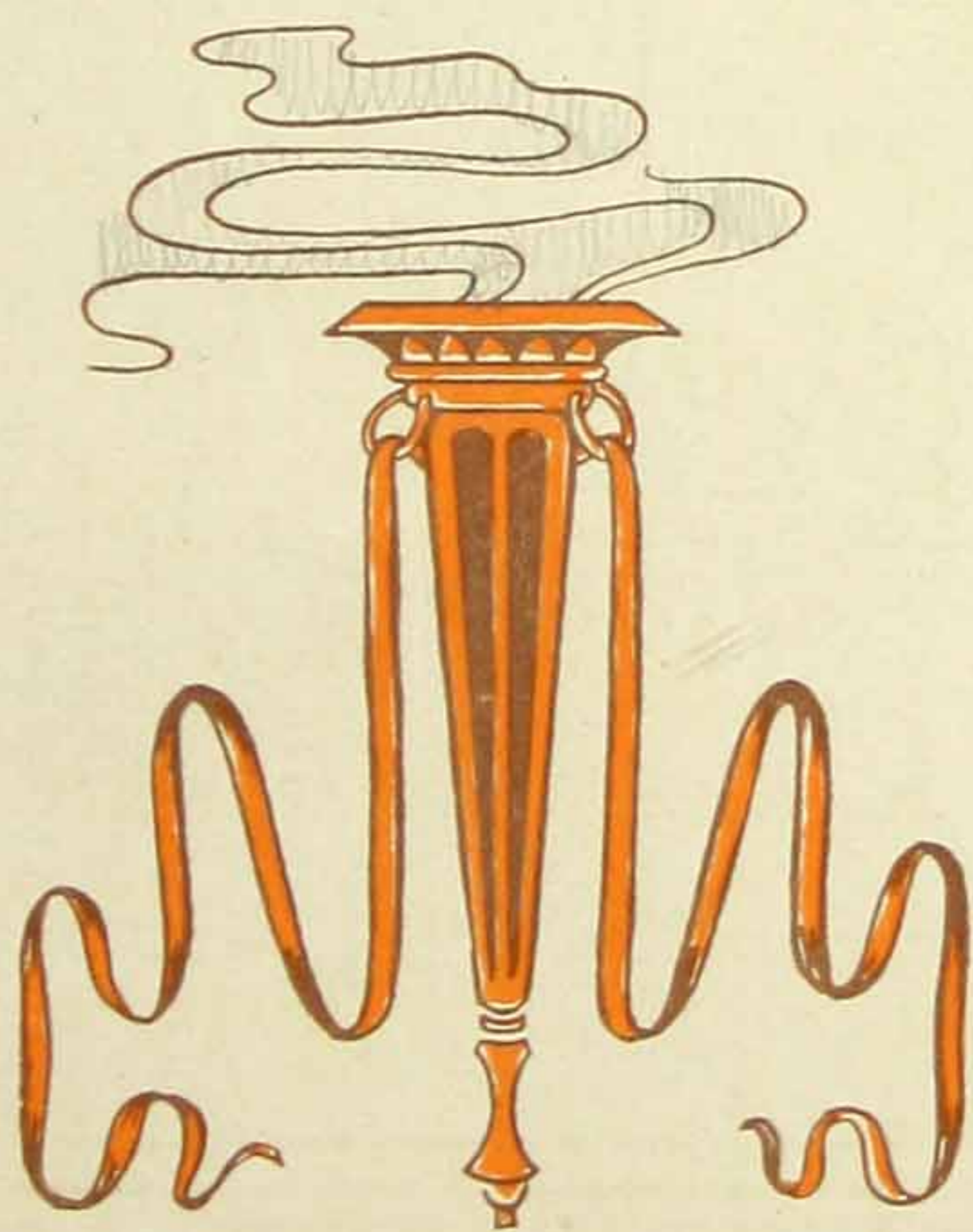


247-8.

R. GILPIN  
Dec. 27 1912

*The*  
**PAUL SYSTEM**  
*of*  
**STEAM**  
**HEATING**





# The Automatic Heating Co.

OPERATING THE

## Paul System

For Heating and Ventilating Offices and Public  
Buildings, Mills, Factories,  
Residences, etc.

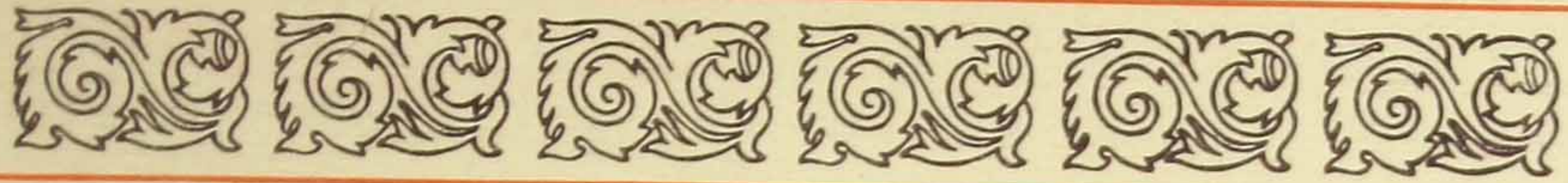
FOR DRYING WORK ON  
DRYING CYLINDERS FOR DRYING PAPER,  
DRYING CANS, SLASHERS, Etc.,  
LOFTS, DRY KILNS,  
BLOWER HEATERS,  
Etc.

### OFFICES:

Home Office, Whitehall Building, 17 Battery Place,  
NEW YORK.

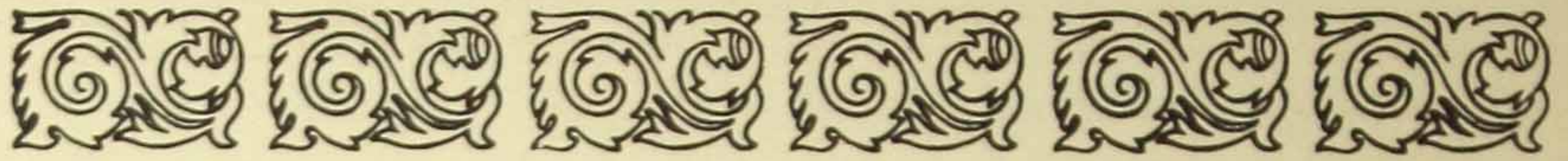
BRANCHES IN ALL LARGE CITIES





The  
**Paul System**  
of  
Steam Heating





## An Important Fact

You can heat some of the radiators all of  
the time,

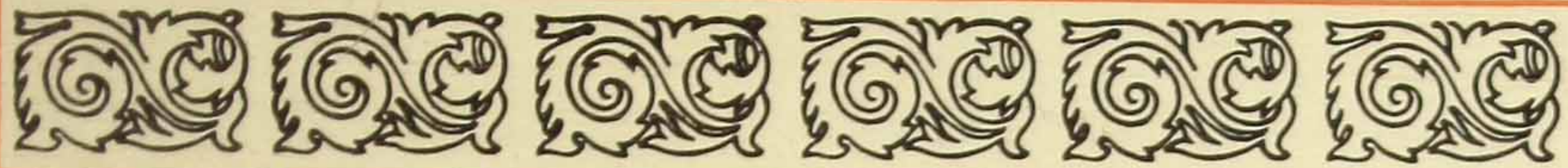
You can heat all of the radiators some  
of the time,

But you can't heat all of the radiators all  
of the time

without our

## Automatic Low-Tension Heating System





## Advantages in the Use of the Paul System:

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If you have one or more buildings to heat, and desire to heat them efficiently and economically, the PAUL SYSTEM or method applied to your heating plant, either old or new, will secure for you:

- 1st. A positive and uniform circulation of steam without pressure above that of the atmosphere.
- 2d. Utilizing the heat of steam at low temperatures, thereby gaining great economy.
- 3d. Warming without impairing the quality of the air in the rooms.
- 4th. The independent and automatic removal of the air and water of condensation from the heating apparatus.
- 5th. A sealed system; no leakage, no smell or dripping from air valves.
- 6th. All heating surface is held in the best condition to operate promptly when desired, and all parts of the surface are rendered uniformly efficient when steam is turned on.
- 7th. Exhaust steam utilized without back pressure at engine or pumps.
- 8th. The water of condensation returned quickly and economically at highest temperatures.
- 9th. Less steam used, less coal burned to heat a given space.





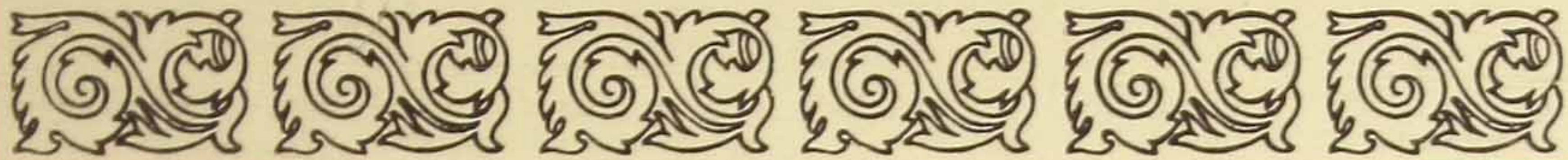
## THE USE OF STEAM IN HEATING

**F**OR many years steam has been used for heating purposes, and it has been supposed that pressure varying from 100 pounds downward was absolutely necessary to achieve the desired result. But the constant tendency of recent practice has been towards a reduction of pressure. So far, indeed, have the results justified such action that it is now generally conceded that the highest results in efficiency, economy and hygiene are to be attained by the use of steam at or below atmospheric pressure.

### MODERN vs. PAST PRACTICE

The construction and proposed plan of operation of nearly all large modern buildings, such as hotels, office buildings, hospitals, theatres, etc., contemplate the installation of a combined power and steam heating plant. The present demand for elevator and electric lighting service, and for many other purposes for which steam is used for power in buildings which are to be heated, affords the opportunity to exercise a very large amount of skill and ingenuity in planning a combination system of power and heating, to the end that the steam produced upon the premises may be utilized with the utmost economy and efficiency. The continuance of antiquated practices entails great loss of net profit. Have you adopted modern methods in your steam plant? If not, will you investigate?





## **CIRCULATION OF EXHAUST**

The great value of exhaust steam as a heating agent, and the very important economy effected by its use having been conclusively proved, the most efficient, and at the same time the most economical method<sup>1</sup> of effecting its circulation<sup>2</sup> is now the question of the hour among all advanced engineers and the owners of combined steam heating and steam power plants who are desirous of operating such plants with the utmost efficiency and economy.

## **BACK PRESSURE**

Inasmuch as exhaust steam has no inherent tendency to circulate to points at which it is desired to release its heat units, the attempt has been made to force it into circulation by pressure, that is, by back pressure at the engine. It will require but a moment's consideration to convince any intelligent investigator that under such circumstances a considerable proportion of the gain secured by utilizing the exhaust steam is thus lost, because of the additional coal consumption required to maintain the required horse power of the engine against such back pressure.

## **THE QUESTION**

The question, then, is this: "By what means or method shall the most excellent qualities of steam as a heating agent be realized, and the wasteful practice of forcing it to points of use by pressure





be supplanted, to the end that such steam shall be conveyed or caused to flow through systems of piping to coils and radiators, for the purpose of there releasing its mild and healthful heat, and to accomplish this highly desirable result with the utmost economy and EFFICIENCY?"

