have permitted you—their customers—to hammer down their prices to a point where *good* wheelbarrows *could not be built*.

In most cases the last 25c cut off their material and labor costs ruined the wheelbarrow—ruined several dollars' worth of good material and labor to meet insane competition.

The way we save you a lot of money is to ask you to pay a little more, and when you pay that "little more" for

Sterling Barrows

you get in return

1. Two or three times the life.
2. More work per barrow per man per day; because Sterling Self-lubricated wheel bearings and the scientific balance of our barrow make heavy loads seem light.

Sterling Measuring Wheelbarrows

Something new—a big winner. Tray is shaped so that when you strike off the heaped load, flush with the top, you have exactly 2 cu. ft. or 3 cu. ft.—depending on the size of the barrow you buy.

A fine thing in proportioning aggregates.

Recommended by all public service authorities and **REQUIRED** by a larger and larger percentage.

Makes the Inspector's work easy and prevents costly disputes.

Checks up sub-contractors and their workmen.

This is only one of our long line of self-lubricated Sterling Wheelbarrows.

Send for our catalog No. 19.

STERLING WHEELBARROW COMPANY
6207 Shenners Ave. West Allis, Wis.

Makers of Patented Channel Steel Foundry Flasks, Snap Flasks, Skin Gates, Wedges, Foundry and Contractors' Wheelbarrows and Carts, Steel Fill and Wood Trucks.

tion makes it possible to have a clean, sanitary barn.

The Harris Mfg. Co., Box 224, Salem, Ohio, are offering an agency proposition to builders and contractors. Further particulars can be secured from them.

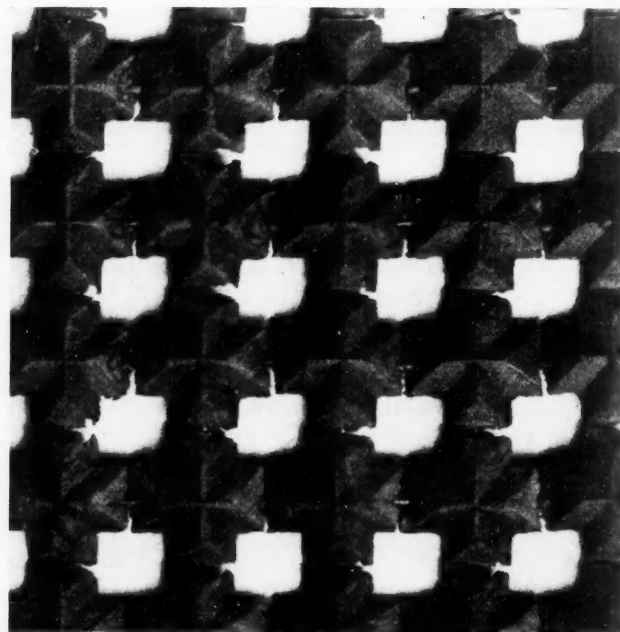


Composite Metal Lath

The accompanying illustration shows a new lath that has been recently placed on the market which has many features that will recommend it to builders and architects. It is called Composite Metal Lath. It is made of 19 gauge wire which is woven into a $\frac{3}{4}$ -inch mesh. Sections of brick clay in the form of a cross are pressed on at the intersections of the wire so as to enclose the wire. The combination is then baked in ovens until the clay is thoroly hardened and the wire is made tough and practically rust-proof by the annealing it undergoes during the heating.

Composite Metal Lath enters a field in this country which has already been prepared for it by the introduction and very extended use of various forms of expanded metal and wire laths. These products are, almost without exception, efforts to provide some better method of bonding the cement or plaster by some form of perforation. Metal does not naturally combine with cement or plaster, so it is necessary to depend upon the clinch.

Composite Metal Lath presents an entirely new idea. The brick, of which it is made, is porous, giving it a suction which makes plastering upon it easy and rapid and practically eliminates "drop." In addition to this the beveled shape of



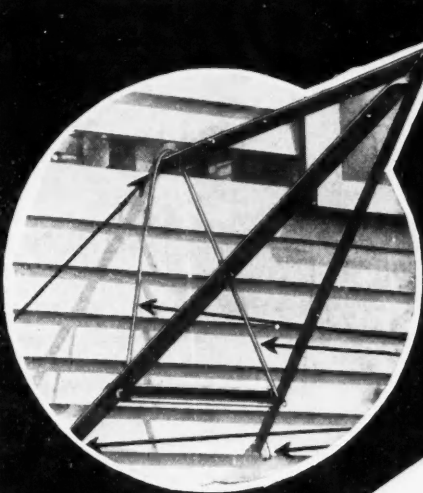
Section of Composite Metal Lath—Full Size View.

the bricklets assures a perfect key or clinch without undue loss of material.

In applying it direct to a flat surface such as sheathing for stucco work, no furring is required, which is in itself a considerable saving. In applying Composite Metal Lath heavy staples are driven diagonally over the bricklets at frequent intervals, thus holding them securely so that after the plaster has set it is firmly and permanently anchored to its support even although the wire should ultimately disintegrate entirely.

Composite Metal Lath is used with great success not only for stucco, but for all interior work. Its extreme flexibility makes it superior for cornice or other decorative work, and with very little practice it can be erected with great rapidity and ease.

(Continued to page 170)



Easy to Put Up

"Trouble-Saver" Scaffolds

Can be slung in a hurry (a half day's work in ten minutes) and they stay up, absolutely rigid, until they are unslung. How much better could you and your men work if you have no fear of danger from a weak scaffold?

And then consider the money saved by these scaffolds. There are no nails to drive—no bothering with bolts or screws. The Trouble-Saver is simply hooked around the studding. Waste of time is eliminated. Lumber and nail bills are saved.

We are offering a 30-day free trial to carpenters, just to prove that "Trouble-Savers" are really an investment.

Write today for our proposition and see how much you can save.

