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SPY

Southern Architect and Building News

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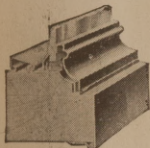


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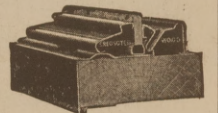
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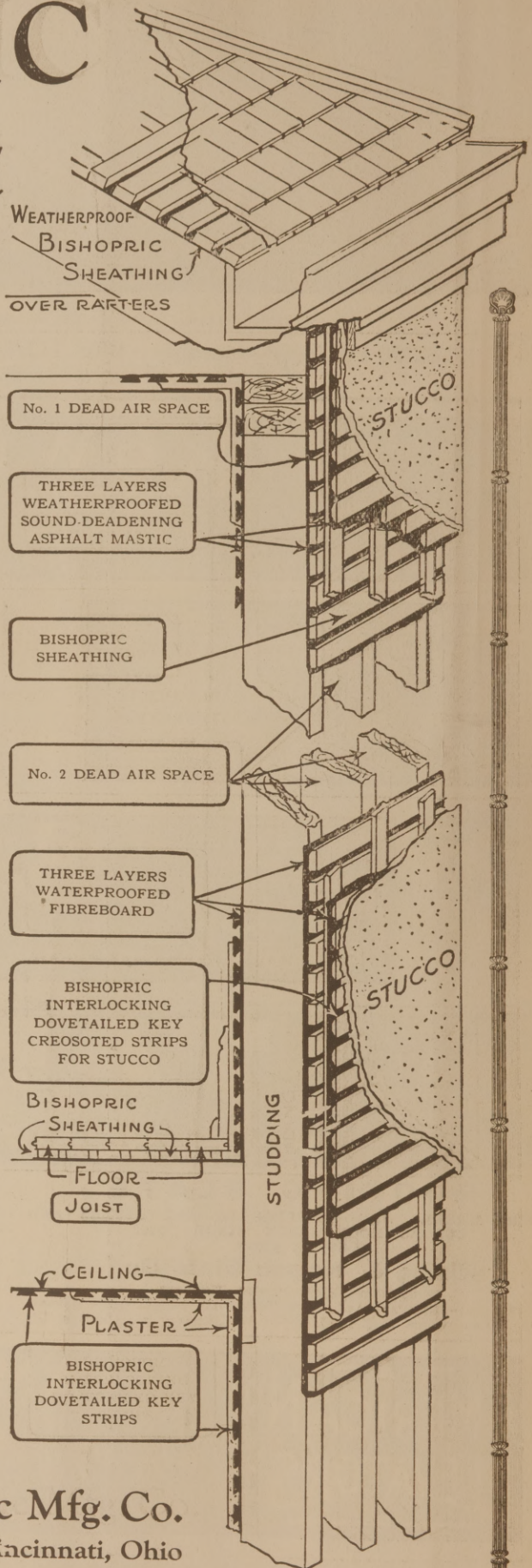
built house costs *decidedly less* than stucco and frame houses built by other methods. We have prepared a booklet for you, containing facts and figures, and illustrated with photographs of beautiful houses built with BISHOPRIC stucco, plaster and sheathing units. Ask for it.

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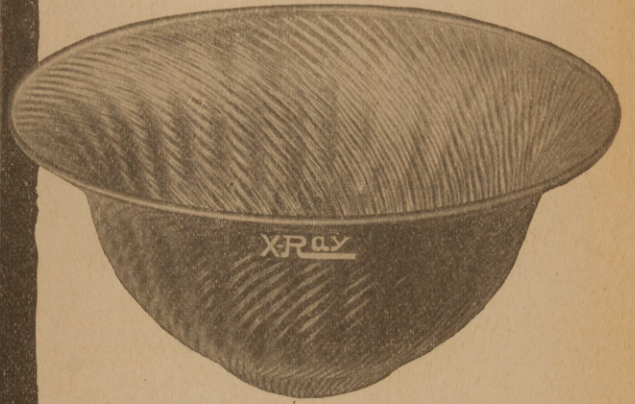
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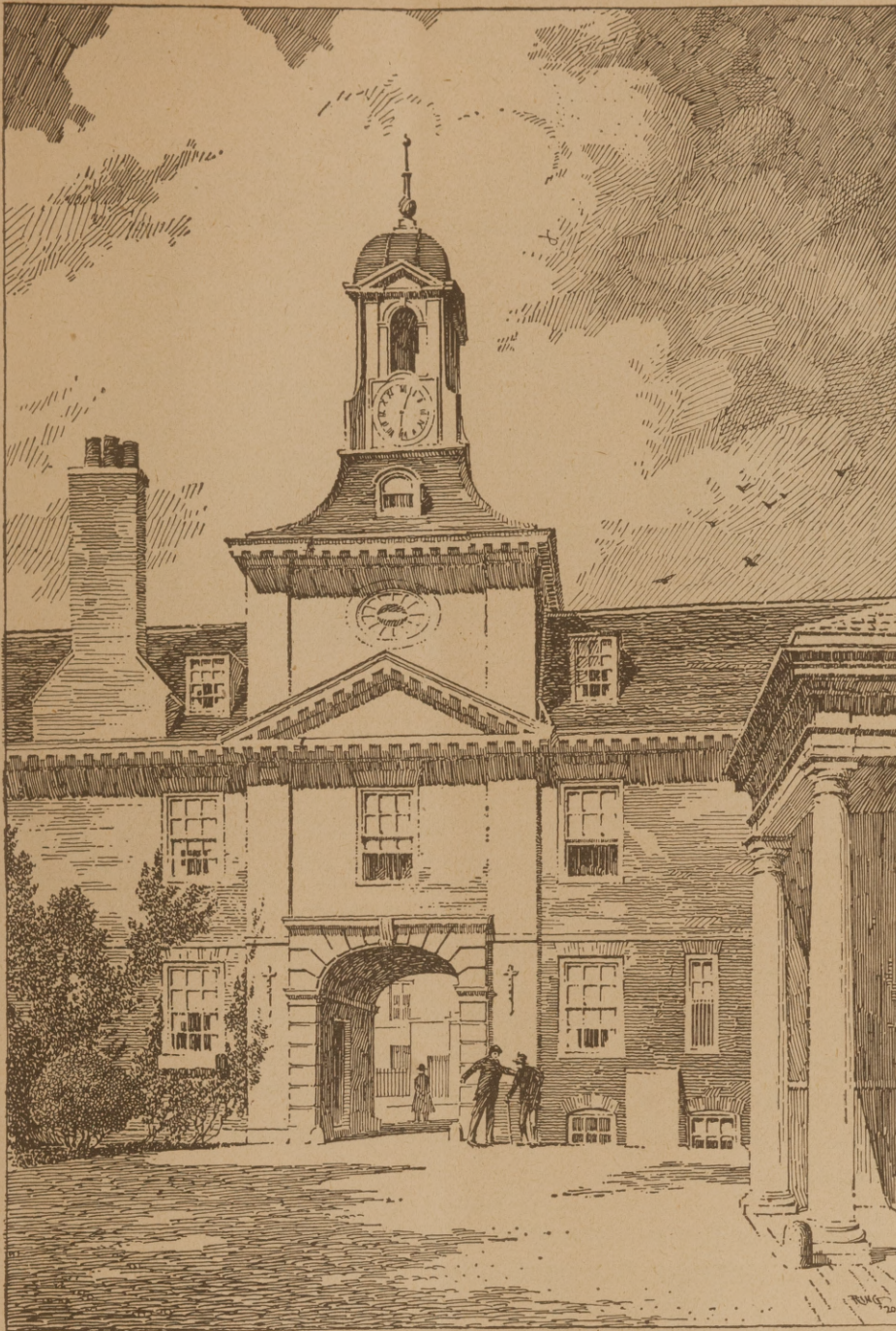
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tistic effects. American face brick embraces the whole sweep of color, in smooth and rough textures, from the pure severe tones of pearl grays or creams, through buff, golden and bronze tints to a descending scale of reds, down to purples, maroons, and even gun metal blacks.

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AMERICAN FACE BRICK ASSOCIATION

1158 WESTMINSTER BUILDING • CHICAGO, ILLINOIS



At Mars Hill, Indianapolis, where two years ago they forged the implements of war, there is rising a peaceful city of homes, which the Lafayette Building Company is erecting for the Lafayette Motors Company. Every home is to be built of Pozzo, "The Italian Process Stucco," and every home will be distinct as to architecture and color scheme. The entire plan embraces over eight hundred homes covering approximately sixty acres.

When it is considered that all of these homes are bought, and paid for by the working people of the Lafayette Motors Company personally; it reflects the value of Pozzo as a cheap, artistic and permanent building material.

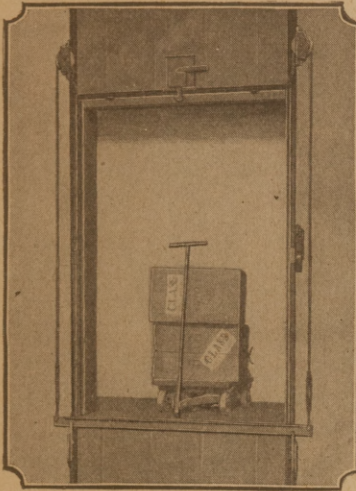
The Architects for these new homes are J. Edwin Kopf and Woolling. The contractor, who is applying Pozzo, is Chas. McGarvey, both of Indianapolis.

AMERICAN POZZOLANA COMPANY

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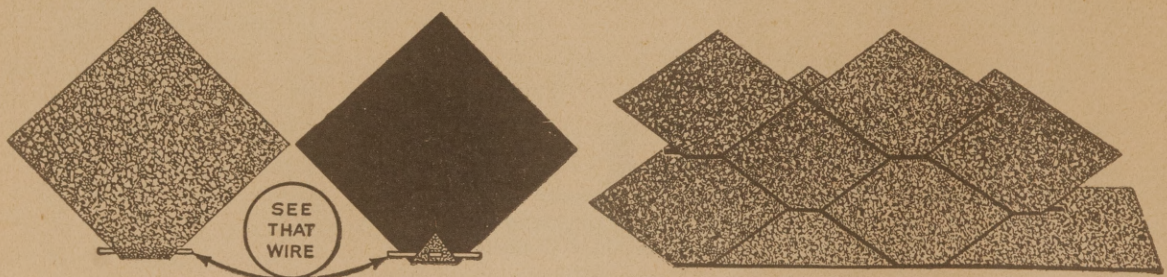
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Southern Architect and Building News

WITH WHICH IS CONSOLIDATED "SOUTHERN BUILDING RECORD"

VOL. LXV.

DALTON, and ATLANTA, GA., AUGUST, 1920.

No. 4

The Southern Architect And Building News

Southern Architect and Contractor, Atlanta, Ga., and Southern Building News, Memphis, Tenn., and Southern Building Record, Nashville, Tenn., Consolidated.
Entered as second-class matter May 27th, 1911, at the Post Office at Dalton, Ga., under the act of March 3d, 1879.

This paper is issued and mailed from our printing house at Dalton, Ga. Business office, Atlanta, Ga. All letters should be addressed to the Atlanta office.

Price \$2.00 Per Year.

TO OUR ADVERTISERS

Our advertisers are requested to have copy and cuts for changes for advertisements in this office not later than the 5th, preceding the month of publication.

We cannot be responsible for changes not made, when copy and cuts are received later, or submit proof.

TABLE OF CONTENTS.

Editorial	11-17-23
City Planning as Civic Ad.	31
Personal Mention	32
Fresh Air in Bank Building	33
Government Teaches Kiln Drying	35
Building Construction Costs	36
Tentative Reports of I. C. C.	38
Where and How to Build Cistern	40
Houses or Autos, Which?	53
Trade News Notes	59
Building News Items	60

An Essay on Success.

He has achieved success who has lived well, laughed often, and loved much; who has gained the respect of intelligent men and love of little children; who has filled his niche and accomplished his task; who has left the world better than he found it, whether by an improved poppy, a perfect poem, or a rescued soul; who has never lacked appreciation of earth's beauty or failed to express it; who has always looked for the best in others and given the best he had; whose life was an inspiration; whose memory a benediction."—Selected.

The Editor and His Readers.

No magazine can attain the full extent of its usefulness without the co-operation of its readers. It is our earnest desire to make The Southern Architect & Building News as interesting as possible and with this in mind would appreciate advice and suggestions from every one of our readers—from you—and you and everyone else. This is the only way we can know that this publication is accomplishing its purpose. Won't you drop us a line occasionally, tell us what you don't like as well as what you do.?

Economical Advertising.

If there were only ten dealers in building supplies in a city of fifty thousand people, it would certainly be waste of time and money to hire a messenger to call at every house and store in the city until he found the ten building supply houses and delivered a message to them. A more economical method would be to know in advance where to find them and then go to them by the shortest route. This is precisely what The Southern Architect & Building News does for its advertisers. It carries their message straight to the dealers or contractors without waste of time or money, because its readers are exactly the people whom the advertiser wants to reach.

To Our Readers.

Readers of The Southern Architect & Building News, with many others hereabout, are advised that the deliveries of the papers by the postoffice department is as bad as any other form of transportation, if not worse. Be sure when you change your address to notify us of the change. Subscriptions can only be filled beginning with the current issue at the time of subscribing. Back numbers cannot be supplied. There are none.

That second class matter is neglected by postmasters, is a notorious fact. When your paper is late or you do not receive it at all, get after your local postmaster. Then write us.

Smoked Glasses.

If a law were passed obliging every dealer in building material to wear smoked glasses, a howl would go up from one end of the country to another which would sound like an artillery duel in France. Everyone would object that wearing smoked glasses would make it mighty hard to see things as they

are. The supply men would fall into all kinds of blunders when judging the quality of his goods. There would be trouble galore. It is a good thing for us that only few people wear smoked glasses. Otherwise, confusion would result in all lines of business.

It is just as important, however, that people in the commercial world keep their minds free from the thing that acts like smoked glasses. In other words, we need to see conditions clearly. This is a big country. It has everything needed for health and comfort, and happiness.

There is no sense in believing that we can not pull through any difficulties that may arise. By having faith in our land and in one another, we can silence the calamity howler and make the pessimist so plainly ridiculous that even an undertaker would refuse to rent his hearse to carry him out to the burying ground.

Take That Vacation Now.

Dear readers of The Southern Architect & Building News, the time is ripe now for closing that desk of yours and getting out close to nature. You had better find time now. You owe it to yourself, to the job you hold, to knock off work for awhile.

Truly, the outdoor season, the rare old wine of the year, is here, and all over the country men, women and children are already off for fields green and waters rippling, where for weeks they will bask in the sunshine and shadow that made of primitive men giants in strength and added to their years of ripeness.

Already many have gone to the lakes while others are packing and arranging. Such as are able to get away, even for a brief season, are to be congratulated, for nothing known adds so much to health and happiness as living out in the open. Indoors, the liver often refuses to function—outdoors, the blood reddens and the heart throbs more regularly. Pallid features take on a new cast as the fresh breeze blows full in the face. Tired feet are refreshed and one has time to think outdoors. The wise ones forget business and office worries and just live when off among the trees or out on the carpet of earth.

There is no better medicine than air rarefied by nature, and it is to be regretted that every living being cannot freely and more frequently partake thereof.

Paris Town Planning Competition.

The City of Paris recently offered prizes in a competition open to Architects of France and of the Allied countries for plans for the improvement and extension of the city. The competition was divided into four sections: (1) For the general plan

affecting Paris and its suburbs; (2) for the laying-out and improvement of Paris proper; (3) for the laying-out of the zone of the fortifications which have now been condemned as useless, and the approach and surroundings of the same; (4) reserved for careful detailed studies of the town-planning of particular areas. For each of these sections valuable prizes were offered, and the city reserved to itself the power of purchasing plans which, for one or another cause, were not included among those receiving prizes. The result of the competition has just been published. The only prize winner in the various competitions who was not of French nationality was Mr. Adrian Berrington, who, with MM. Dujarric and Chaures, gained a prize of 10,000 francs in the first section and of 4,000 francs in the second section, while in the third section the plans offered by himself and his collaborators were acquired by the city for 2,000 francs. M. Chaures was for many years Sous-Patron of the Society's "First Atelier of Architecture," whilst Mr. Berrington is a former graduate of the School of Architecture of the University of Liverpool, and has been for some time a Member of the "First Atelier."

Will This Committee Function?

The Special U. S. Senate Committee on Reconstruction and Production, appointed at the last session of Congress to investigate, during the recess, the cause for the shortage of homes for the people and how same be remedied, probably will hold a hearing in New Orleans during the early fall, according to J. E. Rhodes, Secretary-Mgr. of the Southern Pine Association, who recently conferred with Senator Wm. L. Calder of New York, chairman of the committee, regarding that body's work.

Senator E. J. Gay, of Louisiana, is a member of this committee and has been especially interested in its work and will take an active part in its investigations.

Hearings will be held by the committee in various sections of the country. At this conference with Mr. Rhodes, Chairman Calder requested that the Southern Pine Association submit to the committee at the New Orleans sessions, information regarding the effect on the construction of homes of the freight car shortage and congestion of transportation, the effect of the restriction of loans for building purposes, the comparative cost of building materials and the extent of the actual shortage of houses, particularly in the South.

The Association has made an especially complete study of all these phases of the home-shortage question and will be prepared to submit information respecting the subject.



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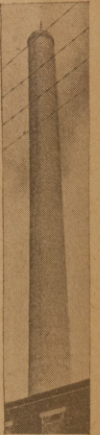
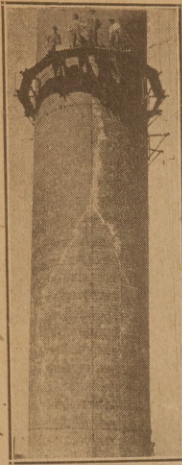
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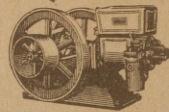
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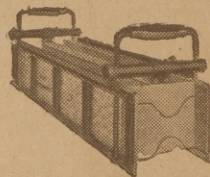
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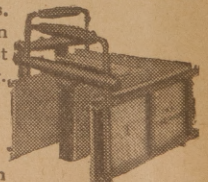
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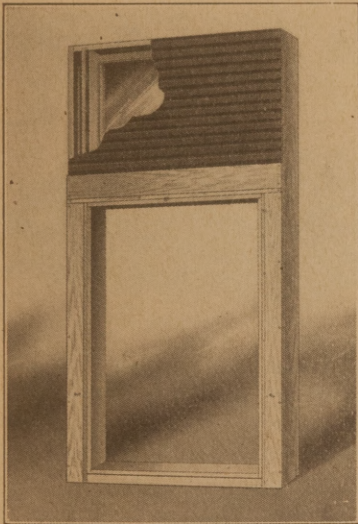
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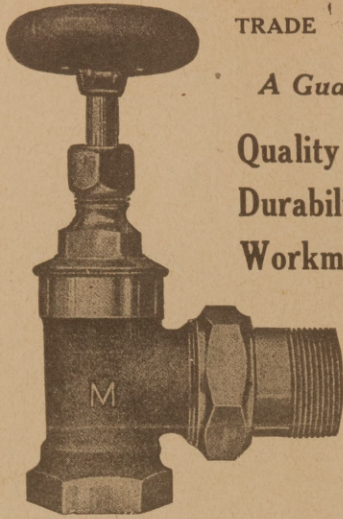


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Extra Heavy Quick Opening Hot Water Radiator Valve with Union.

Let us send you our best prices.
 Let us figure on your requirements.

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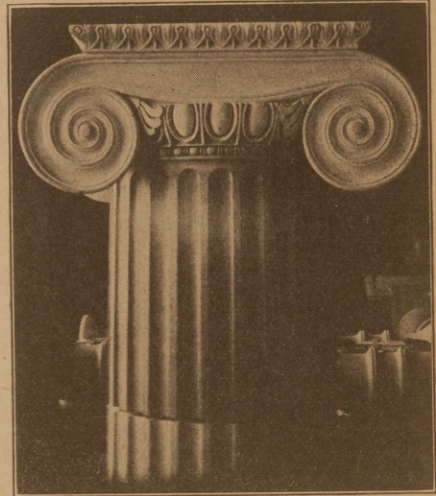
Milwaukee Valve Co.

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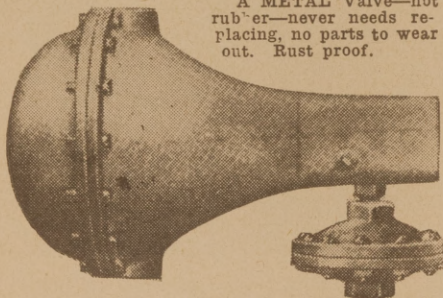


Good carving adds the finishing touch to the whole exterior of the building. Our carving department represents just one of the features of Ingalls service.

Ofeldt Automatic Water Regulator

has proved a remarkable success wherever used.

Maintains at all times proper water level in boiler.



A METAL Valve—not rubber—never needs replacing, no parts to wear out. Rust proof.

Oscillates with action of water passing through it, which keeps it clean and free from dirt.

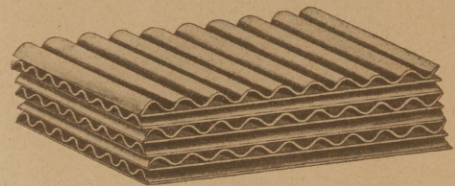
Light, compact, yet rugged in construction.

This device is not a pump, injector or trap, but a highly efficient water regulator.

Write for particulars

The Ofeldt Gas Fired Boiler Co., Inc., Nyack, N.Y.
 Makers of Water Tube Boilers for 25 years

Asbestos Air Cell Blocks



For lining ceilings, covering boilers and other hot surfaces these blocks have proven to be very efficient. They are made of corrugated asbestos paper which leaves small spaces for confining of air.

Whenever in need of Pipe and Boiler Coverings or kindred articles, remember that there is a "Diamond N" product that is built for that particular purpose. If a job puzzles you, ask us what we have for it.

Write for prices

Norristown Magnesia & Asbestos Co.
 Norristown, Pa.

Building Cost Seems "Bullish."

Comparative figures on the cost of labor and building material in 1914 and 1920 show that these items in the world of affairs have advanced more than 20 per cent, in almost all instances. The high cost of living is also a rather sordid reflection for the salaried man, but of no less consequence is the cost of constructing buildings.

A well known insurance company has figured out that in 1914 life was worth living, but now the prices have advanced so far beyond the grasp of the ordinary individual that it seems useless to continue the struggle. Some figures that may or may not "knock you cold" are given in the comparison of this company.

For example in 1914 framing was selling at \$18 per thousand foot whereas today the price is \$48. Carpenters received around 40 cents an hour back in those days, just six years ago, and now they get 90 cents or a dollar. Painters considered themselves lucky to get work at 35 cents an hour in 1914 and now they work eight hours a day for \$1 an hour.

Below are some figures made by this insurance company:

	1914	1920
Framing, per 1,000 feet	\$18.00	\$ 48.00
Carpenters, per hour .....	.40	.90
Painters, per hour .....	.35	1.00
Laborers, per hour .....	.20	.45
Flooring, per 1,000 feet	30.00	110.00
Shingles, per 1,000	3.50	10.00
Laths, per 1,000	2.50	16.50
Nails, per keg	2.50	7.50
Brick, per 1,000, laid.....	18.00	45.00
Sand, per load .....	.60	1.50
Ready mixed paint, per gallon	1.75	4.50
Linseed oil, per gallon .....	.75	2.50
Cement, per barrel	1.75	4.75
Plaster, per square yard .....	.30	1.00
Lime, per barrel .....	.90	2.35

As To New Buildings.

A reader wrote to a physician asking him about new buildings in relation to health. We here give the reader's question together with the physician's reply:

"I wish to call your attention to your statement that you do not know of any peril from fresh wet walls of a new building. There is a distinct peril and that is from dampness. This is based on the fact that lime and plaster as applied is mostly calcium and magnesium hydroxide and in the first six weeks after the plaster is applied a very rapid exchange of the CO₂ from the air and the H₂O of the lime takes place, the calcium carbonating.

"You may have noticed that winter builders always have charcoal or coke salamanders burning in

new buildings. These are not for the purpose of warming, but for the generation of CO₂ gas, the building always being shut tight at night. A new building in fall, spring or winter always should have an abundance of heat and in the summer all windows should be kept open as much as possible.

"Most builders figure that the cost for coal of the first six months of any new building will run anywhere from 10 per cent to 25 per cent more than when the plaster, lime, laths, and lumber have been completely dried out. The exchange between the plaster and the air of CO₂ will be finished at the end of about six months. In a recent opening of a new bank branch in New York the building had a full head of steam on for four weeks to dry it out completely before the employees were allowed into the building."

In reply most of your statements are correct though you do not make your case. Freshly plastered walls are wet. It is customary to dry them out by heat and airing. Wet walls are inimical to wall paper and calsomining. They may cause harm to books, curtains, clothes and other objects.

The statement that freshly plastered walls give off carbonic acid gas may be true. I do not know that builders agree with you that coke salamanders are not for warming purposes.

Suppose we assume your two main statements, namely that freshly plastered walls are wet and give off carbonic acid gas, to be true. The question is what proof have we that these two qualities imperil health? I know of very little proof that wet walls harm health.

It has been proved that the inhalations of air fairly rich in carbonic acid does no harm. A man can stand without harm air far richer in carbonic acid than that found in a freshly plastered wall. In ventilation standards a high percentage of carbonic acid causes the ventilation to be condemned when the gas is due to human expirations, not because the gas is harmful but because its presence in high proportions indicates pollution by humans.

The air in houses is generally too dry. Added moisture from the walls is not likely to do harm. There is some proof that blastomyces organisms have been found growing on wet dirty walls and have caused human blastomycosis. But about there the proof against freshly plastered walls ends.

Room on the Land.

Hearing incessant complaints and lamentations in New York and other great cities about the lack of shelter for the people, the question may be asked, should more shelter be provided? The more acute the demand for houses and the higher rentals, the less attractive will be the cities as places of residence and the weightier the argument of "back to the farm" or "back to the village." Warnings that

the lands are being deserted and that the production of food is steadily diminishing increase in volume—may it not be that the house, “with gas and water connections,” offered at a low rate is the lure to the over-growth of the big town?

Anyway it is practically certain that the people in the country will not suffer from hunger nor, except in the bleaker regions, from cold. In meager, scant fashion perhaps, but in comfort nevertheless, the countryman will continue able to feed and clothe himself and his family and whenever surplus thousands and millions of men and women shall be convinced that that is no longer possible within street car distance of motion picture shows, the movement to the lands will begin again in earnest.

If the population of the rural districts is now too small to supply the inhabitants of cities with necessities at living prices, the heart breaking conclusion is that in the cities are too many people—and there is no other.

In part, the wailing and renting of garments about the high cost of living that is heard in the towns is childish. A large proportion of the city population can go to the country whenever it is of that mind. If city life is a luxury which one can not afford, it is unmanly and unwomanly to attempt to indulge in it.

Building Character into Wood and Stone.

At the recent third annual convention of the Northwest Master Builders Association, held in Portland, Oregon, President Parker, of the Portland branch of the association, said, in welcoming the delegates. “Let us remember in our work that we build more than buildings. We are building character, reputation for honesty and square dealing.”

At the rebuilding of Solomon’s Temple we are told that all the workers “did their work faithfully.” They put themselves into it. They built character into the wood and stone and metals they fashioned. Mr. Parker echoes this idea. Character and reputation for honesty and square dealing should go into every structure, into every part of our work.

The chief aim in a building should be to have every part of it give to its owner the maximum of the workers engaged in it, either in preparing the service, and this can be achieved only through all materials or in assembling them, doing their work faithfully, keeping continually in mind as the guiding impulse that they are building more than a building, that they are building character and reputation for honesty and square dealing—building for service.



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Quality First

Standard Colorings for Interior and Exterior Mortars and Cements.

Special Architectural Colors to Order.

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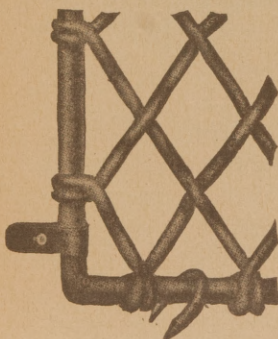
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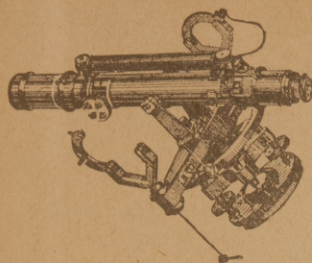


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One-half the amount of our Mortar Colors will do the work of any others, and they are unsurpassed in strength, fineness and body.

Write for samples and quotations. We manufacture a superior grade of Red Oxide of Iron Paint for Rail Road Cars, Bridges, Barns, Fences, Etc.

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If you contemplate the purchase of a

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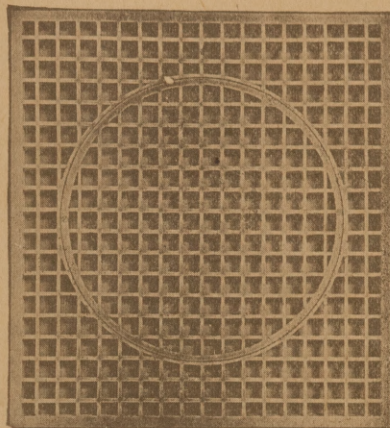
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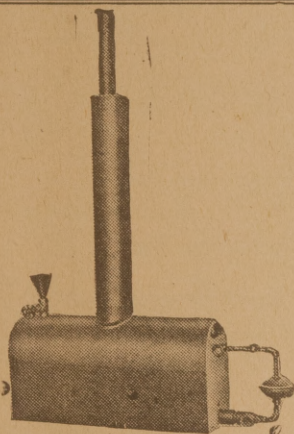
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HEATING BY HOT WATER OR STEAM
THE VESUVIUS WAY**

The greatest advance in house heating in more than a quarter century. A heating plant that uses gas, regulates itself and is as easy to operate as a gas stove.

Only 24 inches long by 11 inches high and 7 inches wide. More economical than coal.

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Something New

Water heated without additional cost while cooking on gas range, by use of the

ELLIOTT Combination Water Heater and Gas Stove Top

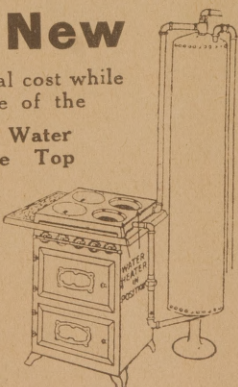
Soon pays for itself in gas-saving. Sizes to fit any gas range.

Not necessary for boiler to be close to range. Can also be attached to oil stoves.

State Rights Offered to Reliable Men. Write Today.

