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Central Station Heating and Power Supply.

Rochester Superheated Water Company.

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THE PRALL PATENTS

FOR

Central Station Heating ^{AND} Power Supply,

BY THE USE OF

SUPERHEATED WATER

ROCHESTER SUPERHEATED WATER COMPANY.

A. G. YATES, PREST.
R. CARTWRIGHT, ENGINEER.
38 ELWOOD BLD'G.

F. W. ELWOOD, SECY AND TREAS.
31 ELWOOD BLD'G.

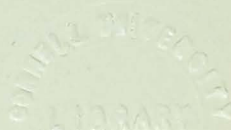
THE LICENSE TO OPERATE THE SYSTEM FOR THE CITY OF

ROCHESTER, N. Y., HAS BEEN GRANTED TO THE

ROCHESTER SUPERHEATED WATER COMPANY,

A. G. YATES, PRESIDENT.

M. H. BRIGGS, SECRETARY AND TREASURER.



THE PRALL PATENTS

FOR

Central Station Heating  Power Supply,

BY THE USE OF

SUPERHEATED WATER,

ARE OWNED BY THE

NATIONAL HEATING Co., OF 44 BROADWAY, NEW YORK.

THE LICENSE TO OPERATE THE SYSTEM FOR THE CITY OF

ROCHESTER, N. Y., HAS BEEN GRANTED TO THE

ROCHESTER SUPERHEATED WATER COMPANY,

A. G. YATES, PRESIDENT.

M. H. BRIGGS, SECRETARY AND TREASURER.



ROCHESTER SUPER-HEATED WATER COMPANY,

OPERATING

The Prall System of Central Station
Heating and Supply Power.

Looking over the past century, we cannot but realize what enormous steps have been made in all the conveniences and comforts of life. As civilization advances and populations augment, there is a constant tendency towards concentration.

Aqueducts and reservoirs are built and miles of mains and pipes are laid in order that water may be drawn by the opening of a faucet at any point where it is needed.

Huge gas and electric works are constructed and mains laid in every street penetrating to the innermost recesses of the domicile for lighting it at will.

Thousands of men are laboring in mines and long lines of rail are burdened with the coal that is to furnish the heat and power essential to the comfort of the citizen and the prosperity of the community, but in this respect the individual user is still at a marked disadvantage and the townsman little better off than the dweller in the country.

With a movement of his hand, he can supply himself with water and light in any needed amount and at any moment of the day or night, but his heat is furnished him only in the crude and potential form of fuel, which it then becomes his task to utilize to such purposes as he may wish and to such advantage as he may.

It is the purpose of this company to remedy these defects,

and to place the heating service of this city in equal efficiency to that of the gas and water service and upon a level with the requirements of modern civilization. That this desirable result has not been hitherto attained, is due not to ignorance of the necessity but to lack of means. Co-operation and wholesale systems of heating have been tried, but, except in special cases, have hitherto proven unsatisfactory.

Gas has been used, but, like petroleum, its consumption is usually attended with objectionable odors and the development of poisonous gases.

Steam has naturally been experimented with, and up to this time has been generally recognized as, upon the whole, the most manageable and satisfactory purveyor of heat and power, but prolonged experience has shown that in some essential features existing systems of steam distribution have inherent defects. The most obvious of these is that steam generated at a central station, no matter of what temperature or tension, can circulate through a system of distributing pipes, only by virtue of its own elastic force and expansion. Expansion involves loss of heat and consequent condensation, and as the specific heat or capacity for heat in steam is very small, the losses due to expansion and radiation in the pipes are such as speedily to destroy its vitality and incapacitate it for duty in proportion as the distance from the central station increases. For comparatively limited areas and uses steam has its applicability, but on a large scale its physical constitution renders it unsuitable to act as a constant and reliable conductor of heat. Owing to the extreme tenuity of steam and low specific capacity, pipes of large size are necessary, making the mechanical difficulties to be encountered in erecting a steam plant of large extent almost insurmountable.