Up to Stay

THE STEEL SCAFFOLDING COMPANY
EVANSVILLE, INDIANA

G. W. Oliver
Residence
Rochester



Architect:
W. J. Bocket
Rochester

Herringbone

for Successful Homes

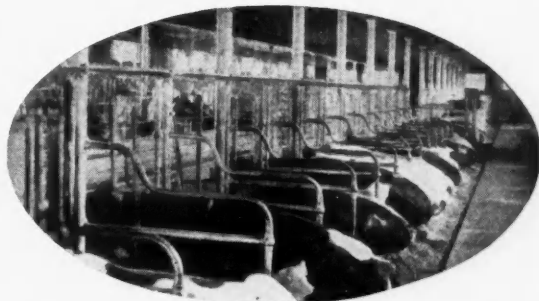
LASTING beauty and satisfaction with stucco and plaster depend a good deal on the lath you use.

Herringbone Rigid Metal Lath has lengthwise ribs which make it extra stiff. And flattened strands which clinch the plaster so that neither fire nor age will cause it to crack or fall.

Easy to erect, economically plastered. Send for the Herringbone Catalog.



The General Fireproofing Company
6005 Logan Avenue Youngstown, Ohio



The well-known Jenningshurst Stock Farm, Towanda, Pa., is equipped with our

Sanitary Barn Equipment

Selected because the New Modern Equipment is made to meet all modern requirements in the best possible way. Thousands of other satisfied barn-owners throughout the country testify to the success of our equipment.

Get our catalog, "Modern Stable Equipment," and find out how you can make your barns more sanitary and comfortable; how you can save money and labor for your customers; and how you can get more barns to build.

GLOR BROS. & WILLIS MFG. CO.
East Main Street ATTICA, N. Y.

For use in solid wall partitions Composite Metal Lath is excellent as the bond with the terra cotta results in a solid and homogeneous wall from one side to the other.

Composite Metal Lath comes in 6-yard length 40 inches wide, which makes a roll 40 inches long and 10 inches in diameter, each roll containing 55 square feet and weighing about 55 pounds. A carload of 22,000 pounds contains 2,392 square yards, equal to 400 rolls.

It is not subject to injury in handling or shipping owing to the hardness of the brick and elasticity of the wire.

This product is now being put on the market after four years of very careful and elaborate preparation to meet the

demands of building in this country. It has, moreover, a most successful record in Europe of many years' standing, where it has been most thoroly tried out in all branches of building.

The Composite Metal Lath Company, 128 Broadway, New York City, are the makers of this new lath. They will be pleased to send more complete details to our readers.



Asphalt Shingles Now Obtainable in Roll Roofing Form

Of especial interest to the industry is the latest development in the prepared roofing line—a roofing made up of a 32-inch wide roll of asphalt shingles.

The advantages of such a roofing are self-evident—especially in cases where it is desired to have an asphalt or slate shingle roof laid quickly—because this new roll shingle has all the wearing quality and attractiveness of an asphalt shingle roof and can be laid as rapidly and handled as easily as the ordinary roll roofing.

This new product, which is patented, is known as the Flex-A-Tile Roll Shingle and a liberal sample as well as complete informative data can be obtained by writing to The Heppes Company, 1010 Kilbourne Ave., Chicago, its exclusive manufacturers.



A Wet Joke

Kid—"How did you get the red marks on your nose, Uncle?"
 Uncle—"Glasses, my boy."
 Kid—"Glasses of what?"



Easy to own this good engine

Send for my new money-saving offer, before you arrange to try any engine for any price. Compare my engine with any other; consider my low prices—(easy terms if you wish), and you will see your advantage in having one of my

BAUER ENGINES

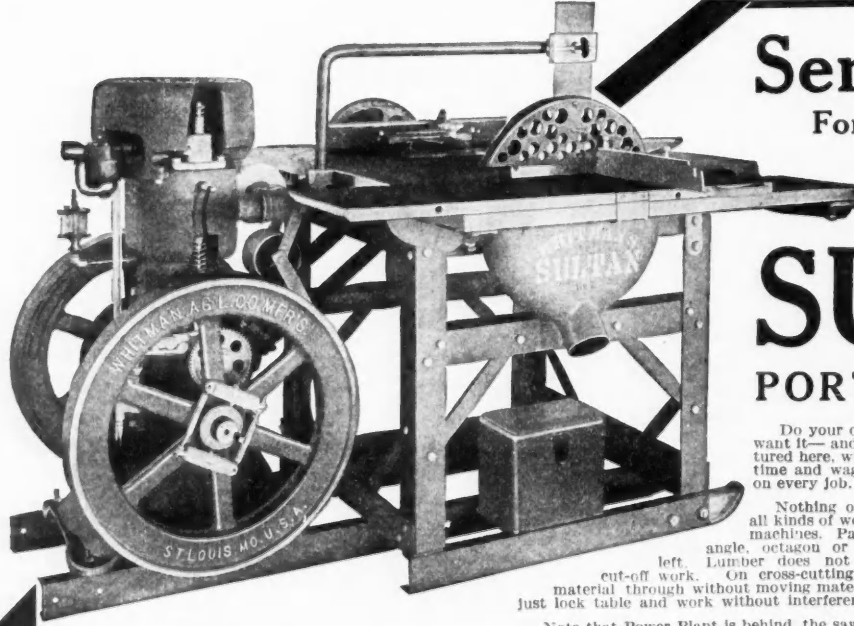
Gasoline, Kerosene, Distillate and Gas

Sizes, 2, 3, 5, 7, 9, 12 and 16 horse-power. Now sold only direct from my own factory at surprisingly low prices. All sizes, up-to-date, long stroke, valves-in-head, even speed type of engine. Over 20 years ago I made my first engine with my own hands. The thousands of my engines now at work prove that you take no risk when you get a **Bauer Engine**.

Write for Free Book Send me your address now, so I can send you my free book, with my latest and most liberal offer.