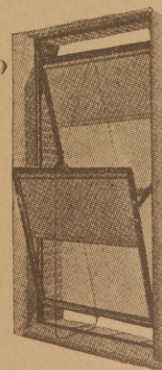
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AUSTRAL BALANCE
WINSLOW CASEMENTS
All Solid Rolled Steel



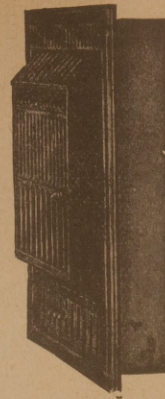
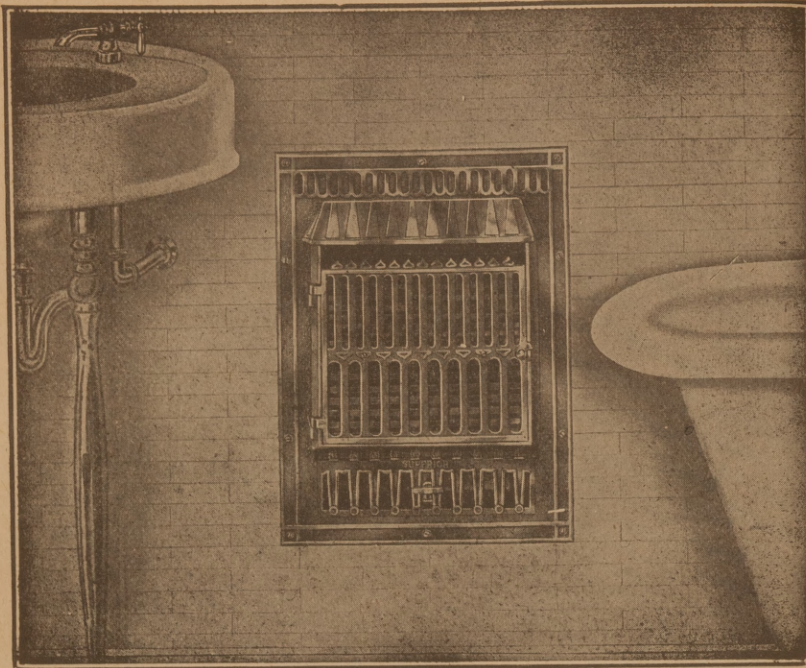
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Window Department

542 W. 27th St., NEW YORK

Branches in All Principal Cities



U. S. Pat. June 28,
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Side View
 Size of Cast
 Front:
 14 ins. wide
 18 ins. high
 Size of Body
 of Heater:
 12 1/2 ins. wide
 16 1/2 ins. high
 4 1/2 ins. deep.

For Natural and Artificial Gas

THE Superior bathroom heater differs materially from any other device for bathroom heating. The front is of Colonial design, cast iron, heavily plated, which is fitted with a door for convenience in lighting without danger of being burned. It is constructed to be used in the regular wood partition, tiled or plastered wall of the bathroom and has the appearance of a hot air register, set 14 or 18 inches from the floor.

It is flueless and odorless, as the flames come in contact with nothing but air, (thereby eliminating asbestos and other artificial substances commonly used in all other types of heaters, which become soiled and unsightly.) Its construction is such as to make it entirely free inside with heavy asbestos, as well as having a large circulating cold air space around the inner frame which contains the burner. The inner frame also is covered with heavy asbestos.

Superior Bathroom Heater in Use with Tiled Bathroom.

The burner, which is made of Imported Lava Tips, is fitted with an adjustable check for regulating the combustion on the different pressures of gas. No air mixer is used, as the gas comes in contact with the air through very small lava tips; it mixes and purifies itself, leaving no odor from the gas whatever. It is made so that the heat from the gas jet causes the air furnished to be drawn from the floor through the fender and pass up over the flame, discharging itself back into the room, thus creating a continuous circulation of pure air through the room at all times.

ODORLESS AND FLUELESS

This heater is equipped with lower corrugated copper reflectors and an upper corrugated deflector, also, upper reflector and baffle plate on the cast door for directing the products of combustion back to the point where it comes in direct contact with the air drawn from the floor, which greatly purifies it. The deflector plate not only directs the heat, but hides the gas jets and reflects the light down upon the lower reflectors, giving a very luminous and pleasing effect. This method of heating a bathroom is not only convenient, but very economical and safe, doing away with the objectionable bathroom stove.

The Superior Bathroom Heater not only ornaments the bath-room handsomely but it quickly heats it to just the desired temperature at the least expense. By its use it is possible to bathe and complete the toilet in perfect comfort without firing an expensive furnace which too frequently destroys the delightful coolness so much appreciated in all other parts of the house during warm weather. In fact, it is a necessity in every up-to-date modern home.

Leading architects and designers throughout the United States and foreign countries always specify "Superior" Bathroom Heaters when the best is desired. The front is heavily plated and polished as handsomely as a watch case.

This heater is made for either outside or inside connection, and whenever neither kind is specified in the order, the kind for outside connection will invariably be sent, as that style is generally preferred when the gas line is not inside the wall. In plan for new house the pipe should be about 5 inches to the left of center of opening and come up just as high as the bottom of same, for convenience in setting.

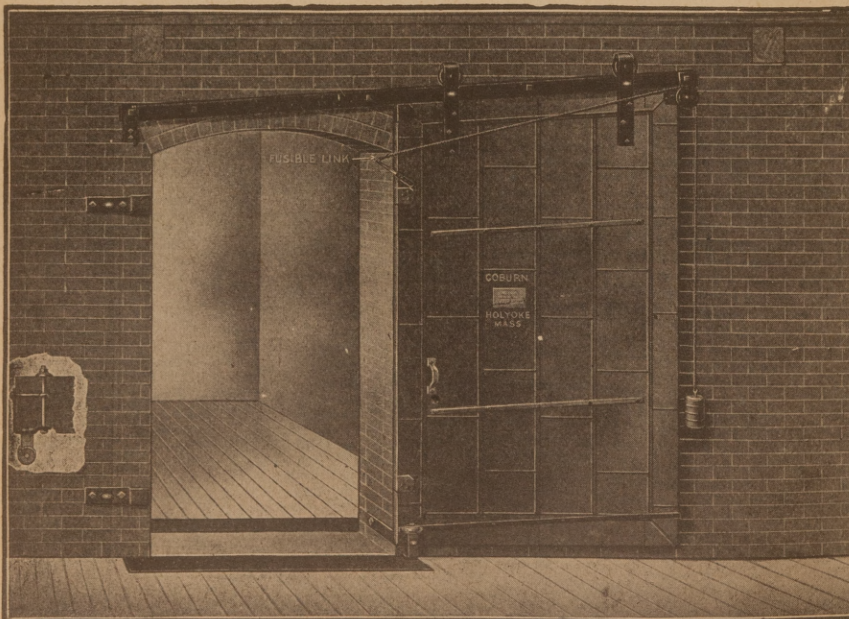
FINISHES:—NICKEL, JAPANESE BRONZE, or BRIGHT BRASS.

Be careful to specify finish and to state whether outside or inside connection is wanted when ordering.

Complete with valve and adjustable check. Bright Brass, Nickel or Japanese Bronze Finish.
NO FLUES NO ODOR NO ASBESTOS NO LARGE GAS BILLS NO DANGER FROM FIRE

The Superior Manufacturing Company, N. S., Pittsburg, Pa.

General Offices and Factory: Corner Said and Magnolia Streets, North Side.



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 Fire Proof Doors
 FOR ALL PURPOSES**

Made single and double, incline slide, level slide, single and double swing and vertical slide. Are inspected, labeled and tagged under the supervision of the Underwriters' Laboratories, Inc. Send for our catalog and price list covering these standard doors. Also makers of barn door hangers, parlor door hangers and rolling store ladders.

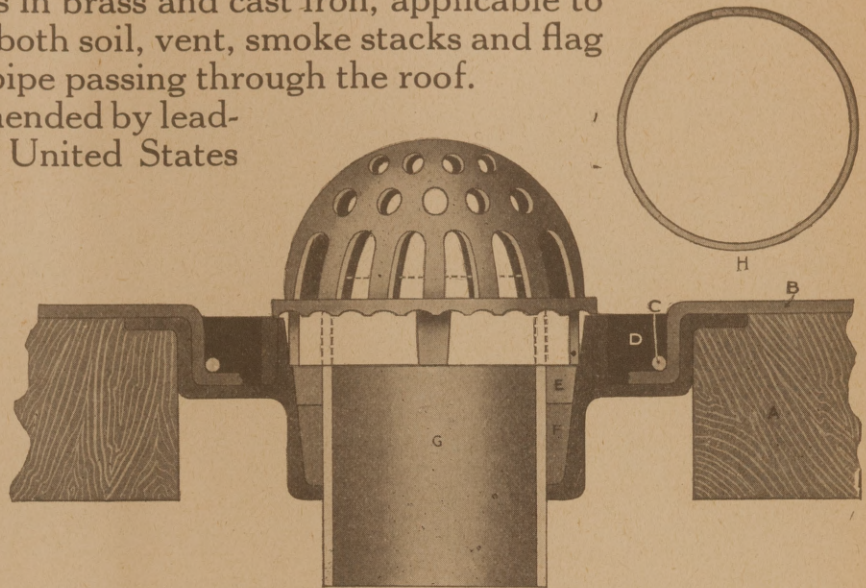
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Made in all sizes in brass and cast iron, applicable to all pipe connections, both soil, vent, smoke stacks and flag poles or any type of pipe passing through the roof.

Adopted and recommended by leading architects in the United States and Canada.

Special attention called to the expanding and bonding conditions above the roof. No complicated connections in attic or under ceilings. Attachments all made plain for operator.



Write for Bulletin 29-A, descriptive of the full line, to the manufacturers

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MODERN BUSINESS BUILDERS BURDICK LIGHT BATHS

Are constructed upon basic principles of Therapeutic efficiency which have secured for them the highest awards by recognized authorities.

Their Practical Value

Has brought the Light Bath into universal popular demand in American Hotels, Sanitaria and Homes.

Their Surpassing Advantages

- Burdick ventilating system.
- Sanitary adjustable collarette.
- All steel construction.
- Standardized by National Board of Underwriters.
- Types for every purpose.

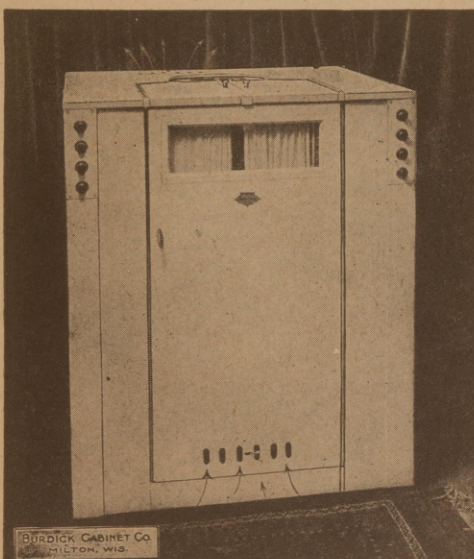
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Observe ventilators at bottom of front door and top of cabinet which permits of free circulation of fresh air.



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We have put in a life time, producing SLATES OF QUALITY. We know from actual experience which grades of slates are best suited to YOUR climate, which grades best blend with YOUR type of building and which grades will bring out the inherent beauty of YOUR BUILDING. We have a grade, size and price that best suits your requirements. Your inquiry will prove results.

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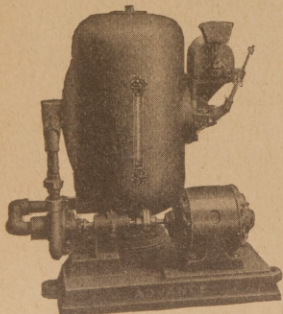
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PUMP AND RECEIVER**



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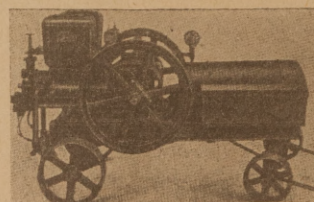
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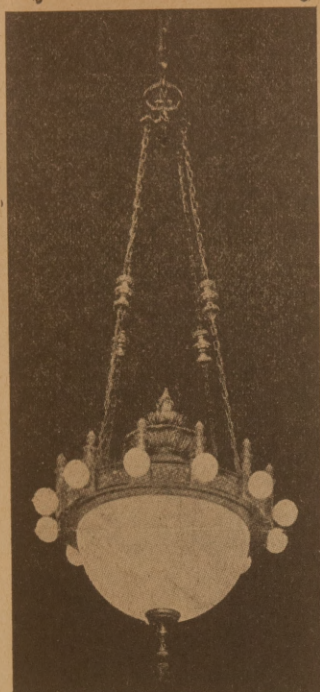
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THIS symbol appears on every genuine package of Alabastine. It guarantees you beautiful, durable, sanitary walls, modern and delicately tinted in soft, pleasing colors which harmonize perfectly with your rugs and draperies.

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The general consensus of opinion is that Alabastine is a good material. It has demonstrated its superiority by the test of time and by the wonderful demand existing for it.

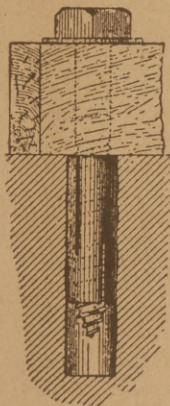
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Your local Dealer is Entitled to Your Trade

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Because of its simplicity the Little Giant Expansion Screw Sleeve can be manufactured and sold at a low price. However quality has not been sacrificed to price. The

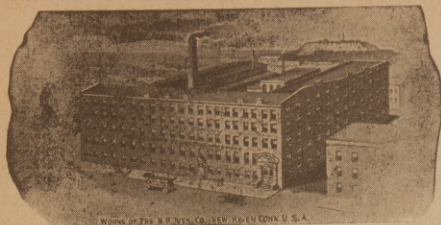


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Expansion
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expands evenly throughout its entire length from the first turn of the screw. Screw cuts its own thread as it enters.

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STANNARD MFG. CO.
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ESTABLISHED 1876

INCORPORATED 1900

Manufacturers of

BUILDERS' HARDWARE

HIGH GRADE WINDOW AND DOOR SPECIALTIES

Write for Illustrated Folder.

Others Discuss Some Timely Topics

Muscatine's Housing Plan Waits.

Muscatine, Iowa, has been at work for a year or so on housing plans. As yet the leaders have not been able to find a way to build houses and find men that will buy them at a price necessitated by the present high cost of construction.

The Muscatine Chamber of Commerce has been active in this effort. Its secretary, Mr. R. C. Chamberlain, tells us of the obstacles that lie in the way of the success of the movement.

"The initial trouble, so far as I can see it," said he, "is that none of the planners of these housing schemes has foreseen and solved the problems of selling the houses they propose to build. The cost of these houses places them beyond the reach of many of the people for whom they are supposed to be built.

"In my investigations, I observe that most, if not all, of the successful housing schemes have been put through by big commercial concerns.

"Some of the schemes that have been pushed to the front, are, when you analyze them, found to be only another form of the building and loan association plan. They are not new but simply a new form of a plan already in use—that of the building and loan organizations.

"The problem, as I understand it, is to provide homes for working people, many of whom earn only enough to meet their daily wants. You can't expect a man that is getting only \$25 a week to pay \$50 a month on a home; and he would have to pay that much under some of the plans that some of the housing associations have developed.

"If these housing schemes are to be successful, they must be made with regard to what salary the man is getting and how much of that salary can be used monthly for payments on the house.

"A great many investigations have been made of the family budgets, and conclusions reached as to how much each family does pay and can pay for housing. It is generally agreed by investigators that what a workman is able to pay for this purpose is between 20 and 25 per cent of his income.

"The housing propositions that I have seen are

not consistent with these figures. The 20 or 25 per cent of the income of many of these laboring people would constitute payments only on a house very much cheaper than the house that the housing associations propose to have built.

"As a consequence, I am very strongly behind the idea that the manufacturers in need of help should provide houses without very much thought of any return.

"If they are willing to make this investment on some plan that will require only such returns as will pay for the upkeep of the property, it will produce results.

"What they propose to do here in Muscatine was to build 50 homes, and as fast as the money came in for these houses it was to be used for building more houses; and the initial fund would thus become a revolving fund.

"It was supposed that \$200,000 would be enough; and that the banks would carry one-half of that. This meant that citizens would have to raise only \$100,000, which would be enough to carry on the work. The whole scheme was built upon a 6 per cent interest basis. But now the banks are getting 7 per cent interest, and that throttles the whole idea.

"Also, the subscriptions amounted to only half of what was originally planned, or \$50,000.

"One of the big fallacies in the soliciting was in the stipulation that the building material must be furnished by the building material men at cost, which the building material men refused to do.

"This was more than could be expected of them. What building man could be expected to do that, when he had unfilled orders from his regular customers at regular prices. What man, if he were a seller of building material would decline to fill the orders of his customers and divert the material to those that would pay him no profit for it.

"As a result of this controversy, some of these that had subscribed, cancelled their subscriptions.

"That it the state of our housing plan today. The successful plan of building and selling houses for small wage earners has yet to be worked out."

Perforated
Radial Brick

CHIMNEYS

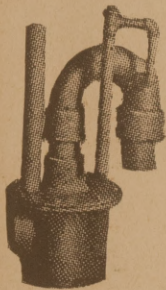
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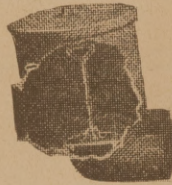
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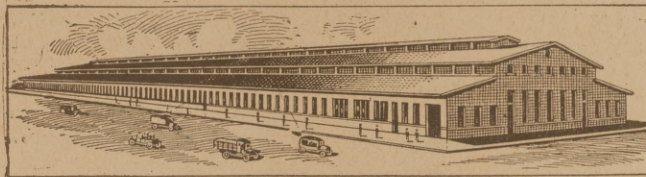
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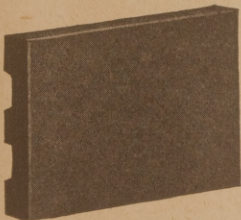
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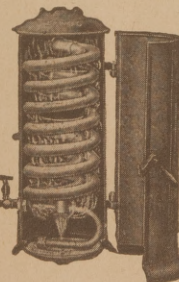
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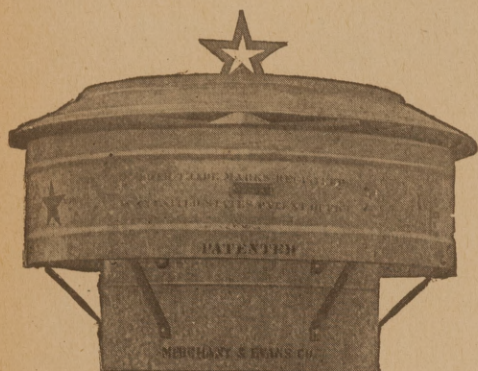
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Around the tape are closely woven a series of soft copper strands. Each strand is a surface conductor and in contact with the spiral tape core. This method of construction forms a



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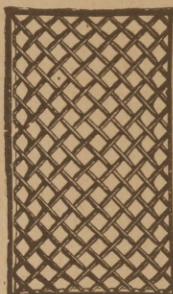
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In considering the great *durability* and the *fire-resisting* qualities of Ambler Asbestos Shingles do not overlook the commercial value of the *color* schemes they permit.

**AMBLER ASBESTOS
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Ambler Asbestos Shingles are made in four non-fadeable tones, Newport grey, natural slate, red and green—the only green shingle that will not fade.

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Ambler Asbestos Shingles are made from a scientifically accurate mixture of the best Portland cement obtainable and strong asbestos fiber. It is this combination of indestructible materials that gives to Ambler Asbestos Shingles their fire-resisting qualities and remarkable durability.

All architects and builders will be interested in seeing samples of the new shingle of everlasting green.


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Factors: KEASBEY & MATTISON COMPANY, AMBLER, PA.

Branch Offices: Atlanta, Boston, Buffalo, Chicago, Cincinnati, Cleveland, Minneapolis, New York, Philadelphia, Pittsburgh and Washington

Manufacturers of: Ambler Linabestos Wallboard, Ambler Asbestos Building Lumber, Ambler Asbestos (Century Brand) Shingles, Ambler Asbestos Corrugated Roofing and Siding, 85% Magnesia and Asbestos Pipe and Boiler Covering, Asbestos Textiles.



Economy, Beauty, Permanency and Fire Protection

The illustration above is a half-tone of the new green Ambler Asbestos Century Shingles and, so, shows exactly their color and texture and just how they lie on the roof, in one of the three methods of application. Ambler Shingles are one of the

AMBLER ASBESTOS BUILDING PRODUCTS

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Ambler Linabestos Wallboard. Wherever a superior flame-proof, fire resisting wallboard is wanted.


Send for samples and literature showing reproductions of installations

Asbestos Shingle, Slate and Sheathing Company
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Branch Offices: Atlanta, Boston, Buffalo, Chicago, Cincinnati, Cleveland, Minneapolis, New York, Philadelphia, Pittsburgh and Washington

Manufacturers of: Ambler Linabestos Wallboard, Ambler Asbestos Building Lumber, Ambler Asbestos (Century Brand) Shingles, Ambler Asbestos Corrugated Roofing and Siding, 85% Magnesia and Asbestos Pipe and Boiler Covering, Asbestos Textiles.



The FLOOR BOX

WITH THE
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Prompt
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Though fully realizing that there are many Floor Boxes of varying quality and design, many architects give deservable recognition to

Floor Boxes


by specifying them in all their representative jobs.

They do this not altogether because of the excellent construction and design of FA Floor Boxes, but largely because of the fact that this is an ALL-IN-ONE FLOOR BOX—the reversible cover allowing the Floor Box to be converted instantly into active service without purchasing additional parts; in other words, specifying a complete Floor Box at no greater cost than the ordinary types.

This and the following features make FA Floor Boxes not only desirable but lowest in installation cost consistent with quality and good workmanship.

The top is readily adjustable for variations of $\frac{3}{4}$ of an inch. It is absolutely water-tight. Its generous dimensions of $4\frac{3}{4}$ " square and $3\frac{3}{4}$ " deep will accommodate three $\frac{3}{4}$ " or two 1" conduits in one side.

The reversible cover, when removed, allows a clear opening of 3" for adjustments.

Bulletin describing  Floor Boxes will be sent to you upon request.

Frank Adams Electric Co.

SAINT LOUIS, U. S. A.

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400 Penobscot Bldg.

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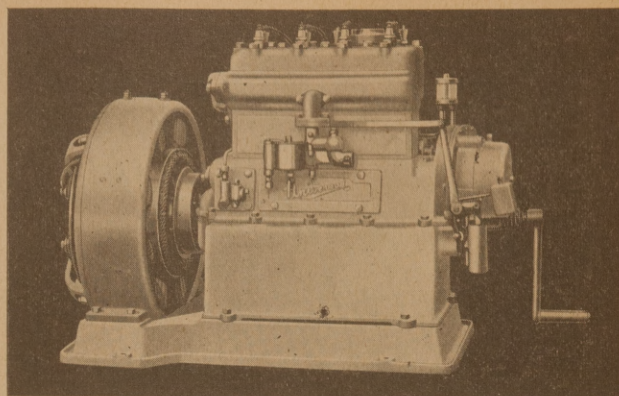
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Universal

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Electric
Generating Set

Universal Electric Generating Sets are being specified largely for new buildings requiring isolated electric service because of its smoothness of operation, reliability and economy.

Its capacity makes the Universal the ideal plant for larger farms, country estates, churches and boat lighting. It has sufficient power to carry the overloads frequently imposed on small lighting plants which cannot be expected to stand up or give satisfactory service under such conditions. The Universal will supply current for lights, motors, or utensils. Its capacity without overloading is 200 twenty-watt lamps.

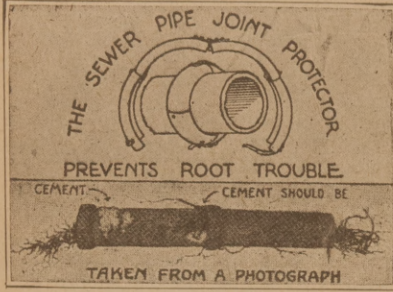
Ideal for moving picture work. You will be interested to know how this plant is constructed in our large especially equipped factory.

Ask for bulletin No. 30.

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is made of 20 gauge galvanized sheet iron and laps over at the quarter connections.

It is flexible so as to allow edge of Protector to fit tight to any untrue pipe.

Also make special "Protector" for connections of 6-inch stone pipe to 4-inch iron pipe.

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This shows cement removed while installing.
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Plain or Fabricated Steel for Immediate Shipment.

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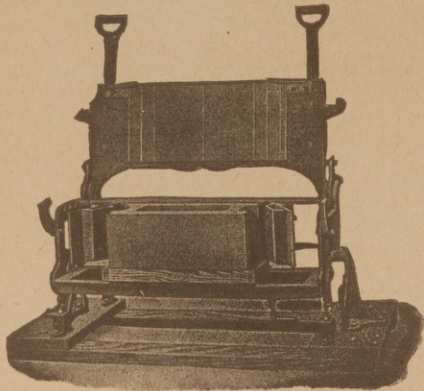
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Manufacturers of Adamantile, a high grade Spanish Cement floor tile, has been used in Europe for centuries, introduced in America by us about ten years ago.

Write us for booklet of information regarding this product.

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Continuous Mixers Batch Mixers
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Universal Adjustable Sill Cap and Step Molds.



We have devoted the past 24 years to the manufacture and perfection of our concrete machinery and fully guarantee same.

Write or wire for our catalogues and dealers proposition. It will be worth your consideration.

DEPT. 28.

The Miles Manufacturing Co.
JACKSON, MICH., U. S. A.

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The Wood Mosaic Kind

For every home—Old or new. Can be installed by our mechanics. Our 5-16" flooring can be laid in old or new houses. We make all kinds and thicknesses; Wood-Carpet, strips, Plain and Ornamental Parquetry, Tongue and Groove Flooring.

Send accurate measurements of rooms for colored sketch with exact estimate of cost of the flooring required. Instructions for laying and finishing accompany all orders shipped.

Send for free catalog in natural wood colors.

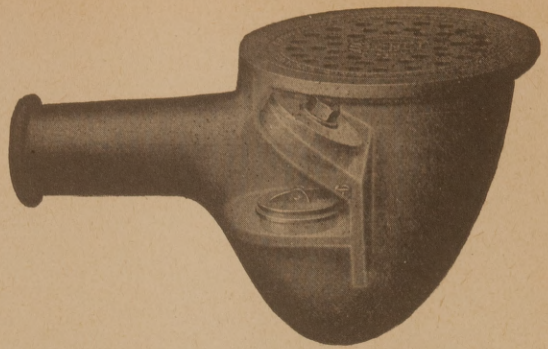
Wood-Mosaic Company
New Albany, Indiana

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The quality of material, the superiority of design, the absolute safety and reliability of operation, recommends the Sig.let for all high-class work where permanent satisfaction is sought.

Write for circular

CRAMPTON-FARLEY BRASS CO.
KANSAS CITY, MO.



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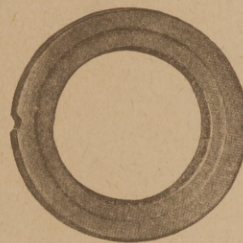
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They make water closet joints that a plumber can be sure about. They stay where he puts them, are non-porous and absolutely prevent the escape of sewer gas thru the closet joint. They adhere to all materials making sealed joints which are permanent.

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Our Booklet on modulated and Vapor heating is full of instructive matter. It also illustrates and describes these specialties. Send for your copy.

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It eliminates guesswork and saves tedious mathematical working out of such problems. Also saves waste of lumber and time.

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This is a personal Architectural Service, that will enable you to build homes of individuality and character. Special plans embodying your requirements and your ideas carefully worked out. We furnish large scale blue-prints of floor plans, elevations, details of construction of interior and exterior, with all explanatory notes and dimensions. The saving effected through the use of our plans will be a sum of money far in excess of the price we ask for the drawings. Further information of the service will be sent you on request.

The Architectural Service Co., Suite 300 Majestic Bldg., Milwaukee, Wis.



20 Year Barrett Specification Bonded Roof on Marion County Court House, Salem, Ill.

Barrett Specification Roofs

Bonded for 20 and 10 Years

Architect: W. J. Royer, Urbana, Ill.
Gen'l Cont.: Cope & McDonald, Roofer: F. E. Hayes & Son, Centralia, Ill.

One "experiment" was enough—

WHEN the Marion County Court House at Salem, Ill., was built a few years ago, it was not at that time covered with a Barrett Specification Roof. Instead a more expensive type of roof was chosen.

After only four years of service an entirely new roof was required. Needless to say, one experiment was enough. This handsome structure now carries a Barrett Specification Roof, guaranteed to be free from all maintenance and repair expense for 20 years.

Surety Bond Roof Insurance

The Barrett 20- or 10-Year Guaranty is in the form of a Surety Bond, issued by the United States Fidelity and Guaranty Company of Baltimore.

Any Barrett Specification Roof of 50 squares or larger, in towns of 25,000 and over—and in smaller places where our Inspection Service is available—may be thus insured free of charge.

All the owner need do is insert the following paragraph in his building specifications:

"This roof shall be constructed in accordance with the Barrett Specification revised April 15, 1920, and the roofing contractor shall obtain for me the (20- or 10-year) Guaranty Bond therein mentioned."

Our only stipulations are that The Barrett Specification revised April 15, 1920, shall be strictly followed and that the roofing contractor shall be approved by us and his work subject to our inspection.


Important Notice

The Barrett Specification Type "AA" 20-Year Bonded Roof represents the most permanent roof-covering it is possible to construct, and while we bond it for twenty years only, we have many roofs of this type that have been in service over forty years and are still in good condition.

Where the character of the building does not justify a roof of such extreme length of service, we recommend the Barrett Specification Type "A" Roof, bonded for 10 years. Both roofs are built of the same high-grade materials, the only difference being in the quantity used.

Both roofs are built of the same high grade waterproofing materials, the only difference being the quantity used. Full details regarding these Bonded Roofs and copies of The Barrett Specifications sent free on request.

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New York Cleveland Birmingham Salt Lake City Lebanon	Chicago Cincinnati Kansas City Seattle Youngstown	Philadelphia Pittsburgh Minneapolis Peoria Toledo	Atlanta Columbus	Duluth Richmond	Milwaukee Latrobe	Bangor Bethlehem Elizabeth	St. Louis New Orleans Nashville Johnstown Buffalo	
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THE BARRETT COMPANY, Limited: Montreal Toronto Winnipeg Vancouver St. John, N. B. Halifax, N. S. Sydney, N. S.

City Planning as a Civic Advertisement

By Rossel Edward Mitcheli, Washington, D. C.

There is a very familiar story of a ship sailing the South American seas far out of sight of land, that ran out of fresh water. After enduring the pangs of thirst for a time the crew sighted another ship. They joyfully hailed it and signalled that they were out of water. To their amazement the signal was sent back, "Dip Down." Thinking they were misunderstood they repeated their message and again the reply came, "Dip Down." Vexed at the seemingly unfeeling response they were about to despair when one of the crew cast a bucket and rope overboard and to the surprise and delight of all brought up fresh water. They were off the mouth of the mighty Amazon, never dreaming that the enormous river sweetened the waters far out to sea. This hackneyed story well serves to illustrate the policy of many American cities that go far afield to "advertise" their advantages to a distant world, but failed completely to prove those amenities of life which may easily be had but make no appeal because of their commonplaceness.

As it is not what a man earns, but what he saves that counts, so it is not so much a great influx of population that our cities need—often this proves a doubtful blessing—it is the cultivation and contentment of the existing population by provision for those amenities of life that make life enjoyable and mitigate the struggle for existence. I know a city with natural advantages unexcelled, where the population doubled and trebled during the war. Then the gas supply, the electrical supply, the street car system and finally the water system all proved inadequate to the strain. The result was an avalanche of criticism and discontent. The influx of people was expected, was sought for, but no provision was made for even their bare necessities. Results, a rapid decrease in population after the war, but worst of all, thousands of emissaries have been sent broadcast to spread their complaints to a listening world. That same city is now considering spending \$10,000.00 a year to "advertise" itself. Probably ten millions of dollars would be required to compensate for advertising already received—of the wrong kind.

I know another city with splendid advantages as a mecca for excursionists and conventions. Peo-

ple like to visit that community. Those who come are probably not five per cent of those who would if some provisions were made for their entertainment. That city has talked convention hall for twenty-years but have not spent a dollar to provide a suitable place for meetings. There is not a single public comfort station to be found and no deliberate inducement of any kind made to attract visitors. And how few of our cities provide an adequate system of parks where the weary sojourners may rest in the shade for a while, and where the women and children can tarry between shopping tours. Nor should mere smiles greet the suggestion that if young girls and young men who work for a living are provided semi-private opportunities for love-making away from the prying ears of the boarding house or the doubtful suggestions of the moving picture, the result will be the setting up of more real homes, on which the whole fabric of civilization rests.