### **A STARTLING FACT**

As there yet remains a large number of plants wherein no attempt has been made to utilize the exhaust of engines, pumps, etc., for heating purposes, it may be pertinent here to assert that in many cases the entire excess of winter coal consumption over that of the summer season represents pure and unadulterated WASTE. The loss of one cent's worth of exhaust steam per minute amounts to the astonishing total of \$1,080 during one heating season, or say 5 per cent. on \$21,600 of invested capital.

### **IMPEDIMENTS TO SOLUTION**

A careful consideration of this question will show that the chief obstacle or impediment to the complete circulation of steam is to be found in the fact that at starting the whole system is full of AIR, and that a greater or less amount of air is always present therein. It is a well-known fact that the water usually used for boiler-feed purposes contains air, and further, that this air is one of the best non-conductors of heat. When steam passes into a radiator or coil, the process of condensation immediately begins,







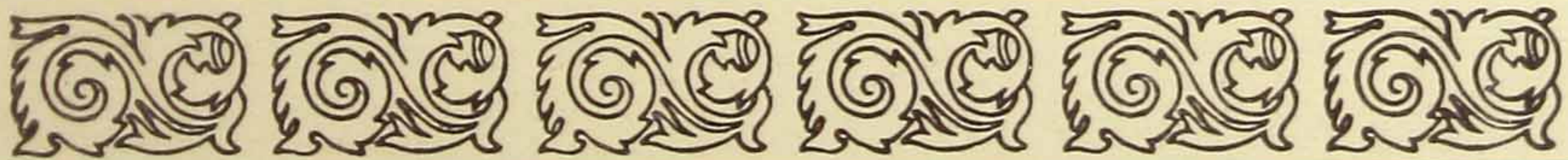
but the steam alone is condensed, leaving the air to obstruct the incoming steam from distributing its heat uniformly over the heating surface. It is a matter of common observation that certain parts of wall coils and certain sections of radiators while in operation are materially hotter than others. The cause of this apparent phenomenon is to be found in the fact that the entering steam has forced the air into certain parts of the coil or radiator, and thus a uniform distribution of the heat of the steam is impossible, even under heavy pressure. It must be apparent that under such circumstances a considerable area of all such coils and radiators is practically worthless as a heat distributor.

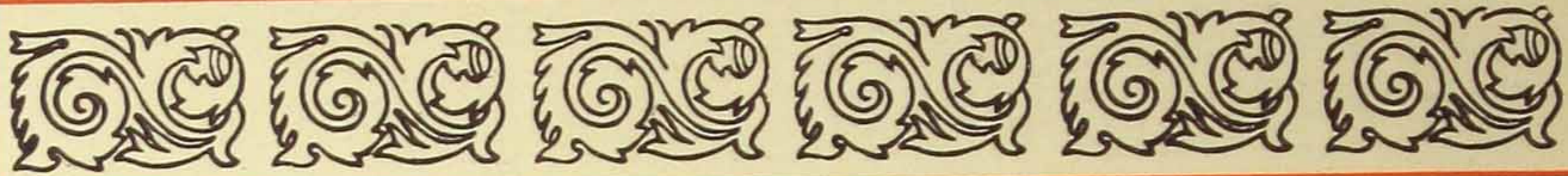
### **THE PROBLEM SOLVED**

The desired result was at last achieved by the automatic and independent removal of air from the system without pressure, this being accomplished before the steam is admitted; the apparatus being kept continually free of air, and the circulation maintained in each and every radiator by means of the natural decrease in volume of the steam in the apparatus due to the condensation; this in turn being governed by the temperature of the air in the space to be warmed—this desired end being attained by the use of the “**PAUL SYSTEM**” (invented and patented by Wm. P. Skiffington, of New York.)

### **HYGIENE AND EFFICIENCY**

The heating apparatus has no openings into the apartments to be warmed, and consequently the air in the rooms is not vitiated



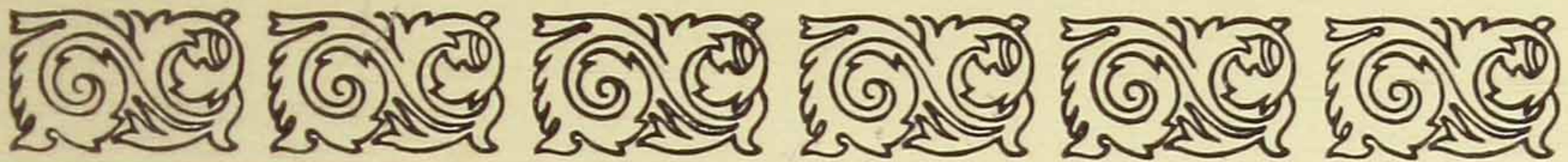


by foul gases escaping from the air valves, and there are no drippings to stain carpets or ceilings. The temperature of the steam is constant, no pressure being required to circulate it, and the disagreeable dry "burnt" air in rooms is entirely avoided. There are no volumes of air locked in portions of coils or radiators, but every square inch of heating surface is rendered uniformly efficient while steam is being used in the heat distributor. Where EXHAUST STEAM is available, it is utilized under the system WITHOUT CAUSING BACK PRESSURE at the engines or pumps, and this great WASTE is made as valuable as the same quantity of live steam direct from the boiler.

### **OPERATION OF THE PAUL SYSTEM**

A small and inexpensive automatic air valve is placed on each radiator, coil, or indirect stack, and connected with an air pipe. The air risers are run beside the steam risers, and brought together at some convenient point in the boiler or engine room, and there connected to the exhausting apparatus of the "PAUL SYSTEM." Before the steam is turned on the plant, the exhausting apparatus is put in operation, and the air contained in all the heat distributors is quickly removed, and each radiator, coil or stack in the building is maintained in the best possible condition to receive steam. Upon opening the supply valve the steam flows naturally and WITHOUT PRESSURE into the radiators, coils, etc., and its heat closes the automatic air valve. Means are also provided for the subsequent removal of air as rapidly as it collects, and therefore all the heat distributors in the heating plant are maintained at all times in a uniformly efficient condition to perform their office.





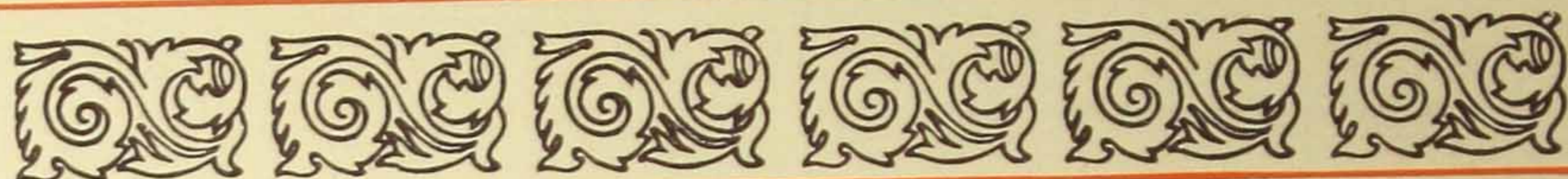
## **LOW PRESSURE AND HOUSE HEATING**

The PAUL SYSTEM has proved to be equally adapted to house heating and other low tension plants, even giving points in economy over water warming.

### **EXTENT OF USE**

THE PAUL SYSTEM has been before the public for a number of years and stands to-day the most economical and successful method of heating by steam. It is installed upon over twelve million square feet of heating surface in office and public buildings, theatres, hotels, private residences, mills and factories throughout the United States and Canada. The system is applicable to all kinds and forms of apparatus for heating or drying by steam, and has effected a great economy and efficiency in the operation of Drying Cans, Slashers, Paper Drying Cylinders, etc. The system can be applied to existing plants as well as installed in connection with new work, without shutting down the plant for one hour. It is the ONLY system where the saving in operation can be accurately tested. You can operate your plant for a day or a week with the system attached and in a few minutes you can disconnect the system and watch the operation of your plant without it, thus showing the saving in coal, as well as the efficiency and comfort experienced when the PAUL SYSTEM is in operation. We respectfully invite your investigation. We can bring your heating plant up to the highest standard of efficiency and economy, and if you are about to heat a new building by steam you cannot afford to have less than the BEST—the PAUL SYSTEM—for circulating steam.





## **IT SAVES COAL TO EVAPORATE LESS WATER**

One pound of water evaporated at the pressure of ten pounds below the atmosphere, or 4.7 pounds absolute, makes 73 cubic ft. of steam at a temperature of 160 degrees Fahr. One pound of water evaporated at the pressure of the atmosphere, or at 14.7 pounds absolute, makes, say, 26 cubic ft. of steam at a temperature of 212 degrees Fahr.—nearly three times less quantity.

It is necessary to fill the heating system, whether with hot water or steam, and at a temperature agreeable to the requirements of health, heat and comfort.

With a minus pressure, no water or steam can escape to injure rugs, carpets, floors or ceilings. In case of neglect to maintain heat, empty steam pipes or radiators are not affected by frost.

## **NOT AN EXPERIMENT**

Heating with steam of a pressure less than that of the atmosphere, and with temperatures less than hot water warming, has been successfully accomplished by us during the past five years, and there are hundreds of buildings throughout the country where the Paul Steam System can be shown in satisfactory and complete operation.

Preference has heretofore been given to hot water warming on account of its 160 degrees to 212 Fahr. temperatures, as compared with low pressure steam heating at from 220 degrees to 240 degrees Fahr.; the milder heat of the hot water being preferable, although requiring more heating surface, since hot water does not deliver its heat as rapidly as steam does its latent heat while condensing.





With steam heated radiators, they can be very quickly heated or cooled as compared with hot water, when desiring to rapidly increase or decrease the heat in a room.

Using the Paul Steam System, the pressure on the heating apparatus is minimum. With hot water, the pressure is about one pound per square inch for each two feet the water level is above the boiler.

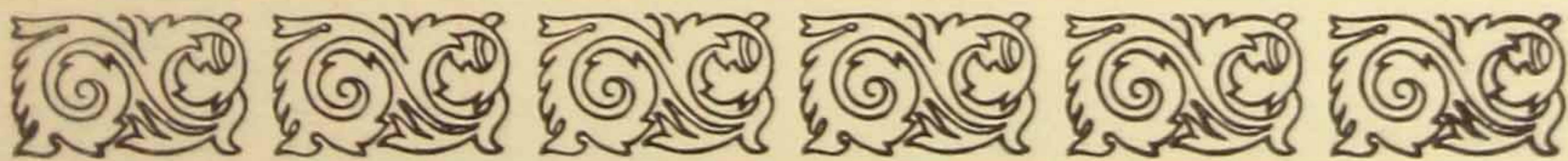
During the greater portion of the heating season, a heating medium of less than 212 degrees Fahr. is most agreeable, as a mild heat is always preferred. It is possible with this system to circulate steam of a temperature as low as 130 degrees Fahr. in the ordinary steam or hot water apparatus, providing the same is made air-tight—generally a simple matter to one who knows how.

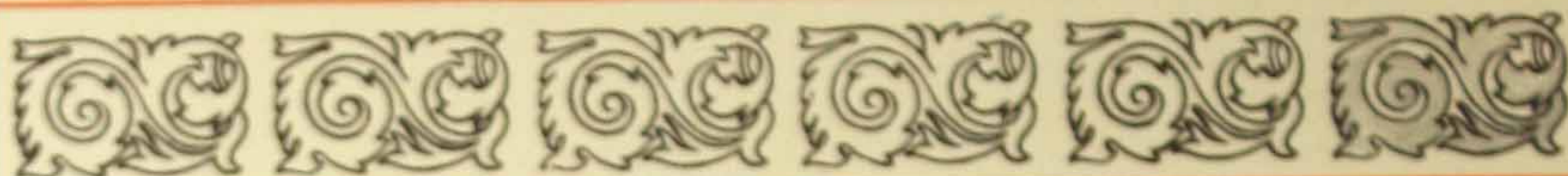
The Paul Steam System, installed in connection with the steam heating of residences or other low pressure steam heating, has many advantages, including the saving of coal, as compared with hot water warming, or the ordinary steam heating.