Our system has been recently devised and put into practical operation and possesses all the advantages and none of the disadvantages of the present system of steam heating.

Water has a greater capacity for heat than any other substance. When confined, it can be heated to any required temperature, made red hot if necessary, and when heated it will

contain more heat and part with it more reluctantly than any other known medium. The quantity of heat that can be conveyed through a four inch main by means of water would require at least a sixteen inch pipe if conveyed by steam at the same temperature.

On a large scale, the Gulf stream is an illustration of this. Heated under the strong rays of a tropic sun, it flows northward and eastward around the entire expanse of the Atlantic ocean with a deliberate movement not exceeding four miles an hour, bearing with it the heat absorbed thousands of miles distant, and at the end of its long journey still retaining enough to pour upon the western coast of Europe a volume of heat sufficient to convert what would otherwise be a Labrador into a sunny France or genial England, thus rendering suitable for habitation and development those countries which, in consequence, contain to-day so large a proportion of the intellect, cultivation and wealth of the civilized world.

Under the system owned and controlled by this company, from a battery of boilers kept full of water heated to a temperature of about 400 degrees, a pipe or supply main is to be extended through the streets for such a distance as may be required, returning to the boilers at the station. Pumps will keep the heated water in circulation. Buildings are connected with this supply main by means of service pipes. The internal diameter of which for an ordinary house is but one-fourth of an inch, while the supply pipe necessary to furnish all the steam required by a three hundred horse power engine would have an internal diameter of but three fourths of an inch. All that is necessary to supply heat is to draw off through the service pipes such portion of the heated water as is required. This water, if for cooking, is circulated through a specially designed range; if for heat or power, is converted into steam of any desired pressure, from one pound up, and used in the ordinary way. The steam is made by releasing the water from pressure, when a small part of the water will take the heat from the greater portion, changing into steam, while the greater portion will pass off at a temperature of from one hundred and eighty

to two hundred degrees into a return main, and thence back to the station, where it is pumped into the boilers to be heated again to the desired temperature and put into circulation. The only loss of heat in this system is that of radiation, which, in Boston, where a plant has been running during the past winter, is found to be less than two and one-half per cent. With water at a certain temperature, and with a constant and sufficient supply, all that can be done direct from a boiler can be done at any building connected with the main thousands of feet from the point where the heat is generated.

It may seem strange that, with all the vexations and cost of a local heating service, the desirability of an organized system of distributing heat, and the strenuous and costly endeavors to attain this by various means, especially steam, and with the familiarity of the public with the use of hot water for heating purposes, the idea of using water as the medium for conveying heat from a central station was not sooner elaborated and put in practice. To the generally apprehensive, two formidable and apparently insurmountable obstacles presented themselves: First, the belief existing among pump manufacturers that water at so high a temperature as 400 degrees could not be pumped; and, Second, the unwillingness of even well instructed engineers to believe that the water could be successfully taken inside the premises and there converted conveniently and securely into steam of the requisite pressure.

That all obstacles have been successfully met is shown by the fact that a plant was constructed in Boston during the past year, which has practically demonstrated the success of the system and which has been and is supplying heat and power through mains to buildings at distances from the central station varying from five hundred to five thousand feet.

In ordinary domestic use, not more than ten per cent. of the heating value of the coal is actually realized. In the kitchen, the fire is maintained for eighteen hours out of twenty-four for not over four hours' actual use. Of the heat developed, by far the larger proportion is wasted up the chimney. The open grates and fireplaces are still more wasteful. The furnace is

carelessly attended by unskilled servants, who by turns over-heat and cool the house. Everywhere is insufficient service and waste of heat, with the accompaniments of dust and ashes and unnecessary labor of handling, to say nothing of the annoyance from smoking chimneys and insufficient drafts and the perils to life and health from defective flues and ventilation.