A. F. BAUER ENGINE CO.,
 224 Bauer Bldg. Kansas City, Mo.

5-Year Guarantee
 Direct From Factory to User

Send Coupon For LOW PRICES On this Wonder-Worker SULTAN PORTABLE SAW RIG

Do your own milling. Have your work done when you want it—and at a price you want it. The SULTAN outfit, pictured here, will pay back its cost in one month in men's time and wages. Will make and save money for you on every job.

Nothing on the market to equal it. Does all kinds of work usually done by two or more machines. Patent gauge is provided for any angle, octagon or hexagon, or mitre right or left. Lumber does not have to be marked for cut-off work. On cross-cutting guide table slides the material through without moving material. Used for ripping, just lock table and work without interference.

Note that Power Plant is behind the saw and not underneath. Keeps engine free from dust and grit. Furnishes power in excess of that required by hardest "pulls."

Ask for our Special Low Price. This Sultan Saw Rig will be a most profitable investment for you. Get the facts NOW. Send the coupon or postal.

FREE New Catalog of Sultan Contractor's Equipment

Note This Superior Construction

This Wonder-Worker "Sultan" Portable Saw Rig is built entirely of best grade steel. Frame is very strong, rigid—yet comparatively light and easy to move about. Table is made of charcoal iron casting, heavily ribbed underneath.

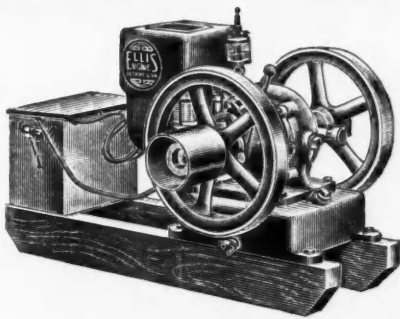
Equipment consists of 12-inch Rip Saw, 14-inch Cross-Cut Saw, 8-inch Emery Wheel, 6-inch Cocker Dado Head—cutting 1 to 1 1/4 inch; Boring attachment complete—5-inch cylindrical Jointer Head, 10-inch Sanding Wheel, etc.

Write for low prices and get new catalog of Contractor's Equipment. Send coupon or postal.

WHITMAN A. CO.
 7303 So. Broadway ST. LOUIS, MO.

Whitman A. Co., 7303 S. Broadway, St. Louis, Mo.
 Gentlemen: Please quote me your Special Low Price on Sultan Portable Saw Rigs, also send me FREE catalog of Contractor's Equipment.

Name.....
 Address.....



Don't Pay For Your "Ellis" without getting it

Every carpenter or contractor who does not use a reliable engine is paying for the engine without getting it. He pays for it in lost time, and in labor costs. You can buy an Ellis Engine out of two weeks' wages to one workman; and your Ellis will give you reliable service for many years.

Ellis Engines are America's favorite with carpenters, contractors and builders. Very compact in design; light in weight in proportion to power. Easy to operate; no cranking. Run either way; reversible while running. They work successfully on common cheap lamp oil at a fuel cost of

6 cts. for 10 hours

for each horsepower developed. Just the thing for woodworkers, rip-saws, planers, cement mixers, hoists; in fact, for every job where power can be used. Write for free book, "Engine Facts," giving valuable information and full details of our \$0 Days' Free Trial Offer, with opinions of users from all parts of the world.

Ellis Engine Co., 2863E. Gd. Boulevard, Detroit, Mich.

All sizes for all purposes. 1½ to 18 H. P. Vertical and horizontal. Guaranteed 10 Years.



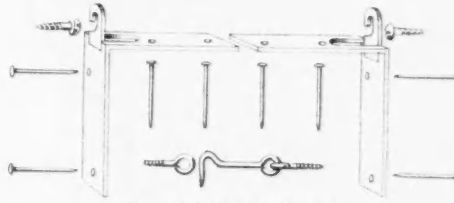
Kees (Gossett) Hinge for full length window screens and storm sash.

Even the Flies Will Work for You

—If you follow our suggestions. Fly time is screen time. There is lots of this work if you go after it.

Drop us a card and we'll tell you how to get this work and make it pay you better.

If you wish samples, please say so—they are free.



Kees Half-Screen Hanger

F. D. Kees Mfg. Co., Box 552, Beatrice, Nebr.

Makers of Window Screen Hardware, Metal Building Corners, Shingle Gauges, etc.

THE "New-Way" Series "F" Engine Cuts Construction Costs

Because of

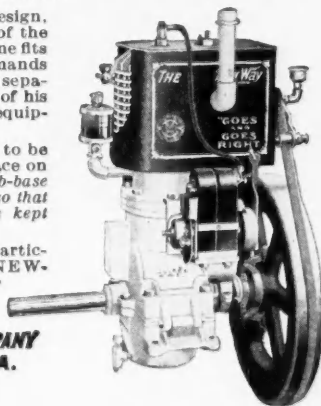
- 1. Light Weight.** Engines can be moved quickly and economically from one job to another. The 6 H. P. engine complete, ready to mount on any machine, weighs 325 pounds. Other 6 H. P. engines weigh from 800 to 1500 pounds.
- 2. High Class Ignition System.** Series "F" Engines furnished only with gear driven, high tension magnetos. No batteries—no complicated wiring—no spark coil.
- 3. High Grade Carburetion.** Engines are throttled governed and are fitted with float feed automobile carburetor, which insures perfect carburetion under all loads and conditions. Responds perfectly to sudden changes in load, giving closest regulation for the most exacting service.

The strong and compact design, light weight and reliability of the "New-Way" Series "F" Engine fits it splendidly to meet the demands of the contractor (either as a separate power unit or as a part of his mixer, hoist, pump or other equipment).

Its compact design allows it to be mounted in the smallest space on any machine, and without sub-base its center of gravity is low, so that weight of the entire outfit is kept down.

Contractors—write for full particulars about all sizes of the "NEW-WAY" Series "F"—ask for Catalog 11.