The System is now in use in very many residences, churches and schools, demonstrating its superiority to the former conditions of steam, at from five to ten pounds per square inch pressure, as well as to hot water warming.

It is possible with this System to deliver to point of use steam of a pressure ten pounds per square inch less than the atmosphere, this partial vacuum existing with a temperature of steam at about 160 degrees Fahr., a desirable mild heat without the natural disadvantages of hot water.

Ask our nearest representative to show you one or more of these plants if you are interested.





### A FINE GROUP

The picture on the opposite page shows five of the largest and finest office buildings in Chicago, and they are not surpassed anywhere in the world. These buildings—the Monadnock Building, the Fisher Building, the Old Colony Building, the Great Northern Office Building, and the Railway Exchange—are all equipped with the Paul System, and years of use in some of them have proved the value. A scientific test made on the Monadnock Building last year showed a saving of *over 15 per cent.* in the amount of coal used, when the Paul System was in operation.

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CHICAGO, Ill., Dec. 12, 1904.

*Automatic Heating Co., Chicago, Ill.*

GENTLEMEN:—Replying to your inquiry concerning the results obtained with the Paul system in my Mentor Building, State and Monroe Streets, I am pleased to advise you as follows:

Before putting in the Paul System, the monthly coal bill during the season averaged \$105.00. Since installing the system, the coal bill has averaged \$60.00 per month.

Before adopting the Paul System it required from 20 to 40 pound pressure to obtain good circulation of steam, while with the Paul System one pound pressure is sufficient.

It gives me pleasure to inform you that the Paul System has been eminently satisfactory.

Yours very truly,

EUGENE S. PIKE.

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STATE HOSPITAL No. 4.

FARMINGTON, Mo., May 30, 1904.

*Mr. T. K. Peters Company, St. Louis, Mo.*

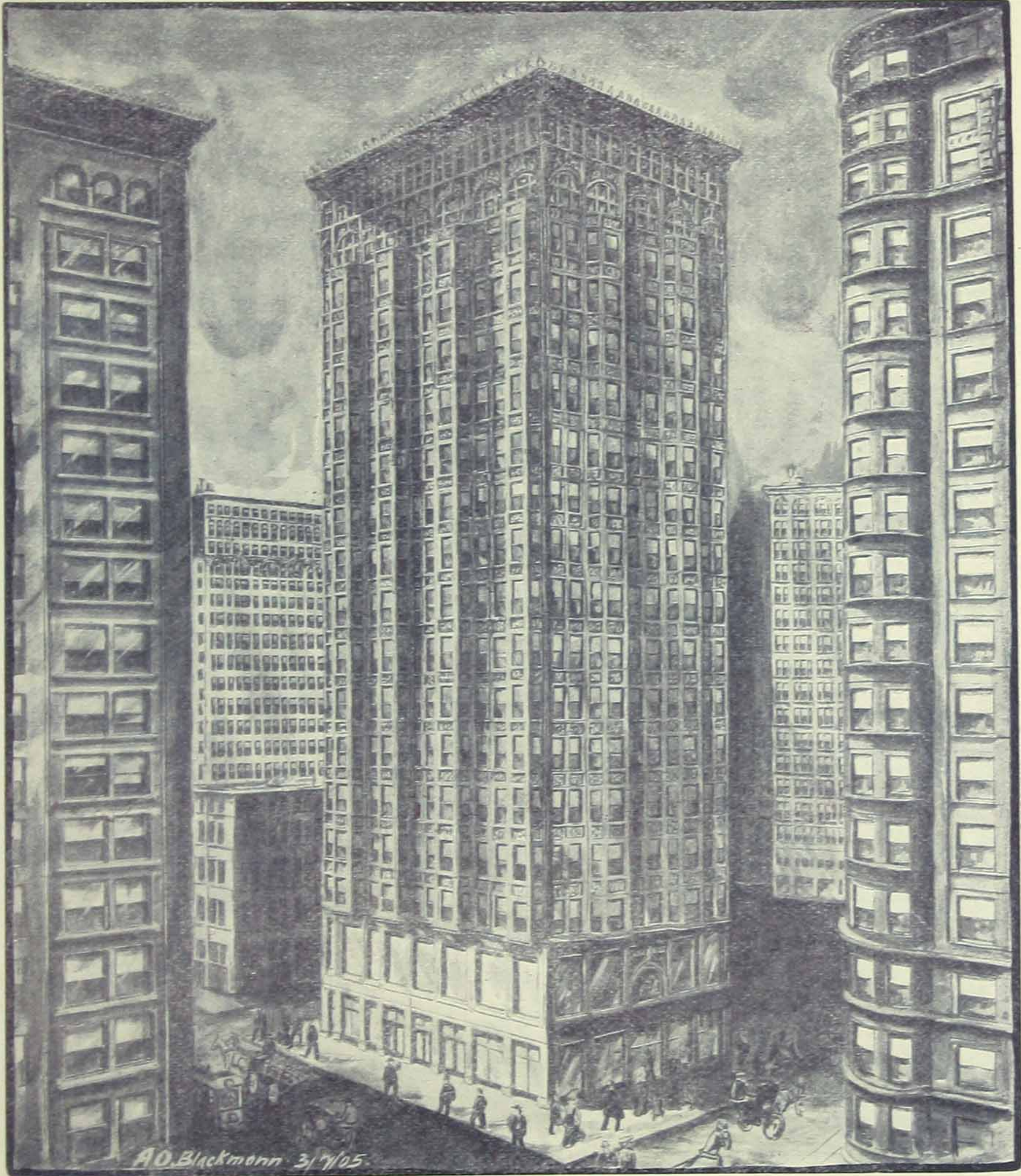
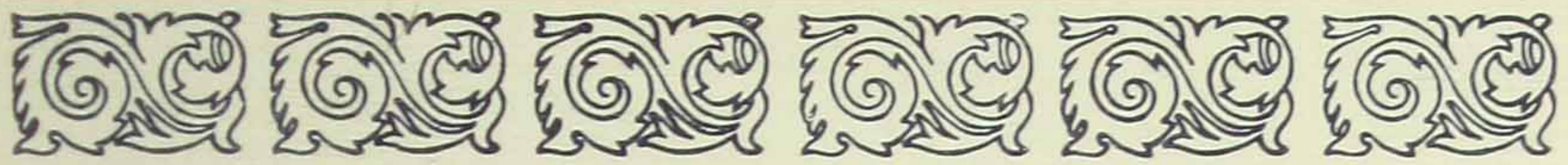
DEAR SIR:—In reply to your inquiry, will say that the Paul System of heating is very satisfactory here. I use all of exhaust steam at atmospheric pressure, seldom ever have as much as one pound back pressure on engines and pumps. No steam goes to waste and water is returned to boilers through heater. I maintain a vacuum of eighteen to twenty inches.

Respectfully,

W. H. HOUCHINS,

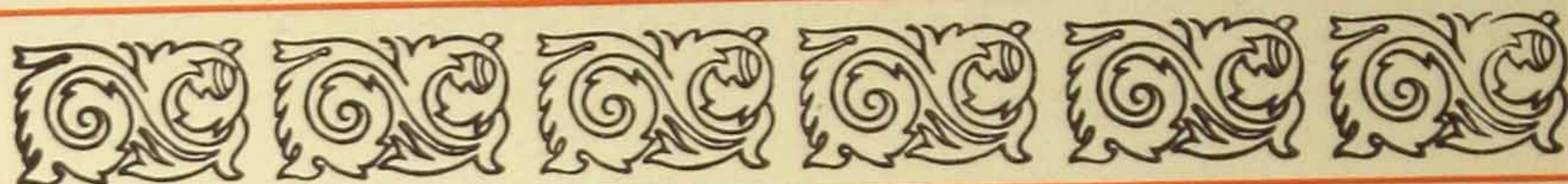
Chief Engineer.





A GROUP OF CHICAGO BUILDINGS.





THE CHAMBER OF COMMERCE OF MINNEAPOLIS.

SECRETARY'S OFFICE.

MINNEAPOLIS, Minn., Aug. 25, 1903.

*Automatic Heating Co., City.*

GENTLEMEN:—We installed your Paul Vacuum System of Heating in the New Chamber of Commerce about a year ago, and found it so satisfactory that we equipped the Old Chamber of Commerce last spring with the same apparatus.

The circulation of steam with this apparatus is positive and quick, and increases the heating surface of the radiators from one-quarter to one-half by the removal of the air and water of condensation. There is no waste of steam or water from any part of this apparatus whatever. We highly recommend it to all steam users, especially where the economy of fuel and simplicity of operation are considered.

Yours respectfully,

B. H. MORGAN,  
Chairman Bldg. Com.

WM. ROBINSON,  
Chief Engineer.



LUMBER EXCHANGE COMPANY.

MINNEAPOLIS, Minn., Aug. 25, 1903.

*Automatic Heating Co., St. Paul, Minn.*

GENTLEMEN:—At your request am pleased to add a testimonial as to the value and efficiency of the Paul Vacuum System.

This system was installed last year in the Lumber Exchange and Edison Building, also the Brunswick Hotel, Parker House, Russell Bldg., Crombie & Axman Bldg., and Cobb Block, all of which buildings are heated from the one central plant. When all was properly adjusted found it most invaluable, not simply as a fuel saver but could circulate steam through radiators which before were almost useless in extremely cold weather, and in getting rid entirely of trouble caused by condensation in pipes and radiators, while the steam used in operating the exhausting apparatus has been so connected that it afterwards heats the radiators in the outer halls of the Edison Building, thereby virtually making no cost in operating the exhauster.

We find it does all you claimed for it and are thoroughly satisfied and could not afford to be without it.