To properly economize fuel, it must be fed in small quantities and at frequent intervals. In large stations, where hundreds of horse power are centered, and where improved machinery, the latest improvements in boilers and intelligent labor are employed, at least seventy-five per cent. of the heat in the fuel can be stored up in the boilers. In addition to this saving, coal dust or pea coal can be used with such a plant, which, while containing on equal amount of heat, will cost less than one-half as much as the grate or furnace coal which individual consumers are obliged to burn in small furnaces or stoves.

In other words, from one ton of coal burned at a central station, where the demand is uniform, and where the burning of fuel can be regulated accordingly, the amount of heat stored will equal that utilized from five tons of coal burned in small plants. This coal, costing less than half that burned by individual consumers, enables the heating station to produce and store, at a cost of one dollar, heat which, delivered to the customer, is equal to that which would cost him ten dollars; with this additional advantage to the consumer, that, being able to turn the supply on or off at will, he will use but little, if any, more than the actual heat required. A large number of consumers, each taking only what they desire, creates a uniform average demand, upon which the consumption of coal at the central station is regulated, only sufficient coal being consumed there to supply the demand for heat, with a small margin in excess, furnaces being started up or banked as the demand increases or lessens.

The company does not, however, claim that all this difference is profit.

First: There is radiation from the distributing pipes. This,

in actual practice, amounts to less than two and one half per cent. In the estimates five per cent. for radiation is allowed.

Second : Power is required for circulating the heated water. This, in actual practice, is less than five per cent. of the power distributed. In the estimates ten per cent. is allowed.

Third : Heat in excess of the average demand must be generated, that there may be no failure to respond to suddenly increased demands. Ten per cent. is allowed for this.

These items will increase the cost twenty-five per cent., to which must be added maintenance of plant, general and operating expenses, contingencies, etc. Allowing that operating and other expenses and contingencies shall increase the cost to the company of furnishing the heat to the customers three or four times, yet this company will be enabled to relieve them of all the trouble and care of procuring and storing coal, removing ashes, caring for fires, annoyance from dirt, dust, bad ventilation and smoking chimneys, and yet earn for its stockholders large dividends in cash and still larger ones in public gratitude.

SPECIAL REPORT.

Attention is called to the subjoined report of Emil Kuichling, C. E., and to the following testimonials of some of the consumers of heat and power at Boston during the winter of 1887 and 1888 :

ROCHESTER, N. Y., May 31, 1888.

ARTHUR G. YATES, Esq.,

President of the Rochester Superheated Water Co.

DEAR SIR: The undersigned, having been employed by your Company to examine thoroughly and critically the merits of the Prall system of distributing heat from a central station, by means of the circulation of "superheated" water, begs leave to submit herewith the following general report :

During the past few months the system in question was seen by me in full operation, both in Washington, D. C., and in Boston, Mass. In the latter city particularly, the works have been built in a most substantial and admirable manner, and to the entire satisfaction of the municipal authorities, all of whom agree in pronouncing this method of distributing heat as highly successful. Interviews with a number of the consumers of such heat have also been had in both cities, in the course of which complete satisfaction was expressed with the operation of the system and its great convenience.

Briefly stated, the Prall system consists of a centrally located set of boilers and pumps, from which one or more lines of unusually strong iron pipe, of comparatively small diameter, run out through a number of streets and finally return back to the boilers, thus forming a series of independent loops or circuits of more or less length. Both boilers and pipe are completely filled with water, which is heated by the furnaces to a temperature of about 400° F., and forced to circulate through the several circuits or loops of pipe at any desired rate of speed by means of suitable steam pumps. When thus heated, the water exerts a pressure of about 235 lbs. per square inch