THE "New-Way" MOTOR COMPANY
LANSING, MICHIGAN, U.S.A.
12 Pine Street



At Last! A Practical Home-Study Course for CARPENTERS

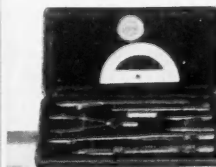
FOREMEN—SUPERINTENDENTS—CONTRACTORS and all other men in the Building Lines

Plan Reading, Estimating, Architectural Drawing, Contracting, etc.

This is a course for practical men. We send you actual blue print plans of buildings now being built or recently completed. Practical training, not book knowledge, is what you want—it's what we give. When you think of the opportunities this training offers, you will take time—right now—to mail the coupon for full information.

To Succeed in any branch of the building business you must have a complete knowledge of plans and specifications. You must be able to estimate closely the cost of material and labor. Guessing won't do—you must know. This knowledge is what makes successful foremen, superintendents and general contractors. This knowledge means money—thousands of dollars—to any builder—to you!

Your spare time is enough. You can master these subjects in your own home by this new, easy, quick method.



This elegant set of Drawing Instruments and Complete Outfit furnished FREE to our Students.

Special Trial Offer!

For only \$2 we will send you the complete set of working blue print plans for a large residence just completed in Evanston, Ill. Also the complete specifications for this job. We will also include questions concerning the plans and a complete itemized estimate showing how to figure the cost of the building down to the last penny. This is information worth many times its cost to you. Supply of plans on this offer is limited and will not last long. Send for your set today.

- | | | |
|---|---|---|
| <input type="checkbox"/> For FREE Information, Mark and Mail this Coupon. | <input type="checkbox"/> Builders' Course | <input type="checkbox"/> Architectural Drafting |
| | <input type="checkbox"/> Plan Reading | <input type="checkbox"/> General Contracting |
| | <input type="checkbox"/> Estimating | <input type="checkbox"/> Building Superintendence |

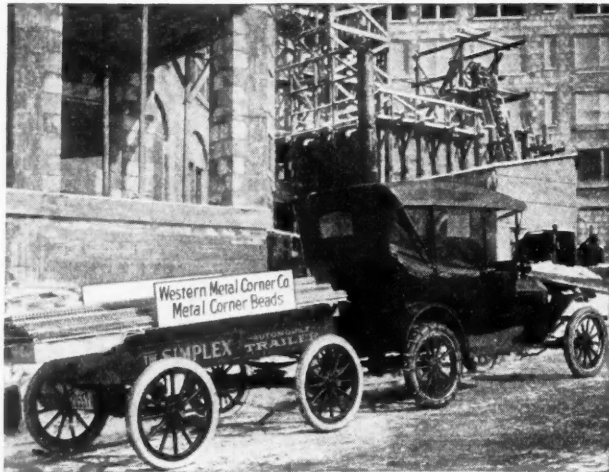
Name

Address

Town State

College or Home-Study Course

Chicago Technical College
1017 Lake View Building, Chicago, Ill.



**INCREASE YOUR PROFITS
USE A SIMPLEX TRAILER**

Take advantage of the Simplex System, and increase your efficiency and profits. Save your time and double the worth of your pleasure car. The method is simple—load your materials on a

**“SIMPLEX”
“It follows the trail”**

It only takes thirty seconds to attach it to any vehicle and gives you a one ton truck with the expenses of upkeep deducted. Besides you have your automobile for passengers. You can use a Simplex for a hundred useful purposes—it's a money-saver every minute in the day. Furthermore, it is the ONLY trailer that will follow the trail. The patented short turn gear **guarantees** that. Every contractor needs a Simplex. Write **TODAY** for free information about the type built especially for your business.

**The Simplex Short-Turn Trailer Company
1200 Mederian St., Anderson, Ind.**

**In every summer
cottage you build**



**—you can install, at a profit, a
Ro-San Indoor Closet**

Every building—home, cottage, store or office—that has no sewer connection needs this modern sanitary indoor closet. Absolutely odorless. Act as our agent—this fixture sells easily to your customers—good profit. Hundreds of carpenters represent us. We also distribute through builders the

Ro-San Washstand

Provides Running Water, Hot or Cold, Without Plumbing. Every housewife wants one. Convenient, sanitary. Sells readily with little effort. Carry this work along with your regular business. Ask for terms to agents.

Absolutely
Odorless

**Rowe Sanitary Mfg. Co., 580 Rowe Bldg.,
Detroit, Mich.**

Comfort Indoor Closet

Odorless Sanitary Germ-Proof

Every home without sewerage needs one. Put a warm Comfort Toilet in your home, a guarantee of healthy, sanitary conditions. A boon to sick people. Can be placed anywhere in house.

Fly Breeding Can Be Destroyed

Help “Swat the Fly”—Have City Conveniences. Germ-life killed by chemicals in retort. Emptied once a month—no trouble. Needs no other attention. Boards of Health endorse it. Write now for literature, prices, etc.