Americans are largely nomadic; they will not stay where they are discontented and unhappy, nor where they cannot improve themselves. The race for precedence among American cities is yearly growing more keen. The far-seeing city councilman or commissioners will keep in mind the proverb "There is that scattereth and yet increaseth; there is that withholdeth more than is meet and tendeth to poverty."

City planning, to some minds, consists in making an ideal layout of streets, parks etc. for a city where the realty values along the original cow-paths to which the city has grown, make the consummation of the scheme impossible from the start. The science of City Planning DOES include the correction of street layouts where possible and practicable, for circulation is the life-blood of the city.

It does include the formation of rational park systems, the improvement of transportation routes, the correction of engineering errors. It also includes every convenience for the comfort, health and happiness of the resident population and due regard for those aesthetic considerations that appeal so strongly to the stranger and visitor, whose first impressions are the hardest to efface. In other words, true city planning aims to make the citizens contented with and proud of their city. It aims to gratify

and please the traveller, be he neck-tie drummer or Cabinet minister. With these two objects attained, no worry need be had about advertising. The third Napoleon and Baron Haussman rebuilt Paris and by wise planning made it the best advertised city in the world. The farseeing eye of immortal Washington made the Capital of America a delight to the tourist by wise planning. There is scarcely a thriving city in America but could be made to take on new life, could be made a lode-stone of attraction and interest by judicious development along lines of public convenience, recreation, entertainment, education and architecture. Venice does not need to employ press agents—she has always had them gratis. Florence never had to take advertising space in newspapers, Giotto made it unnecessary. Pisa is a small city, but known the world over. There are therefore at least two permanent and effective ways by which a city may be advertised: first, by one extraordinary and outstanding feature such as a group of civic buildings, a "civic center" on the order of that at Springfield, Mass., or the piazza of St. Mark, Venice, or the Place de la Concorde, Paris.

Second, a wise attention to the many things that make the daily comfort of both citizen and travellers.

Fortunate is the city that can achieve both. That city is destined to out-distance less lucky rivals. With either of these lines of progress actively developed, no direct, expenditure for advertising as such will be required.

Lumbermen's Committee on Transportation.

Ben S. Woodhead, first vice president of the American Wholesale Lumber Association, acting for President Burton of that organization, during his absence, has appointed the following members of the traffic committee:

A. L. Stone, Nicola-Stone & Myers, Cleveland, O., chairman; C. E. Walden, Sabine Tram Lumber Co., Beaumont, Tex.; M. G. Truman, Marsh & Truman, Chicago; Thomas E. Coale, Thomas E. Coale Lumber Co., Philadelphia, Pa.; J. G. McCormick, McCormick Lumber Co., Birmingham, Ala.

It is understood that this committee will at once begin active work. The members are anxious to render a definite service to the membership and will be glad to have suggestions from members as to what services would be of greatest benefit. With this in view all suggestions may be sent to Mr. Stone, at his office in Cleveland.

It is said that his committee will not only attempt to protect the industry, but will in every way possible assist in cooperating with the railroads and the government in meeting the present emergency.

Personal Mention

Landscape Work in the South.

Architect C. E. Schermerhorn, Philadelphia, Pa., has prepared plans for the extensive alterations and additions to premises "Rosebank," Aiken, South Carolina, recently acquired by Mr. Eugene G. Grace, President of the Bethlehem Steel Co.

Architect Schermerhorn has awarded contract for alterations to McGhee & McGhee, of Aiken, South Carolina, landscape work to John Amos, Aiken, South Carolina, interior decorations to J. W. Buck, Aiken, South Carolina, the electric work to Aiken Electric & Construction Co., and the plumbing and heating work to E. J. Erbeding, Augusta, Georgia.

Offices at Norfolk and Washington.

Rossel Edward Mitchell & Co., Ltd., Architects, Engineers and Town Planners, have moved their general offices to 817 Fourteenth Street, Washington, D. C., from Norfolk, Va. Branch office is to be maintained at Norfolk.

Mr. Mitchell, a member of this well known firm, contributes to this number of the Southern Architect & Building News a most interesting article on town planning, which should be carefully studied. Perhaps other articles may be coming from his pen during the fall months.

In New Location.

Grandy & Brittain, Engineers, Atlanta, Ga., are now established in their new location, 10 W. Harris Street.

Reynolds Address Builders' Exchange.

Frank T. Reynolds, secretary of the Georgia Automobile association, and prime booster for the good roads bond movement, was the principal speaker at the monthly meeting of the Atlanta Builders' Exchange recently at the Atlanta Athletic club.

Mr. Reynolds told the members that he expected to see building operations in Atlanta and the south continue at top speed for many months to come. He also told of his recent appearance before the interstate commerce commission, in the interest of securing more open cars for the southeast, particularly for moving building supplies.

Tampa Building.

Tampa, Fla., building permits during the first week in June aggregated \$552,205.

Fresh Air at All Times

In this Bank Building

THE rapid growth of banking institutions in recent years has caused the construction of a great number of new banking houses, and the enlargement by alteration of many more. Most of them are dignified and substantial in architecture, and equipped with a completeness that would astonish a banker of fifty years ago. Yet their steel furniture and telephone, their pneumatic tubes and telautographs, are not luxuries, but necessities demanded by modern efficiency for the transaction of business in the shortest possible time and with absolute accuracy, writes C. W. Stedman in *The Bankers' Monthly*.

An adequate and automatic supply of pure fresh air is as necessary as an adding machine in maintaining the required efficiency of bank workers. Banks are frequented today by far larger numbers of people than a few years ago, and in the absence of adequate mechanical means of ventilation the air even in the largest banking room speedily becomes vitiated and foul, so that the workers forced to remain there lower their efficiency at every breath.

Note that the phrase "adequate mechanical ventilation" was used. Open windows cause strong draughts, disagreeable and often dangerous to those near them; while so-called "natural" or "gravity" systems of ventilation on the tendency of warm air to rise, are so sluggish and unreliable in practice as to be substantially useless. To ventilate a bank or any other building properly, fresh air, at healthful temperature and humidity, must constantly be forced into each and every room, in quantity sufficient for the needs of the occupants, distributed so that no "dead pockets" of foul air can remain, at a velocity which will not cause perceptible draughts. At the same time that fresh air is thus introduced, an equal quantity of vitiated air must be removed by similarly positive means. Nothing less complete and thorough than this can be depended upon to furnish pure air everywhere and at all times.

Such a system is expensive, both in installation and in subsequent maintenance, and building committees are often tempted to omit it on that account; the more that the failure of many existing systems of the "natural" type inclines many bankers to consider all ventilating plants as costly and inefficient luxuries. In such a state of affairs, a heavy responsibility rests on the architect as technical adviser. Building codes forbid the occupation of insufficiently lighted rooms. They do not yet require a positive

supply of pure air. Fortunately many bankers, especially in the larger institutions, have come to regard air supply in its true light as a necessity, and few banking houses of any considerable size are now erected without a scientifically designed system of mechanical ventilation.

As architects for the new home of the Guardian Savings & Trust Company in Cleveland, we were faced with a problem in ventilation of unusual difficulty. This banking house, itself very large and complex in its arrangement, is located on a lot extremely irregular in shape, and occupies two basements and three floors of a sixteen story building. The severe requirements of the bank on one hand, and of the heavy and complicated construction required to support the office building on the other, left at first sight almost no space in which to bring in, distribute and remove the great quantities of air involved. Yet, as the principal rooms of this bank have no windows or skylights whatever, but are lighted—very successfully, by the way—by an ingenious system of indirect electric lighting, thorough mechanical ventilation was an absolute necessity. The adequate solution of the problem was gradually worked out only through a year and a half of patient and collaborative study by the architects and the late Mr. F. H. Winslow, heating and ventilating engineer, of Cleveland.

The source of the air provided by any ventilating system is naturally of prime importance. In case of the Guardian, the air used is taken from a light court, sixty feet above the ground, and protected from the dust and dirt of the adjacent streets. From the intake it is drawn down a vertical shaft to the sub-basement, where it is washed clean by a screen of water trickling down over coke, and then passes through the "tempering coils" of steam pipes which remove the excess humidity caused by the previous operation to the large electrically driven fans. These the accurately proportioned to move the required quantities of air without "speeding up" to the point which would cause an audible whirr or hum anywhere in the banking quarters. The fans next force the air through more coils of steam pipes which warm it to the exact temperature desired, into the "plenum chamber," also located in the sub-basement. The plenum chamber is a room some forty feet square and ten feet high, and the warmer air in it is maintained by the action of the fans at a constant pressure in excess of atmospheric pressure. From the

plenum chamber separate ducts, of varying sizes, each insulated with sheet cork to prevent loss of heat, or the overheating of the basement through which most of them pass, lead to each one of the hundreds of fresh air inlets located throughout the banking quarters. The velocity of the air in these ducts begins at 1000 feet per minute, which is reduced by friction and gradual enlargement of the ducts to a velocity of 200 feet per minute as it enters the rooms, which is insufficient to produce perceptible draughts.

The vitiated air is removed by similar fans through a similar series of ducts, and driven up a vertical shaft to the roof of the building before being released, in order to avoid possible contamination of the fresh air supply by that already used.

The ventilation of the twelve toilet rooms is accomplished by a similar but totally separate system. The air in every room and compartment of the bank is completely changed eight times per hour. Thermostats distributed throughout the building automatically control the temperature, by actuating dampers which control the flow of warmed air through the ducts supplying the respective rooms.

In warm weather the operation of the whole system is reversed. Cooled fresh air is then admitted near the floor of each room, and the hot foul air removed near the ceiling, with the result that a comfortable working temperature is maintained on even the hottest days.

Careful thought was given to the openings into the rooms for the admission and removal of the air, with a view to minimizing the disfiguring appearance of ordinary vent registers. In the main banking room, a circular inlet is concealed above each of the rosettes which decorate the ceiling coffers, so that fresh air is literally showered over the room. The vitiated air is chiefly removed through long slot-like registers concealed just below the marble counter of the bank screen, and also through outlets placed in the bases of the check desks. Each teller's cage is separately ventilated through ducts concealed in the counter work, and the working space behind the cages also has its own means of ventilation. In the women customers' room, which is paneled in wood to the ceiling, the vent and inlet openings are screened with woven cane exactly matching the color of the woodwork, and, by no means impair the decorative effect. In some parts of the building, notably the lobby of the safe deposit department, especially designed metal screens, framed in marble, are so located as to form integral parts of the architectural decorative scheme.

The maze of ducts leading to and from the various inlet and outlet opening necessarily had to

be placed in extremely contracted spaces, together with pneumatic tubes, pipes and conducts of all kinds. Their accommodation consequently became a matter of extreme complexity and great difficulty. As in the case of the handling of the outlets and inlets, the final solution was reached only after months of painstaking study. Eventually, however, it was found possible completely to conceal every duct, so that no room is anywhere disfigured by the box-like form of a duct projecting below its ceiling.

Due to the complexity and compactness which necessarily characterized the duct system, it was difficult adequately to explain by drawings, and its successful installation was beyond the unaided ability of the heating contractor. The daily presence of a specialist representative of the architects was therefore found necessary during the months occupied by the construction and installation of the many complicated forms which the ducts were forced to assume.

The operation of this system, during the three years of occupancy of the new premises, has given full satisfaction to the bank, the public, and the designers. No draughts are anywhere perceptible, nor do the inlet and outlet openings, even where actually visible, obtrude themselves upon a visitor's notice. Although all departments of the bank are almost constantly filled to congestion with customers, the purity and freshness of the air, from the safety deposit department in the basement to the switchboard room on the third floor, has repeatedly been the subject of pleased comment. In summer, when the operation of the system is reversed, a temperature of 82 degrees to 84 degrees is maintained in the bank with an outside temperature of 100 degrees on the sidewalk, and proportional results are obtained in less extreme weather.

The ventilating system of the Guardian building is one of unusual extent, complexity, and difficulty of installation. Few problems of this kind approach it in the latter two particulars. It is hoped that the cursory and non-technical description which has been given of it will serve to show that adequate ventilation is always possible, provided that the system is scientifically designed, and installed under rigid supervision, and that, with careful and painstaking study on the part of the architect, the interior effect of the building need in no way be injured or marred by its inclusion.

The new home of the Guardian Savings & Trust Co. was built under the direction of Walker & Weeks, architects of Cleveland, and the ventilating system here described is the work of this firm.

Government Teaches Kiln Drying by Mail

Ten-Lesson Course Open to Anybody Inerested

THE manufacturer who uses lumber as a raw material must give more attention to kiln drying than has hitherto been the common practice, or the resulting excessive waste and dissatisfied trade may cause embarrassment. The time has come when the average dry kiln operator must either improve his methods, or give way to a more progressive man who has learned and kept in touch with more modern methods.

The high cost of lumber and labor, a shortage of thoroughly air-dry stock as well as a general movement for efficiency in production make better methods imperative. Losses due to inadequate methods of kiln drying, especially of stock which is not thoroughly air-dry, often run as high as 30 to 50 per cent, and occasionally even 100 per cent of the value of the lumber. A high percentage of loss is often taken more or less for granted, and its seriousness not considered. Present conditions, however, will force the facts to the attention of the manufacturer. Improper kiln operation means not only a loss of lumber and time, but also poorer goods, fewer orders, less profits and finally the loss of trade to more alert and up-to-date competitors.

Kiln drying of wood is not just a job. It is an art based upon exact knowledge. It requires an understanding of certain fundamental principles, and their application in the daily operation of the kiln. To be efficient the operator must be up-to-date in his methods relative to the best practices.

Within recent years the principles underlying the successful kiln drying of air-dry and green lumber have been worked out by the United States Forest Products Laboratory, which is maintained in co-operation with the University of Wisconsin.

The Wisconsin University Extension Division has arranged to disseminate some of this information by means of a ten-lesson, correspondence-study course. The course is written in simple language, and the text is supplemented with numerous illustrations. It is open to anyone with a common school education.

The lessons do not apply to any particular type of kiln, but rather to the conditions necessary in any kiln in order to bring about good results in the drying of various kinds of lumber.

The course is conducted by Arthur Koehler, of the Forest Products Laboratory, who, on account of his connection with the institution, is in close touch with the latest developments in kiln drying practice. A nominal fee is charged to cover a small per cent of the expense involved in rendering this service. For the other information address the Extension

Division, University of Wisconsin, Madison, Wis.

Synopsis of Course.

Purpose and Difficulties in Kiln Drying: Principles involved in successful kiln operations; lack of technical knowledge in ordinary practice; why lumber needs to be kiln dried; troubles encountered; conditions which must be regulated in drying lumber; kiln drying versus air drying. **Questions.**

Structure of Wood in Relation to Drying: Cellular structure of woods; fibers and pores; medullary rays; difference between conifers and hardwoods; quarter-sawed versus plain lumber; heartwood versus sapwood; how the cells hold and give off moisture.

The "Sap" or Moisture Content of Wood: Meaning of "sap;" how the moisture content of wood may be accurately determined; variations in moisture content in green wood, with the seasons, in air-dry wood, in kiln-dry wood; the fiber-saturation point; effect of moisture and drying on the physical properties of wood; effect of season at which lumber is cut; absorption of moisture by wood. **Questions.**

Shrinking, Swelling, Casehardening and Honey-combing: How loss in moisture affects shrinkage; extent of shrinkage in different directions and for different species with tables; how to reduce shrinking and swelling of wood when in use; collaps or "crimps;" cupping and warping—how reduced; casehardening—cause, tests, how avoided or relieved; cause of honey-combing. **Questions.**

Types of Dry Kilns: How types differ in construction and principles of operation; progressive and compartment kilns compared; ventilating and recirculating kilns compared; kinds of ventilating kilns; kinds of re-circulating kilns; brief description of principal commercial dry kilns. **Questions.**

The Heat in the Dry Kiln: Eight reasons for having heat in a dry kiln; how heat is supplied; heating apparatus—instructions as to installation and care; amount of heat and heating pipe required; temperatures recommended; how and where to measure temperature; discussion of recording thermometers. **Questions.**

Humidity and Evaporation: Why humidity is necessary in a dry kiln; methods of supplying humidity; how a slight change in temperature may greatly change the relative humidity; how humidity affects evaporation; how and where to determine the humidity in a dry kiln; table for use with wet and dry bulb thermometer; how long to steam lumber at beginning, during, and at end of run. **Questions.**

Circulation and Piling of Lumber in a Kiln: Necessity of circulation usually underestimated; methods

of producing circulation; circulation in various types of kilns; simple means of determining direction and rate of circulation; proper piling of lumber in different types of kilns; and piling and cross piling compared; vertical piling and inclined piling; piling of stock of unusual shapes and sizes. Questions.

Operation of a Dry Kiln from Start to Finish: Instruments essential to proper operation of kiln; precautions as to piling of lumber and location of instruments; selection and placing of test pieces; calibration of instruments in working position; tests for dryness, moisture distribution, casehardening, etc.;

sample forms for keeping records; schedules of safe temperatures and humidities for drying over thirty common kinds of lumber. Questions.

Miscellaneous Considerations: Twelve factors which affect the rate at which lumber dries; effect of kiln drying on the strength of wood—results of 100,000 carefully made tests show that kiln drying, if properly done, produces just as good results as the best of air drying; care of lumber before kiln drying; care of lumber after kiln drying; atmospheric conditions desirable in storage shed, wood shop, finishing room, and warehouse. Questions.

Building Construction Costs and the Outlook

INCREASE in the cost of building in the country is indicated in the report of the Mayor's Housing Conference Committee of New York, which shows that building material and wages have advanced since 1914 over 100 per cent. The findings of the committee cover every field of the cost of construction. Advances in the prices of building material range from 10 per cent in one item only out of 115, while the majority have increased over 100 per cent. Of the 115 items, 26 have advanced 200 per cent, and 14 items have risen above 300 per cent since 1914.

Labor costs, while they have not reached the percentage of gain in material costs, have risen 300 per cent since 1914 in the rate of wages paid to common laborers and plumbers' helpers. Out of 49 kinds of labor, workers in 22 industries have had their wages raised 100 per cent since 1914, and in 25 other industries wages have increased between 50 and 99 per cent.

The percentage of increase in the cost of some building materials in 1920, compared with 1914 prices in New York, are as follows: Pressed chestnut and oak, 366 per cent; pressed white wood, 350 per cent; pressed cypress, 330 per cent; pressed white pine, 300 per cent; 4-inch C. I. fitting, 351 per cent; 28-gauge galvanized sheets, 319 per cent; clear maple flooring, 353 per cent; maple oak flooring, 380 per cent; plain oak flooring, 314 per cent; clear quartered oak floor, 263 per cent; tiles, 200 per cent; hardware, 200 per cent; granite, 250 per cent; steel, 200 per cent; radiators, 250 per cent; fittings, 225 per cent; turpentine, 300 per cent; Vermont marble, 200 per cent; slate, 200 per cent; N. C. roofers, 225 per cent; underfloor, 237 per cent; electric lighting fixtures, 125 per cent; electric wiring materials, 125

110 per cent; fir and cypress doors, 100 per cent; sash, 100 per cent; sheet glass, 100 per cent wire glass, 150 per cent; boilers, 160 per cent; pipe, 140 per cent; excavation, 100 per cent; enamel sink, 187 per cent; enamel bath, 193 per cent enamel basin, 194 per cent; lead, 138 per cent; varnish, 114 per cent; Tennessee marble, 175 per cent; Italian marble, 125 per cent; cold rolled copper, 100 per cent; soft sheet copper, 100 per cent; wire glass, sized, 191 per cent, and ribbed glass, 181 per cent.

The percentage of wage increase in the various trades of the building industry in New York in 1920 over 1914 rates are as follows:

Auto truck drivers, 60 per cent; bricklayers, 66 per cent; bricklayers' laborers, 133 per cent; bluestone cutters, 100 per cent; bluestone laborers, 108 per cent; bluestone yardmen, 177 per cent; carpenters, 80 per cent; carpenters' laborers, 300 per cent; cement finishers, 80 per cent; cement laborers, 100 per cent; electricians, 87 per cent; electricians' helpers, 150 per cent; elevator constructors, 40 per cent; freestone cutters, 63 per cent; freestone planermen, 77 per cent; freestone sawmen, 92 per cent; freestone laborers, 108 per cent; freestone setters, 66 per cent; freestone derrickmen, 100 per cent; freestone carvers, 54 per cent; granite cutters, 100 per cent; granite laborers, 108 per cent; iron workers, 80 per cent; iron workers' helpers, 128 per cent; marble cutters and setters, 63 per cent; marble carvers, 66 per cent; marble polishers, 89 per cent; marble cutters' helpers, 100 per cent; metal lathers, 82 per cent; plasters, 66 per cent; plasters' laborers, 133 per cent; painters, 80 per cent; plumbers, 80 per cent; plumbers' laborers, 300 per cent; roofers, 80 per cent; roofers' helpers, 150 per cent; stonemasons, 100 per cent; steamfitters, 63 per cent;

steamfitters' helpers, 133 per cent; sheet metal workers, 80 per cent; tile setters, 50 per cent; tile setters' helpers, 100 per cent, and team drivers, 66 per cent.

With such increases in the prices of all supplies and rates of wages entering into building construction, it is hardly possible that any great reduction in building costs can be secured in the near future, even if the financial situation and lack of transportation had not caused a further halt of building. A warning has been issued against delay in building by George M. Seglin, expert estimator for the Department of Architecture of the State of New York, who declares that prices will probably not drop for a decade. No possible drop, he says, in building prices can be looked for until the shortage of building during the war has been overcome, and the longer building is put off the more acute will the demand be and the higher prices will go.

Mr. Seglin has no faith in the views expressed by some that a possible break in the high cost of building is in sight. His reasons for taking this position are based on the following:

"With the depression in the building field just prior to our entrance into the war, and the Government's discouragement of private construction during the conflict so as to make possible its own intensive building program, the country is now just about 200 per cent behind normal in the production of permanent construction.

"If this nation made a superhuman effort and doubled its production each year, it would take four years to overcome this shortage. We have just enough of a supply on hand to take care of our increased population. But this does not mean that the property owner would have to cut his legitimate profits to rent his property, for it is only when an oversupply is reached that the law of supply and

demand steps in and causes a drop in prices.

"But this ideal condition of production is absolutely impossible, due to a number of reasons. For one thing, we find that the various State, municipal and commercial needs will demand a big proportion of the available construction, leaving very little for home construction. In fact, this need is so urgent that it is questionable whether there will be possible for some time to come any surplus home construction. While the most optimistic view would place the return to normal at four years, the actual return will probably be nearer to six or seven years. By normal I mean a sufficient supply to take care of the demand comfortably and a production ample to provide for the average increase.

"The signing of the armistice found the material marts stripped of all stock and the production of the material plants cut to a fraction of their former capacity. With the removal of wartime restriction, these factories had to begin readjusting themselves. Now they have to face competition with other industries for the necessary raw materials and a shortage of man-power. In the face of these conditions it will be six or seven years before the building-material market can hope to begin the accumulation of a surplus, and then, and only then, will there be a recession in prices. Moreover, this recession will be gradual, as the surplus can only be acquired over a period of years. In other words, I do not think we can see a real drop in price for at least eight or ten years.

"And even if we had material, where could we get the labor with which to install it? The emigration of vast numbers of foreign-born workers and the practical stoppage of immigration has created a decided shortage of unskilled labor, while the need for the skilled variety becomes more pressing every day."



Scottish Rite Cathedral at Dallas.

Tentative Report of Interstate Commission

Rates on Millwork.

A recommendation of dismissal has been made by Examiner F. H. Barelay in No. 6490, Anson, Gilkey & Hurd vs. Southern Pacific et al. The old case was reopened on a supplemental complaint with a view to having a determination as to what relation or relations the rates on sash, doors and other millwork from complaints' producing points in Illinois, Iowa and Wisconsin and from the Pacific northwest to destinations in Central Freight Association and Eastern Trunk Line territories should bear rates contemporaneously in effect on lumber from and to the same points. The complainants alleged undue prejudice to the extent that the millwork rates exceeded the rates on lumber by less than 25 per cent. In other words, they contended that the rates on millwork should be at least 125 per cent of the rates on lumber.

The examiner's recommendation is that the commission hold that the record made at the hearing on the supplemental complaint did not warrant any change in the decision made on the question in "rates on lumber and lumber products" (52 I. C. C. 598).

This controversy originated in the early part of 1914 when Anson, Gilkey & Hurd and twenty other manufacturers of millwork, with plants in Illinois, Iowa and Wisconsin, alleging that the maintenance of the same rates on millwork as on lumber from the Pacific northwest to Central Freight Association and Eastern Trunk Line territories was unjustly discriminatory against them because they had to pay something more than the rate on lumber to get into the markets in question, even when they used lumber from the Pacific northwest, the same as their competitors in the north coast lumber region.

The recommendation that the complaint be dismissed, the examiner said, was not to be taken as a refusal, by implication, to make any percentage relationship between rates on lumber and millwork, but merely that the record did not justify the issuance of an order making millwork rates 125 per cent of the rates on lumber.

There was a misunderstanding apparently, as to the scope of the hearing on the supplemental complaint. The complainants acted on the theory that the issues were res adjudicata while the examiner says the order of the commission reopening the case was put out to enable the complainants to submit such evidence as would establish, *ne novo*, an appropriate relationship between the rates on millwork and the rates on lumber from and to territories involved in the complaint. The complainants, according to the examiner, did not bring out any

facts warranting any modification in the former finding that commodity rates on millwork should be from 115 to 125 per cent higher than the rates on lumber. He said that any disadvantage they suffer by reason of the fact that they must bring into their mills 150 pounds of lumber for the production of 100 pounds of millwork, while their competitors on the Pacific coast are under no such constraint, is a matter merely of geographical location of the mills, and not a disadvantage the carriers can be required to offset by readjusting their rates.

Pacific coast millwork manufacturers intervened against the prayer of the Mississippi Valley sash and door manufacturers. They asked in their own behalf that the Commission require the establishment of a mixed carload rule. Barelay, however, said the evidence did not support their application, and that it should not be granted.

Rates on Lumber.

A recommendation that the complaint be dismissed has been made by Examiner George F. Graham in a report on No. 10972, Cairo Association of Commerce vs. Illinois Central et al. Cairo complained that rates on lumber from points in Tennessee and Kentucky on the Nashville, Chattanooga & St. Louis were unjust and unreasonable in comparison with rates from the same points to Paducah, Memphis and Nashville. The lumbermen who caused the complaint to be filed asserted that they had never been able to compete with lumber from points on the N. C. & St. L., because the rates to Cairo have been higher, especially than to Paducah. The examiner called attention to the fact that while the complainants did not assert the rates to be unduly prejudicial to Cairo unduly preferential to Paducah and other points, comparisons were made between rates to Paducah and rates to Cairo to show that the rates to the latter were unreasonable.

Traffic to Cairo, the report says, moves either through Paducah, Martin, Tenn., or Union City, Tenn.; the distance from Paducah to Cairo is 42 miles, from Martin 59 miles and from Union City 54 miles.

The complainant's big contention was that Cairo should be treated as a north bank Ohio River point corresponding to Paducah as a south bank point and that the difference in rates, generally speaking, should be only one cent, that being the difference in rates between north and south bank points directly opposite each other. Cairo pointed to the fact that in Paducah Board of Trade vs. (29 I. C. C., 593 and 37 I. C. C., 719), the commission said that rates on lumber from Aarkansas south of the Memphis-Little Rock line of the Rock Island to Paducah should be

greater than the rates to Cairo, and that from points east of the Mississippi they should not be greater than one cent below Cairo. In other words, from the great yellow pine blanket territory, Cairo and Paducah should have the same rates from the part west of the Mississippi, and that from points east of the river, Paducah should have one cent under Cairo. In *Norman Lumber Co. vs. L. & N.* (29 I. C. C. 565), the Commission required a spread of one cent on lumber between north and south bank points and the carriers generally revised their tariffs to comply therewith. That revision was considered in "Rates on Lumber from Southern Points to Ohio River Crossings and Other Points" (34 I. C. C. 652). In that the Commission gave particular attention to the conditions on the N. C. & St. L. and approved a scheme whereby its rates were made one cent higher than on other roads in that same general territory. It also limited the one cent difference between north and south bank points to such as are "directly" opposite each other. The examiner called attention to the fact that Cairo is 42 miles west of Paducah.

Need of Standardization in Building.

Conditions during and since the war have brought home to everyone the necessity of maintaining production with less labor. Manufacturers have realized this, and have sought all possible means for securing greater efficiency.

The most effective means of increasing production and the basic cause of America's industrial growth is standardization. Elimination of duplications in products and parts has reduced the number of manufacturing operations and effected savings in time and labor.

Comparisons show how hopelessly inadequate the methods would be under modern conditions. Compare the book of today, turned out by thousands on a modern printing press, each one exactly alike, with the methods of a few centuries ago when each book had to be laboriously written by hand. Every manufacturing industry presents illustrations just as striking.

In the building field, only initial progress has been made in standardization. In some lines such as steel sash a fair degree of standardization has been reached, but building in general still remains a strictly made-to-order proposition. Even in bricks, whose history dates back to the Pharaohs, one will hardly find two manufacturers making the same size.

The cause of the lack of standardization in the building field is largely a matter of evolution. Building being one of the oldest industries has de-

veloped processes and methods which have become traditional. In former times it was simple and logical to build as one went along and to meet any individual requirement. Labor and material were plentiful and inexpensive, and needs were not urgent. Modern times, and particularly the present day, will not permit of such methods if volume and economy of construction is to be obtained.

The greatest building need of the time is standardization. This means the elimination of hundreds of duplicate products which exist only out of traditional habit or personal whims. An instance of the adoption of standardized methods is the action of a number of reinforcing steel companies in eliminating half the duplicate bar sizes—an action which increases production of the rolling mills and makes available larger local stocks. Similar standardization is sure to take place throughout building.

Some critic of the foregoing may ask—"Are you not making all your buildings exactly alike, each one a monotonous repetition of the other? Are you going to eliminate all individuality and art from our structures?" By all means, no! The standardization of the units of construction does not affect in any way the combinations of these units. Designers have always built with units that were repetitions of one another. Bricks in a building are all one size, yet the arrangement of these bricks make possible any desired effect, depending upon the skill of the designer. Standardization will not limit the designer, but will do away with a great part of waste now required by our hand-made methods.

Construction operations in the field must adopt more of the factory methods so that the skilled workman can make his time most effective. Many operations in building back for centuries, so our erection forces should be able to profit materially by the study of American industry.—Modern Building.

American Wooden Houses in France.

Five hundred from an order of 1000 wooden houses for the devastated regions of northern France have been delivered by a New York firm this spring. These houses are 7 meters or about 23 feet square and have three rooms and a shed. They are delivered in sections and complete, according to the Review of the American Chamber of Commerce in France, including windows, doors, glass, paint, nails, bolts, all ready for erection. Their erection is under the direction of one of the French building departments. About a hundred of these houses are being erected in the Arras and Lens districts.

Where and How to Build Cistern

By H. Colin Campbell

ONE of my farmer acquaintances told me the other day that he expected to modernize his farm home, starting in by raising the house and building a concrete foundation. At the same time he wants to build in the basement a concrete cistern. Some readers of Farm Life may be thinking of similar improvements and the editor asked if I wouldn't give them suggestions that might help solve their problems.

There are a number of ways to build a cistern. Location is merely a matter of convenience with respect to how the cistern is to be filled and emptied. In general, cisterns are used to store rainwater—that soft water which the housewife so much prizes on washday when there is no other source of supply. Therefore, location near the house, so rainfall may be conducted by gutters to the cistern is ideal.