upon the pipes, which is resisted by the strength of the metal, as will be seen in the following; but it must be remembered that no steam is generated in either the boilers or the distributing pipes, and that all of the heat imparted from the furnace remains as sensible heat in liquid water. Buildings to be supplied with heat or steam are connected with the hot water main by a small service pipe, which terminates inside the basement or area wall in a strong iron vessel, called a "converter," where a portion of the heated liquid expands into steam in consequence of a large reduction of pressure. The converter is therefore simply a reservoir from which the low-pressure steam required for supplying the radiators in the various rooms of the building is taken. By regulating the quantity of hot water admitted into the converter from the street main, the resulting steam pressure may be varied within very wide limits, thereby rendering the system equally as available for supplying high-pressure steam to engines, as for furnishing low-pressure steam to ordinary radiators. To control the amount of water entering the converter, an automatic pressure-reducing valve, set so as to shut off the supply as soon as a definite steam pressure has been reached, is interposed between the small service pipe and the converter, and as a further precaution, the converter is provided with a safety-valve of ample dimensions, so as to insure quick relief should the steam pressure, from any cause, become greater than desired. Another essential feature of the system is the return or condensation water-main, which is laid in the same trench or conduit as the hot-water pipe, and underneath the latter. By this pipe as much as possible of the condensed steam, or unused hot water, delivered to consumers is returned to the central station at a relatively high temperature, and is then pumped back into the boilers to be re-heated. The cost of this second pipe, in which there is little pressure, is small in comparison with the expense of heating river or hydrant water to the temperature of the return water, and hence this pipe constitutes an important adjunct.

To prevent loss of heat by radiation, the pipes are all surrounded by a thick covering of asbestos felt, and are then enclosed in a conduit of brick-work, of such dimensions as to afford a large air-space around both mains. In this conduit the pipes are freely supported upon rollers and provided with numerous expansion joints, so as to allow any changes of length due to variation of temperature to take place with the least possible resistance.

The temperature of 400° F. which is maintained in the circulating main has been found by careful experiment and practice to be sufficient for all ordinary uses to which the system is adapted. As has already been stated, the pressure of the heated water corresponding to this temperature is about 235 lbs. per square inch; and with regard to the safety of the pipes under such a pressure, it may be remarked that, first; their thickness is proportioned for a bursting strain of about 11,000 lbs. per square inch; second: that they are all carefully tested at the rolling-mill up to a pressure of 4,000 lbs. per square inch; and third; that after being laid in the conduit they are subjected to a test of 1,500 lbs. per square inch with cold and warm water before the regular operation of the system under 235 lbs. per square inch is commenced. The margin of safety is therefore very great, and in fact, much greater than in the case of ordinary steam apparatus. It has also been demonstrated by actual experiment that the rupture of a circulating pipe, under a pressure of 250 lbs. per square inch, is not attended with any appreciable explosion, or destruction of the conduit, despite all theory to the contrary; and hence that no serious danger to the public, or to the street pavements, by reason of any such rupture, can be apprehended. Much attention has been devoted to the consideration of this part of the subject, and the foregoing statement is made only after fair practical proof has been afforded by the experiments made at Boston and elsewhere. As a matter of common precaution, however, check-valves are introduced at frequent intervals in the circulating main, so as to prevent the escape of more than a comparatively small quantity of hot water in case

of accident; and as there is an abundance of space in the masonry conduit for the free expansion of the escaping water into steam, any disturbance of the street surface cannot be imagined.

With reference to economy, it is safe to say that a given amount of heat can be furnished by the Prall system to consumers at a much less cost than would be required for separate small fires or furnaces in each building of moderate size. At a large central station and under skilled supervision, fuel of an inferior quality can be burned to much better advantage than in small furnaces, and the consumers of the heat thus distributed are saved the expense of attendance and the valuable space necessary for the storage of individual steam boilers, fuel and ashes. From all of my examinations, I am convinced that the Prall system of distributing heat for warming or power purposes possesses many advantages over the system of distributing steam, especially to great distances from the central station. It has been shown at Boston that it can be made perfectly successful from an engineering standpoint, and, with judicious management, there is no reason why it should not also prove to be commercially successful.

Respectfully submitted,

EMIL KUICHLING,

Civil Engineer.

The Rochester Superheated Water Company

**Offers the following Testimonials of Firms in Boston who
have during the past winter used Heat and Power
Furnished by the Boston Heating
Company using the same**

CENTRAL STATION HEATING SYSTEM

**That is now about to be put in operation in
Rochester by this Company.**

WEBSTER & CO.,
HIDES AND LEATHER,
55 High St.