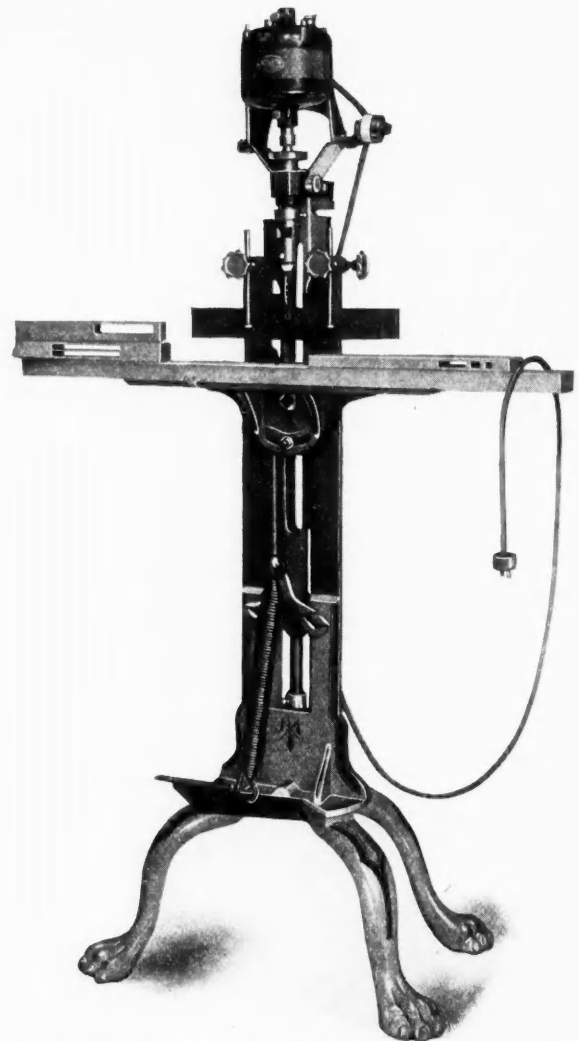
**SENT ON 30 DAYS
FREE Trial**

Agents Wanted—Exclusive Territory.

**COMFORT CHEMICAL CLOSET CO. 305 Factory Bldg.
TOLEDO, OHIO**

**Write W. W. Morse Regarding Electric
Mortiser**

The “Bracket” Hollow-Chisel Electric Mortiser attachment for Barnes foot-power machines, as illustrated in our issue of last October, is being placed on the market by Mr. Warren W. Morse, Hopkins, Minn. This electric mortiser is the invention of F. A. Brackett, a practical mechanic of more than thirty years' experience with light woodworking machinery. The accompanying illustration shows how this outfit is mounted on the popular Barnes Foot-Power Mortiser. It consists of a General Electric Company Vertical Motor, built especially for this machine, running on ball bearings and having sufficient power to operate the bits rapidly. The cost



Electric Power Hollow-Chisel Mortiser Mounted on Barnes Foot-Power Machine.

of the electric current to operate this machine is only about 2½ cents an hour. Connect the cord with any electric light socket, and you are ready for work.

The machine will cut a smooth, perfect mortise at one stroke of the chisel. Any size mortise can be obtained by moving the work on the table, and overlapping the cuts. The regular chisel equipment is ¾-inch; the cutting range of the machine is 6 inches from the fence to the center of the table, and the vertical adjustment of the table is 12 inches. The length of the chisel cut is 3½ inches.

A great many of our readers will be interested in looking into this proposition further. They should write Mr. Warren W. Morse, who is the exclusive sales agent, Hopkins, Minn. He will send full particulars on request.



Patented March 21, 1916

The Best Seller of its Kind "Hypco" Aseptic Closet

The logical and necessary closet in buildings where sewerage is not available.

Here's a Chance for One Man

in every town to handle this closet for us. It's easy to sell, easy to install; and a big money-maker for the man who handles it.

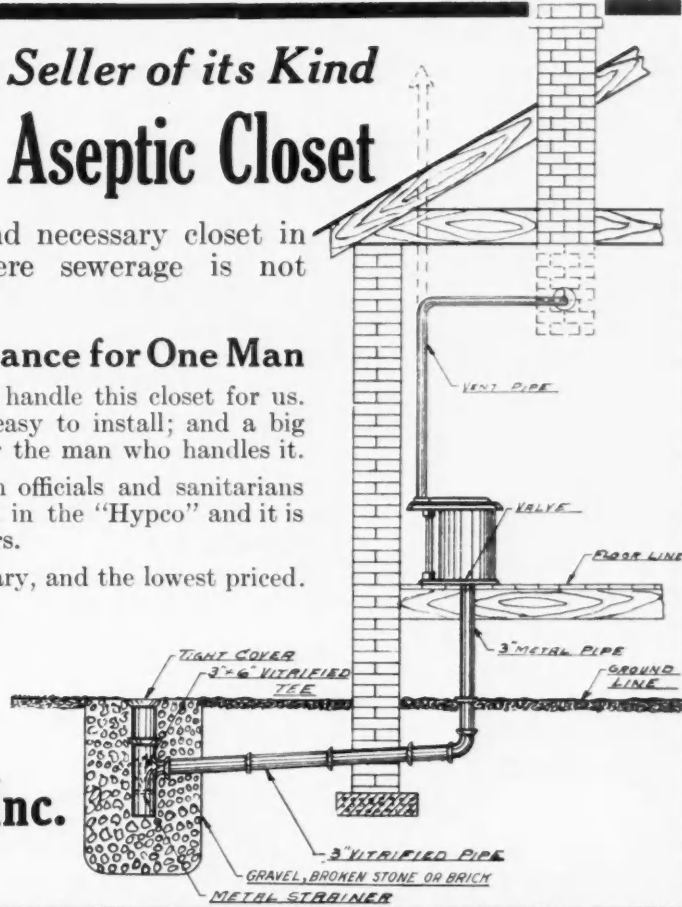
Prominent health officials and sanitarians throughout the country are greatly interested in the "Hypco" and it is being demanded by conscientious home builders.

It is the most widely endorsed, the most sanitary, and the lowest priced.

The number which can be sold, plus the complete satisfaction which the closet will give, make it the most attractive selling proposition of its kind.

Write for full information

Hygienic Promotion Co., Inc.
DETROIT, MICH.



Are YOU Getting YOUR Share of Big Kaustine Profits?

Carpenters, builders and contractors all over the States are adding hundreds of dollars to their profits on every home, farm house, school, church, factory or mill built in unsewered districts, by simply specifying the

Kaustine Closet System

Installation is permanent—very simple and inexpensive. Gives all the comforts, health-protection, cleanliness and neatness of the modern water closet in the best city home. **Guaranteed absolutely odorless.**

No Sewer---No Water---No Cesspool Needed

Costs less than the city toilet to install—lower upkeep cost, too. Nothing to get out of order—requires attention but twice a year. Kaustine, the powerful disinfectant, makes this the only successful waterless closet system obtainable anywhere—at any price.