As to building a cistern inside the basement enclosure, there are some arguments for, and some against. On the farm where I spent my early boyhood, we had a cistern under the floor of the kitchen porch. This was before concrete had been recognized as the ideal building material, so our cistern was brick, plastered on the inside with cement mortar and roofed with the stone slabs that constituted the porch floor. One of these had a hole drilled through it to permit passage of the pump pipe, but cleaning out the cistern meant practically tearing down the porch to remove one of the stone slabs, so that we could get into it.

Underneath the back porch, is a good location for the cistern. But no longer would one think of using brick, stone or other unit masonry when there is the absolute certainty of securing a water-tight, permanent structure by using concrete.

Probably the most convenient form for a cistern is circular, like a silo. The structure does not need to be a work of art, since probably all of it will be buried or out of sight, and the circular form is very adaptable where the soil is firm and the walls of the excavation are self-sustaining. Then all that will be needed is an inner form, set up six inches from the face of the earth excavation so that the finished cistern wall will be six inches thick.

Another advantage of the circular form of cistern is that, because of its shape, no reinforcement will be needed in the walls. Forms may be made by first cutting out segments of a circle by describing a circle on the barn floor with string and chalk, this circle to be of the inside diameter of the cistern. Pieces of 2 by 12-inch plank can then be

marked in accordance and cut out to form the frame of the form against which the vertical form sheathing is nailed. Such forms are built exactly like the home-made forms used for the inner wall face of a concrete silo.

With a cistern located underground, danger of freezing of contents will be prevented. It is also easy to provide a filter in connection with the construction, such as shown in an accompanying plan for a rectangular cistern that will prevent refuse from entering the cistern and thus fouling the water.

Probably the only disadvantage of the underground cistern in comparison with one entirely above ground is that the contents must be pumped out, while if the above ground structure can be located on a slight elevation with relation to the location of the residence or other place where the water is to be used, the contents can be drawn from it by gravity. In such a case, if a location near the farm buildings will secure an elevation that will permit gravity flow from the cistern to the house, then it would be better to so locate the cistern.

In building a cistern, side walls are usually built first and the concrete allowed to harden before forms are removed and the concrete floor built. Walls should be at least 6 inches thick. The floor should be from 4 to 6 inches thick. Reinforcing may consist of quarter inch round rods, placed 6 inches center to center in both directions at the center of the concrete of the floor.

When walls and floors have been concreted, a form like a floor may be set up to support the concrete roof or cover of the cistern. This need be no more than 4 inches thick, reinforced with quarter-inch round rods, the same as the floor. When the form is made, a box-like frame without top or bottom and with sides beveled inward should be set on the form to provide an opening for a manhole, the cover for which can also be cast of concrete in a form similar to that used for providing for the opening. A bolt with head and eyelet should be cast into the manhole cover when the concrete is placed so that the cover can readily be removed when necessary.

There should also be a hole provided in the roof of the cistern for the entrance of the pump pipe if water is to be drawn from the cistern in that way. Otherwise pump connection may well enter at one side near the bottom of the cistern 3 or 4 inches above the upper surface of the floor so that the pump can be connected in the house base-

ment or elsewhere to remove cistern contents as desired.

For all receptacles like tanks and cisterns that are to contain water, the structure must be water-tight. The concrete, therefore, should be a correctly proportioned 1:2:3 mixture, made, not by combining 1 part of portland cement with 5 parts of bank-run gravel or other ungraded material, but by combining 1 sack of Portland cement with 2 cubic feet of clean, well-graded sand and 3 cubic feet of clean, well-graded pebbles, in which the larger pebbles do not exceed $\frac{1}{4}$ inch in greatest dimensions.

In ordinary summer weather, forms for the side walls of a circular cistern may be removed within two or three days after the last concrete has been placed, if, as before stated, the earth walls of the excavation are firm and self supporting and will not expose the new concrete to any earth pressure.

Forms for the roof or cover of the cistern must be left in place longer. The length of time depends entirely upon the weather and how rapidly the concrete has hardened. Ordinarily it probably would not be safe to remove the form holding the roof until the concrete was at least a week or ten days old and in cold weather it should be left in place longer, because concrete hardens much more slowly in cold weather. This form should be so built that by sawing out a few boards at the man-hole entrance, one can get into the cistern and easily knock down the studs supporting the form and pass up the pieces through the manhole.

The filter compartment is like the cistern itself on a smaller scale and should be built in practically the same manner. It is usually filled with a mixture of charcoal, clean sand and pebbles that act as the filtering material and generally a copper gauze screen is laid in the filter compartment to prevent coarser materials from working into the filtering materials.

Tower for Chuting Concrete.

An ingenious method of keeping a tower for chuting concrete where it would be least in the way was adopted by the Texas Company recently. The plans for the building, a four story and basement affair, included a small elevator shaft, so the tower was put up in it as shown in the photograph.

The place selected by the architects for the elevator was close to one wall of the building and equidistant from the ends. Its proximity to the side of the building made it easy to get at the mixer without going inside the structure. The material piles may be plainly seen at the left side of the photograph close enough to the mixer to be transferred with little difficulty. Every effort was made to do the job

with as great an economy of effort as possible and the entire layout was planned with this end in view. A more detailed description of the method of chuting and placing the concrete follows:

The mixer was set in the basement, so as to discharge into the elevator bucket and yet be low enough so that material could be dumped into a loading hopper from the ground level. The hoist engine was set clear of the building so the engineer had full view of the bucket.

Sand and stone were dumped within 10 to 100 ft. of the mixer. When using material within 40 ft. of the mixer, wheelbarrows were found best. As soon as a greater distance had to be covered, dump cars of 18 cu. ft. capacity, running on industrial track, were found to be more economical.

The largest day's work was 120 cu. yd. of concrete placed in 8 hr. The average 8-day run was 100 cu. yd. Most of the concrete was placed with the 60 ft. radius plant consisting of a 30 ft. boom section with a 30 ft. plain chute section attached. In some parts of the work it was necessary to put a horse under the end of the 60 ft. plant and run 10 to 20 ft. lengths of light chute out from this point, to the outer parts of the building. At several times the concrete was chuted to the floor hopper and carted to the far ends of the building. These slight changes in method made necessary by the distance between the tower and the furthest parts of the structure were accomplished with little difficulty. The building contains about 2,200 cu. yd. of concrete.

The mixer, cars, chutes, tower equipment and concrete carts used on this job were also used successfully on the construction of two other buildings for the Texas Company.

Cement for Buildings.

The Portland Cement Association has issued two books, one of them as to the use of concrete for the erection of dwellings from modest types to costly residences, and the other relating to the employment of this material in the construction of mercantile and industrial buildings, great and small. Each book is illustrated with excellent examples of work in different parts of the country, all the way from the Atlantic Coast to the shores of the Pacific. The economy of concrete construction and its durability and resistance to the elements are made clear and emphasized impressively. The fireproof feature is especially noted.

Atlanta Building.

Building permits in Atlanta, Ga., for the first fifteen days in June totaled \$1,081,676, which is only \$129,216 short of the permits for the entire month of May in that city.

Homes of Famous Authors



Otsego Hall,
Home of
Washington Irving,
Cooperstown, N. Y.



Home
of
Miss
C. M. Sedg-
wick.

At
Stockbridge,
Mass.



Mr. Prescott's
House at
Pepperell,
Mass.



"Monticello,"
Home of
Thomas Jefferson.



"Stratford
House"

Lee
Family
Seat.

In
Virginia.



"Westover
House,
the Bird
Family Seat
in
Virginia.

Cotton Oil Industry Knows Advantages of Concrete Construction

OWNERS of cotton-oil mills appreciate the value of concrete construction. Among the many cotton-oil companies which have built of reinforced concrete in recent years are the Hill County Cotton Oil Company, Hillsboro, Texas; the New South Oil Mill, Helena, Arkansas; the Landa Industries, Inc., New Braunfels, Texas; the Divie Cotton Oil Company, Little Rock, Arkansas; and the Pine Bluff Cotton Oil Company, Pine Bluff Arkansas. In the case of two of these companies, disastrous fires in non-fireproof structures demonstrate the value of the new concrete buildings according to "Concrete in Architecture and Engineering."

The plant of the Hill County Cotton Oil Company, prior to its disastrous fire of March 1, 1920, consisted in part of a reinforced concrete mill building, 85 by 120 feet, two stories high with 6-inch reinforced concrete walls and floor slabs. Immediately adjoining was a corrugated iron seed house 100 by 180 feet, stiffened by a 10-inch concrete wall 14 feet high and 60 feet long, running longitudinally on the center line of the building. The wall of the seed house at the end next to the mill was also of concrete, 8 inches thick, 20 feet high and 85 feet long.

The fire destroyed all of the seed house except the two concrete walls, which were not injured. The valuable cotton seed stored in the building was a total loss. The adjoining reinforced concrete mill and its contents, though subjected to great heat, were undamaged.

The Hill Company has learned the costly lesson that insurance, no matter how high the rate, does not prevent fires in combustible structures and the consequent loss from interruption to business. At the time of the fire, the corrugated iron seed house and its contents were insured for \$180,000 at the rate of \$2.47 per \$100. The building at times had contained seed valued at \$300,000 to \$400,000, insured at the same rate of \$2.47 per \$100. On a former wooden mill building which was destroyed by fire in 1917, the rate was \$1.91 per \$100. On the reinforced concrete mill, which replaced the old wooden structure, the rate was reduced to 51 cents per \$100, and would have been less except for the proximity of the recently destroyed seed house filled with seed, hulls and linters. But in addition to saving in insurance, the company eliminated a repair bill which, on the old wooden mill, amounted

annually to from 5 to 8 per cent of the cost of the reinforced concrete structure, according to a statement made by Ed. Woodall, manager of the plant. Thus in a comparatively short time the company will save, in maintenance alone, the entire cost of its present reinforced concrete mill.

Because of its past experience with fires, high insurance rates and heavy repair bills, the company is now replacing the recently destroyed seed house with two reinforced concrete structures, a seed house 105 by 160 feet and a hull house 60 by 120 feet. This will mean a very great reduction in insurance and repair bills, and will forever remove the risk of combustible construction.

The Dixie Cotton Oil Company, of Little Rock, Arkansas, had a similar experience with fire, and also avoided a more disastrous loss because its seed storage tanks and cleaning house were of concrete. These four tanks and the adjoining reinforced concrete cleaning room were built early in 1917. Each tank is 45 feet in diameter and 72 feet high with a capacity of 1,600 tons of cotton seed. The seed is taken from the cars by a power shovel, conveyed to houses, and contents:

Rates governing cotton seed storage tanks and the cleaning room by belt conveyor, cleaned and dried if necessary, and elevated to the tanks. From the bottom of the tanks the seed is delivered to a belt conveyor and taken to the mill through a tunnel.

On October 12, 1918, a fire completely destroyed this company's wooden mill, which stood only 300 feet from the tanks but the concrete tanks and cleaning house and the seed stored in them suffered no damage whatever. An illustration shows the complete destruction of the wooden mill and the undamaged condition of the concrete structure.

The reinforced concrete plant of the New South Oil Mill, Helena, Arkansas, was built in 1919. It consists of a battery of ten circular tanks, four interstice tanks, and a headhouse used for cleaning and drying seed. R. T. Doughtie, manager of the company, states that the plant has fully met expectations, and that aside from being a good insurance proposition, enables them to segregate the seed, thereby reducing the possibility of loss from moisture or heat.

Mr. Doughtie says: "We understand that the minimum rate that could be secured on a non-fireproof building for the storage of cotton seed, the building to be furnished with sprinkler equipment, would be around \$150. The rate on our building,

without sprinkler equipment, is approximately 35 cents on both building and contents."

The rate obtained on this plant is practically the base rate established by the Southeastern Fire Underwriters' Association, Atlanta, Georgia, for cotton oil mills and cotton seed houses. These rates as published in the November-December 1919 issue of Modern Building, Detroit, are here given.

The symbols used have the following meaning:

- CD—Wood frame construction.
- IC—Wood frame, iron-clad.
- B—Brick walls, ordinary wood floor construction.
- AA—Brick walls, heavy timber floor construction.
- ICM—Steel frame buildings, all non-combustible construction, but metal not protected with fireproof covering.
- AAA—All non-combustible construction, such as reinforced concrete and structural steel with fireproof covering.

Rates governing cotton oil mill buildings are as follows:

	CD. & IC	B	AA	ICM	AAA
Base rate	\$1.10	\$0.70	\$0.60	\$0.50	\$0.25
If floors are of combustible material, add .....	.50	.50	.50	.30	.25
For boiler house in building not cut off by fire wall, add.....				.09	
For seed cleaner in building, add .....	.50	.50	.50	.30	.25
	Con- CD & IC	Con- B	Con- AA	Con- ICM	Con- AAA
	Bldg. tents	Bldg. tents	Bldg. tents	Bldg. tents	Bldg. tents

Base rate	\$	00	\$1.00	\$0.75	\$0.85	\$0.70	\$0.80	\$0.50	\$0.60	\$0.25	\$0.35
Each 1,000 sq. ft.											
over 10,000 sq. ft.	.05	.05	.05	.03	.04	.05	.25	.25	.015	.02	
Combustible floor	.25	.25	.25	.25	.25	.25	.20	.25	.20	.25	
Combustible tunnel to oil mill..	.10	.10	.10	.10	.10	.10	.06	.06	.05	.05	

From these base rates and the penalties added it is easy to see why reinforced concrete has a great advantage over other types. Not only is the base rate less, but the penalties are in every case less than for other types. Concrete construction would of course include concrete floors and roof, so that the penalty for combustible floors would not apply. By applying these tables of rates to any specific case, the saving in insurance can be closely estimated. To this should be added a proper amount to represent the saving in repairs and maintenance. The entire saving, capitalized at the prevailing interest rate, would represent the additional amount that might be expended for concrete, over and above the cost of non-fireproof construction.

The reinforced concrete cotton mill of the Hill County Cotton Oil Company was erected by the Shaw Construction Company, Dallas, Texas. The reinforced concrete portion of the Dixie Cotton Oil Company's plant was designed and built by Kaucher, Hodges & Company, Contracting Engineers, Memphis, Tennessee. The same firm designed a battery of eight circular tanks and a concrete cleaning house erected by the Pine Bluff Cotton Oil Company, Pine Bluff, Arkansas. The Southwestern Engineering Company, Springfield, Missouri, designed and built the New South Oil Mill at Helena, Arkansas.

Shall We Have Houses or Automobiles?

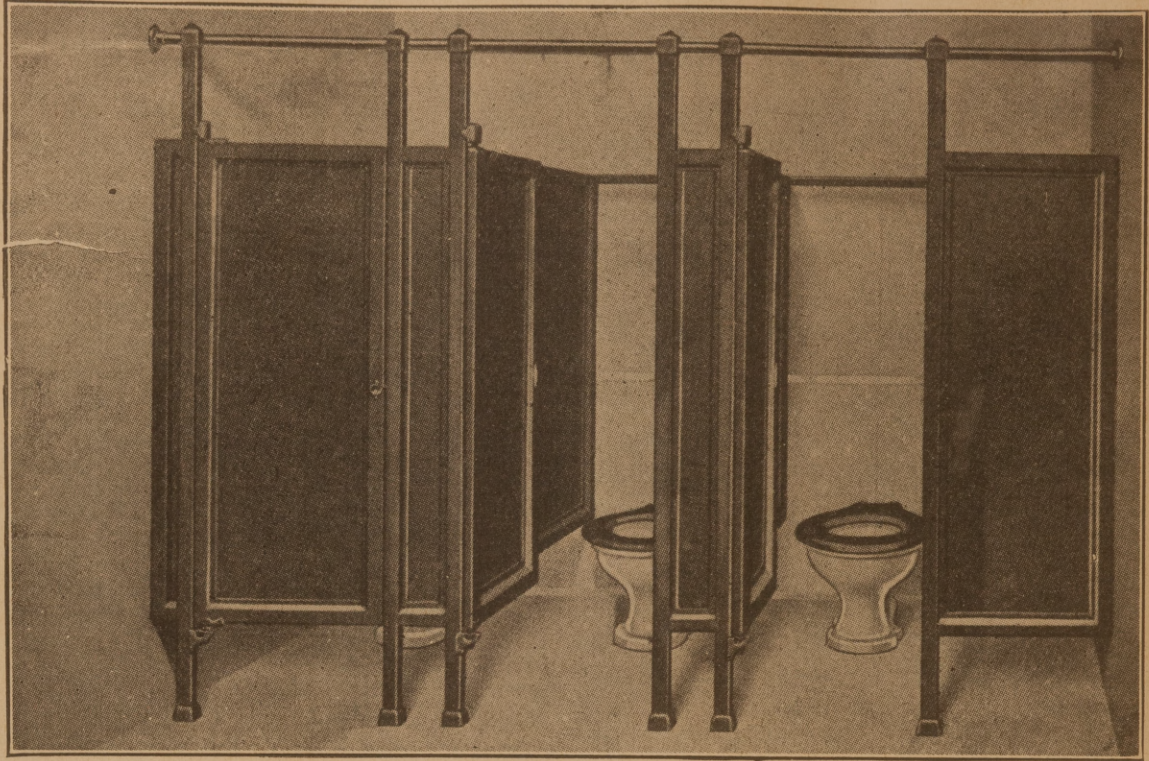
By Wharton Clay, Arch.-Eng., Commissioner Metal Lath Manufacturers.

AMONG the greatest problems of modern times are the great policies of the nation in relation to the construction industry. This outlook is as much the concern of the statesman and the people as it is of the construction industries themselves. Manufacturers and fabricators of materials are laboring with problems of car shortage, railroad chaos, insufficient labor, and high premiums on basic materials induced by demands for the materials for other less essential uses.

To quote a recent editorial comment in the New York Times on a meeting of the Building Trades Employers' Association and Metallic Lathers' Union, the price of metal lath was where it is, "because the automobile manufacturers are using it in great quantities and paying excessive prices in order to get what they want.

"And from this fact, by a logical process not easy for the uninitiate to follow it was deduced by the conferees that 'the present price of expanded metal lath is reasonable, considering the cost of sheet steel.' The official reporting the meeting then writes: The opinion was expressed by many that it is beginning to narrow down to a question of automobiles to ride in or houses to live in. From another source it has been learned that plate glass is enormously advanced in price because the makers of automobiles are using 85 per cent of all that is made or imported and everybody else has to compete for the small remainder. That the automobile is a pleasure only abnormally mossy conservatives deny, but apparently it is a pleasure of the sort commonly described as 'not unmixed'."

The Chicago Tribune says very much the same,



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Furnished in a variety of designs, with or without doors, in standard or special units easily erected on the job. Built throughout of Armco Ingot Iron —built to last. Every SANYMETAL door swings on SANYMETAL GRAVITY ROLLER HINGES—the better hinges for less money.

SHOWER BATH PARTITIONS.

SANYMETAL Shower Bath Partitions are simple in design and erection, inexpensive, and extremely durable. Curb or flush sink designs furnished for any layout. Made of lead-coated steel stock, specially waterproofed with a mineral oxide, with a hard baked enamel finish.

Complete SANYMETAL Catalogue and price lists on request.

The R. F. Carpenter Manufacturing Co.

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Cleveland, Ohio

enlarging on the demand for glass by the automobile industry, and qualifies by saying, "The motor industry is not alone attracting business, but is a case in point."

When mahogany is used for talking machines, it is not so bad, because we can build without mahogany if necessary, but when metal that could be converted into necessary gutters, flashings, plumbing, and fire resisting lath, or rubber and asphalt that could be converted into roofing are used in the manufacture of luxuries to such an extent that the national living conditions are at stake, the matter becomes of public concern, and the construction industry must be welded into one compact organization to deal with the situation.

A few months ago there were only fifty kegs of lath nails in the city of Philadelphia and the Lathers' Union was combing the market for 600 kegs for the West. Recent reports from Texas indicated that window glass could not be purchased at any price.

So much for materials. Let us consider labor. Thousands of cabinet makers have been transferred out of the construction industry into industries that are more a matter of luxury. The same tendency has occurred in the ranks of all mechanics.

Cablegrams from London indicate that a crisis in the building trades has been reached, and that the London County Council has been obliged to stop all building, except residences, under the powers granted by the Health Ministry to overcome the housing shortage. Drygoods stores, office buildings, and other construction have to wait because the demands of housing are so great. Italy will not permit automobiles to be run by anyone except on Government business.

Regulation of nonessential labor or expenditures in times of prosperity is not new. It was found necessary in Venice, at the height of the success of the Merchant Princes when everyone was vying with one another for the most elaborate gondola. One trimmed his with silver, the next with gold, the next, hand carved metals, or precious stones until the amount of labor put on these luxuries became a matter of public concern and a law was enacted requiring every gondola to be painted black. Much to the surprise of the Venetians, the gondolas carried just as many passengers and traveled as easily—and more labor and materials were released for other necessities.

Are we going to come to this or worse crisis in this country, or is sufficient consideration going to be given to the facts that lie before us, so that it can be avoided by facilitating building now? Much of this has to be answered by those who hold the purse-strings to new money for investment in construction. Another large voice is the intelligent spending of the multitude.

New Louisiana Bank Building.

Work in connection with the erection of the First National Bank building of Crowley, La., is progressing splendidly. The Underwood Contracting Corporation, New Orleans, which has the contract for the erection and equipment of the building complete, is pushing the operation rapidly.

The eight-story structure will be as fine a bank and office building as any in the State of Louisiana. The exterior from the sidewalk level to the second floor window sills, and including second-floor window trim, will be of Indiana limestone. Above this stone work the exterior of the building will be of face brick with band course, ornamental panels and cornice of Terra Cotta.

The First National Bank will occupy the entire first floor and mezzanine. The banking room proper will be 23 ft. high, with ornamented coffered ceiling. The floor of public space, counter-screen and wainscoting around the public space will be of Botticino marble. The counter-screen will contain eight bronze wickets. All the banking fixtures to be installed by the Underwood Contracting Corporation will be the very latest in bank design, and all the equipment in working space and cages will be of metal instead of wood. The bank vaults will be modern in every particular, and will have tellers' lockups and a large manganese safe. More than 300 safe deposit boxes will be supplied for the use of the bank's customers.

In style, the architects, Sanquinet and Staats, have followed a modern adaption of the Italian Renaissance. The entrance on Parkerson Avenue is marked by a two-story colonnade of large stone columns of the Ionic order. This is flanked by pylons of rusticated stonework with inset panels of carving. These architectural details together with cornice topping out on seventh story, recall some of the finest art in Florence of the 15th century.

The same character will pervade the banking room, with its pilasters, ornamented cornice and coffered ceiling, its walls paneled in low relief and bronze grill-work of the Tellers' cages. The floors, wainscots and screens will be of polished light Botticino marble and the floors of Tennessee marble. The entrance doors to the office entrance, as well as to the banking room, will be of cast bronze of appropriate architectural detail. The entire first floor of the building will be occupied by the bank, the height of their main room taking in two stories, this being correctly expressed by the exterior elevations. There is a mezzanine floor at rear of banking room which provides a commodious Directors' Room, and future working space for bank.

The offices will be furnished in the most modern way and each will be provided with a lavatory.

The wood work throughout the office floors will be of cypress.

The building will operate its own power plant, consisting of a large oil engine and generator, to supply light for the building and power for the modern electric elevators, as well as for other motors in the building.

In addition to other numerous and up-to-date features of the office structure, there will be a line of ice water running to each floor. Vacuum cleaners will be installed and service will be furnished to all tenants.

Unless unforeseen obstacles appear, it is said that the Underwood Contracting Corporation will have the building ready for occupancy by February, 1921. When completed Crowley will have the most modern office building between Houston and New Orleans.

Foreign Trade Opportunities.

Where addresses are omitted they may be obtained from the Bureau of Foreign and Domestic Commerce, Washington, D. C., and at the branch offices of the Bureau, 315 Custom House, New York, N. Y.; 629 Federal Building, Chicago, Ill., and Association of Commerce Building, New Orleans, La., and 310 Custom House, San Francisco, Cal. For convenience in filing please use separate letter sheet for each trade opportunity request.

33233.—A merchant firm in the Dominican Republic desires to secure an agency for the sale of hardware, building material, stationery, paints and oils, etc. Quotations should be given c. i. f. Dominican ports, or f. o. b. American ports. Correspondence may be in English. References.

33270.—A merchant from Argentina is in the United States at the present time and desires to purchase 3,000 pounds of cement, pitch pine lumber, pig iron, and steel reinforced bars. Quotations should be given c. i. f. Buenos Aires. Payment to be cash against documents. References.

33280.—A commercial agent in Italy desires to secure the representation of firms for the sale of machinery, lumber, tools. Correspondence may be in English. References.

33294.—A merchant in Brazil desires to secure an agency for the sale of cement and tin plate. Quotations should be given c. i. f. Brazilian port. Payment by draft, 60 days. Correspondence should be in Portuguese. References.

Testing Society's Annual Session.

George S. Webster of Philadelphia was elected president of the American Society for Testing Materials which was held June 22-25 at Asbury Park, N. J. Other newly elected officers include G. K. Burgess of the Bureau of Standards, Washington,

vice-president; L. E. Douty of New York, Prevost Hubbard of Washington, and R. S. Whiting of Chicago, as members of the executive committee. A. A. Stevenson retired from this committee under constitutional limitation, after nine years' service as officer including one term as president of the society.

According to an address made by J. A. Capp, retiring president, the general working plans of the society will have a radical change during the coming year.

In discussing research and specification work of the society the speaker stated that standardization by means of the drafting of specifications has been cultivated energetically and successfully while research has been left to individual initiative. He said that partly on this account, we are today distinctly behind the requirements of technology and engineering with respect to knowledge of materials and ability to select the right material for a new service, as well as skill in applying tests to determination of quality to suit the required service.

President Capp suggested organized development of the field of research on the part of the society, for these reasons. He also suggested that the society devote as much energy to research as standardization.

A number of papers on technology and engineering were given and technical talks on materials, test methods and machines and instruments were given. Much time was given to the description and discussion of new types of testing machines. Several new test methods were described and studies of the accuracy of the Deval abrasion test for rock were reported.

Wooden Gutters.

Wooden gutters formed in one piece are coming into much favor, especially on large housing projects, where they have been used with considerable success.

They may be had in several styles, with ogee, cove, quarter-round and other mouldings worked on the face.

The accompanying photograph shows a stack of wooden gutters ready for use on a housing project.

Rotting Mill Roofs.

Investigation by F. J. Hoxie has shown that a textile finishing mill may evaporate as much as 50 tons of water daily, and it is this moisture that fosters the wood rotting fungi so rapidly destructive of factory roofs. The rot is absent wherever the wood is kept dry. The remedy is to keep the moisture from the roof planks by the judicious distribution of steam pipes, the use of heavy planks for ventilator openings, and so on.

LUMBER DEPARTMENT

Southern Architect and Building News

VOL. LXV.

DALTON, and ATLANTA, GA., AUGUST, 1920.

No. 4

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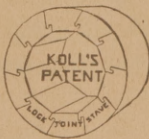


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Lumber and Rate Advance.

The Southern Hardwood Traffic Association has adopted the following resolutions with respect to the proposed advance in freight rates:

"That forest products, constituting essentially low-grade, long-haul traffic, moving in heavy volume all the year around, and requiring no expedited service or special equipment, involving little insurance risk, is handled at less cost relatively, from a transportation standpoint, than the general class of traffic; that there should be a relatively smaller advance in the rates on forest products than on the general class of traffic, which is in accordance with the principle adopted by the Interstate Commerce Commission in 57 Ex Parte, and by the Railroad Administration in General Order No. 28, and should be especially recognized now, when there is a nation-wide shortage of building and other construction work, which must be stimulated and carried on in increasing measure if more normal living conditions are to return.

"That an unqualified percentage increase in freight rates on forest products would disrupt business conditions, destroy well-established relations, competitive adjustments and equalizations, which have been the growth of over forty years, most of which have been fixed or approved by the Interstate Commerce Commission, after thoughtful deliberation, in numerous formal proceedings, and would further be highly prejudicial, not only to the public interest, but, also, to the interests of the carriers, in that such an advance would limit purchasing markets, shorten hauls and substantially defeat its very purpose.

"That for reasons mentioned in the foregoing, whatever advance may be determined upon should, of necessity, be applied uniformly throughout the country, except where it may be necessary or desirable to remove any existing disparities or inequalities.

"That, for the same reasons the basic advance on forest products must, necessarily, be in cents per one hundred pounds, and that if the fair measure of such basic advance should be determined at one or two cents per one hundred pounds, it should be a horizontal advance.

"That if a percentage advance is decided upon, it should not be an unqualified percentage advance, but should be applied to short-haul rates, with a reasonable maximum advance on longer haul rates, under principles as General Order No. 28 of the Director-General of Railroads, United States Railroad Administration.

"That whatever advance may be determined upon should be applied as a single advance to traffic moving on combination rates.

"That the present exception to the minimum per

cent charge on logs and other rough forest products should be continued.

"That additional advances, solely to remove the maximum advance of five cents per one hundred pounds under General Order No. 28, should not be made, even to restore the combination basis existing prior thereto, but such equalizations as are necessary at gateway points should be brought about by the establishment of reasonable transit arrangements.

"That no apparent emergency exists requiring a general increase in rates to be made effective prior to September 1, 1920, up to which time the returns of the carriers are guaranteed by the federal government; that the questions involved are of such wide scope, and the interests affected are of such tremendous importance as to warrant the closest study and analysis in order to avoid such costly mistakes or inequalities as may very easily be the results of hasty action."

Sawmills Owned and Operated by a City.

The city of San Francisco is probably the only city in the United States, that owns and operates its own sawmills.

The city owns two sawmills, which saw the lumber used in the construction of the Hetch Hetchy dam and reservoir, being built to supply the city of San Francisco with ample water. It has been found cheaper to operate these mills than to purchase the lumber.

A novel feature in connection with the Hetch Hetchy water project is the fact that the valley, which will later be converted into a great reservoir, was densely covered with trees. It was necessary that the entire reservoir area be cleared of all vegetation before water was turned into it. All soft woods such as cedar, pine, and red fir, which were over six inches in diameter at the butt and which were considered suitable for lumber, were cut into sixteen-foot lengths or longer, peeled, and left on skids in piles of five, ten, fifteen, and twenty, and when the reservoir is flooded these logs will be floated to one of the municipal sawmills.

Permit System on Forest Products.

The Interstate Commerce Commission has instructed that a permit system be applied in forest products and naval stores destined to New Orleans for export or local delivery.

The action of the Commission, it is explained, does not operate as an embargo, but will hold back export shipments for which there is no assigned space on wharves or vessels and in case of local shipments where no recognized yard or storage space is available. Cars for team track delivery will be accepted if consignee will sign an agreement to un-

load promptly. This agreement is part of the permit form.

Undue car detention is given as the reason for these restrictions as the last report to the commission showed over 300 cars of forest products and naval stores standing on tracks over the free time period.

Applications for permits made direct to Mr. C. T. Beven, Permit Agent, New Orleans Committee, commission on Car Service, Room 7, Terminal Building, New Orleans, will have immediate attention.

Charleston's Permits.

Figures compiled for building permits at Charleston, S. C., during the past ten years show that recently many more permits were issued for new construction than for repairs, which is regarded as a very satisfactory development. In 1910, there were 121 permits for new buildings, and 421 permits for repairs. In 1919, there were 278 permits for new buildings, and 138 for repairs. In ten years, through 1919, 1760 permits for new buildings, representing an investment of several million dollars, were issued. In the first six months of 1920, permits were issued for work valued at some 50 per cent more than the value of work in 1919.