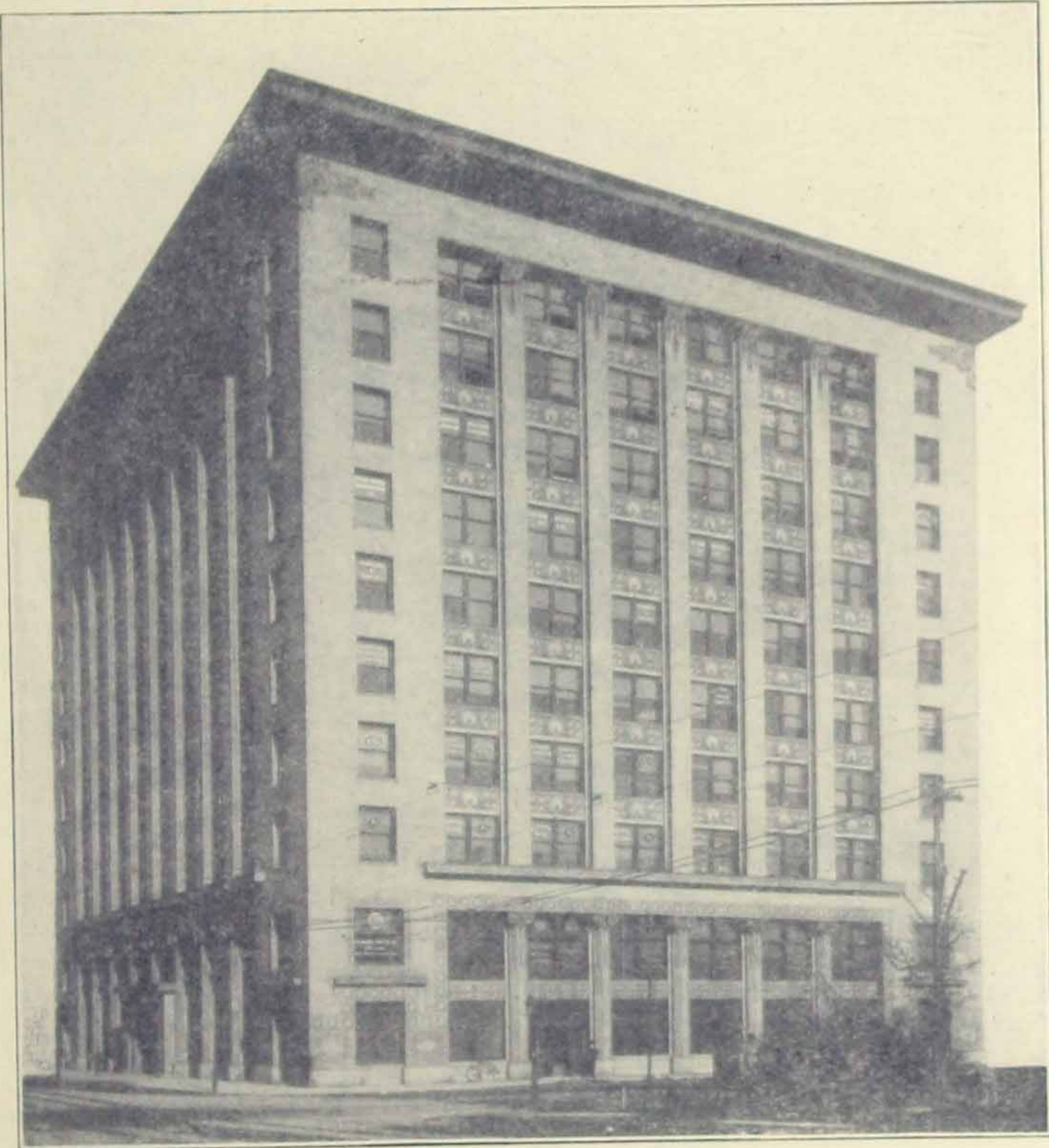
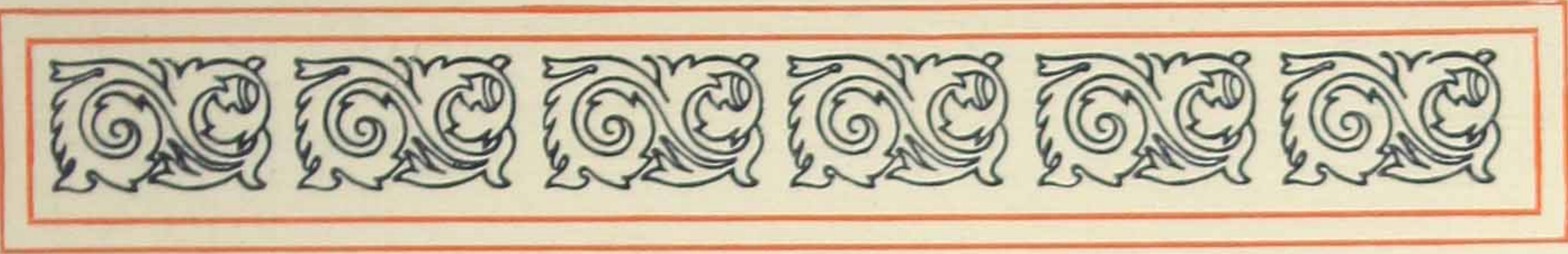
You are at liberty to use this letter as you may see fit.

Yours truly,

J. S. PORTEOUS,  
Sec'y and Treas.





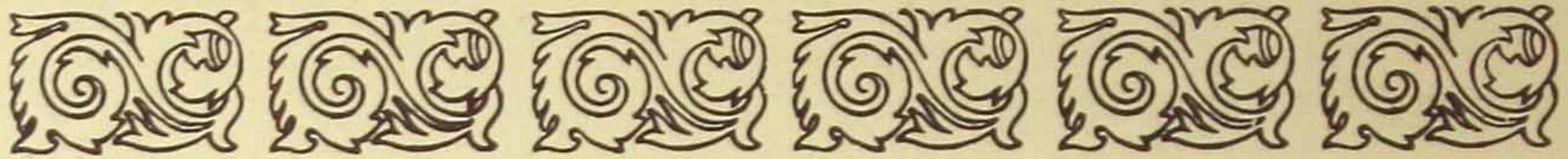


CHAMBER OF COMMERCE,  
MINNEAPOLIS, MINN.

KEES & COLBURN,  
Architects.

H. KELLEY CO.  
Heating Contractors.





ARROTT OFFICE BUILDING,  
N. W. COR. WOOD ST. AND FOURTH AVE.

PITTSBURG, Pa., July 14, 1904.

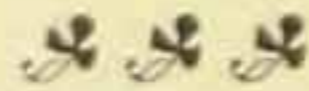
*Automatic Heating Company, Pittsburg, Pa.*

DEAR SIR:—We have used your system for three years in the Arrott Office Building. Our experience has been that the heating of our building has never cost us one dollar for same, and in fact, has been an actual source of profit to us from the fact that our entire building is heated by exhaust steam from the electric light plant, and when the system is in full operation, we have less back pressure than we have when we are exhausting directly to the atmosphere, with a net result that we use less steam when heating the building than we do when exhausting directly to the atmosphere, by reason of the more economical operation of our engines when assisted by your Vacuum System.

It will give us great pleasure to have you refer to us at any time.

Yours truly,

JOHN MAGEL, Supt.



MILWAUKEE, Wis., Aug. 24, 1904.

*Automatic Heating Co., Chicago, Ill.*

DEAR SIR:—We take pleasure in testifying that the Paul Heating System installed in this hotel some five years ago is giving the best of satisfaction.

Previous to that time we heated our plant with live steam, and we were continually bothered with leaks from radiators, causing much damage to carpets and in many cases to newly decorated ceilings.

The damage so done throughout the year can hardly be estimated, and abating this evil, it recommends itself to every hotel.

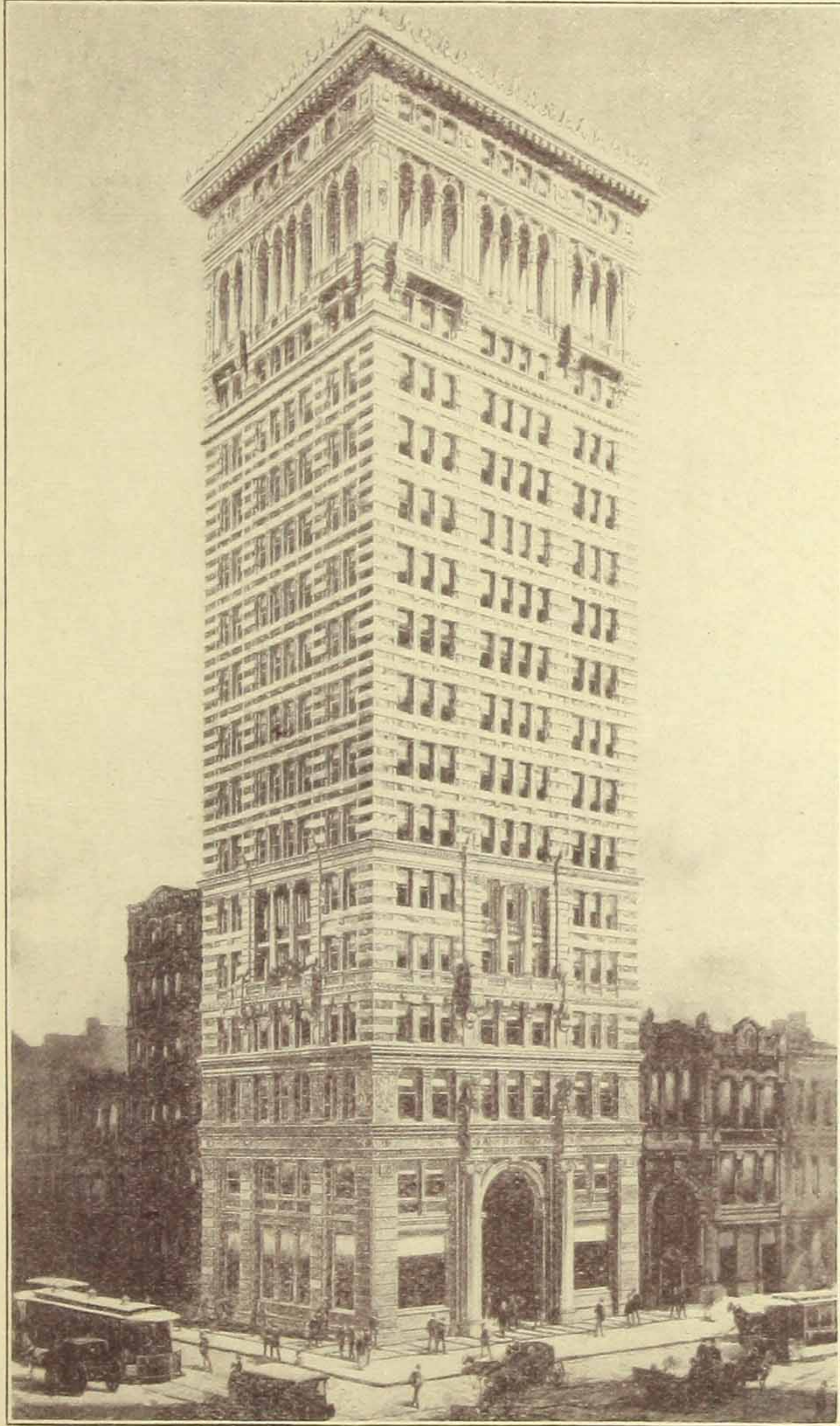
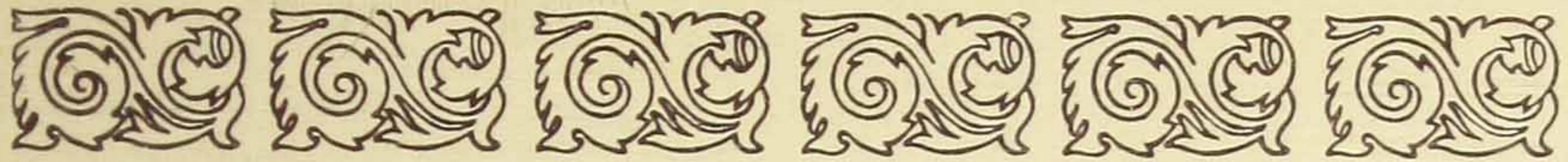
It has a further advantage inasmuch as it heats the most distant radiator instantly. Formerly it took all of a half an hour before all the air from the radiator was expelled, thereby causing much inconvenience, as the guests generally desire their rooms heated when taking possession of them.

We cheerfully recommend the Paul System and will be glad to answer all inquiries in regard to same.

Yours very truly,

CHAS. F. KLETZSCH CO., Props.,  
Republican House.