Every building equipped with Kaustine becomes more attractive, more comfortable, far more healthy—and increases in value accordingly. Health authorities endorse it and urge its necessity.

You Can Surely Do as Well as Mr. Pharis. Mr. Pharis, contractor agent of Saginaw, Mich., writes:—"I took the agency for Kaustine Closets six months ago; I have sold 41 outfits—30 to schools, balance to private parties. Am planning to spend my entire time next year. A \$50 Kaustine Closet will add \$100 to the selling price of your home."

Thousands of public and private buildings now equipped. Successful in every respect. Write today for Special Builders' Offer—cash in on this revolutionizing invention—Let us send you special, intensely interesting booklets—Send us your name and address NOW. A postal will do—but send it at once.

KAUSTINE CO., Inc., Dept. 1138, Buffalo, N. Y.
Also C. P. R. Building, Toronto, Ont.



Modernize Your Buildings Give Your Customers an Indoor Closet

If you are building in the suburbs, small towns, or country districts, the greatest problem you have to solve, is that of furnishing reliable, inexpensive indoor toilet facilities.

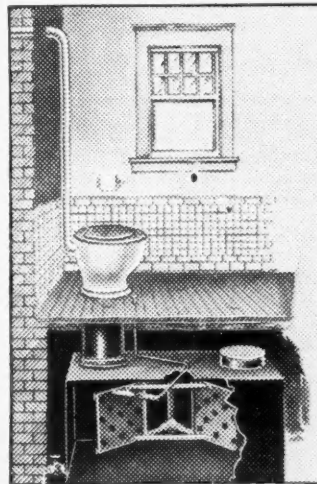
Wolverine Chemical Closet

is the most practical and efficient method of sewage disposal ever invented for buildings outside sewer districts. It requires no water or plumbing. **Guaranteed Odorless and Sanitary.**

Read what the secretary of a certain State Board of Health says—after inspecting a school installation of the Wolverine.

"I find the closet to be all right. No odor appeared, no pollution of the air. It is sanitary and meets all the requirements. I shall be glad to see these closets installed all over the state of —."

Wolverine Closets are no longer an experiment, thousands of them in use. Our system of agitation, method of ventilation and features of construction represent years of experimental work and make the Wolverine stand for quality and service. Write for our third annual catalog.



The Wolverine Installed

DAIL STEEL PRODUCTS COMPANY
600 Main Street - - Lansing, Michigan



"Don't tell me you never had a chance!"

"Four years ago you and I worked at the same bench. I realized that to get ahead I needed special training, and decided to let the International Correspondence Schools help me. I wanted you to do the same but you said, 'Aw, forget it!' You had the same chance I had, but you turned it down. No, Jim, you can't expect more money until you've trained yourself to handle bigger work."

There are lots of "Jims" in the world—in stores, factories, offices, everywhere. Are you one of them? Wake up! Every time you see an I. C. S. coupon your chance is staring you in the face. Don't turn it down.

Right now over one hundred thousand men are preparing themselves for bigger jobs and better pay through I. C. S. courses.

You can join them and get in line for promotion. Mark and mail this coupon, and find out how.

I. C. S., Box 8130, Scranton, Pa.

TEAR OUT HERE

INTERNATIONAL CORRESPONDENCE SCHOOLS
Box 8130, SCRANTON, PA.

Explain, without obligating me, how I can qualify for the position, or in the subject, before which I mark X.

<input type="checkbox"/> ARCHITECT	<input type="checkbox"/> Law for Contractors
<input type="checkbox"/> Architectural Draftsman	<input type="checkbox"/> BUSINESS (Complete)
<input type="checkbox"/> Contractor and Builder	<input type="checkbox"/> BOOKKEEPER
<input type="checkbox"/> Building Foreman	<input type="checkbox"/> Stenographer and Typist
<input type="checkbox"/> Concrete Builder	<input type="checkbox"/> Higher Accounting
<input type="checkbox"/> Plumber and Steam Fitter	<input type="checkbox"/> GOOD ENGLISH
<input type="checkbox"/> Heating and Ventilation	<input type="checkbox"/> Common School Subjects
<input type="checkbox"/> Plumbing Inspector	<input type="checkbox"/> Mathematics
<input type="checkbox"/> Foreman Plumber	<input type="checkbox"/> SALESMANSHIP
<input type="checkbox"/> CIVIL ENGINEER	<input type="checkbox"/> ADVERTISING MAN
<input type="checkbox"/> Surveying and Mapping	<input type="checkbox"/> Window Trimmer
<input type="checkbox"/> Structural Engineer	<input type="checkbox"/> Show Card Writer
<input type="checkbox"/> Structural Draftsman	<input type="checkbox"/> CIVIL SERVICE
<input type="checkbox"/> ELECTRICAL ENGINEER	<input type="checkbox"/> Railway Mail Clerk
<input type="checkbox"/> Electric Lighting	<input type="checkbox"/> AGRICULTURE
<input type="checkbox"/> Electric Wiring	<input type="checkbox"/> Poultry Raising
<input type="checkbox"/> Electric Car Running	<input type="checkbox"/> MINE FOREMAN OR ENGINEER
<input type="checkbox"/> MECHANICAL ENGINEER	<input type="checkbox"/> Metallurgist or Prospector
<input type="checkbox"/> Mechanical Draftsman	<input type="checkbox"/> Chemical Engineer
<input type="checkbox"/> Shop Practice	<input type="checkbox"/> Gas Engineer
<input type="checkbox"/> Sheet Metal Worker	<input type="checkbox"/> AUTOMOBILES
<input type="checkbox"/> STATIONARY ENGINEER	<input type="checkbox"/> Auto Repairing
	<input type="checkbox"/> Spanish
	<input type="checkbox"/> German
	<input type="checkbox"/> French
	<input type="checkbox"/> Italian