Trade Notes of Interest

Details of Stucco Houses.

An educational campaign is now being made by the Bishopric Mfg. Co., Cincinnati, Ohio, in their advertising wherein tests are being conducted in various cities and the figures given are strictly official, timely, and without, from unprejudiced sources.

In their advertisement on page two of this issue it will be noted that a detailed sketch of a house constructed of Bishopric materials is given which provides the utmost, within practicable limits, of strength, insulation, satisfaction and comfort.

Works Inspection.

The sales force of the A. M. Castle Company of Chicago was entertained June 29 by the sales department of the Youngstown (Ohio) Sheet & Tube Co., being given an opportunity to inspect the works. A dinner at the Youngstown Country Club concluded the entertainment of the visitors, who were accompanied by W. D. Monroe, general manager of sales for the A. M. Castle Company, and Glen C. Christopher of the Youngstown Sheet & Tube Co.'s Chicago office.

A Valuable Catalogue.

A new and complete catalogue is being compiled by the Newman Manufacturing Co., Cincinnati, Ohio. This company has specialized for 38 years in ornamental bronze and brass work, their installations being in many leading banks, hotels, postoffices and theatres in this country and Canada. The catalogue can be obtained by architects and contractors who have occasion to purchase ventilators, grills, wickets, cornices, railings, cages, enclosures, gates, doors, etc., of cast brass or bronze. It will

be profusely illustrated, and is designed along the lines of a builders' guide.

Now Have a Very Complete Line.

The Yale & Towne Manufacturing Co., Stamford, Conn., has purchased the industrial electric truck division of the C. W. Hunt Company of Staten Island, and this business will be combined with the Yale & Towne hoist department, placing it in position to furnish complete equipment to move medium and light loads either vertically or horizontally. Hunt trucks have been in successful operation for several years at railroad terminals, steamship piers, warehouses and industrial plants, and they are used altogether at the Panama Canal. The Yale chain blocks and electric hoists lift loads from 500 pounds to 20 tons, and the company is exclusive selling agent for the Brownhoist trolleys used on overhead rails for horizontal movement of loads between fixed points. The addition of electric trucks to the company's line provides means for moving loads on the ground where horizontal movement by overhead rails is impossible or undesirable. Arrangements have been completed for increased manufacturing facilities at Stamford.

Services of Architect Desired.

The Board of Trustees of Mercer University, at Macon, Ga., looking to the future growth of the institution, desires to secure an experienced architect who will prepare a master plan outlining the development of the university for the next hundred years. Dr. Rufus W. Weaver is the president of Mercer University.

Building and Construction News

Bank and Office Buildings.

Birmingham, Ala.—Birmingham Ice & Cold Storage Co., J. Frank Rushton, President; plans to erect \$50,000 office building.

Vero, Fla.—Farmers Bank has begun remodeling building; large plate glass windows will be installed; steel columns.

Savannah, Ga.—Realty Investment Co.; remodel bank building, Dayton and Bryan Sts.

Greensboro, N. C.—American Natl. Bank; remodel building for branch; limestone front; install banking fixtures, vaults, safety-deposit boxes, etc.; Raleigh James Hughes, Archt.

Greensboro, N. C.—American Exchange National Bank; remodel building; 25x100 ft.; limestone front; metal roof; wood and tile floors; steam heat; electric lights; install banking fixtures, vaults, safety-deposit boxes, etc. Address Raleigh James Hughes, Archt.

Florence, S. C.—Dargan-Harlee Realty & Development Co.; purchased site facing W. Evans St.; erect 3-story office building; foundations to support additional stories.

San Antonio, Tex.—Republic Realty Co.; erect 7th-story addition to building on Ave. C; \$28,000; concrete and tile.

San Antonio, Tex.—Beverly W. Spillman; preparing plans for \$40,000 to \$50,000 bank building.

Uvalde, Tex.—Beverly W. Spillman, San Antonio; preparing plans for \$10,000 dental office.

Clarksburg, W. Va.—Empire Natl. Bank, V. L. Highland, Prest.; will not erect addition at present.

Residences and Apartments.

Birmingham, Ala.—Mrs. W. B. Thomas; erect \$10,000 apartment house; 2 stories; frame.

Lexington, N. C.—Misses Headrick; erect 12-room twin apartment house.

Bradentown, Fla.—J. K. Singeltary, Kissimmee, Fla.; erect 3 bungalows; C. L. Price, Bradentown, in charge of construction and purchasing material. (Lately noted.)

Daytona, Fla.—Senator L. Y. Sherman, Springfield, Ill.; reported to erect \$20,000 residence.

Jacksonville, Fla.—Hill Investment Co.; erect residence, Herschell St., between Barrs and King Sts.; about \$10,000.

Miami, Fla.—W. G. and John H. Bullen; erect \$20,000 residence, Cascade Ave. and Bay St.; concrete block; Italian and Spanish type.

Orlando, Fla.—L. C. Massey, Prest. State Bank of Orlando; erect residence, Lucrene Terrace.

St. Petersburg, Fla.—J. B. Robinson, F. C. Carley, Harold Sommers, W. S. Shull, Byrd Latham, Guy Sheppard and D. E. Beach; each will erect residence.

Bastrop, La.—Ouachita Valley Glass Co.; erect 50 employes' dwellings.

New Orleans, La.—Masterbilt Homes, Inc., E. W. Ullrich, Mgr.; erect 5 bungalows.

Birmingham, Ala.—A. D. Lathram has permit to erect \$2,200 residence.

Jacksonville, Fla.—Permit issued to E. E. Lasserre to erect \$6,000 residence.

Jacksonville, Fla.—W. Wade has permit to erect \$5,000 residence.

Savannah, Ga.—Allen Artley has permit to erect frame residence.

Birmingham, Ala.—Residence will be erected by J. F. Evans and D. F. Evans; \$2,500 each.

Charleston, S. C.—West Point Corporation (Issac G. Ball, Samuel G. Stonev, Henry E. Rains and Charles J. Ravenel)

will develop West Point Mills property for residential purposes.

Clearwater, Fla.—Home Construction Co., recently organized to erect residences, has engaged R. M. Thompson to take charge of its building work; planned to erect a number of attractive residences.

Daytona, Fla.—Raymond Key, cashier, Seminole Bank, Sanford, will erect bungalow; \$10,000.

DeSoto, Miss.—Mrs. J. R. Chancellor will erect residence; \$10,000.

Daytona, Fla.—G. Prentice Carson, Dean, Stetson University, DeLand, will erect bungalow; \$7,000.

Jacksonville, Fla.—M. A. Houghton has permit to erect \$3,000 residence.

Church Buildings.

Brewton, Ala.—Presbyterian Church plans to erect brick building to replace present structure; \$25,000. W. T. Neal, Chairman Committee.

Clearwater, Fla.—Church and parsonage will be erected by Baptist Church; brick; terra-cotta roof; desires competitive sketches from architects and specimens of work; \$100,000. Rev. A. J. Kroelinger, Pastor.

Cordova, Ala.—Nazarene Church will erect building; frame; cost \$4,000. The Pastor.

Doublin, Ga.—Jefferson St. Baptist Church is beginning construction of Sunday school annex to building. Rev. R. W. Eubanks, pastor.

Brenham, Tex.—Fourth Street M. E. Church; erect parsonage; about \$10,000. Address The Pastor.

Del Rio, Tex.—St. James' Episcopal Church; erect \$30,000 building; 2-story; Gothic type; stone, with cut-stone trim; yellow-pine floors; tile roof; hot-air heat; electric lights; Harrington Co., Archt. and Engr; contract in about 3 weeks. Address St. James Church.

Dilworth, Tex.—Catholic Church; erect building; Rev. Dr. Huebsch, Gonzales, Tex., interested.

Freeport, Tex.—Freeport Catholic Church, C. J. Feiner interested; erect \$20,000 building, Main St.; 40x70 ft.; asbestos shingle roof; pine floors; heating plant, \$800; electric lights; W. A. Rayfield & Co., Birmingham, Ala.; day labor.

Charleston, W. Va.—Ebenezer Baptist Church; contemplates erecting 2-story building; 28x70 ft.; Jas. L. Montgomery, Archt.; plans not started.

Birmingham, Ala.—Friendship Baptist Church, Rev. M. A. McEwen, Pastor; erect \$35,000 building; 60x100 ft.; brick; tar and gravel roof; pine floors; electric lights; heating plant, \$1000; W. A. Rayfield & Co., Archts.

East Florence, Ala.—Baptist Church, Rev. T. M. Byron, Pastor; erect \$15,000 brick building.

Gadsden, Ala.—Episcopal Church, Rev. E. C. Seaman, Rector; erect rectory, 9th St.

Gadsden, Ala.—First Christian Church; erect \$50,000 building, 10th St. and Forest Ave. Address The Pastor.

Gadsden, Ala.—First Baptist Church; erect building, Chestnut and 8th Sts. Address The Pastor.

Miami, Fla.—First Christian Church; erect \$50,000 building, 8th St.

West Tampa, Fla.—B. C. Bonfoey; preparing plans for \$25,000 Methodist Mission building; 3 stories; brick; 50x50 feet.

Hillis, N. C.—P. D. Withdraw, Ruthfordton, N. C.; erect Methodist Church, 60x60 ft.; cross-shaped.

Sanford, N. C.—Baptist Church; erect building. Address The Pastor.

Public Buildings.

San Antonio, Tex.—State; erect \$11,000 concrete roof on Alamo Bldg. Address The Supt.

Waco, Tex.—Comsn. for Home for Neglected and Dependent Children, Lieut.-Gov. W. A. Johnson, Austin, and others; bide until Aug. 30 to erect 2 buildings and heating plant; \$100,000; ultimate plans call for 12 buildings; Ross & Redd, Archts., Waco.

New Orleans, La.—Board of Commrs., Port of New Orleans, W. O. Hudson, Prest., 200 New Court Bldg.; bids until Aug. 31 to furnish or furnish and erect structural steel for Poydras St. freight shed extension; plans and specifications at office Arsene Perrilliat, Chief Engr.

Shreveport, La.—City; votes Sept. 14 on \$1,250,000 bonds, including courthouse and jail, \$200,000; central and suburban fire station, \$200,000; fire-alarm system, \$25,000; public library, \$265,000. Address Mayor Ford.

Holden, Mo.—City Commrs.; considering erecting \$30,000 city hall.

St. Louis, Mo.—City, Harland Bartholomew, Engr. of City Plan Commsn.; erect \$68,000 morgue.

Charleston, W. Va.—City, B. H. Hill, Mgr.; erect \$500,000 administration building, Virginia St.; J. R. Warne, Archt., Masonic Temple.

Shreveport, La.—City; votes Sept. 14 on \$1,250,000 bonds, including courthouse and jail, \$200,000.

Pensacola, Fla.—Escambia County Commrs.; considering calling election on tax to erect tuberculosis Sanitarium; Dr. A. F. Brink and Mrs. Adelaide Brunk, members of Escambia County Tuberculosis Assn.

Moultrie, Ga.—Moultrie Hospital Co.; erect \$60,000 hospital.

Ellisville, Miss.—Colony for Feeble-Minded, Mayor J. T. Taylor, Chmn. Board of Trustees; erect brick buildings.

Dallas, Tex.—Baptist Memorial Hospital, J. B. Franklin, Supt., Junius and College Sts.; erect building for women; accommodate 150 beds, laboratories, operating-rooms, etc.; 120x100 ft.; T-shaped; also dispensary to accommodate 300 to 400 patients daily; 64x164 ft.; both structures reinforced concrete and brick veneer; 5 stories; total cost \$800,000; C. D. Hill Co., Archt.

Morgan, Ga.—Calhoun County will rebuild courthouse recently burned; brick; cost \$75,000. Chairman Commissioners.

Sumpter, S. C.—Bids will be received until Aug. 17 by Sumter County Commissioners to alter and erect additions to courthouse; plans and specifications at office of commissioners and office of Johnson & Deal, Architects, Sumter.

Schools and Colleges.

Tahlequah, Okla.—Dept. of Interior, Cato Sells, Indian Commr., Washington, D. C.; bids until Aug. 30 to erect brick school and assembly hall at Cherokee Orphan Training school.

Bay Minette, Fla.—Building Comm., W. D. Stapleton, Chmn.; bids until Sept. 28 to erect Baldwin County high-school building; \$40,000 to \$50,000; plans and specifications may be seen at Baldwin County Bank Bldg. by applying to Mr. Stapleton.

Altus, Ark.—Altus Special School Dist. No. 31; erect \$20,000 building; 47x75 ft.; 2 stories; brick; hardwood floors; metal ceilings and roof; plaster board; rolling partitions; ventilators; J. H. Bliss, Archt., Little Rock. Address J. M. Hopper, Altus.

War Eagle, Ark.—School Dist.; erect concrete building; 30x40 ft. Address Board of Education.

Miami, Fla.—Dade County Board of Public Instruction, R. E. Hall, Supt.; erect additions.

Clarksdale, Miss.—School Board, J. H. Johnson, Secy.; bids until Aug. 17 to erect brick school building for negroes; plans and specifications from office Frank P. Gates & Co. and office Mr. Johnson.

Jeff Dav's, Miss.—Jeff Davis Consolidated School Dist. (Union, New Liberty and part of Castleberry); voted \$15,000 bonds to erect building. Address Yalobusha County Board of Education.

Vicksburg, Miss.—City; votes Sept. 21 on \$625,000 bonds, including \$125,000 to erect school building. Address The Mayor.

Asheville, N. C.—Grove Park School for Girls, Rev. T. A. Cosgrove in charge; erect school, gymnasium, swimming-pool, etc., in Edgemont Park.

Charlotte, N. C.—School Board, Plummer Stewart, Chairman; 25 to 30 rooms; bids until Aug. 20; H. P. Hardman; erect 2 wings to Alexander Graham School, E. Moreing, Supt. of Schools.

Kernersville N. C.—School Commrs. and city officials considering erecting school addition; tentative plans by G. W. Armfield, Greensboro, N. C.; request County Board of Education to extend school district and provide bond election.

Weaverville, N. C.—Buncombe County Board of Education, Ethel Terrell, Supt., Asheville; rejected bids to erect schools at Weaverville and Emma; \$40,000 and \$50,000, respectively; Chas. C. Hook, Archt., Charlotte.

Charleston, S. C.—County Board of Education, Henry H. McCarley, Supt.; erect \$25,000 school building, Chicora Place; 4 rooms; auditorium to seat 200, cloakrooms, etc.

Iva, S. C.—School Dist.; voted \$10,000 bonds to erect addition to school building; 4 rooms; brick veneer. Address Dist. School Trustees.

Jackson, Tenn.—City, J. D. Johnson, Mayor; voted \$151,000 school, street, sewer and water bonds; \$30,000 to remodel Whitehall school; \$20,000 to repair and paint school, and \$7000 for heating system for College St. school, etc.

San Antonio, Tex.—Beverly W. Spillman; preparing plans for \$10,000 college building.

Tahoka, Tex.—School Dist.; voted \$30,000 bonds. Address Board of Education.

Norfolk, Va.—Board of Education; expend \$35,000 to repair and install heating systems in various schools and \$15,000 for plumbing.

Birmingham, Ala.—Jefferson County Board of Education will erect small school building near Morris. Dr. N. H. Baker, County Superintendent of Education.

Cateechee, S. C.—Norris Cotton Mills will erect school building after plans now being prepared by J. E. Sistine & Co., Architects and Engineers, Greenville, S. C.; two stories; 47x88 feet; hollow tile and stucco; slate roof.

Finleyson, Ga.—Finleyson school district of Pulaski county voted \$18,000 of bonds for erecting school building. County School Commissioners, Hawkinsville, Ga.

Great Falls, S. C.—Great Falls and Rossville School Districts will consolidate, erecting high school building. County Board of Education, Chester, S. C.

Rodman, S. C.—Rodman, Prior, Knox and Pleasant Grove School Districts will consolidate, erecting high school building. County Board of Education, Chester, S. C.

Business and Store-Buildings.

Birmingham, Ala.—Frank Domico will erect building; brick; \$4,000.

Birmingham, Ala.—A. A. Adams, Agts. will remodel building; \$1,500.

Dawson, Ga.—Shields-Geise Motor Co. will remodel building; installing attractive front and make modern automobile showroom and garage.

Fitzgerald, Ga.—William R. Bowen has let contract to erect five stores; pressed brick facing; entire lower floors with plate glass fronts; buildings will cover five lots totaling 290 ft. in length.

Greenville, Ala.—Blackmon Cash Store, will remodel building; plate glass front; new fixtures and re-decorating.

Jacksonville, Fla.—J. B. Cox will erect building; \$7,000; permit issued.

Macon, Ga.—W. T. Grant Co., New York, N. Y., will alter three stores of building to be occupied by their department store; plans have been prepared by Curran R. Ellis, Architect, Macon.

Tuscaloosa, Ala.—Allen-Jemison Hardware Co. contemplate erecting block of 6 or 8 stores and warehouses.

Birmingham, Ala.—John B. Reid & Co.; erect brick building, 14th St. and 11th Ave. south; \$25,000.

Dothan, Ala.—Malone-Beall Dry Goods Co.; enlarging store.

Little Rock, Ark.—W. T. Grant Co., 28 W. 23d St., New York; expend \$20,000 to alter building, 604-06 Main St.; 50x140 ft.; remove center wall; construct front; tar and gravel roof; hardwood floors; interior tile; metal ceilings; plaster board; ventilators; city heat; hand-power elevator; contract let Sept. 1. Address Sanders & Ginocchio, Architects, Hollenberg Bldg., Little Rock.

Macon, Ga.—W. T. Grant Co., New York; leased 3 buildings, 3d St. near Cherry; reported to erect addition in rear, improve front, etc.; Curran R. Ellis, Archt., Macon.

Savannah, Ga.—A. Monroe; repair 3 stories and erect 2-story addition to building, W. Broad and Charlton Sts.

Savannah, Ga.—O. Levy; raise building and erect 1-story addition, 41st and Burroughs Sts.

Pontotoc, Miss.—J. H. Latham Co.; erect building to replace structure lately noted damaged by fire.

Pontotoc, Miss.—W. C. Pittman; erect building to replace structure lately noted damaged by fire.

Pontotoc, Miss.—New Albany Wholesale Grocery Co.; erect building to replace structure lately noted damaged by fire.

Forrest City, N. C.—J. F. Alexander; erect 2 brick buildings; completion within 60 days.

Dallas, Tex.—C. B. McConnell; erect \$12,500 one-story brick building, 2108 Bryan St.

San Antonio, Tex.—Mrs. Delia R. Bishop; repair building, Losoya and Crocket Sts.; erect additional story; \$25,000.

San Antonio, Tex.—F. W. Woolworth Co.; erect \$185,000 store, Houston St. and Alamo Plaza; 3 stories and basement; 80x100 ft.; reinforced concrete; terra-cotta and gray faced brick; composition roof; wood floors, tile in lobbies; steam heat; electric lighting; DePuy Construction Co., lowest bidder. Address Adams & Adams, Architects, Gibbs Bldg.

Road and Street Construction.

Eudora, Ark.—Sidewalk Improvement Dist. No. 2 Comms., E. T. Cashion, Secy.; pave 82,910 sq. ft. concrete sidewalk; bids until Aug. 30.

Pine Bluff, Ark.—Comms. Roberts Road Improvement Dist., Jefferson and Arkansas Counties, E. B. Stokes, Humphrey, Ark.; construct 6½ mi. gravel-surfaced road from Humphrey to Lonoke County line; bids until Aug. 20; Moreland & Bennett, Engrs., Pine Bluff, Ark.

Fort Myers, Fla.—City, Jno. W. Owens, Clerk; construct 25,745 sq. yds. pavement on Oak, Henry, Monroe and 1st Sts.; asphalt block; stone foundation; \$77,000 J. A. Davison & Son Engrs., Fort Myers; Jas. G. Yates Co., Contr., Port Tampa, Fla.

Opelousas, La.—City Comsn.; plans street paving, drainage, etc.; \$500,000; contemplated. Address The Mayor.

Fort Myers, Fla.—Lee County Comms., W. S. Turner, Commr., Captiva, Fla.; construct 9-ft. shell road; 5280 cu. yds. shell; \$12,000 available; bids until Sept. 8; changed date from Aug. 9; R. P. Ransom, Engr., Fort Myers, Fla.

Miami Beach, Fla.—Miami Beach Bay Shore Co.; construct road on mid-golf development project; freeland Construction & Supply Co., Contr.

Manatee, Fla.—Manatee County Comms.; construct hard-surfaced road from Manatee to De Soto County line; vote

Sept. 7 on \$200,000 bonds; Maj. Brown, Engr., State Highway Comsn.

Okeechobee, Fla.—City, W. W. Dunieliff, Clk.; construct 10 mi. street; broken stone with bituminous surface; \$200,000 available; W. B. Clay, Engr.; J. E. Nash, Contr.

Athens, Ga.—Clark County Comms.; construct 5.5 mi. hard-surfaced roads; \$160,000 available; R. T. Goodwyn, Jr., Div. Engr., State Highway Dept.

Louisville, Ky.—Board Public Works, Thos. B. Crutcher, Chrmn.; repair and construct streets; \$30,000 to \$50,000.

Poor Fork, Ky.—Town Board, Ira Fields, Clk.; construct 4870 lin. ft. sidewalk; bids until Aug. 25.

Bunkie, La.—City; construct pavements; extend water mains; voted bonds. Address The Mayor.

Hooker, Miss.—Great Southern Lumber Co., J. H. Cassidy, Asst. Gen. Mgr., Bogalusa, La.; construct 5 mi. log road; 80,000 cu. yds. earth; 3000 drain boxes; 25,000 su. yds. overhaul, etc.; bids until Aug. 16.

Meridian, Miss.—City; pave Twentw-fourth Ave.; \$290,000 bonds. Address The Mayor.

Miss., Moss Point.—City; pave Main St. between Robinson and Welch Sts.; vote on \$10,000 bonds; contemplated. Address The Mayor.

Poplarville, Miss.—Pearl River County Supervisors; construct 13½ mi. hard surface over Jackson Highway from Poplarville to Lumberton; \$100,000; Xavier A. Kramer, State Highway Engr., Jackson, Miss.; Arthur Ball, Contr., Columbia, Miss.

Tchula, Miss.—City; improve streets; voted \$10,000 bonds. Address The Mayor.

Hertford, N. C.—Perquimans County Commissioners; hard-surface 15 mi. highways; issue \$300,000 bonds; Carolina Engineering Co., Engr., 412 Southern Bldg., Wilmington, N. C.

Rocky Mount, N. C.—City; pave 7½ mi. streets; voted \$650,000 bonds. Address The Mayor.

Columbia, S. C.—Richland County Comms.; construct 20 mi. Saluda road; \$123,000; White & Simpson, Contrs., Chatham, Va.

St. Matthews, S. C.—Town, J. L. Carroll, Mayor; improve asphaltic concrete or sheet asphalt, both of latter on cement-highway; 16,128 sq. yds. surfacing, with cement concrete base; 5800 lin. ft. combination concrete curb and gutter; 4000 cu. yds. excavation; 1200 lin. ft. 18-in. storm

Union, S. C.—Union County Highway Commission, Cross drain; bids until Aug.

Keys Township; grade, drain and surface with topsoil 3.50 mi. Union-Laurens road; \$24,000; Kennedy & Owens, Contrs.; W. B. Deneen, Engr.

Union, S. C.—Union County Highway Commission, Union Township; grade, drain and surface with topsoil 3.50 mi. Union-Laeaphart road; \$23,000; Elliott & Sons, Contrs., Spartanburg, S. C.; W. B. Deneen, Engr., Union, S. C.

Benton, Tenn.—Polk County Comms.; construct 2 highways; voted \$200,000 bonds.

Jackson, Tenn.—City, J. D. Johnson, Mayor; improve streets and water-works; extend sewer system, etc.; voted \$151,000 bonds.

Fort Worth, Tex.—Tarrant County, W. E. Yaney, Auditor; construct 557 mi. State Highway No. 1, known as Bankhead Highway; drainage structures and bridges; bids until Aug. 14. Lately noted bids until July 1.

Groesbeck, Tex.—Limestone County Commissioners, J. E. Bradley, Judge; construct 23.3 mi. State Highway 14; gravel macadam; concrete and steel drainage structures; \$330,000 available; Tibbetts Construction Co., Contr., Mineral Wells, Tex.; Fred P. Holt, Engr., Groesbeck, Tex. Lately noted inviting bids.

Van Horn, Tex.—Culberson County; improve 66.523 mi. highway; \$146,974; W. E. Hamilton, Contr., Mineral Wells, Tex.



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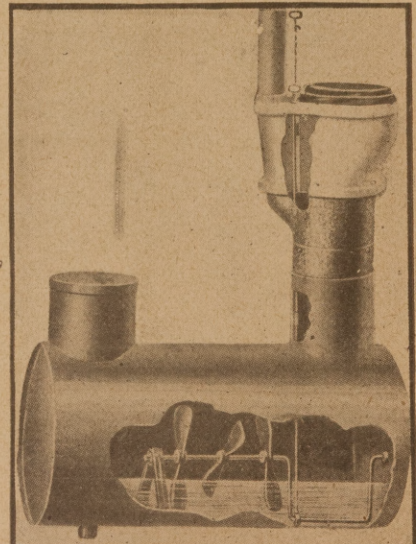
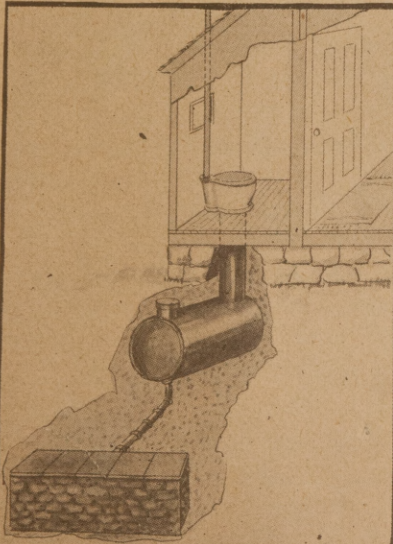
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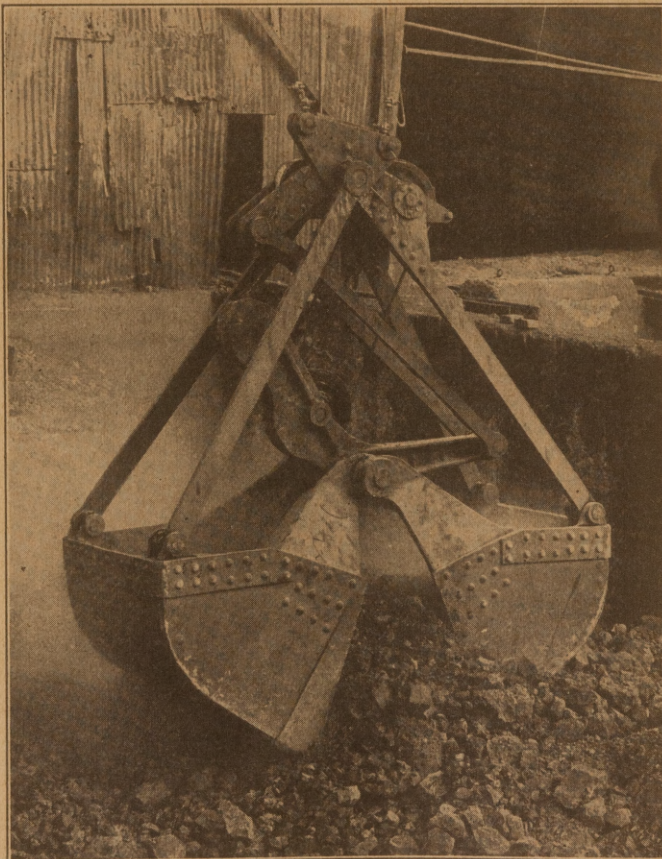
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VOL. XLV

DALTON and ATLANTA, GA., AUGUST, 1920

No. 4

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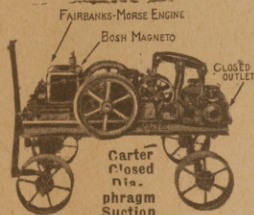
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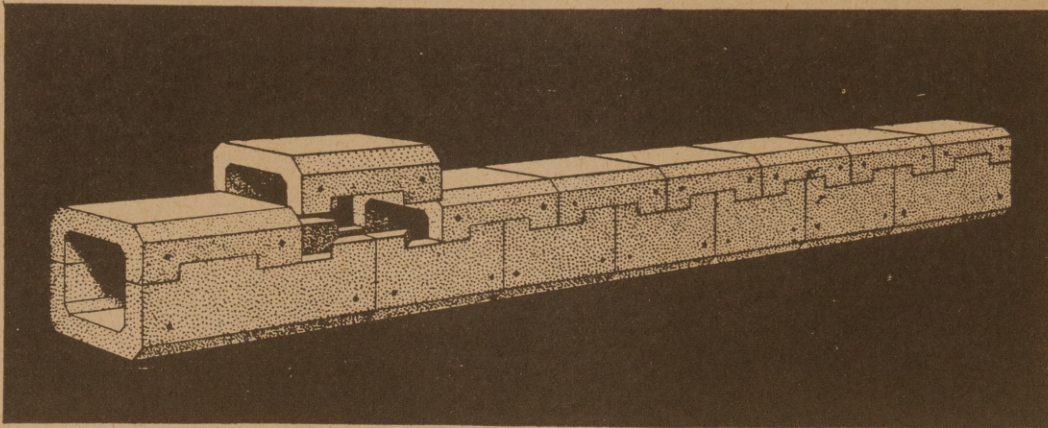
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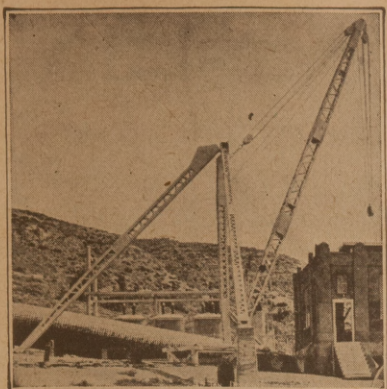
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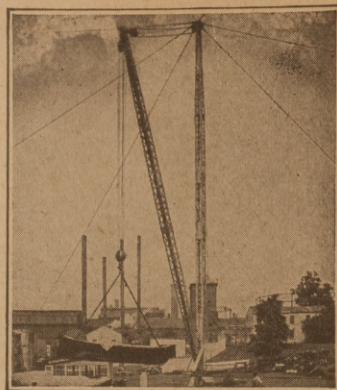
—FULL CIRCLE CRANES—

EDWARD F. TERRY MFG. CO.

Grand Central Terminal
NEW YORK CITY

Works: Harrison, N. J. Cable: Terryco New York
Successors to the Manufacturing Department of
Terry & Tench, Inc., Builders for 20 years of
the highest type of Derricks and Cranes.

—“EQUIPMENT THAT LASTS”—



BELMONT IRON WORKS

PHILADELPHIA NEW YORK EDDYSTONE

ENGINEERS—CONTRACTORS—EXPORTERS

STRUCTURAL STEEL

COMPLETE INDUSTRIAL BUILDINGS

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CABLE ADDRESS
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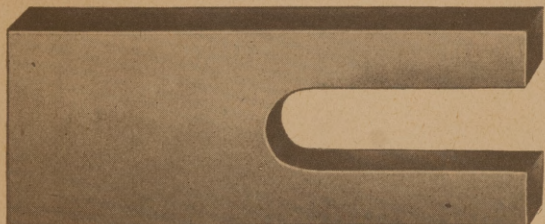
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Code Western Union
fire letter addition.

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mailed on request.