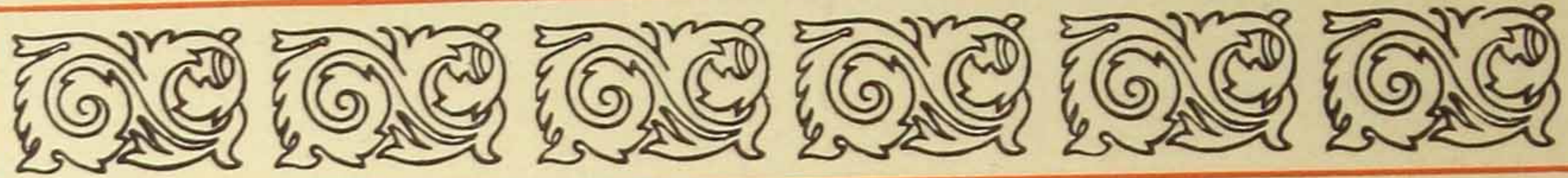


ARROTT BUILDING,  
PITTSBURG, PA.

F. J. OSTERLING,  
Architect.

P. F. MAGINN & CO.,  
Heating Contractors.





CARY, UPHAM & BLACK,

LAW OFFICES, ROOMS 927 TO 943 WELLS BLDG.

MILWAUKEE, Wis., Feb. 24, 1905.

*James E. Heg, Esq., 17 Battery Pl., New York.*

DEAR SIR:—Replying to your recent request as to my opinion of the Paul System of Heating, I beg to say that I have been operating this system for several years in one of the largest buildings in the Northwest, the Wells Building, and I am operating it as a central heating plant—doing what is known as “Block” heating—covering, however, several blocks.

I find the Paul System is absolutely necessary in any modern heating plant. It does away entirely with back pressure on the engines, compels an immediate circulation, removes all objectionable dripping from the air valves, and makes a plant infinitely easier to operate.

I can most heartily commend this System to any one who wishes to install a heating plant.

Yours very truly,

HENRY LUCAS.

Chief Engineer.



ROCKFORD, Ill., April 4, 1903.

*White Bear Electric Co., White Bear Lake, Minn.*

GENTLEMEN:—Replying to your inquiry of the 2nd inst., the Paul System was installed by me during the Fall of 1896, and has given entire satisfaction ever since it was started, not only to my engineer but to all of my tenants.

It proved a decided improvement over my old system.

Previous to 1896 I was running two boilers for power and heat in regular boiler room, getting very little out of my exhaust steam from the engine, and two other boilers for heat only in separate buildings.

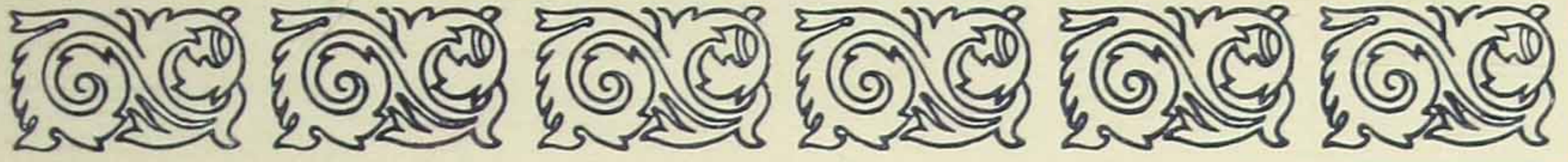
With the Paul System I run but two boilers, use all of my exhaust steam, with a back pressure on the engine of less than one pound; have perfect circulation in all of my buildings, return all of the water to the boiler room at high temperature, and get better results than I did from the old system.

In my case the saving in labor and fuel fully warrants the extra cost of installation. I believe it will do so in all cases.

Yours truly,

WAIT TALCOTT.

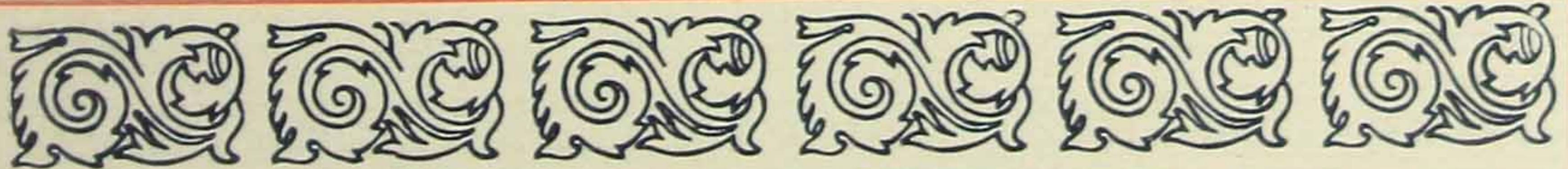


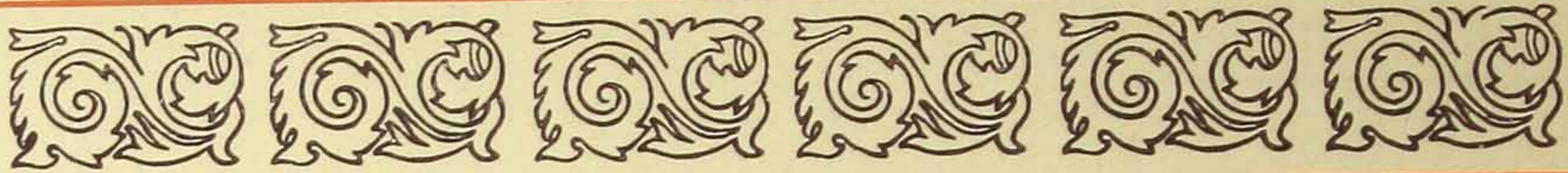


WELLS BUILDING,  
MILWAUKEE.

H. C. KOCH,  
ARMAND KOCH,  
Architects.

H. MOOERS CO.,  
W. K. DOWNEY, Prest.,  
Heating Contractors.





HUGHES BRYANT,  
ATTORNEY AT LAW, BRYANT BLDG.

KANSAS CITY, June 17, 1904.

*The Automatic Heating Co.*

DEAR SIRS:—The Paul System has been in operation in the Bryant Building for two years. The Bryant Building furnishes heat for several other buildings, and we always specify the Paul System before furnishing same. In operating the Paul System we have been able to get as high as ten-inch vacuum on engines in mild weather and heat the building.

Yours truly, (Signed) HUGHES BRYANT,  
Agent.



ST. LOUIS, Mo., June 3, 1899.

*Mr. George Livingston, Commission Board of Education, New York City.*

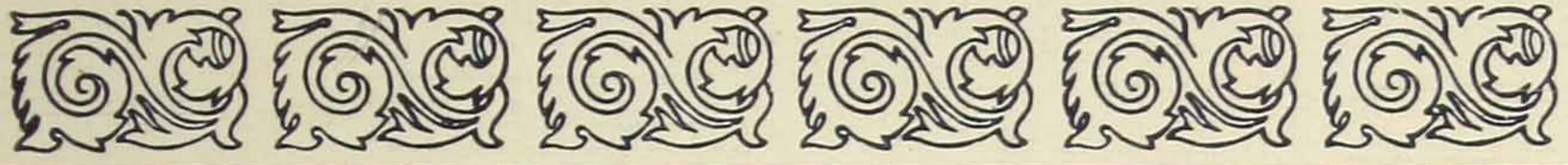
DEAR SIR:—Last spring I was one of the three engineers here in St. Louis who made a number of tests of the Paul System for the Paul System Co. When we began the work I did not think that this System would prove to be a bit more economical than the ordinary low pressure system. We were able to circulate steam at a pressure as low as 10 pounds below atmospheric pressure. The test showed a decided *economy* in favor of steam at low pressure. That is, steam at —10 pounds is more economical than at —5 pounds, and that at —5 pounds is more economical than that at 0 pounds, and that at 0 pounds is more economical than that at 5 pounds, etc., etc. Since making the tests I have given the matter a great deal of thought and study, and have put a great deal of time on it. From the results of our tests and from the results of my investigations of the subject, I am convinced that steam circulated at atmospheric pressure will give you an economy of from 10 to 20 or 25 per cent. over steam circulated at about 5 pounds pressure above the atmospheric. The exact per cent. will depend, I think, upon the average outside temperature and the building.

Unless the heating surface of the school is skimpy, there will be no trouble in heating just as well with steam at atmospheric pressure circulated with the Paul System, as with steam at 5 pounds above atmospheric pressure. The radiators cannot become air bound and always act promptly and efficiently.

I shall be pleased to answer in a more specific manner any particular question which you may ask.

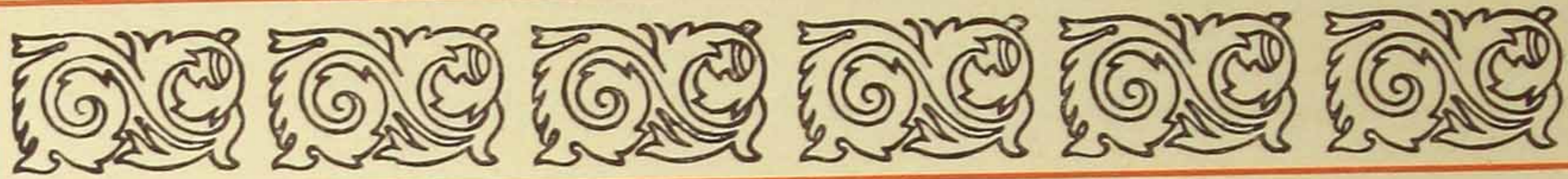
Yours very truly, (Signed) J. H. KINEALY.





THE REMODELED BRYANT BUILDING,  
KANSAS CITY, MO.





THE UNION SAVINGS BANK & TRUST CO.

CINCINNATI, Ohio, June 13, 1904.

*The Automatic Heating Co., Cincinnati, Ohio.*

DEAR SIR:—Replying to your inquiry regarding the Paul System of Heating installed in our building, will say, the same has been in service since 1901, and is very satisfactory. Also desire to say, that our heating has cost us practically nothing since it has been in operation.

It is easily operated and fulfills all your guarantees.

Yours respectfully,

THE UNION SAVINGS BANK & TRUST CO.'S BLDG.



THE AMERICAN TOOL & MACHINE CO.,

109 BEACH STREET, BOSTON, MASS.

BOSTON, Mass., July 15, 1904.

GENTLEMEN:—We have your letter of July 12th, inquiring about the Paul Vacuum Heating System. In reply would say that we are using the Paul Vacuum Heating System in both our works at Hyde Park and in our office building here in Boston. We have been using it in this building for eight or ten years and at Hyde Park for eight or nine years, and the system has given us excellent satisfaction up to the present time.

Very respectfully yours,

AMERICAN TOOL & MACHINE CO.,

(Signed) By M. H. Barker, Gen. Mgr.



DENVER, Colo., March 3, 1904.

*The Automatic Heating Co., Denver.*

DEAR SIR:—Replying to your inquiry regarding Heating System, at St. Luke's Hospital, I take pleasure in saying that the Paul System is giving entire satisfaction. It is easily operated, and fulfills all your guarantees.

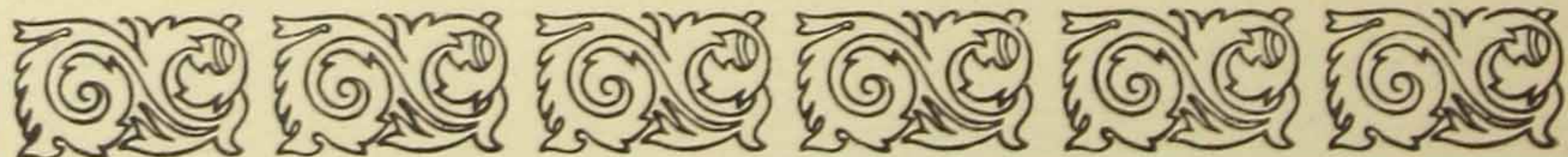
We are now heating the old part, together with the new (which is double the capacity of the old), at practically the same expense as it formerly took to heat the old part alone.