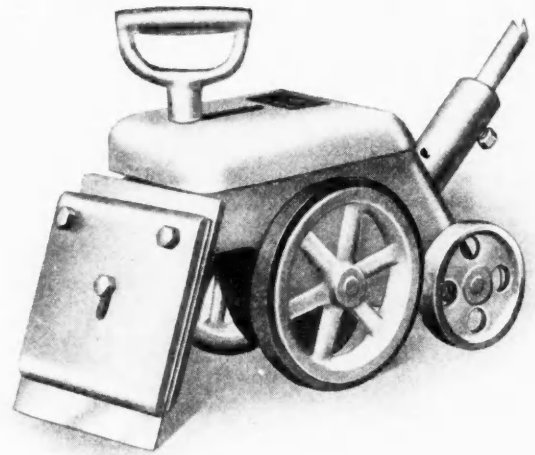
Name _____
Occupation & Employer _____
Street and No. _____
City _____ State _____

New Location for Triple "A" Machine Company

The Triple "A" Machine Company, well-known manufacturers and sellers of the Triple "A" Spring Driven Floorsmoothers, are moving into their new factory and offices at 4101-4105 Ravenswood Ave. They are discontinuing their factories at Manistee, Mich., and Harvey, Ill., and will combine their entire output at their new Chicago plant.

During the past year or two the demand for Triple "A" Floorsmoothers has been so great that they have been hard put to make prompt shipments, but with their increased facilities at their new plant, they now hope to take care of their growing business with every degree of satisfaction.

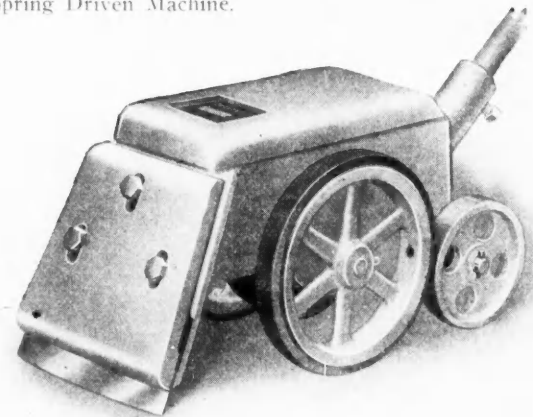
In addition to their old standard Triple "A" Spring Driven Floorsmoothers, Model "E," they have added two new models. These new models will be known as Model "F" and Model "G."



Triple "A" Spring Driven Floorsmoothers, Model "F."

Altho somewhat simplified in construction, they embody the essential Triple "A" features that have made their old standard floorsmoothers the remarkable success it has attained in this field.

They have been specially priced, so as to place them within the reach of every man who needs a floor surfacing machine, and there is now no further need of any one doing without a Spring Driven Machine.



Triple "A" Spring Driven Floorsmoothers, Model "G."

Floor scraping as a specialty has been found by a great number of carpenters to be a good paying business. It takes very little effort to find any number of floors which need resurfacing; and most of the owners are willing to pay a liberal price for having the work done. The trouble has been heretofore, that it was too hard work to scrape a varnished floor

(Continued to page 176.)

Make Your Motor Car Earn Dividends



The Rochester Trailercar might almost be said to have been made for the contractor—the painter and decorator.

The Trailercar carries the tools and supplies, while the pleasure car carries the help.

This means quicker service—less time on the road and more time on the job. Less haulage expense and bigger income.

The Trailercar is designed and built by experienced motor car engineers.

It is built like an automobile—for hard, high speed work.

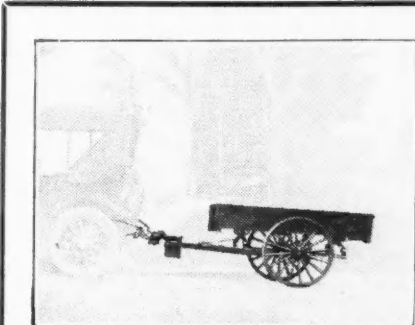
It tracks perfectly—and hangs to the road at all speeds.

It is the only trailer that can be backed.

It will more than earn its cost in six months.

Illustrated circular with complete information will be mailed upon request

The Rochester Trailer Company, 122 Main St., East Rochester, N.Y.



Make your automobile more of an asset by the addition of a

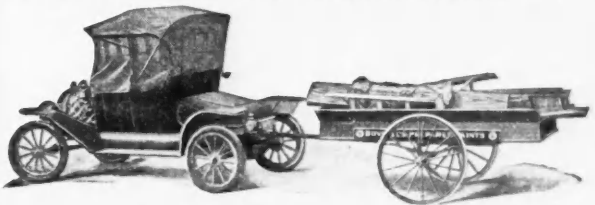
LAROS Automobile Trailer

If you own one of these trailers you will not have to depend on the drayman or the farmer when you

are in need of some material in a hurry. It is just the thing for hauling tools, saw rigs, cement mixers or other light loads.

D. A. Laros & Sons Co., Grinnell, Iowa

THE TRAILER WAY MAKES CARS PAY



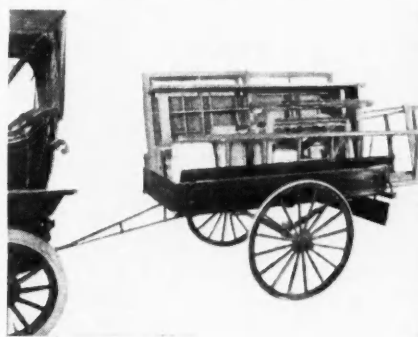
A MODEL FOR EVERY NEED

Adjustable Draw Bar and a Coupling which takes care of every movement even to the most severe twist.

Catalog ready—ask for it.

THE MILES MANUFACTURING CO.
309 Franklin St. Jackson, Mich.

MANUFACTURERS OF Automobile Trailers and Horse Drawn Vehicles



Our Auto-Trailer has been in use for over two years and they have given good satisfaction. We also build Trailers to your order.