Complete Warehouse Stock of Structural Shapes and
Plates for Immediate Shipment.

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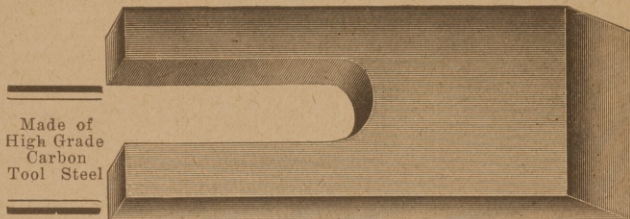


A large stock carried—Prompt shipments made.

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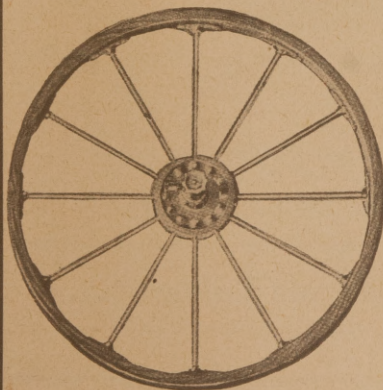
Beveled and Faced Sticker Blanks

Beveled, Faced and Tempered Sticker Blanks
All Kinds of Moulding Knives Made to Pattern.



Made of
High Grade
Carbon
Tool Steel

GUSTAFSON & SCOTT MFG. CO., (not inc.) 4315-25 Wabansia Avenue, Chicago, Ill.



IT IS IMPORTANT to keep your band saw
wheels trued up. This will help to eliminate
the breaking of band saw blades.

We Repair Band Saw Wheels

true them up, put on new rubber bands and new brass
bushings when necessary so as to make them run perfectly
true. When in need of repairs write us. When ordering
bands state diameter and width of wheel.

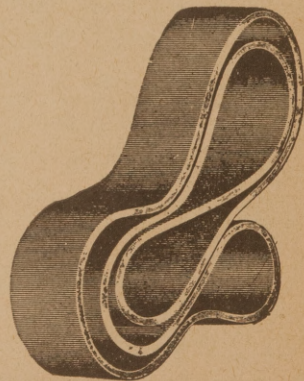
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Carried in Stock

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Designers and Builders

Bridges and Structural Steel Work

We helped build the Air Nitrate Plant at Muscle Shoals; Powder Plant at Old Hickory, Nashville; and Alcohol Plant at Collinwood.

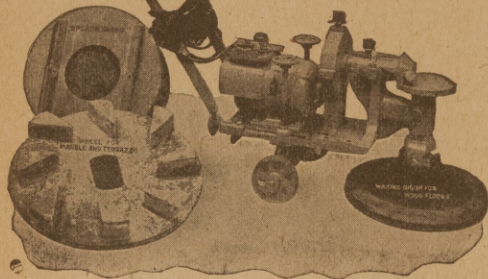
Designed and now constructing Large Oil Barges for Emergency Fleet Corporation, U. S. Shipping Board.

OFFICE AND PLANT

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ATTENTION! MR. CONTRACTOR



Some
Reasons
Why
YOU
Should
Own

Campbell Floor Surfacing Machine

BECAUSE—It will save you the salary of five men.

WHY—It is rubbing 100 ft. of terrazzo per hour, and 150 ft. of marble tile per hour for your competitor.
(It will do the same for you). Operated by one man, but does the work of six and does it better.

BECAUSE—It is the only floor surfacing machine on the market driving a 24 in. grinding wheel with a two (2) HP. Motor.

BECAUSE—It is the most simply constructed machine on the market, the easiest to operate and keep it in repair.

BECAUSE—It saves hand work by finishing close up to the base.

BECAUSE—It will pay for itself within three months and last a lifetime.

BECAUSE—It is the only machine with an adjustable splash-guard eliminating the splash nuisance and the danger of striking the wheel against the base or knocking a corner off.

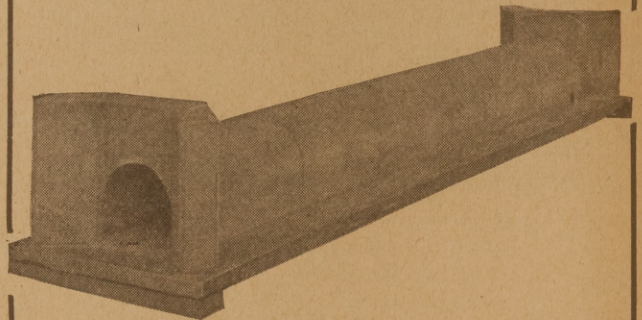
BECAUSE—It is the only machine with adjustments to regulate the weight on the grinding wheel. (YOU WILL SEE THE ADVANTAGE). Write us for further information.

This means money to YOU and service to your customers.

CAMPBELL MACHINE CO., Inc., Wollaston, Mass.

To The Road Builder and Contractor

Figure the



in your next contract.

The Nelsen Culvert is a guaranteed precast culvert, approved by State Highway Engineers.

Its use will make a profit for you.

Write us at once for particulars.

Nelsen Concrete Culvert Co.

Pontiac, Ill.

Good as It Looks!

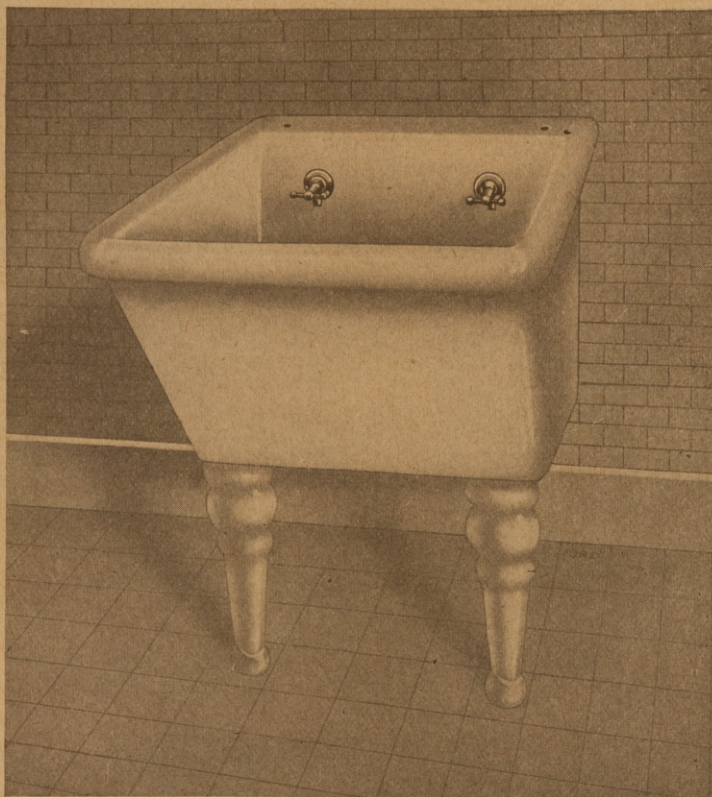
The difference in grade between Fords Porcelain Ware and the ordinary porcelain ware can readily be told at a glance. Its pure white, highly glazed finish, both inside and outside, lends the appearance of cleanliness, sanitation and refinement so much desired for the pantry, kitchen and bathroom.

FORDS PORCELAIN WARE

carries quality all through, as well as showing on the surface. The materials used in the manufacture are the best that money can buy. We have learned by experience that it pays in the final analysis to spare no expense to produce the highest quality products.

Fords Porcelain Ware costs very little more than other brands and is well worth the difference.

Let us tell you about our special glazing process and other interesting facts regarding Fords Porcelain.



Fords Porcelain Works

Perth Amboy, N. J.

New York Office: 103 Park Avenue

E. F. Disbrow, General Sales Manager

Largest Manufacturers of Porcelain Wash Trays in the World

Bowling Green White Limestone
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BRODIX & MALONE

DEALERS IN

BEDFORD INDIANA LIMESTONE

ROUGH, SAWED, PLANED AND TURNED BUFF OR BLUE

SALES AGENTS

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CONCRETE SEPTIC TANKS

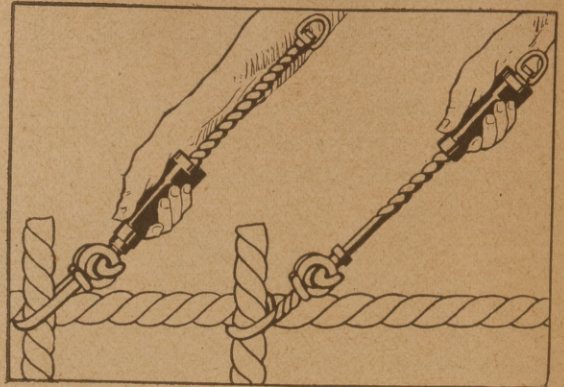
—AN INDEPENDENT BUSINESS

Install Sanitary Septic-Tanks. Every home outside of a sanitary sewer district needs it. A one-piece Tank Installed in Place; Self-Cleaning Vault. Large profits, quick returns. Every customer advertises the Septic Tank for you. Only a small investment required.

M. J. GRIFFITH, Inventor

Office 313 E. Tus. Ave.

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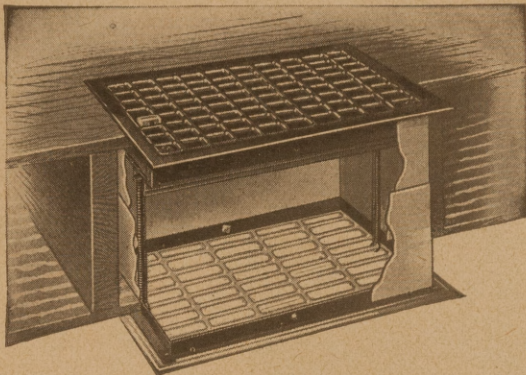


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 We Have Full Stock.
 Wire Ties for Reinforcing Steel.
 Send In Your Orders Now.
 Thousands Using Them.

Bates Valve Bag Co.

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CHICAGO, ILL.



The above cut represents one of the complete line of registers which is designed especially to convey the surplus heat from the lower to upper room.

It is thoroughly practical, easy to install and increases the efficiency of your heating unit whether it be a kitchen stove, parlor stove or furnace.

Let us send you our catalogue describing a complete line of warm air accessories.

WHY NOT BE
COMFORTABLE
 AT THE SAME TIME
EFFICIENT
 GET THE FULL BENEFIT OF ALL
HEAT UNITS

H&C PRODUCTS
 MAKE
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HART & COOLEY CO. Inc.
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STAIRWAYS OF SLATE

The Hippodrome, New York City

Used by vast throngs—daily—wet feet, dripping umbrellas never cause the velvety surface with which nature provided it to become polished or slippery. The best insurance against panic.



This Stairway is made of "Pyramid Brand" Slate Treads. The hard service demanded of this stairway demonstrates unquestionably the great durability of Slate.

Use Slate for public service.

THE STRUCTURAL SLATE COMPANY

PEN ARGYL, PENNSYLVANIA

Representing the majority of the Producers in the
PENNSYLVANIA SLATE DISTRICT



Natural Slate Blackboards

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The Michigan Department of Public Instruction says in Bulletin No. 54:

"Natural slate is by far the best material and the cheapest in the long run."

*Natural Slate Blackboards
outlast the building.*



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Lansing, Michigan*

*Thomas E. White, Architect
Lansing, Michigan*

School Specialist says "Best."

"As a school specialist I advise my School Board clients to use Natural Slate Blackboards, because I believe them to be the best."

*Thomas Ernest White, Architect,
Lansing, Michigan.*

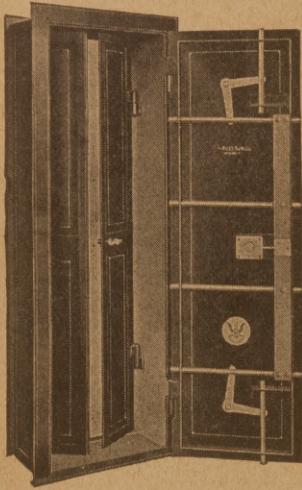
Trademarked Slabs in Standardized Sizes maintained
in large stocks for immediate shipment anywhere.

NATURAL SLATE BLACKBOARD COMPANY

Headquarters, PEN ARGYL, PENNSYLVANIA

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The Hall's Safe Company



No. 1AA Fireproof Vault
Door.

Wall Opening

79 High

32 Wide

20 Deep

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CINCINNATI, OHIO

SALESROOM: NEW YORK, N. Y., The Walker Safe Co., Inc., 388 Broadway.

MANUFACTURERS OF

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Omnibuses Chests Deposit Boxes
Filing Devices Wall Safes Tabernacles
Fire Proof Safes—Burglar Proof Safes—Manganese
Safes with Hall's Key-Combination or Time Locks.

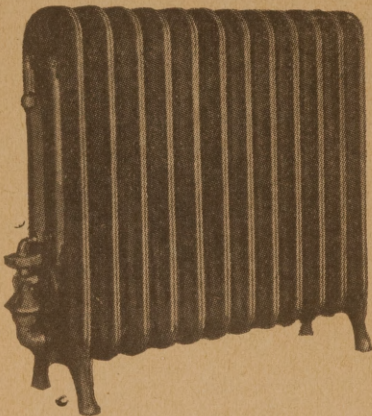
Finest Workmanship—Best Material and Finish

CO-OPERATIVE SERVICE.

This company maintains a department for co-operating with architects or clients in solving problems encountered in selecting and installing vaults.

Prices and estimates will be promptly furnished on application.

Cuts Your Heating Cost



It Saves the Gas.

Cabco Gas Steam Radiators

Are easy to install. They cost less than one-half of a Central Steam Heating Plant.

Each Cabco Radiator a Separate and Complete Unit.

If you have an old building, a hall or room not properly heated. If you are building a new home, apartment, store, duplex, church, garage, etc., you want to see the Cabco.

Thousands in Use.

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Manufactured by

CABCO IRON WORKS, Inc.

Diamond Bank Bldg.

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Dealers Write for Complete Information.

You **KNOW** Wolff
Plumbing—is it worth
while to consider any
other ?

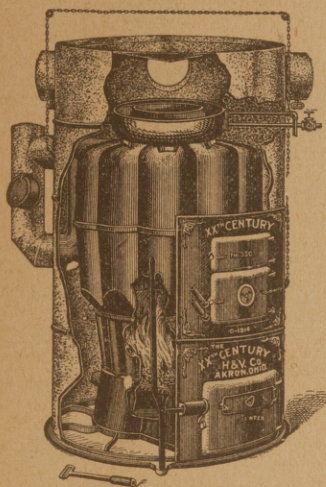


WOLFF MANUFACTURING COMPANY

Mfrs. of Plumbing Goods Exclusively

General Offices - 255 N. Hoyne Ave.
Show Rooms - 111 N. Dearborn St.

CHICAGO



In the End - a XXth Century
COSTS the LEAST

THIS DEALER SAYS:

(Name on application)

"I have installed about 700 XXth Century
Furnaces in the last seven years and I find
they are all giving good service."

XXTH CENTURY FURNACES

FEATURES:

- Self filling water tank.
- Upright shaker lever.
- Indirect draft system that saves coal and carries off gas.
- Drop front grates.
- Made of highest grade, tested pig-iron throughout—no scraps.

Write Department 1 for dealers terms.

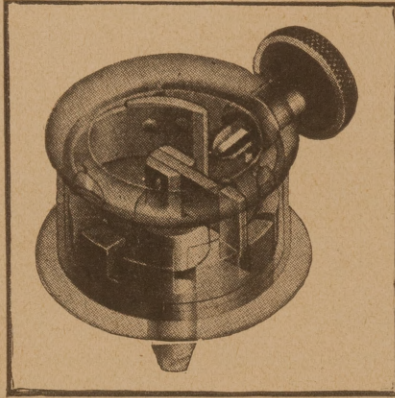
XXth Century Heating & Ventilating Co.

Akron,

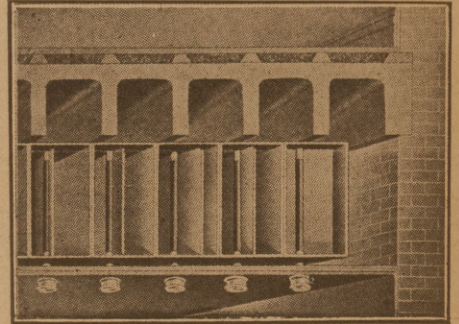
Ohio.

This Illustration Shows How the Perfecto Damper Regulator and Indicator

when placed on a battery of ducts in the collecting chamber near the machinery room not only affords an easy and convenient means of regulating the flow of air, but also serves as a positive means of indicating the room to which each duct leads, by means of the numbered or lettered cover windows.



regulating the flow of air, but also serves as a positive means of indicating the room to which each duct leads, by means of the numbered or lettered cover windows.



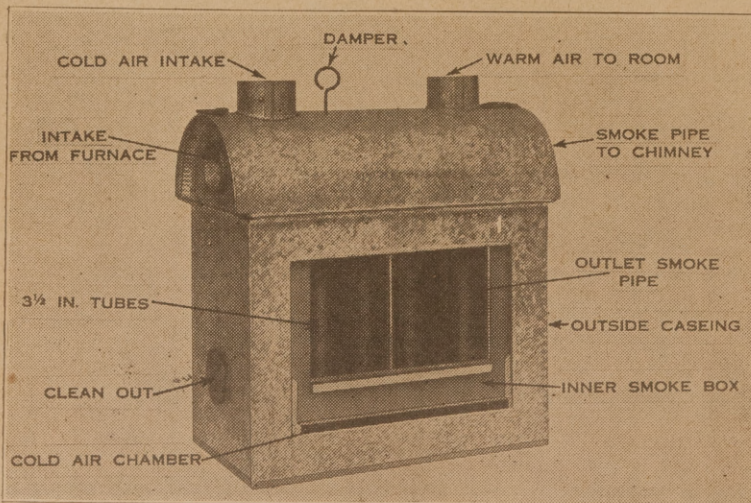
Send today for Descriptive Circular

The Sixth City Sheet Metal Works Co., Cleveland, Ohio

Galvanized Iron Work for Heating and Ventilating Systems

NO PIG IN A POKE IS HEAT FROM SMOKE

Forty to seventy-five per cent of the heat generated by the ordinary heating apparatus goes off up the chimney. The Sexton Air Circulating Radiators utilize all the heat that would ordinarily be wasted. In these days of high priced coal, if you can show your customer how you can increase the efficiency of his heating apparatus and insure his comfort at a moderate expense, you create a most desirable asset—a well pleased customer. One installed in a neighborhood sells another. The Sexton Money Saver Radiators are easily installed and are absolutely guaranteed. Write for circular and agency proposition.



Sexton's Air Circulating Radiator

To be used on Range or Heating Stove for Single Room.—The best heat producing Radiators ever placed on the smoke pipe of a stove or range, will make as much heat and in some cases more than the stove to which it is attached, will not interfere with the draft of the stove, but will save heat that would otherwise be going out the chimney. Everyone is guaranteed to do what we claim for it. Made in two sizes.

C. W. Sexton & Co.

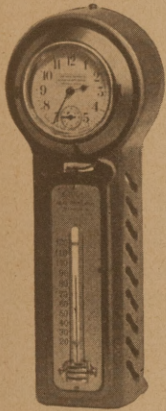
Waynesboro, Pa.

The Increasing Cost of Coal

is causing a greater demand everywhere for temperature control of heating systems. Saving coal is of especial interest now to home-owners and landlords.

You can meet this demand satisfactorily by installing the

SOUDER For Perfect Heat Regulation **HEAT REGULATOR** **Auto-Wind** **Auto-Control**



The Souder not only saves coal, but time and labor as well.

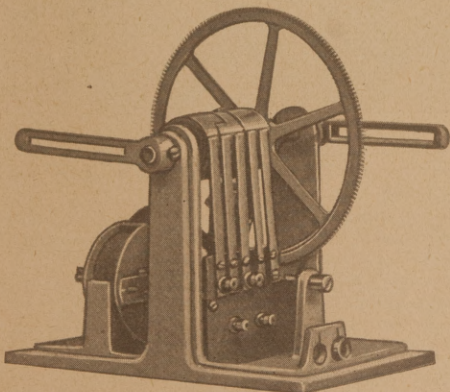
Fully automatic in operation. Does away with periodic winding and setting of clock, as on other regulators. Electrically driven motor—requires no winding or attention of any kind.

Do yourself and your customers a favor—install the Souder Regulator on both old and new work.

Write for details.

SOUDER-HORNSBY CO.

Incorporated
TAMAQUA, PA.



SLATE ROOFS

THE SPREADING OF FIRE

in a community is made possible in most every instance by the use of inflammable roofing material, such as wooden shingles, asphalt, etc.

Hundreds of great fires could have been prevented—thus saving many precious lives and millions of dollars' worth of valuable property, had only SLATE been used in the beginning.

SLATE is the ideal Roofing provided by Nature for roofing purposes—why not let Nature take its course?



VENDOR SLATE CO.
Largest Shippers of Roofing Slate in the World
BANGOR, PENNSYLVANIA





GEORGIAN TERRACE HOTEL and PONCE DE LEON APARTMENTS, ATLANTA, GA.
 These are plastered throughout with Cherokee Cement Plaster. Sold by Agents everywhere in Georgia and throughout the Southern States.

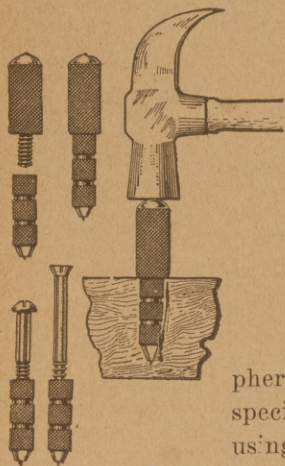
SCIPLE SONS, Exclusive Agents for Atlanta.

Manufactured by

Southern Gypsum Co., Inc., North Holston, Va.

The Only Screw Holes

IN THE WORLD The "Hole" Problem



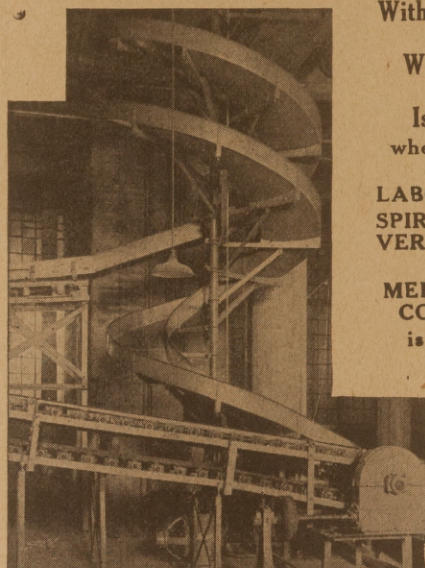
The advantages of Screw Holes are: they can be used without damage to receiving material; they enable you to Standardize to wood or machine screws in all materials; they are made of brass and will not rust under atmospheric or moisture conditions; special tools are not needed for using them in any material; they

can be used in any place a screw can be used; no special screws are needed—these screw holes fit any wood screw or machine screw now in stock; they make the neatest possible job in any material; they are endorsed by all dealers in screws, and by all users of screws; in spite of the high cost of brass, Screw Holes are yet cheap; they make everlasting holes in any material, and anyone who can drive a nail can use them.

The Stines Screw Holes Company

Waterbury, Conn.

U. S. A.



With Help Scarce
 AND
 Wages High
 NOW
 Is the Time
 when the need
 for our
**LABOR- SAVING
 SPIRAL CHUTES
 VERTICAL LIFTS
 AND
 MERCHANDISE
 CONVEYORS**
 is imperative

We are glad to advise with architects or builders or direct with their clients and furnish

complete structural details and drawings to insure satisfactory results for the simplest or most elaborate requirements.

Through long experience we have learned how to combine every form of merchandise conveyor so as to obtain the most practical results.

When no standard form of conveyor is adequate, we design special machines.

When you want information on conveyors, write us. We can help you.

The Haslett Spiral Chute Co.

Factory
 20th and Allegheny Ave.
 Philadelphia, Pa.

Southern Office
 253 Calvert Bldg.
 Baltimore, Md.

In Competition With 9 Other Radiator Traps

A Famous Scientific Testing Laboratory Pronounces

Trane Thermetal Trap "Perfect in Operation"

The tests were undertaken by a famous scientific laboratory*—of its own accord—in the words of the scientists' reports,—“to determine the ability of the traps to discharge **promptly** the water of condensation **without loss** of steam when operating under a steady pressure of two pounds above atmosphere.”

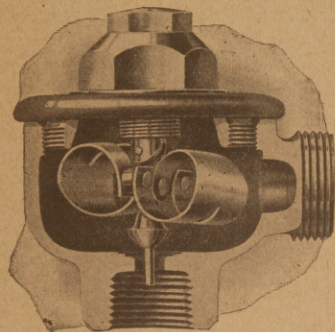
Nine other radiator traps—ten **different** makes in all—were used in the tests. Eight were of “the thermostatic type” and two of the “float type.” Both of the “float type” were reported as “unsatisfactory.” **Half** of the eight “thermostatic type” failed to score as “perfect in operation.” The Trane Thermetal Trap was given a “Perfect” score in this unbiased scientific test for efficiency.

The outstanding feature of all these tests—and the one of most values to every contractor, engineer and architect—is that the Thermetal Trap was the **ONLY ALL METAL** trap (employing no volatile liquid or no diaphragm) among the ten traps tested, proving that the principle of the Trane Thermetal Trap is scientifically correct and unfailingly accurate in its quick responsiveness to the slightest temperature change, is always dependable in operation, is free from adjustments—as the scientist's reported it, “requiring no adjustment or attention.”

“All of the traps tested were of the ½-inch angle pattern, designed for radiator use. From two to three days were spent in tests on **each** trap. Of four makes of thermostatic type (all samples received from the manufacturer) “two were unsatisfactory—water backed up 3 inches in the radiator, and in the other case, backed up 4 inches. The other two traps passed steam. Two more (of the float type) passed steam—one 5% to 16%, the other 6% to 13% steam.” But the Trane Thermetal Trap scored “Perfect in Operation”—passed **no** steam.

No tests could be more fair. No tests could be more accurate because of the international reputation of this scientific laboratory and its complete testing facilities. No contractor, engineer or architect, lacking these features, could give a trap so severe a test. The scientists were not interested in making one trap “show up” better than another—they were after **FACTS**, not manufacturer's claims.

These unbiased tests prove the quick responsiveness, accuracy and dependability of the Trane Thermetal Trap—not merely when new but many years from now as the Trane Trap is guaranteed, **not** for five years, but **guaranteed for the life of the building**. Because, in the Trane Trap, there's nothing to wear out, nothing to get out of adjustment,



Trane Thermetal Radiator Trap.

It's **all metal**. No unreliable liquid. No unreliable diaphragm. Superior in operation because it's simpler and more scientific in design. Every contractor, heating engineer and architect takes a natural pride in having his judgment of what is the best trap prove up by having the job prove **permanently satisfactory**—to turn out otherwise is to injure his good name. Become better acquainted with this **modern trap**. Send for full information. Used on all kinds of two-pipe heating systems, in buildings of every description.

The Trane Company

Established 1883

Factory: 210 Cameron Avenue, La Crosse, Wis.

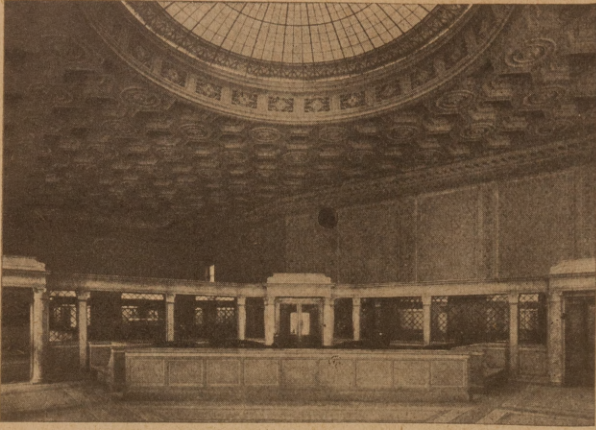
Chicago Office
175 W. Jackson Blvd.

Philadelphia Office
20 S. 7th St.

Boston Office
110 State St.

New York Office
11 John St.

*The established custom of the laboratory forbids the mention of its name in announcements. All words quoted are the words of scientists' report.



Interior of J. P. Morgan & Co., 23 Wall Street, New York
Meyer, Strong & Jones, Trowbridge & Livingston,
Engineers Architects

FRINK

IN THE

Financial District

National City Bank	J. P. Morgan & Co.
Bankers Trust Co.	Guaranty Trust Co.
Chase National Bank	Corn Exchange Bank
National Park Bank	Importers & Traders Bank
Chatham & Phoenix	Farmers Loan & Trust Co.
National Bank	Hanover National Bank
United States	American Exchange
Trust Company	National Bank
Metropolitan Trust Co.	Knauth, Nachod-Kuhne
Irving Trust Co.	Lincoln Trust Company
Yokohama Specie Bank	Chemical National Bank
Clarke Brothers	Equitable Trust Company
Irving National Bank	Liberty National Bank
Mechanics & Metals	J. G. White
National Bank	

Screen Reflectors
Desk Reflectors
Upward Diffusers
Polaralite Signs



I. P. FRINK, Inc.

24th St. and 10th Ave.

NEW YORK CITY

A Concrete Block House

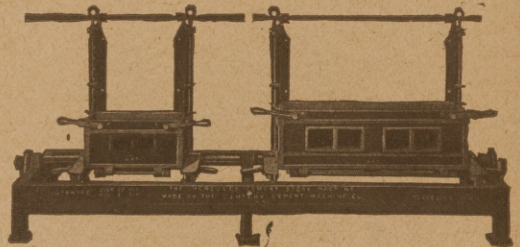
is not complete as to durability and appearance, unless the trimming is made of concrete. Artificial stone also makes ideal trimming for brick and stucco buildings. Stucco should be used on concrete blocks on account of color, low absorption and equal expansion.



All necessary blocks and trimming stone can be made on the

HERCULES MACHINE

with any mineral facing desired.



The HERCULES is

distinctive, elastic, accurate and durable with both quality and production considered.

The equipment may be extended to meet increasing demands. Simply add new plates or forms to the original machine. Get away from the close competition by using a **HERCULES**, and make high grade work to be used above the foundation.

May we send you our catalogue?

You cannot afford to be without our **CEMENT BAG CLEANER**, if you use any quantity of cement. May we send you a descriptive circular giving the savings that can be accomplished, and a partial list of users?

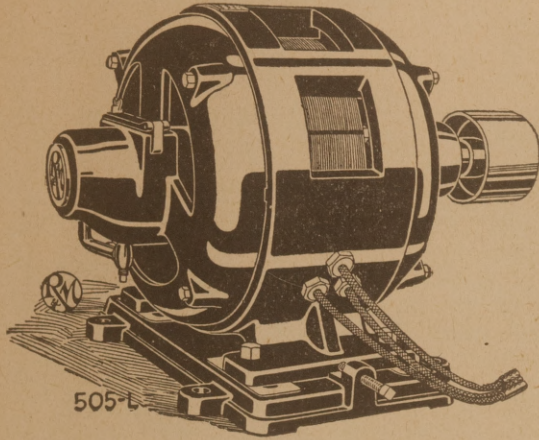
Century Cement Machine Co.

60 Brown's Race,

ROCHESTER, N. Y.

BRYAN ELECTRIC CO.

58 EDGEWOOD AVENUE, ATLANTA, GA.



Electric Light, Power, Telephone and
Bell Wiring for Residence, Stores
and Factories.

Estimates Furnished

Rewinding For Motors, Generators

All kinds of new and used Electrical
Machinery bought, sold and
exchanged.