In conclusion, I beg to thank you personally, for the capable and efficient manner in which you planned and carried out the work.

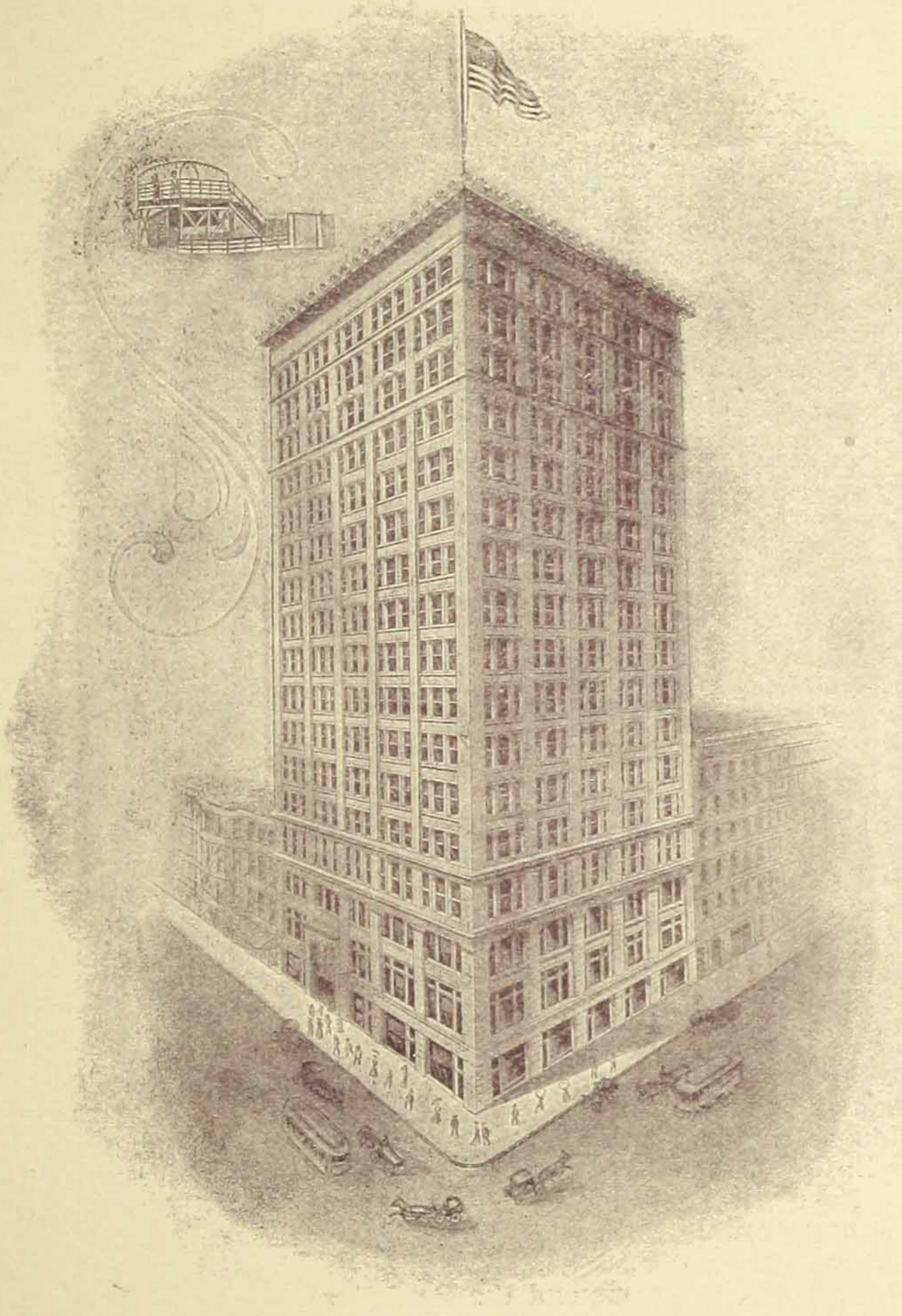
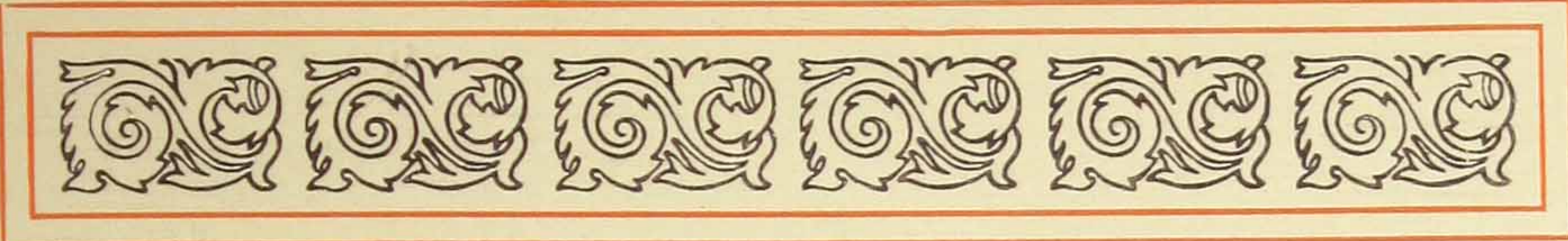
Respectfully yours,

(Signed) L. E. CAMPBELL.

For Executive Committee St. Luke's Hospital.

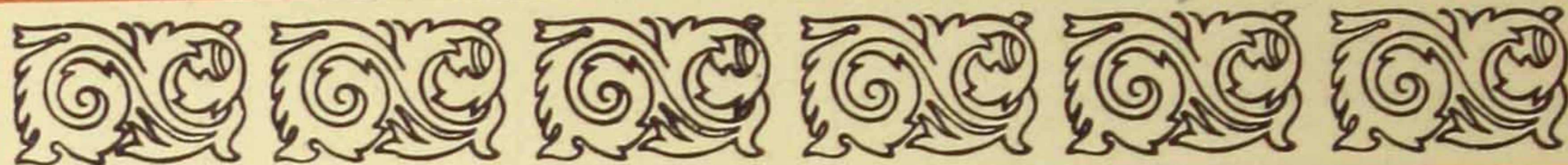






UNION SAVINGS BANK & TRUST CO.,  
CINCINNATI, OHIO.





ST. REGIS HOTEL,  
ENGINEERING DEPT.

NEW YORK CITY, Jan. 14, 1905.

*Mr. Walter E. Heg, Rochester, N. Y.*

DEAR SIR:—Your inquiry of January 7th to hand. In reply I beg to say that we have used the Paul System throughout our heating system and have found it to work to our entire satisfaction and has given no trouble whatever.

Yours respectfully, J. C. JURGENSEN.



OFFICE OF THE SUPERINTENDENT, STATE, WAR AND  
NAVY DEPARTMENT BLDGS.,

WASHINGTON, D. C., June 13, 1899.

*Mr. Geo. Livingston, Commissioner Board of Education, New York City.*

DEAR SIR:—In reply to your letter of the 9th I beg to say I have just completed a series of tests on the Paul System of Heating by Steam, and find not only an economy, as compared with the system of warming by higher temperatures, but a great advantage mechanically. Its ease of manipulation and the absence of water-hammer are sufficient, in my opinion, to warrant adoption in preference to the high pressure method.

Very truly yours,

(Signed) G. W. BAIRD,

Chief Engineer, U. S. N. Supt.



CHICAGO UNION TRACTION CO.,

GENERAL OFFICES.

CHICAGO, Ill., July 17, 1904.

GENTLEMEN:—Yours of July 12th requesting information as to the efficiency and durability of the Paul Vacuum Heating System, received.

We have this system in use in our office building, and have had for the past five years, and it gives excellent results. The power station is about 600 feet from the office building, and we heat this office building with exhaust steam from the main engines in the power stations without any back pressure whatsoever. Last winter being a very severe one, we did not experience any trouble in getting all the heat necessary in this building.

I can cheerfully recommend the Paul System as an exhaust steam heating system.

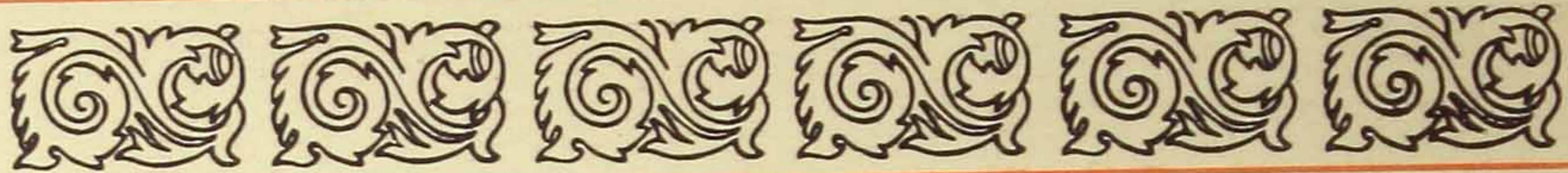
Respectfully yours,

(Signed) By B. MURPHY, Chief Engineer.





ST. REGIS HOTEL, NEW YORK, N. Y.



TOLEDO STATE HOSPITAL,

H. A. TOBEY, M. D.

TOLEDO, Ohio, April 11, 1903.

*Mr. J. S. Chesholm, White Bear Lake, Minn.*

DEAR SIR:—I have your letter of March 31st making inquiry as to the operation of the Paul Company's Heating System that is in use at this institution. Before installing this system we used steam traps throughout, and it was necessary for us to carry from 3 to 10 lbs. of steam to insure circulation. In moderate weather we are now able to effect circulation with one pound below atmospheric pressure. We have found it very satisfactory, as it does away with all water hammer and noise, and when a radiator is turned on it becomes heated almost immediately. We have no means of knowing what economy it has effected, but believe it has been a great advantage. This institution consists of some 40 or 45 buildings that are heated with steam which are widely separated, consequently the steam has to be carried long distances.

Yours truly,

H. A. TOBEY.

Superintendent.



ILLINOIS EASTERN HOSPITAL,

KANKAKEE, ILLS.

March 6, 1905.

*Mr. P. H. Carey, 1209 Fisher Building, Chicago, Ills.*

MY DEAR SIR:—I received your letter in regard to the Paul System of heating, and would have answered it immediately had it not been mislaid for a day.

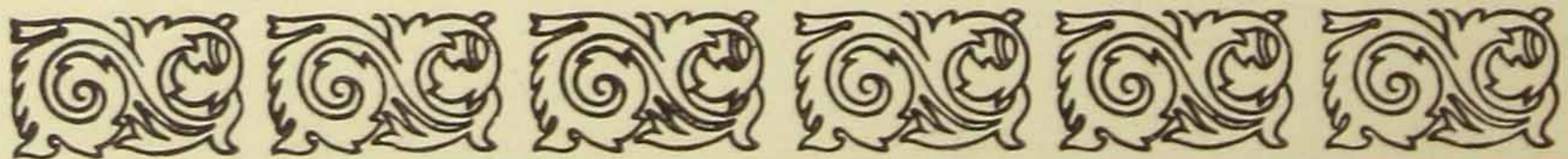
The Paul System as installed in this institution works entirely satisfactory. We have about thirty-five buildings scattered over an area of perhaps 150 acres, with five runs of steam mains which reach the buildings through tunnels and would average about 2,200 feet each, from the boiler room, and carries steam to heat a total of 63,000 square feet of radiation.