Mr. Contractor: If you do not find the Defiance Auto-Trailer with your dealer, write us for full particulars, prices and terms.

THE DEFIANCE CARRIAGE COMPANY
Roedel Brothers, Props.
DEFIANCE, OHIO

N.B.—Any Style Hitch you might need for your car.

GUARANTEE YOUR CUSTOMERS

To Cut Their Coal Bills $\frac{1}{2}$ to $\frac{2}{3}$

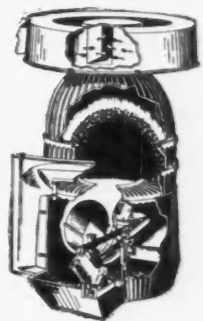
You can guarantee the Williamson New-Feed UNDERFEED to cut your customers' coal bills $\frac{1}{2}$ to $\frac{2}{3}$ —and we back you. Build business by recommending



Over 35,000 enthusiastic users boost the UNDERFEED. Find out how you can guarantee it to save money for your customers.


Write for Full Details NOW
A postal brings you complete details. Don't delay; write today.

THE WILLIAMSON HEATER CO.
246 Fifth Ave., Cincinnati, Ohio



UNDERFEED Furnace

**"These Are The
Bath Room Fixtures
We Want"**



**A book all builders
should have**

In addition to being a catalog of KOHLER Enameled Plumbing Fixtures, this book, "KOHLER of KOHLER," contains an interesting description of the KOHLER factory and the processes of KOHLER production.

It explains how we maintain one grade of KOHLER quality, which is the highest.

It tells you how we have made enameling one of the finer arts.

KOHLER
a trade-mark
that means excellence
in plumbing ware

The name KOHLER, permanent in the enamel of each of our products, is accepted everywhere as evidence of the highest quality.

It is our guarantee of high-grade material and workmanship and the purchaser's safe guide in the selection of modern hygienic plumbing ware.

The "Viceroy," our latest built-in bath, is an exceptionally attractive fixture.

It is made in *one piece*, is enameled all over, can be installed with or without tiling and is low in price, due to manufacturing economies. This beautiful tub is fully described in "KOHLER of KOHLER." Write today for a free copy.

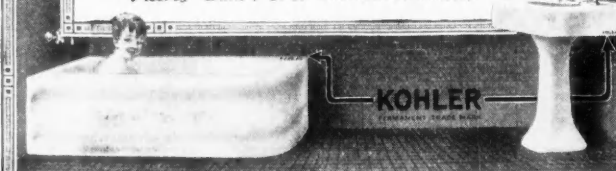
"It's in the Kohler Enamel"

KOHLER CO.
Founded 1873
Kohler, Wis., U.S.A.

Makers of Trade-marked, Enameled Bathtubs,
Lavatories and Sinks

BRANCHES—		
Boston	Pittsburgh	San Francisco
Philadelphia	Detroit	Atlanta
St. Paul	St. Louis	Seattle
New York	Chicago	London

"Viceroy" Bath V-14-A Columbia Lavatory



KOHLER
ENAMELED PLUMBING FIXTURES

by hand, and most would refuse the job at any price. Not so with a Triple "A"; with this equipment, this class of work will be found a most profitable enterprise.

A Detroit floorman recently purchased one of these machines and was so pleased with it that he took the trouble to write the company the following letter:

Triple "A" Machine Co.,
Chicago, Ill.

Detroit, Mich.

Gentlemen: I would not take a thousand dollars for my Triple "A" if I could not get another. It makes me a steady income of \$18.00 to \$20.00 per day. I thought I did well when I made \$5.00 or \$6.00 a day with a hand scraper, but now I make four times that much with the Triple "A" and the work done is much better.

A. J. MEYERS.

The company has just issued a new catalog describing in detail their three models, and we understand a copy will be sent free to any address upon application. Their new address will now be Triple "A" Machine Co., 4101 Ravenswood Ave., Chicago, Ill., U. S. A.



Standard Scale and Supply Company Have New Main Office

To take care of their increasing business, the Standard Scale & Supply Company have moved their main office from their old address to 1631 Liberty Ave., Pittsburgh, Pa. This change gives them a larger building that is more fitted to their needs.

The change will make it possible for them to handle shipments with even more promptness than they have in the past.

They have also moved their New York office to 145 Chambers St., New York City.

The company wishes to assure their many friends and customers that the changes mentioned will put them in a better position than before to serve everyone.

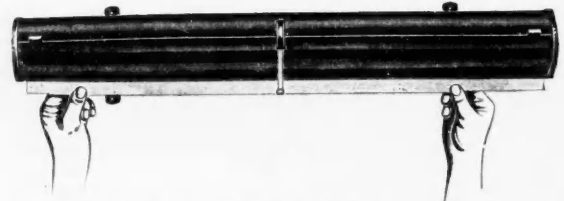


The Security Tube

Methods of handling blueprint paper, drawing paper, and tracing cloth in offices where this material is being used are generally very cumbersome and awkward. This material is usually in rolls and it is a most inconvenient process to spread a roll on a table and measure off the amount of material needed and cut this part off.

To eliminate this difficulty and make the rolls easier to handle, the tube shown in the accompanying illustration has been placed on the market by Kolesch & Company. This device is called the Security Tube.

It is made in three lengths, 30, 36, and 42 inches, and is of heavy tin, japanned black. The attached spring measuring



Tube for Handling Blueprint Paper, Tracing Cloth, Etc.

tape is shown and presents a convenient way of measuring off the quantity of material that is desired. The paper or cloth is cut easily by the straight cutting edge that is provided at the opening to the tube.

A roll of material is easily inserted by pushing back the slide cover which can then be closed so that the roll is well protected. The slide cover does not have to be opened again until the paper or cloth has been used.

Further details and particulars as to prices can be secured from Kolesch & Co., 138 Fulton St., New York City.