ALL KINDS of ELECTRICAL WORK

MOTORS RENTED

Ivy 1788-179

TELEPHONE YOUR WANTS

LOCAL AND LONG DISTANCE

THE ROOF OF ETERNAL YOUTH.

SHELDON'S
RED. GREEN. PURPLE. BLACK
SLATES

Made in a wide range of sizes and thicknesses. Unusually distinctive color combinations that harmonize with building and surroundings. Quality, price, and service unequalled. See Sweet's Catalogue. Booklet and full particulars on request.

F. C. SHELDON SLATE COMPANY,

Granville, New York.



CRUMB'S
Patent Chain-Hanging
STANCHIONS

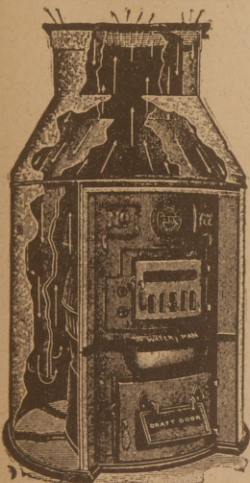
Make cows comfortable, keep them clean, and increase the flow of milk. Used with either concrete or wood base.

Liberal Discount to Contractors or Dealers.

Manufactured by

Wallace B. Crumb

Box S, Forestville, Conn.



The GREAT NORTHERN

WARM AIR FURNACE—PIPE OR PIPELESS SYSTEMS.

All castiron—gas tight—non-smoking—every inch of outside surface efficient for heat—no sheet metal to be destroyed by exposure to fire. Burns any fuel available anywhere—uses about one-half the fuel required in furnaces with brick-lined fire pots to do same work, and takes one-half the space in cellar.

Equipped for Either PIPELESS, or PIPE Systems.

Built entirely of New Southern Pig Iron, the Zero King is indestructible under ordinary firing. Holds fire over night with soft coal. Delivers moist air, essential to healthful heating.

WHOLESALE TRADE ONLY IS SOLICITED.

But orders will be filled for sample Furnaces where we have no established agency. It is the model now in universal demand among dealers. Our facilities are unequalled, and our terms attractive. Write

WELLS FURNACE & SUPPLY CO.

HOT AIR PIPE AND FITTINGS—REGISTERS AND VENTILATORS AT WHOLESALE
1522 Olive Street ST. LOUIS, MO.

RELIANCE FIREPROOF DOORS and WINDOWS

ARE USED FOR

High-Class Buildings

Reliance Fireproof Doors, Windows and Trim are selected because of their superiority in design, efficiency, material and workmanship.

The facilities of the Plant and organization of the company are such that architects and owners can be assured that all contracts will be executed within the allotted time and that every attention to detail necessary for the satisfactory completion of the work will be promptly accorded.

Plans and specifications sent for the purpose of estimating will be promptly returned at this company's expense, and if architects desire, details will be submitted showing most practical and economical methods of securing best results under special conditions.

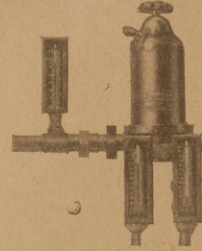
WE SPECIALIZE IN 16 GAUGE
BRONZE-COVERED DOORS

Reliance Fireproof Door Company

West and Milton Sts. & Greenpoint Ave.
BROOKLYN, N. Y.

Represented in all the Principal Cities

LEONARD WATER MIXING VALVES THERMOSTAT CONTROL



"LEONARD" VALVES ARE THE ONLY WATER MIXING VALVES THAT PREDETERMINE TEMPERATURES BY DEGREES. THEY WILL REGULATE AND MAINTAIN TEMPERATURES AS CLOSE ON REDUCED FLOW AS ON FULL FLOW.

A WATER TEMPERATURE MIXING VALVE THAT IS CONTROLLED WITH A SOLID METAL THERMOSTAT CAN BE RELIED UPON TO PREDETERMINE AND MAINTAIN TEMPERATURES ACCURATELY AFTER YEARS OF SERVICE. THE "LEONARD" MIXING VALVE IS THAT KIND OF A VALVE.

THEY ARE GUARANTEED FOR TWO YEARS. SPECIFY "LEONARD" VALVES AS YOUR CLIENTS ARE ENTITLED TO THE BEST. WRITE FOR BOOKLET.

New York Office
50 Union Sq.

LEONARD-ROOKE CO.
Providence, R. I.

Mark Your Own Rafters Quickly and Accurately

ELMCO Handy Rafter Markers answer your need for a small building job on your farm or anywhere.



You don't need an expert to mark out your rafters. With a set of ELMCO markers your twelve year old

boy can mark out your rafters to fit.

The ELMCO Handy Rafter Markers

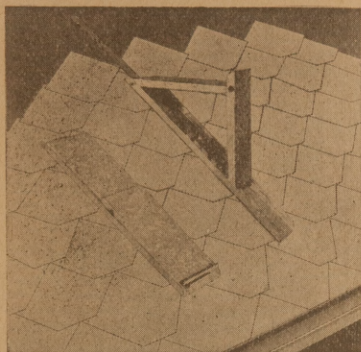
(Patent Applied For)

Give you every angle and length you want for the ordinary small farm building. You only need a pencil and this set of markers to lay out your rafters the correct length—at any pitch you want. Saves you money—and no time wasted. Order a set of ELMCO Handy Rafter Markers for your Fall building job.

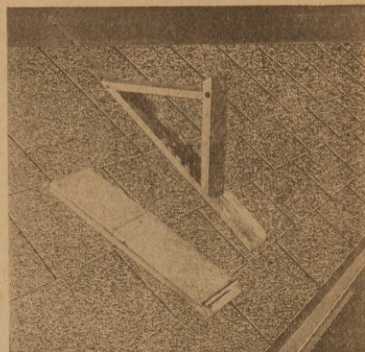


Only \$1.00 per Set, sent parcel post paid.

E. F. ELMBERG CO., Mrfs.,
BOX 15, PARKERSBURG, IOWA.



Asbestos Slate Roof



Asphalt Shingle Roof.

Save Time,
Energy and
Materials
by using—
**The Ajax
Folding Metal
Roofing Bracket**

Patented Feb. 2, 1915.

For Slating—Tiling—Shingling

They are strong and durable—fold flat when not in use—adjustable to any pitch of roof—quickly attached and detached.

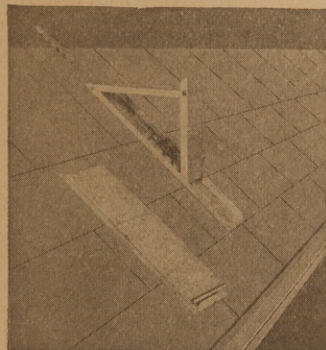
Write for price circular.

Ask your jobber for them.

Manufactured by

Ajax Bracket Manufacturing Co

3901 Parkdale Rd., Cleveland Heights,
CLEVELAND, OHIO.



Slate Roof.



Spanish Tile Roof.

**DIETZGEN
T SQUARES**

are accurate, dependable,
and perfect in workmanship.

Only the most carefully selected and thoroughly seasoned stock is used in their manufacture. As an additional strength and rigidity precaution, the size and thickness of the heads and width and thickness of the blades are greater than customary.

Each T Square is unsurpassed for nicety of balance and ease in handling. *Made in various styles.*

Send for Catalog

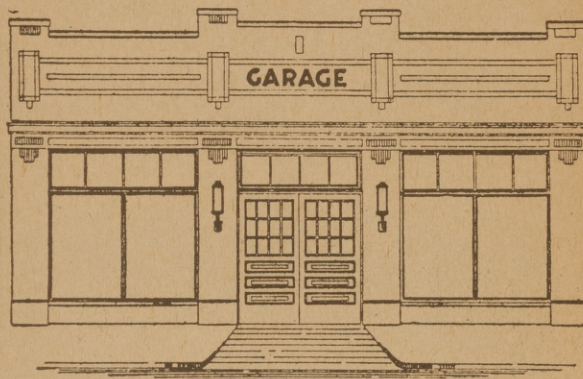
Eugene Dietzgen Co.

Branches:

Chicago New York San Francisco
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PUBLIC GARAGES

Do not let the construction of the modern garage worry you. Our garage department will relieve you of these cares.

Steel Roof Trusses.

We will submit designs and prices free of charge. Give dimensions of building, style and pitch of roof and kind of roofing.

Steel Sash.

Fireproof and giving plenty of light and ventilation are especially adapted for use in garages. We can ship promptly from stock.

Skylight and Roof Ventilators

Non-leaking metal skylight frames and standard types of roof ventilators can be supplied promptly.

Show Windows and Doors

Our specialty is the construction of attractive store fronts. Our garage fronts are standard everywhere.

Write for Catalog.

George L. Mesker & Company

Complete Store Fronts EVANSVILLE, INDIANA



MT. AIRY GRANITE

QUARRIED EXCLUSIVELY BY

THE NORTH CAROLINA GRANITE CORPORATION

MOUNT AIRY, N. C.

Send for Price List

CHAS. H. GALL, Western Representative
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J. D. SARGENT GRANITE CO.
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Will Quote on Finished Building and Monumental Work
GEO. L. MEAD, N. Y. and N. J. Representative
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This Modern CLOSET

is convenient, sanitary and beautiful. It is the equal of the modern flush closet of city homes.

The Waterbury SANITARY CAUSTIC CLOSET

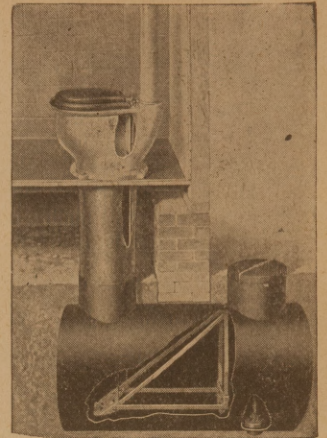
affords modern closet convenience for homes, schools, factories, churches and all buildings where water and sewers are not available. Town and farm families are demanding the convenience, and comfort of indoor closets. The "Waterbury" so completely supplies this need that it surmounts all competition.

CONTRACTORS

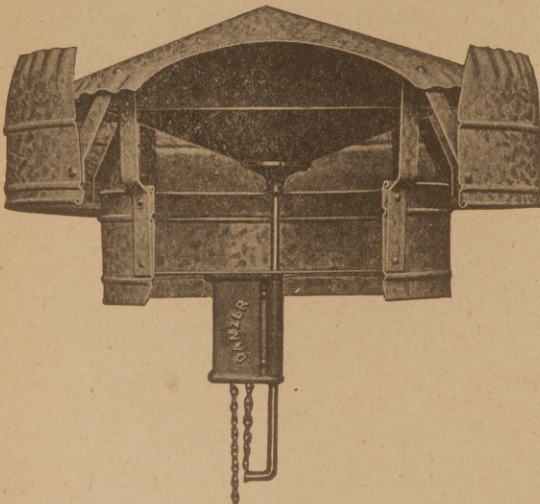
Introduce this modern standard of closets in your community and you will uncover an active demand for hundreds of them. There's real profit in the "Waterbury" too. Retail price about \$80, freight equalized with Cincinnati.

Write us at once for information on exclusive agency offer.

The Waterman-Waterbury Co.
Minneapolis, Minnesota



HOT AIR Rapidly Exhausted by ROSE TOP VENTILATORS



Absolutely Stormproof, constructed to exhaust maximum amount of air without danger of leakage. Can be equipped with Single Chain Lift Damper as illustrated. Six thousand furnished U. S. Government last year. Price reasonable.

Danzer Metal Works
HAGERSTOWN, MD.
Dept. S.

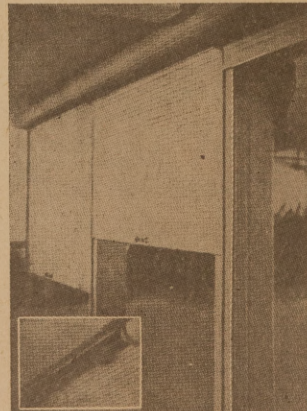
ROSSEL EDWARD MITCHELL & CO., Ltd.

Architects, Engineers, Town Planners

Designers and Supervising
Constructors of Entire Towns.
Banks Designed and Fully
Equipped. Ice and Cold-
storage Plants.

817 Fourteenth St., N. W.
Washington, D. C.

609 Flat Iron Bldg.
Norfolk, Virginia.



ROLLING PARTITIONS

for

Hospitals, Schools, etc.
Wherever Division of
Rooms is Required. Also

STEEL SHUTTERS

for Windows, Doors,
Driveways, etc.

**SWEDISH
VENETIAN BLIND CO.**

1328 Broadway, New York
Branches in
Principal Cities

*If a user recommends
a product, it's good.*

ASK THE USER

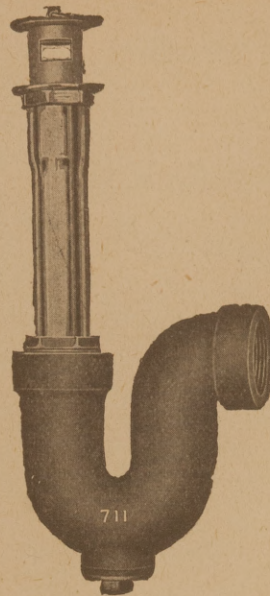
The Russell Perfect Automatic Air Valve can be adjusted to any and all conditions. Made in all styles, bottom outlet, side outlet, lock shield and vacuum attachment.

Guaranteed for five years.

Write

W. A. Russell & Co.

63 W. 37th St.
New York City



“711”

That's the Name of the Trap shown in the cut and merely asking for

“711”

is a brief but sufficient way of

**BUILDING
BIGGER
BUSINESS**

FOR BASINS, SINKS, TRAYS AND BATHS.

Write for prices.

ESSEX FOUNDRY

Newark, N. J.

Can You Afford to Do Without

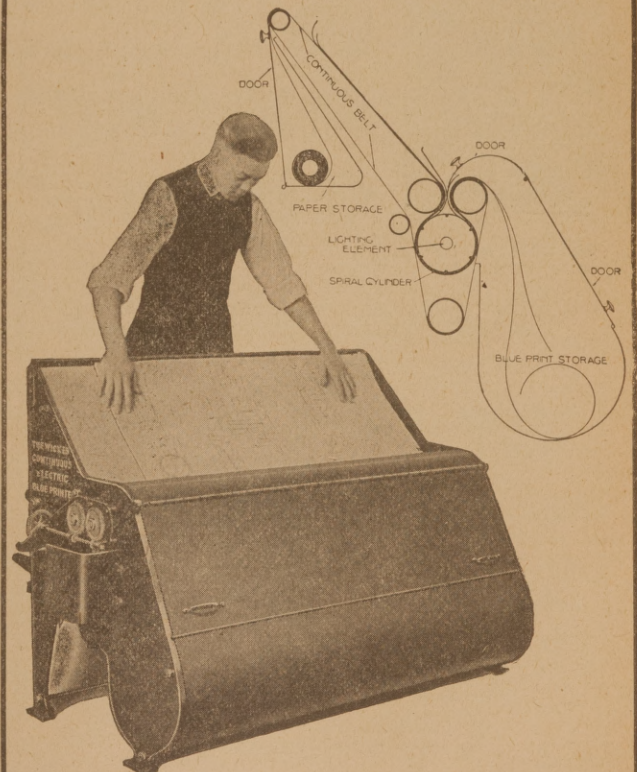


“WHITE-STEEL” MEDICINE CABINETS

“WHITE-STEEL” SANITARY FURNITURE CO.

Dept. 10, Grand Rapids, Mich.

BLUE PRINTS



WICKES BROS.

Saginaw, Mich.
U. S. A.
Department D.

The Wickes
Continuous Electric. Sells
half the price. Uses half
the current of others

The Federal Clay Product Co.

MANUFACTURERS

SALT GLAZED BRICK

of the Finest Quality.

The "Sparta" acknowledged and admitted to be the most perfect and most satisfactory Glazed Brick on the market. Uniform in size, never craze nor chip off. Permanent in color and finish. "SPARTA" Brick are also made in Lemon, Orange, Old Gold and many other shades both glazed and unglazed. The most profitable line on the market for live agents to handle. High class goods with character in them that build high class reputation for the dealer and Agent.

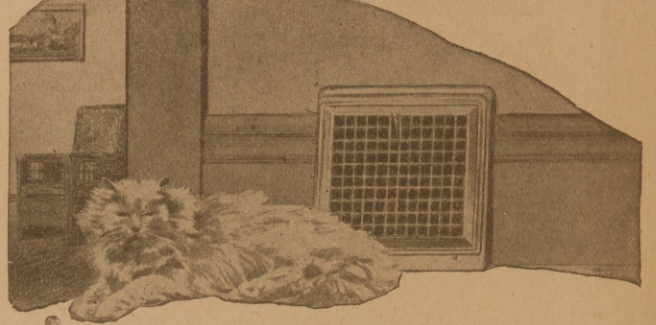
The Federal Clay Product Co.

MINERAL CITY, OHIO.

COLUMBIAN

All-Steel
Warm Air

REGISTERS



The Finishing Touch of a Good Job

AS Michael Angelo said to the man who asked him why he spent so much time on a trifling detail: "Trifles, my dear sir, make perfection and perfection is no trifle."

In Columbian Registers the lattices are strong without looking clumsy, the shutters, or deflectors, operate smoothly and quietly and close tightly. The finish is always perfect whether it is plain black or white japan, or electro-plated with copper, brass or nickel.

A good furnace, good flues and Columbian Registers make a combination of which the heating contractor can be proud.

Have you the latest Catalog?

The Columbian Hardware Co.

CLEVELAND,

OHIO



What NUPRO CEMENT will do for you

Trade Mark Registered,
U. S. Patent Office.

XXX Nupro Cement is a waterproof, acid resisting material applied hot. Here are just a few of its uses:

Waterproofing foundation walls by inside or outside application.

Bonds new concrete to old concrete, making a perfectly water tight joint.

Lining steel, wood or concrete tanks for holding cold solutions.

Lining concrete swimming pools, tanks and other similar structures.

Coating concrete roofs, preventing leaks caused by cracks due to expansion and contraction.

Cementing glass vault lights in concrete or steel frames allowing for expansion.

Put your waterproofing problem up to our engineers. XXX Nupro Cement is just one of our products. We will recommend a material that will solve your present difficulties.

New Process Chemical Co., Inc.

Manufacturers

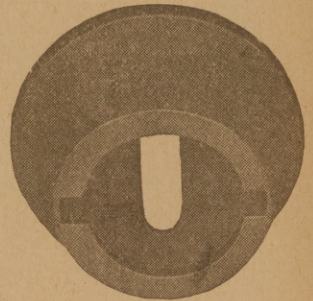
41 Cortlandt Street

New York City, N. Y.

Advantages of Towe's Universal Concrete Insert

15 Good Reasons for using them:

1. Circular form is strongest and most powerful, which means one insert for all sizes.
2. Each Traveler takes two sizes of bolts, impossible with any other insert.
3. Takes either head or nut end of each, impossible with any other insert.
4. All sizes of band iron can be used without twisting the iron.
5. Pipe can be used in place of round iron if so desired.
6. 1 1/4" of up and down adjustment.
7. Adjustment of 1 1/2" to all points of compass.
8. Only insert made which has up and down and side adjustment complete in itself.
9. Easy to install, drive two nails in form and already for concrete.



PATENT APPLIED FOR
10. Locked in all positions.

11. Rod can be used with hook instead of nut or head.
12. Absolutely fool proof, cannot be misplaced in any way due to carelessness on part of mechanic.
13. Breaking load. For Insert over 3 ton. Traveler 2 1/2 ton.
14. Labor Saver.
15. With 2 1/2" St'd washer can use toggles, hooks or bolts.

Particular attention is called to No. 1. The use of this style of iron for hangers is universal. It is adaptable in all its sizes as shown.

Send for Circular

EDWARD TOWE

32-34 Oak Street

ROCHESTER, N. Y.

ONCE SOLD—STAYS SOLD

That means all your efforts can be given to "new" business. Old business takes care of itself for dealers handling

THE STARKS LINE

- Outside Stains
- Shingle Stains
- Wood Preservative
- Waterproofing Paint
- Creosote Disinfectant
- Cement Putty

Write or wire for prices.

- Concrete
- Cement
- Stucco
- Brick
- Waterproofing

THE STARK MANUFACTURING CO.

First & Main Sts. Kansas City, Mo.
We want Milwaukee Jobbers.

CRUSHED GRANITE

For

CONCRETE HIGHWAYS

And

COMMERCIAL PURPOSES

ALL SIZES SHIPPED PROMPTLY

A. T. Small Quarries Company

OFFICES: BIBB BUILDING, MACON, GA.

QUARRIES: HOLTON, GA.

SERVICE

SERVICE



**Perforated
Radial
Brick
Chimneys**

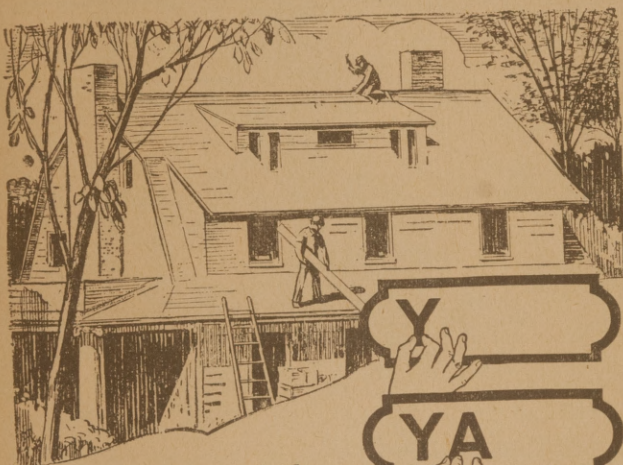
460-Foot He-
niche Chimney
has carried
acid gases for
21 years with
no decay what-
ever.

H. R. HEINICKE, Inc.

Designers and Builders

147 Fourth Avenue, NEW YORK CITY, N. Y.

Your correspondence solicited.



When the Roof is finished--

only because your hardware dealer carries Yale Builders' Locks and Hardware in stock can your client avoid a long delay in the completion of his building. There are many other advantages in the Yale way of distributing. Your client can see for himself, in a nearby store, the designs most appropriate for his building, and quickly get approximate estimates, make his purchase and obtain delivery when wanted

Your hardware dealer knows the security and high quality of Yale Builders' Locks and Hardware. He will fully justify your recommendation of "Yale," and the client will secure lasting satisfaction.

The Yale & Towne Mfg. Co.,

Makers of the Yale Locks

Stamford,

Connecticut.

**Here is a Glazing
Composition that
will—**



Adhere tightly to iron, steel, wood, glass, stone or concrete, Make an elastic joint—tight yet indefinitely flexible, preventing glass from cracking.

Guaranteed to withstand heat, cold, rain or extreme climate conditions, without chipping or peeling.

**KUHLS'
ELASTIC GLAZING COMPOSITIONS**

is used for bedding and glazing all classes of glass construction and is unequalled for securely setting floor or wall tile. Also supplied in shades to match for pointing up stone work, terra cotta, granite, etc.

Complete literature on this exceptional product together with testimonials from such prominent architects as Cass Gilbert, also the Lackawanna and Pennsylvania Railroad, will be mailed on request.

There is a reliable dealer in your locality selling Kuhl's Elastic Glazing Composition. His name will be sent on request.



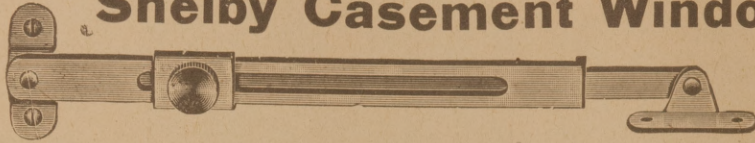
H. B. FRED KUHL'S

Sole Manufacturer

6413 Third Ave., Brooklyn, N. Y.

Shelby Casement Window Adjusters

Made at Shelby, O.
Sold Everywhere.

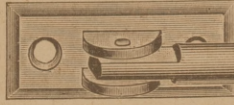


No. 1

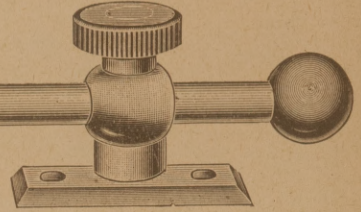
No. 1 This Adjuster is universal for right or left hand windows opening in or out. Will hold the window positively locked in any position. Can also be used as a friction stay.

It is also furnished with brackets to be used where attachment to window casing or trim board is necessary.

No. 2 This Adjuster is for right or left hand windows opening out. It is very strong and has $\frac{3}{8}$ inch wrought steel rod made in 8, 10, 12 and 15 inch lengths.



No. 2



The Shelby Spring Hinge Co.,

Shelby, Ohio

MILWAUKEE CHAIR COMPANY

MAKERS OF FINE CHAIRS

CORRESPONDENCE INVITED FROM ARCHITECTS.

MILWAUKEE

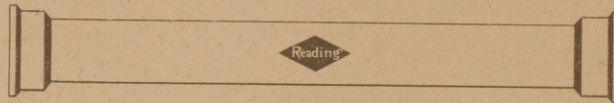
CHICAGO

NEW YORK

SEATTLE

READING BRAND

The Soil Pipe with Five



SOIL PIPE

Guaranteed Features

1. Only the very best of raw materials used in its manufacture.
2. Every length fully tested and guaranteed before leaving foundry.
3. Angles all made the same, insuring a ground joint connection—thus reducing the amount of lead used to a minimum.
4. Easy cutting and free from sandholes.
5. Made in an up-to-date foundry with every facility for turning out high grade products.

WE MANUFACTURE A COMPLETE LINE OF
 CAST IRON SINK TRAPS DRINKING FOUNTAINS
 CAST IRON DRUM TRAPS GARAGE TRAPS
 CAST IRON GREASE TRAPS FLOOR DRAINS
 VENT BOXES—WATER BOXES CESSPOOLS
 HYDRANTS—BOILER STANDS WATER HEATERS

WRITE TODAY FOR CATALOGUE.

Reading Foundry and Supply Co.,

Reading, Pa.

DID YOU EVER GET ANY?

UP-TO-DATE ARCHITECTS DO.

They want Guaranteed for Strength, Comfort, Beauty and Economy

When specifying seats for a job get our Catalogue and name of nearest jobber who handles our line.

A Satisfied Client is Your Best Ad—You Are always talked of: Good or Bad

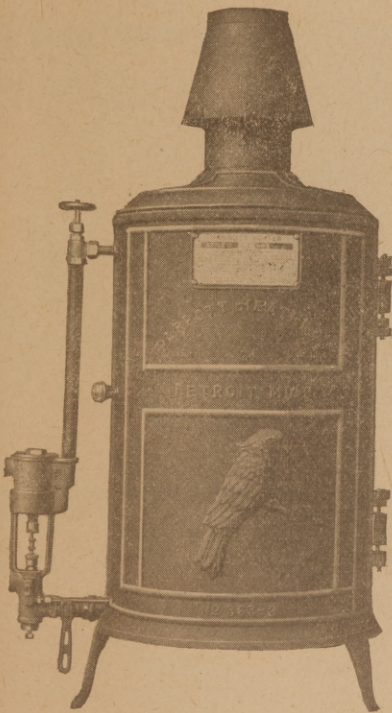
Satisfaction Guaranteed By Us.

KNOTT MANUFACTURING CO., Main Office and Factory, TELL CITY, IND.



W. R. Thatcher,
General Mgr.

Is the man that taught the Parrott to make cold water hot quick as a flash at a turn of a faucet. Write him a letter and learn why 90% of the Detroit Master Plumbers are selling and advocating Parrott Heaters. He will tell you how to make money.



Special Feature

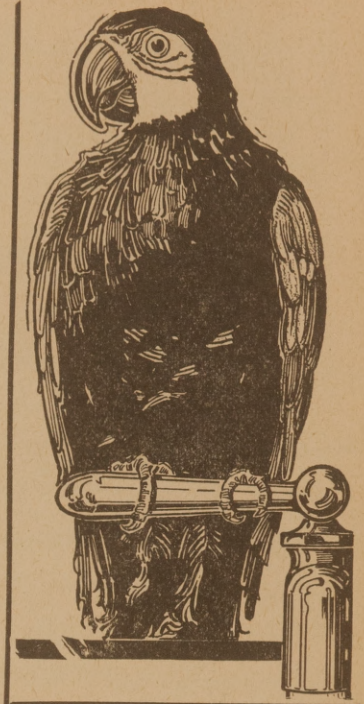
You can remove coil or any part without removing a bolt, screw or nut.

PARROTT

Automatic Gas Water Heater

They Sell on Sight

Built on honor—
Built to last—
Lowest first cost—
Fewest number of parts—
Least to get out of order—



Specification

Jacket heavy cast grey iron—
Finish black and gold—
Coil—Copper—84 feet.
Burners only six in circle.
Pilot flash type.
Valve, bronze—cast in one part.
Exclusive feature—Condensation plate—
protects burners.
Capacity—three gallons per minute—artificial gas—more on natural.

SOLD ONLY TO PLUMBERS

Be a live wire merchant

Use your head. let the other fellow use his hands and feet. One sure way to know about the Parrot—order one, try it out—you will be convinced it is the best in the world, regardless of low cost.

Parrott Heater Co.

224 21st Street

DETROIT, MICH.

Every Architect---Every Builder

Should Know of

CISCO SERVICE in IRON or STEEL THE CINCINNATI IRON & STEEL COMPANY CINCINNATI, U. S. A.

Sell Every Product of Iron and Steel. All Sizes and Gauges Cut to Lengths Desired.

Dependable Showers

Easily set for desired temperature

The Milwaukee Mixer

precludes all danger of scalding.

Made in a variety of designs.

Valve either exposed or concealed.

China or metal handle.

Order from you jobber.

The Milwaukee Flush Valve Co.

Va I've Specialist

MILWAUKEE, WIS.

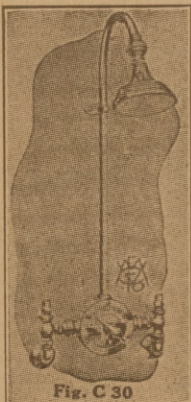


Fig. C 30



Light & Air

may be admitted at any part of the window if you use

Burlington

Venetian or Sliding Blinds

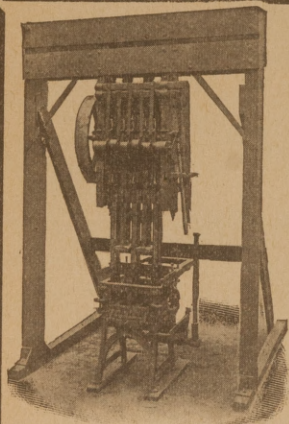
Write for Catalogue

SCREENS. Burlington Venetian Blind Co.
for Windows and Doors Burlington, Vt.



THE IDEAL CONCRETE MACHINERY CO.

1332 Monmouth Ave., CINCINNATI, OHIO

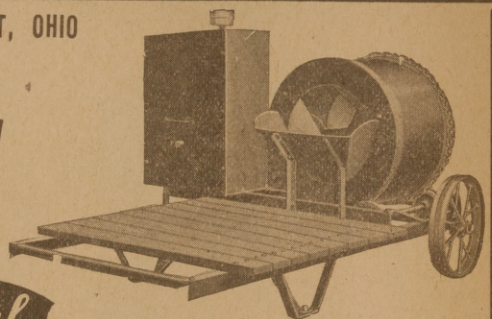


Catalog No. 28



Catalog No. 29

Concrete Machinery for all Purposes



Catalog No. 33



A great trinity of names—Carnegie on steel, Goodyear or Goodrich on rubber, Climax on heating and cooking apparatus.

Don't spend much time looking at a picture or reading the ad., don't pay anything for it—See the furnace itself—That's what you pay for. If you want a furnace real bad you want it real good.