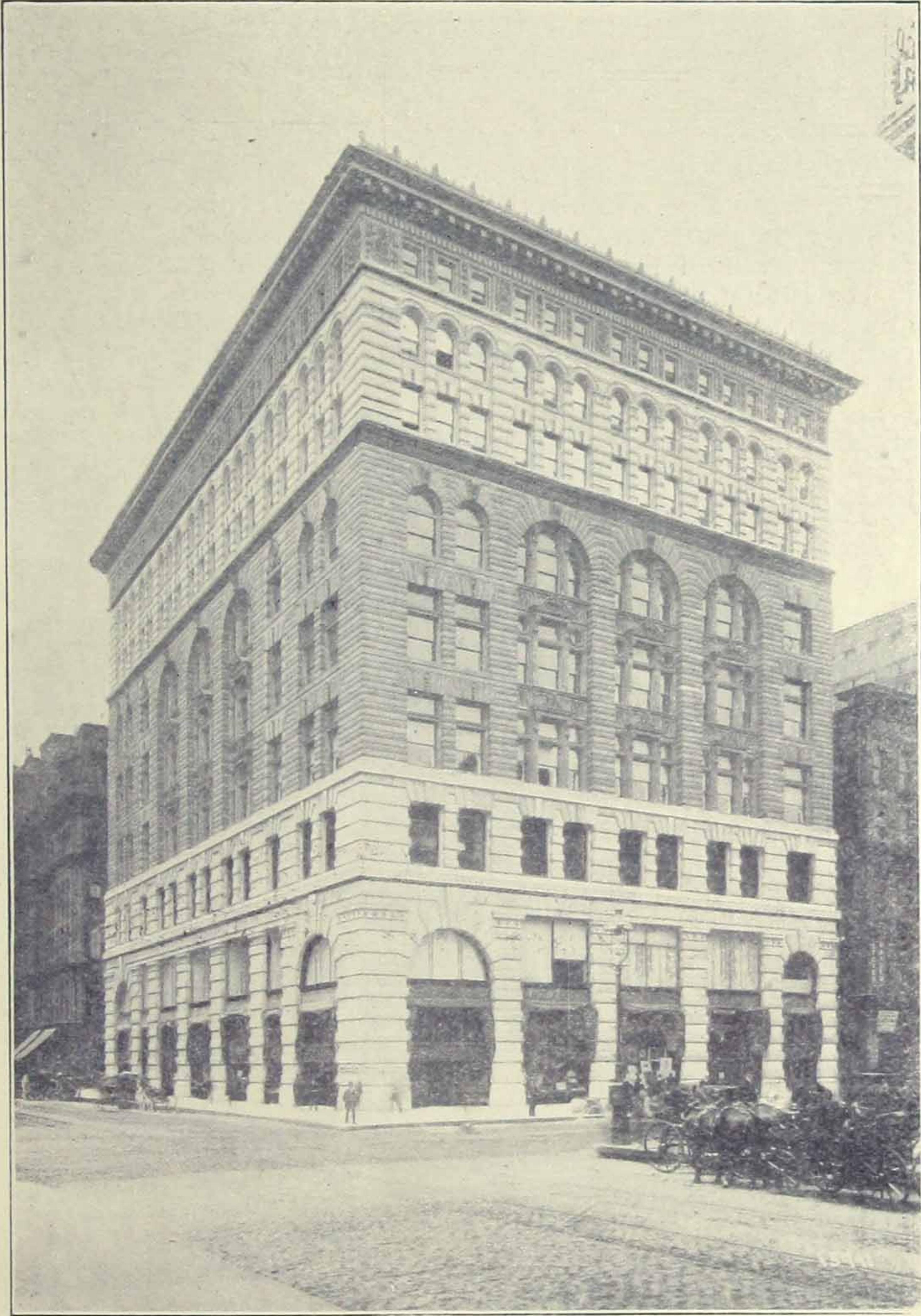
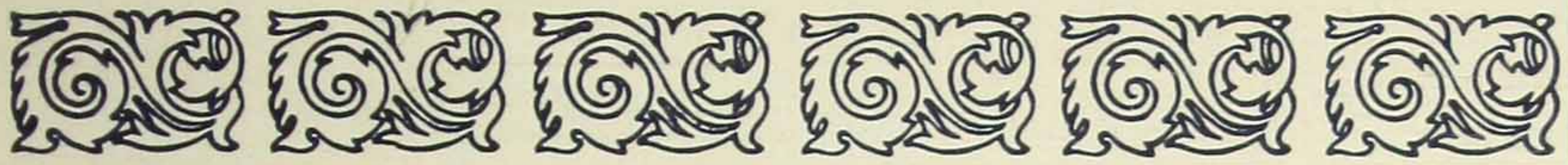
We have never had any trouble in circulation since we installed the Paul System, and would prefer it above the \_\_\_\_\_ if we were in need of another installation.

I would be pleased to see you at any time you may see fit to come. I am,

Yours very truly,

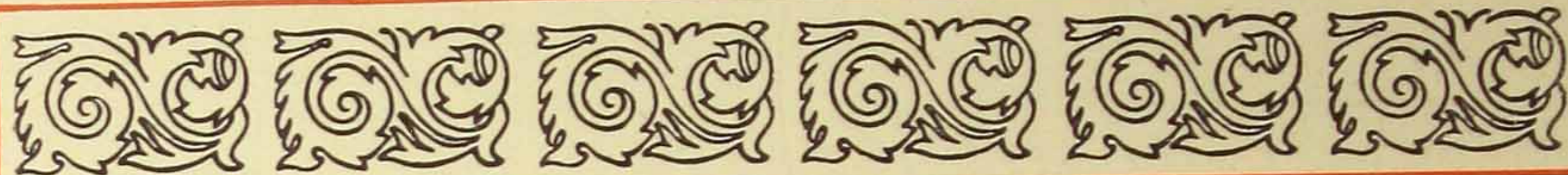
(Signed) J. C. CORBUS.





MARSHAL FIELD'S WABASH AVE. BUILDING,  
CHICAGO.





GUARANTY BUILDING COMPANY,  
GUARANTY BUILDING.

MINNEAPOLIS, Minn., Aug. 25, 1903.

*Automatic Heating Co., City.*

GENTLEMEN:—We installed the Paul Vacuum System of heating in our Guaranty Loan Building two years ago. We found it to be a very valuable addition to our plant, not only in the saving of fuel but also in the circulation of the steam and the removal of the air and water of condensation from the radiators, thereby making the heat distributors more effective in their work. We credit the system with a saving of 20 per cent. in the cost of our coal bills. It has never given us any trouble, or cost us one dollar's worth of repairs since it was installed. We highly recommend it to all steam users in connection with the heating apparatus.

Yours very truly,

GUARANTY LOAN BUILDING CO.,

F. R. Chase, Mgr



THE SMITH & NIXON PIANO MANUFACTURING CO.

CINCINNATI, Jan. 9, 1905.

*Walter E. Heg, Rochester, N. Y.*

DEAR SIR:—Your favor of the 7th is at hand and noted. Our factory with about 60,000 feet of floor space is equipped throughout with the Paul System referred to.

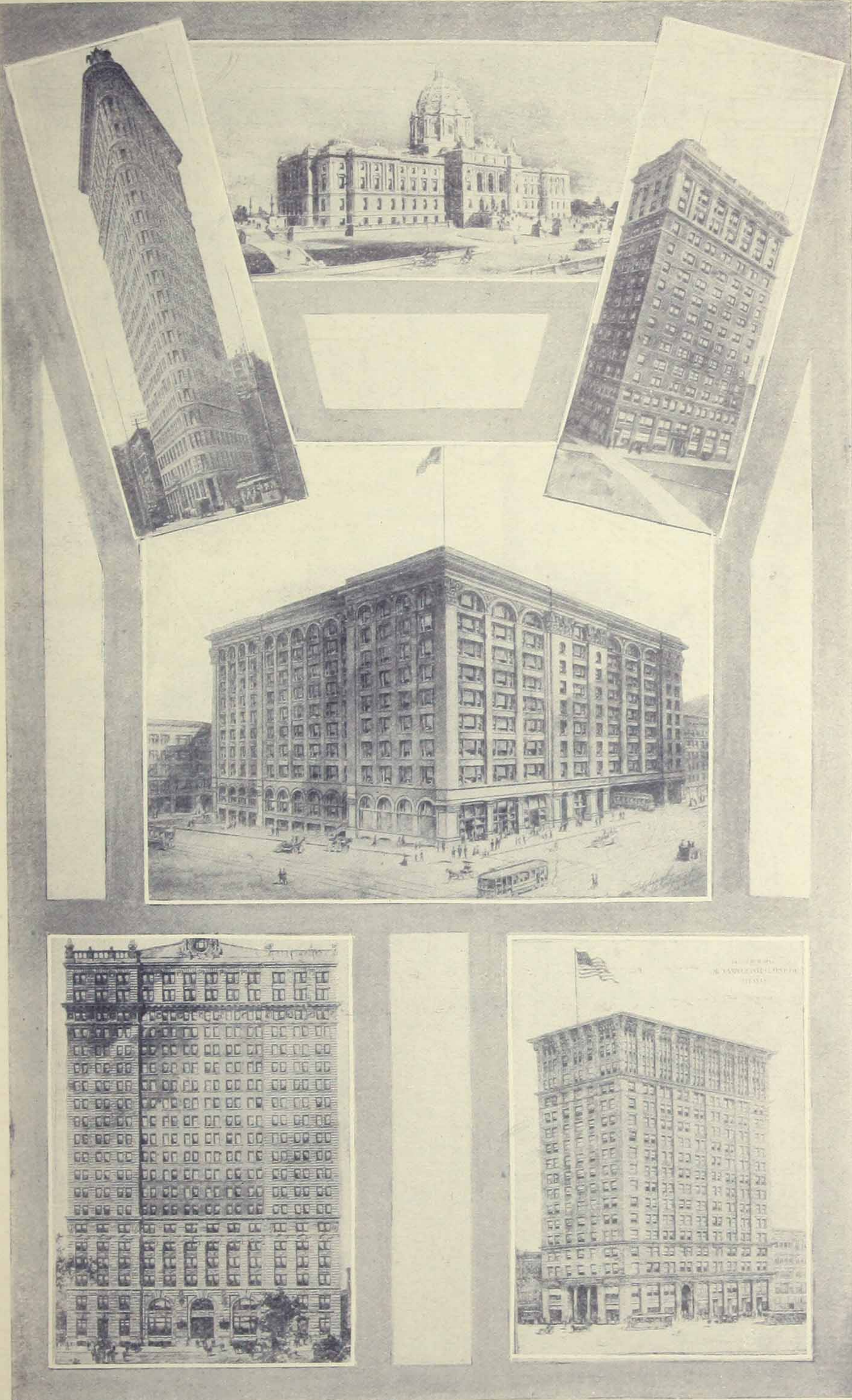
We have been in operation for eighteen months. We manufacture a very high grade product with a thousand to twelve hundred instruments in work at all times. We require a very uniform temperature in our varnish rooms under all conditions of seasons and of weather. During this period our system has never failed to enable us to do this with perfect success. Its operation has been all that we could possibly have asked of it, and if we were equipping another plant at the present time, we would want to install the same system. We can recommend it without hesitation.

Yours truly,

THE SMITH & NIXON PIANO MAN'F'G CO.

Jos. G. Ebersole, Manager.