In the Climax all the skill we combine:

What is best in the shop and the mine:

What a wonderful heater—what an all around beater:

Is it any wonder the world says that they are fine.

Send for catalogue.

THE TAPLIN-RICE-CLERKIN CO., Akron, Ohio

"The exclusive Furnace, Stove and Range Folks of Akron and everywhere."

BUILDER'S SPECIAL

500-Foot and 1000-Foot Lightning Rod Outfits Shipped Direct

THERE'S an extra profit waiting for you on many jobs, which you can easily get by installing proper lightning protection. The property owner has confidence in you—make this extra money yourself. With only a small investment in our Builder's Special Outfit, you will realize this big profit in selling and erecting

Thompson's
THE WORLD'S BEST

Guaranteed Lightning Protection

The Builder's Special Outfit is designed to meet your needs. A 1000-Foot Outfit will equip from 6 to 8 average buildings, a 500-Foot Outfit from 3 to 4 buildings.

An Extra Profit You Can Get

Many Thompson agents are making \$3,000.00 extra per year. Every un-rodded rural building is a prospect for a sale ranging from forty to several hundred dollars. Your profit on a complete 1000-Foot Outfit is \$165.00; on a 500-Foot Outfit, \$82.50.

FREE If you are a Builder, Carpenter Contractor, or Lumber Dealer, with your initial order we will give you free a set of the necessary Special Lightning Rod Tools. *This offer is limited.*

Write today for Illustrated Dealer's Catalog, Instruction Book (shown at left), and full details of our Introductory offer and Exclusive Agency Proposition.

THE GEORGE E. THOMPSON
LIGHTNING ROD COMPANY

Originators and Distributors
Dept. B, Owatonna Minnesota, U. S. A.



Carpenters Wanted as Special Representatives

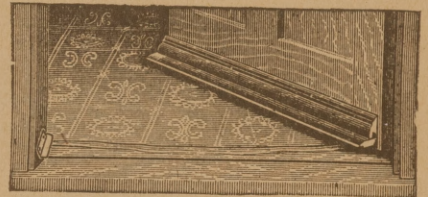
CARPENTERS and others are making big money. It's right in your line. Fenton, of Indiana, made 400 sales in one week; Woodard sold 47 the first day. You, too, can sell the

Henry Weatherstrip
Airtight Automatic

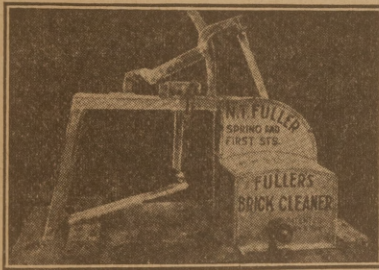
for the bottom of doors and hinged windows. It's automatic. Fits down tight against worn sills as well as new ones. Keeps out every bit of cold, snow and rain and dust. Saves fuel. Sells fast; everybody wants it for economy's sake. Simple; easy to put on. Approved by architects, carpenters, and builders wherever known.

Send now for money-making plans.

The Henry Airtight Weatherstrip Co.
510 Elm St., Crawfordsville, Indiana



This attachment automatically shuts the strip tight against the sill



Patented

SAVE MEN, MONEY AND BRICK CLEANING TIME WITH

Fuller Brick Cleaner

One of the biggest little workers invented in years. Pays for itself in a few days. Cleans old brick and saves cost of new. J. J. Moore, of New Bedford, Mass., writes to us: "It is the greatest labor-saving machine I ever had."

Satisfactory service guaranteed. Made in two models: Hand Powered and Engine Driven. Send for descriptive circular.

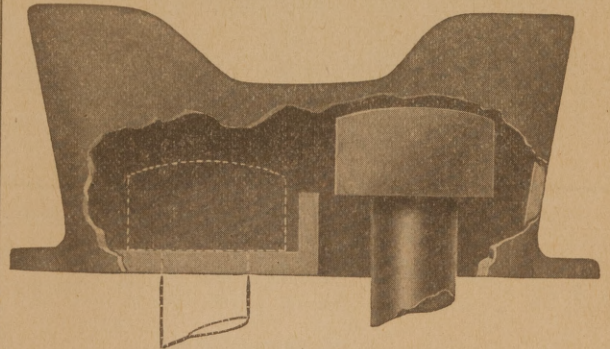
N. T. FULLER

Spring and First Streets New Bedford, Mass.

"WRIALCO"

IMPROVED

A Malleable Iron Adjustable Concrete Insert with double tee head bolt feature



PATENTED

A device for the support of anchorage of hangers for Automatic Sprinklers, Shafting and General Piping Work in buildings of concrete construction. Can be made rigid at any point of adjustment desired.

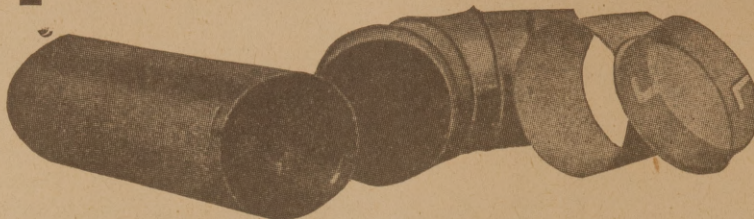
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Home Protecting

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Mt. Pleasant, Iowa

Bedford Steam Stone Works

INCORPORATED 1888

Bedford, Indiana

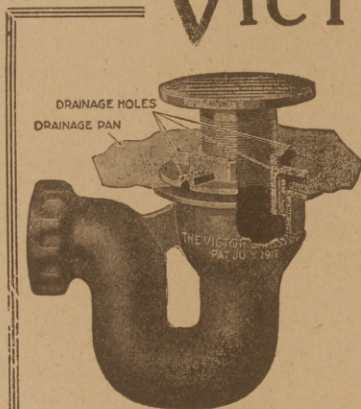
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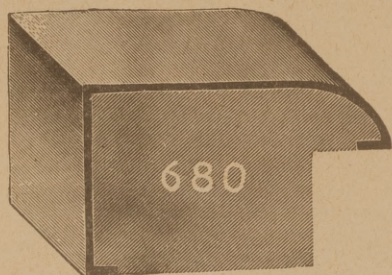
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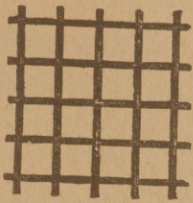
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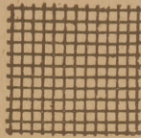
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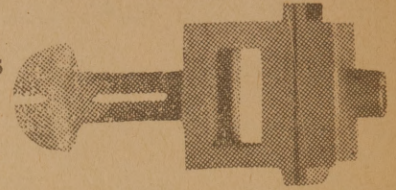


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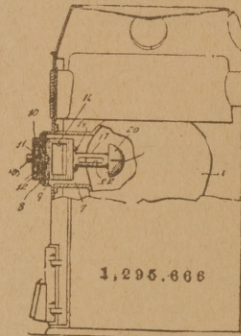


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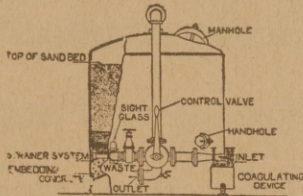
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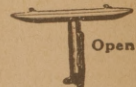
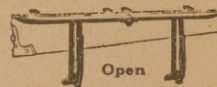
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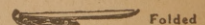
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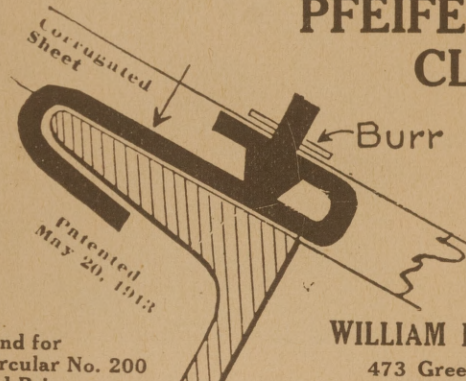
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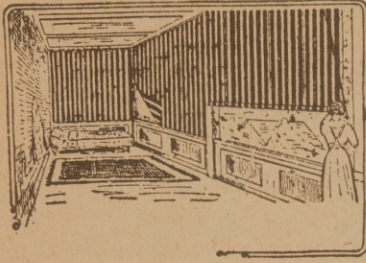
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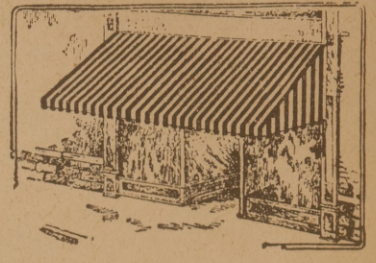
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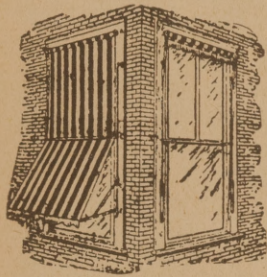


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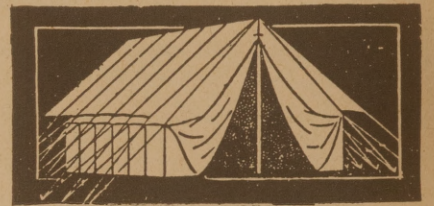
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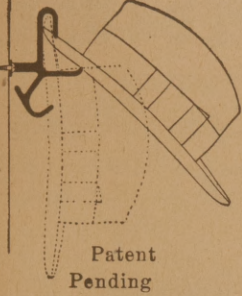
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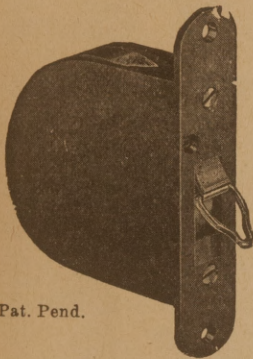
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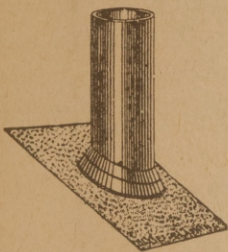
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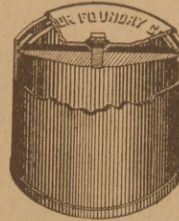


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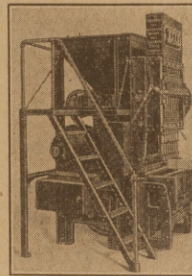
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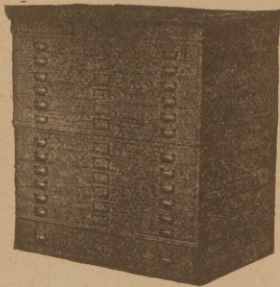
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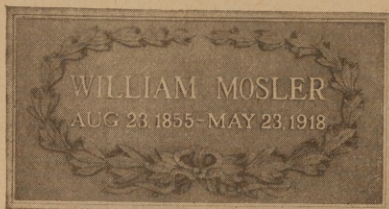
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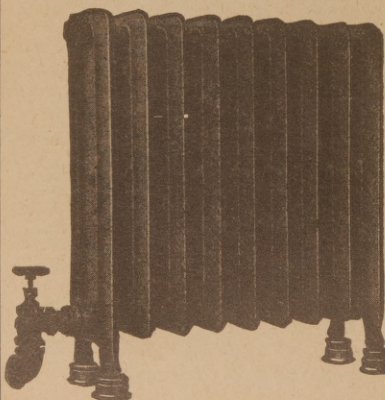
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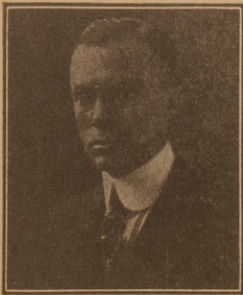
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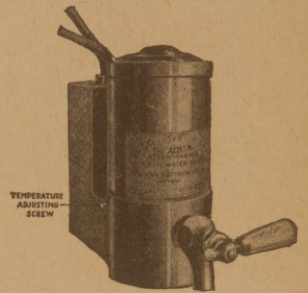
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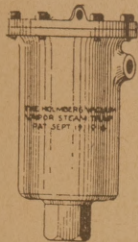
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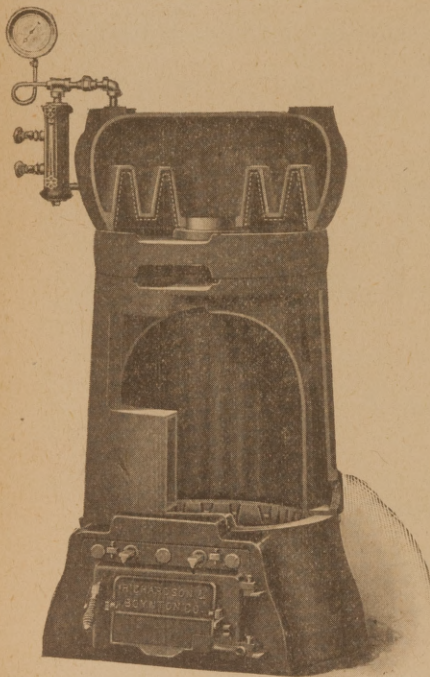
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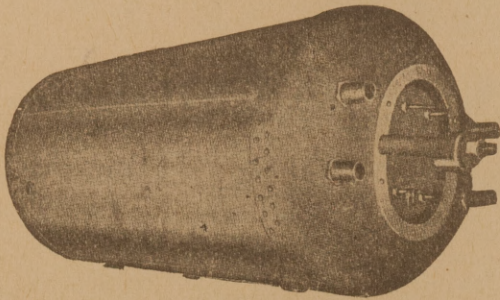
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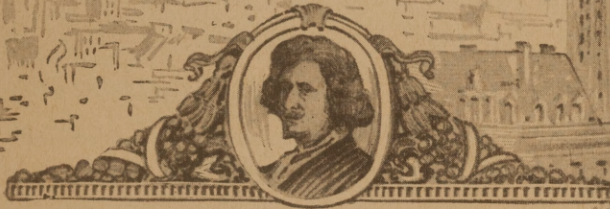
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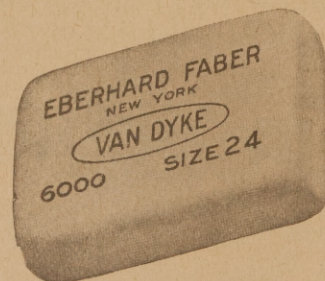
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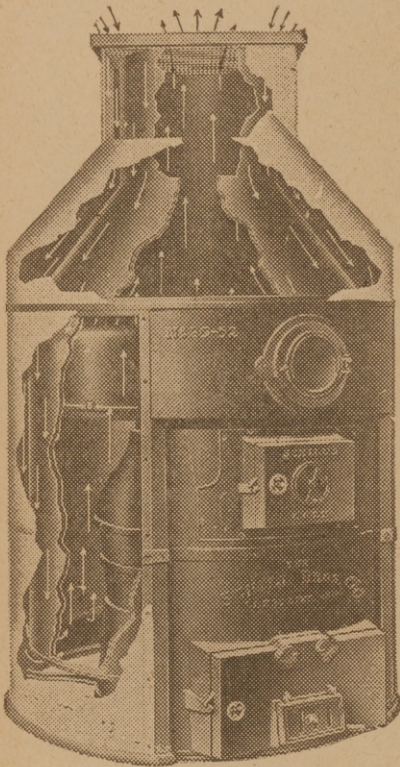


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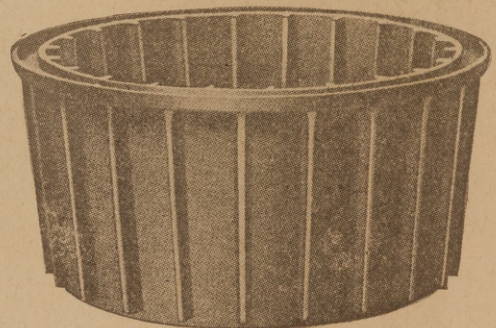


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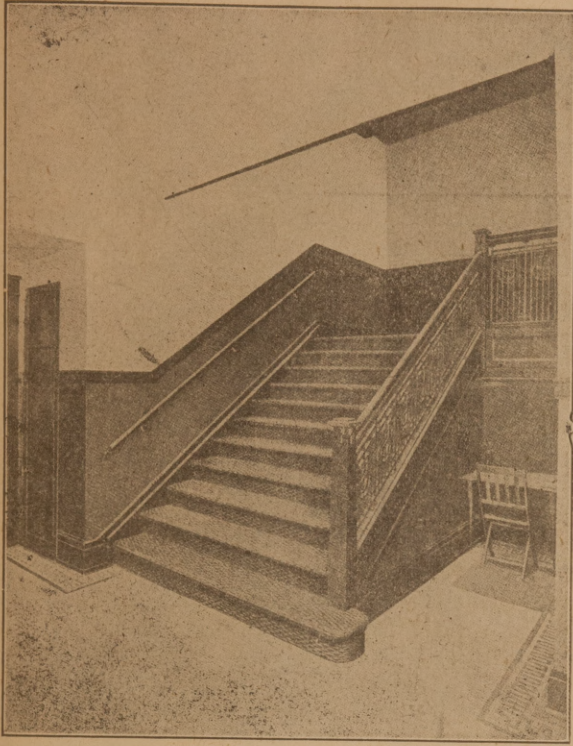


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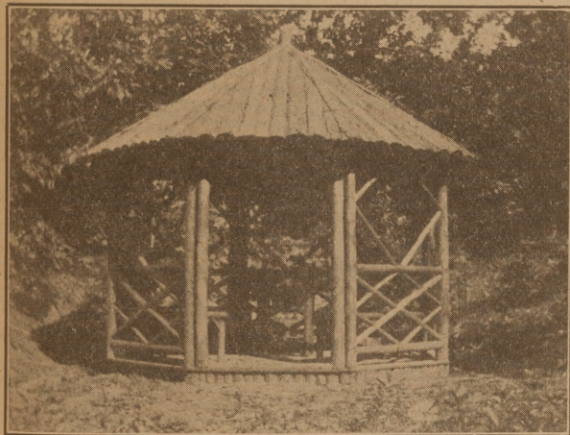
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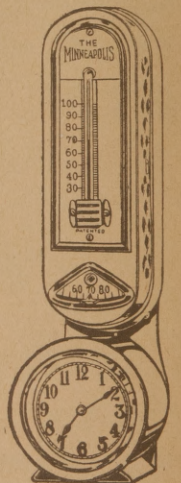
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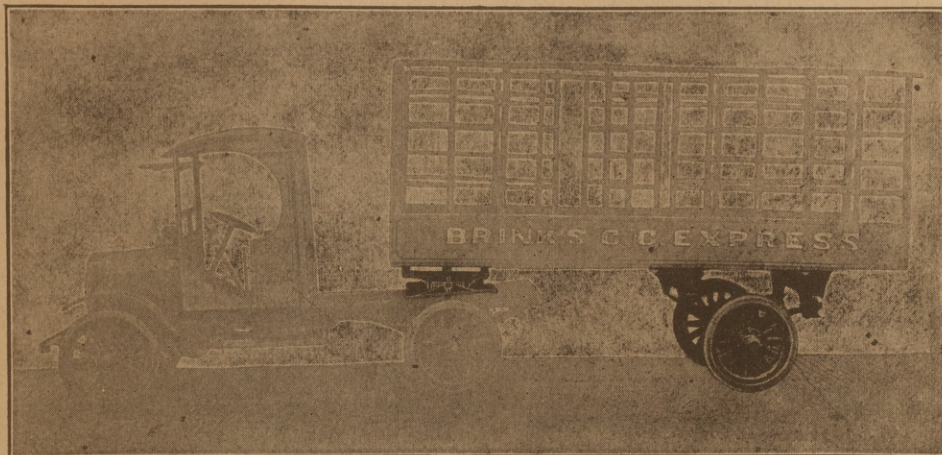
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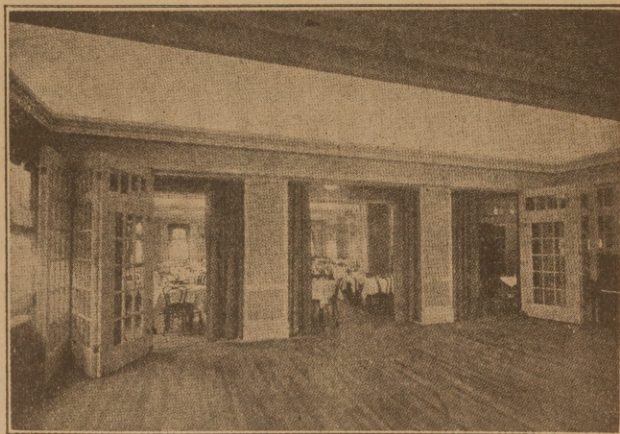
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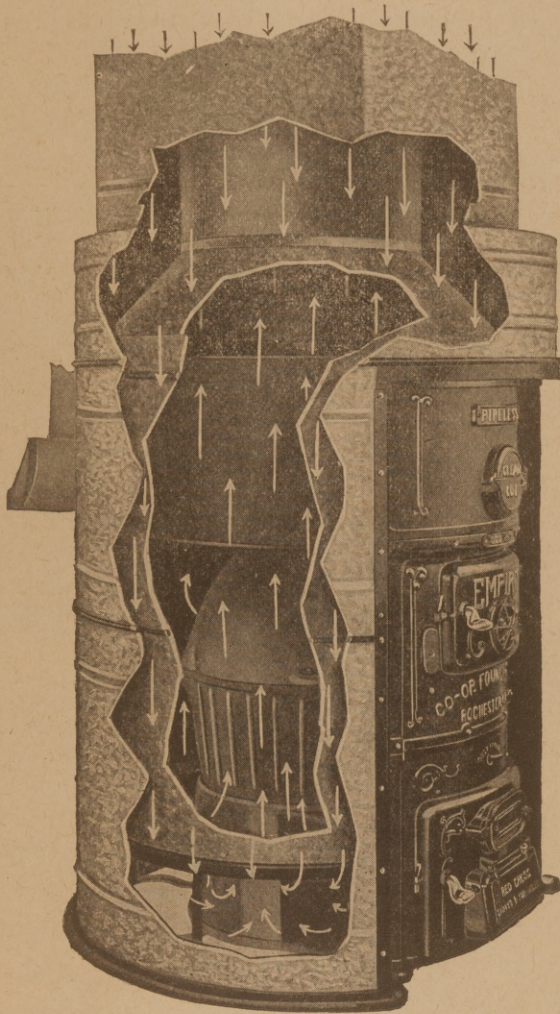
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Alphabetical Index to Advertisers

AMONG THE LEADING FIRMS
IN THEIR RESPECTIVE LINES

A	D	L	S
A & J. Mfg. Co. 26	Dahlquist Mfg. Co. 102	Lang, Fred 28	Sanitary Engineering Co. 98
Adams Electric Co., Frank... 27	Donnelly Mfg. Co. 115	Leonard-Rooke Co. 80	Samson Cordage Works, Front Page
Advance Pump & Compressor Co. 22	Danzer Metal Works 82	Lookout Paint Mfg. Co. 95	Sargent Granite Co., J. D. ... 82
Alabastine Co. 23	Detroit Heater Corp. 115	Liberty Steel Prod. Co. 65	Sasgen Derrick Co. 65
Ajax Bracket Mfg. Co. 81	Dietzgen Co., Eugene 81	Lombard Foundry, Machine and Boiler Works 49	Scaife & Sons Co., Wm. B. ... 1
Amer. Face Brick Assn. 5	Dixie Portland Cement Co. ... 96	Lunken Window Co. 15	Safety Interlocking Stove Pipe Co. 90
Amer. Chimney Constr. Co. ... 18	Dixie Wood Co. 105		Schill Bros. Co. 104
Amer. Window Glass Co. 67			Schramm & Son, Chris D. 22
American Pozzolana Co. 6	E	M	Sexton & Co., C. W. 74
American Elevator & Mach. Co. Front Cover	Economy Drawing Table Co. ... 96	Mallery Mfg. Co. 91	Starks Mfg. Co. 85
Appalachian Marble Co. 102	Elliott Water Heater Co. 19	Mechanicsville Spec. Sup. & Mfg. Co. 21	Shelby Spring Hinge Co. 86
Apex Supply Co. 101	Elmsberg, E. F. 80	Martin Fifth Wheel Co. 107	Sheldon Slate Co. 79
Aqua Electric Heater Co. ... 98	Eaglesfield-Stewart Co. 85	Martin Co., L. 93	Silver Lake Co. 28
Architectural Service Co. 29	Enochs Lbr. & Mfg. Co. 5	Masker Company, George 81	Singer Chimney Co. 96
Atlanta Tent & Awning Co. ... 94	Essex Foundry 83	McCalla Co., Harold 65	Sixth City Sheet Metal Wks. Co. 74
Atlanta Terra Cotta Co. 58 and Front Page	Estey Wire Works Co. 92	Meyers, The Fred J. Mfg. Co. 26	Small Quarries Co., A. T. ... 85
Atlas Engineering Co. 14	"Exelegant" 25	May-Fieberger Fur. Co. 25	Snead Architectural Iron Wks. 28
Auld & Conger Co., The. 22		Meyers and Bro. Co., F. 108	Snow Flexible Gasket Co. 29
Augmore Mfg. Co. 25	F	Merchants & Evans Co. 26	Soot & Gas Consumer Co., Z. T. 92
	Faber, Eberhard 103	Miles Mfg. Co. 28	Souder-Hornsby Co. 75
B	Federal Clay Products Co. ... 84	Milwaukee Valve Co. 16	Southern Mfg. Co. 95
Barber Cre-Sote Stained Shin- gle Co. 10	French & Co., Samuel H. 18	Milwaukee Flush Valve Co. ... 88	Southern Gypsum Co. 76
Barrett Co., The 30	Ford's Porcelain Works 69	Mitchell & Co., Rossel Ed. ... 82	Speidel, J. G. 93
Bates Valve Bag Co. 70	Frink, I. P., Inc. 78	Minneapolis Heat Regulator Co. 106	Stamping & Tool Co. 29
Belmont Iron Works 86	Fuller, N. T. 89	Monitor Pattern & Mfg. Works 95	Standard Iron & Wire Works Back Outside Cover
Bedford Steam Stone Works... 90			Stannard Mfg. Co. 23
Belmer, H. Co. 18	G		Stephenson, C. H. 14
Bergen & Lindeman, Inc. 25	Grainger & Co. 29		Stowell Mfg. Co. 8
Basic Mfg. Co. 19	Griffith, M. J. 70		Stine Screw Holes Co. 76
Betz Bros. 115	Gurney Heater Mfg. Co. Front Page		Structural Slate Co. 71
Blake Specialty Co. 92	Gustafson & Scott Mfg. Co. ... 67		Superior Mfg. Co. 20
Bishopric Mfg. Co. 2			Swedish Venetian Blind Co. ... 82
Bisk Corporation 9	H	N	
Bowling Green & Green River Quarries Co. 96	Hall's Safe Co. 72	Nashville Bridge Co. 68	T
Bozeman Mfg. Co. 115	Hammond Heating Co. 64	National X-Ray Reflector Co. ... 3	Taplin, Rice, Olerkin Co. 88
Brandell Co., The 95	Hart & Cooley Co. 70	National Mosaic Tile Co. 28	Taylor Lumber Co., The S. K. 55
Brasco Mfg. Co. Front Cover	Hartmann-Sanders Co. 55	Natural Slate Blackboard Co. 71	Terry Mfg. Co. 67
Brodix & Malone 70	Hawley Down Draft Fur. Co. Front Page	Nelson Concrete Culvert Co. ... 68	Thompson Lightning Rod Co. ... 59
Brohard Company, The 93	Haynes-Langenberg Co. 93	Newman Mfg. Co. 93	Towe, Edward 84
Bryan Electric Co. 79	Haynes Selling Co. 29	New Process Chemical Co. ... 54	Trane Co., The 77
Buckeye Mfg. & Fdry. Co. ... 92	Haslett Spiral Chute Co. 76	Norristown Magnesia & Asbes- tos Co. 16	Tuttle & Bailey Mfg. Co. 19
Buffalo Hoist & Derrick Co. ... 64	Herrick Ref. Co. 91		Twentieth Century H. & V. Co. 73
Bullock Mfg. Co. 23	Heinicke, H. R., Inc. 85		
Burdick Cabinet Co. 21	Henry Airtight Weatherstrip Co. 89	O	U
Burkett Lightning Rod Co. ... 25	Higgins & Co., Chas. M. 91	Oak Flooring Mfgs. Assn. ... 105	U. S. Mineral Wool Co. Back Outside Cover
Burlington Venetian Blind Co. 88	Holmberg Steam Trap Co. 99	Ohio Hydrate & Sup. Co. 4	United States Roofing Tile Co. 25
	Hoadley & Sons Co., J. 96	Olfeldt Gas Fired Boiler Co. ... 16	Universal Cement Mold Co. ... 14
C	Hood, B. Miffin Co. 95	Onward Mfg. Co. 14	Universal Motor Company. ... 27
Cabco Iron Works, Inc. 72	Hoosier Stack & Constr. Co. ... 14	Ottawa Mfg. Co. 14	
Cail Bitmo Co., The William... 71			V
Caldwell Mfg. Co. 95	I		Vendor Slate Co. 75
Campbell Machine Co. 68	Ideal Concrete Machinery Co. ... 88		Vesuvius Engineering Co. 19
Carpenter Mfg. Co., R. F. ... D	Indiana Brass Co. 92		Victor Brass Mfg. Co. 90
Carter Co., Ralph B. 65	International Steel & Iron Co. 26		Vincennes Bridge Co. Back Outside Cover
Carthage Marble & White Lime Co. 93	Iona Ventilator Co. Front Page		
	Ingalls Stone Co. 16	P	
Castle & Co., A. M. 105	Interlocking Culvert Co. 66	Pardee Works, The O. 100	
Century Cement Mach. Co. ... 78	Ives Co., H. B. 24	Parrott Heater Co. 87	
Chattanooga Roofing & Fdy. Co. 91		Peele Co., The 7	
Chattanooga Paint Co. 17	J	Pfeifer, Wm. 93	
Cherry Lumber Co. 55	Jack Corporation, A. W. 64	Pipe Railing Construction Co. 22	
Chesley Co., A. C. 102	Jennison Co. 96	Plaut & Co., L. 99	
Chicago Metal Covering Co. ... 90		Pyramid Prod. Co. 95	
Cincinnati Iron & Steel Co. ... 88	K		
Cincinnati Mfg. Co. 96	Kaustine Co. 61		
Coates Sanitary Mfg. Co. ... 97	Kawneer Mfg. Co. Front Page		
Coburn Trolley Track Mfg. Co. 20	Keasby & Mattison Co. bet 26-27		
Columbia Hardware Co. 84	Knickerbocker Slate. Corp. Back Outside Cover		
Common Brick Mfgs. Assn. ... 93	Knott Mfg. Co. 86		
Co-Operative Foundry Co. 109	Kuhl's, Fred H. B. 85		
Cook & Laurie Gravel Co. 95			
Cooper Foundry Co. 95			
Crex Patent Column Co. Back Outside Cover			
Crampton-Farley Brass Co. ... 29			
Crumb, Wallace B. 79			
			Y
			Yale & Towne Mfg. Co. 85

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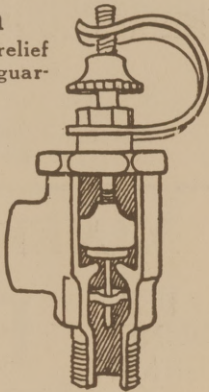
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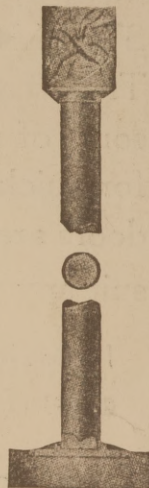
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