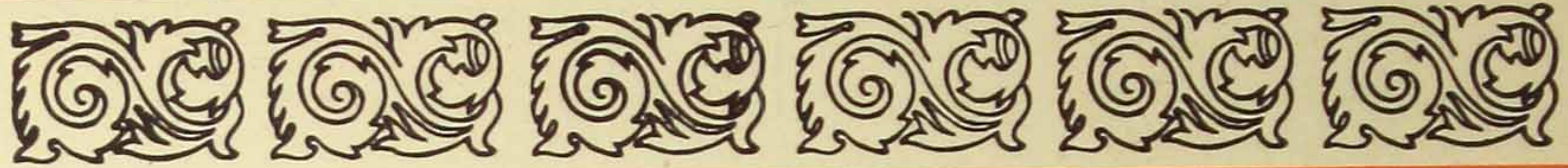




FLATIRON BUILDING, N. Y.  
 WHITEHALL BUILDING, N. Y.

MINNESOTA STATE CAPITOL, ST. PAUL.  
 HUNTINGTON ELECTRIC BUILDING, LOS ANGELES.

UNION TRACTION, CINCINNATI.  
 CANDLER BUILDING, ATLANTA.



THE UNION METALLIC CARTRIDGE CO.

BRIDGEPORT, Conn., Jan. 9, 1905.

DEAR SIR:—Replying to your inquiries of the 7th inst., would say, we have used the Paul System for heating the larger part of our works for several years, and its operation has been satisfactory.

Yours very truly,

THE U. M. C. CO.,  
Dept. of Supt., By G. E. Williamson.



THE POWELL KNITTING CO.,

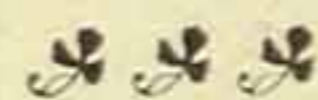
Successors to  
POWELL & BRO.

PHILADELPHIA, Jan. 11, 1905.

DEAR SIR:—In reply to yours of Jan. 7th, 1905, we have had the Paul Steam Heating System in use for several years, and it is the most satisfactory system that we have ever had in our Mills, and take pleasure in recommending it to those who want an economical system to operate.

Yours respectfully,

THE POWELL KNITTING CO.,  
Per Graff, Sec'y.



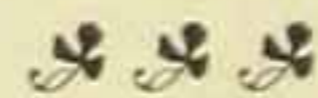
THE LOCOMOBILE COMPANY OF AMERICA.

BRIDGEPORT, Conn., Jan. 11, 1905.

DEAR SIR:—Replying to yours of the 7th inst., we are very well satisfied with the Paul System of Heating, as established at this plant. Will be pleased to give you detailed information in person, should you call.

Very truly yours,

THE LOCOMOBILE CO. OF AMERICA,  
E. F. Russell, Supt.



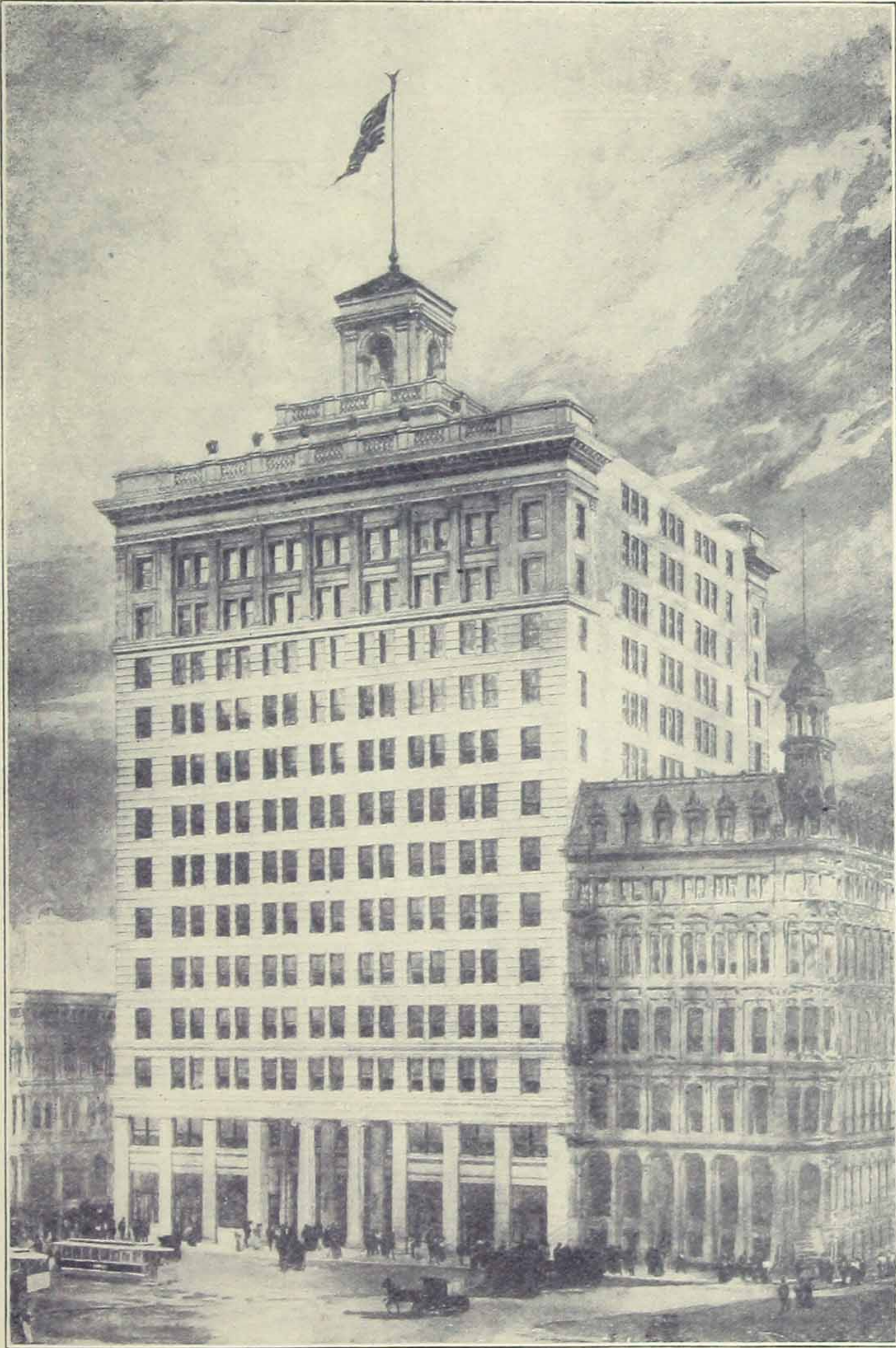
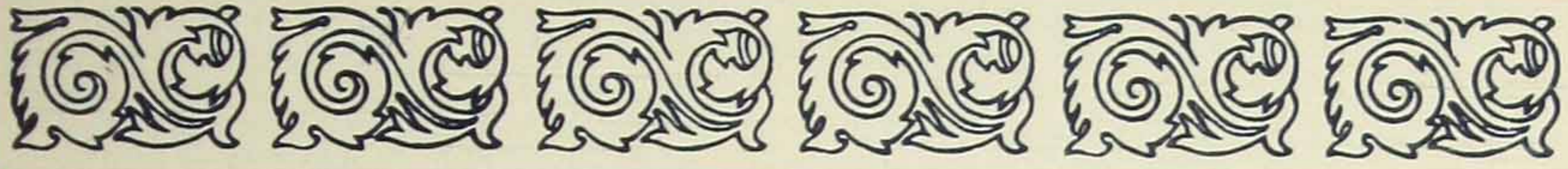
“The Paul System is certainly in my opinion one of the most important developments in the art of heating which has been produced within the last ten or fifteen years, and I can well understand that it is being appreciated by the people as they learn of its merits.”

R. C. CARPENTER,

Department Experimental Engineering, Cornell University.

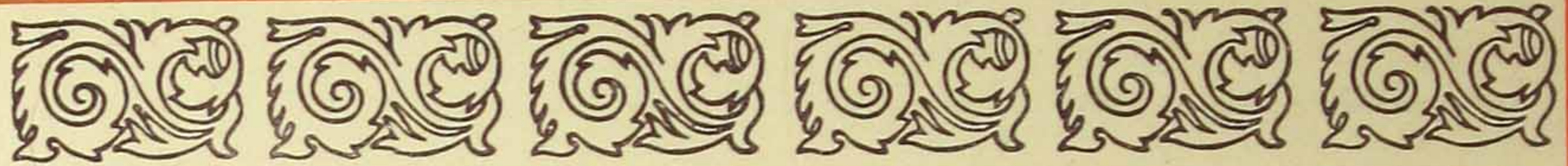






MERCHANTS' EXCHANGE,  
SAN FRANCISCO, CAL.





## RECENT INSTALLATIONS OF PAUL SYSTEM

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STATE CAPITOL.....	St. Paul, Minn.
WESTINGHOUSE MACHINE Co.....	Pittsburg, Pa.
ELECTRIC RY. TERMINAL STATION.....	Milwaukee, Wis.
CLIFTON SPRINGS SANITARIUM.....	Clifton Springs, N. Y.
CADILLAC AUTOMOBILE WORKS.....	Detroit, Mich.
BUSH TEMPLE OF MUSIC.....	Chicago, Ill.
IOWA STATE COLLEGE.....	Ames, Iowa.
LANDIS TOOL WORKS.....	Waynesboro, Pa.
AUTOCAR WORKS.....	Ardmore, Pa.
COUNTY COURT HOUSE.....	Milwaukee, Wis.
ST. REGIS HOTEL.....	New York.
HOTEL ASTOR.....	New York.
KIECKHEFER BROS. ENAMELING WORKS.....	Milwaukee, Wis.
MARTIN A. RYERSON BLDG.....	Chicago, Ill.
ROCKEFELLER BLDG.....	Cleveland, O.
UNIVERSITY OF COLORADO.....	Boulder, Colo.
GEORGIAN COURT.....	Chicago, Ill.
BALTIMORE HOTEL.....	Kansas City.
H. O. SHEPHERD FACTORY.....	Chicago, Ill.
MURPHY CENTRAL HEATING PLANT.....	Detroit, Mich.
WELLS BLDG. CENTRAL HEATING PLANT.....	Milwaukee, Wis.
MCCLEARY, WALLIN & CROUSE CARPET FACTORY, Amsterdam, N. Y.	
THOMAS ORCHESTRA BLDG.....	Chicago, Ill.
EAST END CHARITY HOSPITAL.....	Pittsburg, Pa.
NEW CITY HALL.....	St. Louis, Mo.
BAGLEY ESTATE BLDGS.....	Detroit, Mich.
PENOBSCOT BLDG.....	Detroit, Mich.
STATE AGRICULTURAL COLLEGE BLDG.....	Fargo, N. D.
STATE NORMAL SCHOOL.....	Cedar Falls, Ia.
DES MOINES COURT HOUSE.....	Des Moines, Ia.
CANDLER BLDG.....	Atlanta, Ga.
VARICK BLDG.....	New York.
COLLEGE OF CITY OF N. Y.....	New York.
NEW YORK HIPPODROME.....	N. Y.
BROOKLYN INSTITUTE.....	Brooklyn, N. Y.
UNION LEAGUE CLUB.....	New York.
BLOOMINGDALE STORES.....	New York.
CENTURY BLDG.....	New York.
ROYAL BAKING POWDER BLDG.....	New York.
HUNTINGTON ELECTRIC BLDG.....	Los Angeles, Cal.





# Vacuum Heating

To be worth its cost, should accomplish definite results. Merely to be able to say that your heating is a "Vacuum System" means nothing in these days when so many re-discoverers of hundred year old float traps are in the market with their inventions. If you can say it's the "PAUL SYSTEM," well posted people know that you can circulate steam at atmospheric pressure and have the benefits of economy required by the close competition of to-day. We alone can test and show what is being accomplished.

**PARTICULARS AT ANY OF OUR  
OFFICES**