BOSTON, Feb. 24, 1888.

TO THE BOSTON HEATING COMPANY.

Gentlemen: The heating of the office of our store, since the pipes, which had been used for another method, were properly adjusted to yours, has been very satisfactory. So far we have had no extremely cold weather and have had the valves closed a considerable part of the time.

We see no reason why we shall not have all the heat we want whatever the weather may be. We are glad to be rid of the trouble and dirt of building fires.

Very truly yours,
WEBSTER & CO.

CHESTER GUILD, Prest.
FRANCIS E. SEAVER, Cashr.

Capital,
\$500,000.00

MANUFACTURERS' NATIONAL BANK.

BOSTON, Feb. 27, 1888.

LESTER LELAND, Esq.,
Treasurer, Boston Heating Company,
63 Pearl St.

Dear Sir: Acknowledging receipt of your favor of 23d inst., inquiring as to the operation of the Steam Heating Supply, recently attached to our building, beg leave to say, that during the short time we have had it, we find it gives excellent satisfaction. Of course, we are not yet able to speak of its capacity for heating our premises during zero weather.

We are much pleased with the comfortable temperature on Monday mornings, and on mornings after a holiday, a time when, with the former source of supply, we were much inconvenienced from want of a proper degree of heat.

Your obedient servant,
CHESTER GUILD, Pres.

All Business Communications must be addressed to the firm.

ESTES & LAURIAT,
PUBLISHERS AND BOOKSELLERS,
301-305 Washington St.,
Opp. Old South Church.

BOSTON, Jan. 19, 1888.

BOSTON HEATING COMPANY,
63 Pearl St., Boston, Mass.

Gentlemen: We are greatly pleased with the result of connecting our heating apparatus with your system, and it has more than satisfied our expectations. The only difficulty so far has been to watch the heater so as not to have the heat too great, and we are frequently compelled to shut the heat off from the radiators. We hope another season to heat our entire building, and use the steam for whatever power is needed, as we believe it will result in a great saving to us, besides being very much safer than having fires on our premises and we also think that the saving in the matter of service in handling the coal and tending the fires will be an important item.

We think it will be of inestimable advantage to all concerned when your system is very generally adopted.

[Dictated.]

Yours truly,

ESTES & LAURIAT.

Established 1843.

T. A. WHICHER & Co.,
Fine Calf Boots.

BOSTON, Mass., May 19th, 1888.

Factories: Quincy, Mass.
12 High Street.

BOSTON HEATING COMPANY.

Dear Sirs: In reply to your favor of the 17th inst., we take pleasure in advising you that the service of your Company has been eminently satisfactory.

Very truly yours,

T. A. WHICHER & CO.

T. REMMICK & CO.,

COTTON AND WOOL AND ALL KINDS OF COTTON AND WOOL STOCK,
204 & 206 Federal St., cor. Atlantic Ave.

Office removed to 439 Atlantic Ave.

BOSTON, Jan. 23d, 1888,

MR. LESTER LELAND, Treas.,
Boston Heating Co., Boston.

Dear Sir: Since we have had your system of hot water heating in our offices it has worked very satisfactorily in every respect, and it is with pleasure we recommend it as a perfectly safe, clean and wholesome mode of heating, worthy of endorsement by the community. There is not any doubt but that it is one of the greatest enterprises ever introduced into this city and it cannot fail of being profitable to both stockholder and consumer.

Wishing you success, we are,

Yours truly,

T. REMMICK & CO.

H. W. WADLEIGH,
COMMISSION LEATHER MERCHANT,

Nos. 239 to 245 Congress and 192 to 200 Purchase Streets, corner Congress
and Purchase Streets.

Mr. LESTER LELAND, Treas., BOSTON, May 19, 1888.

Dear Sir: I have used the steam furnished by your company for heating my offices since your system was in working order, and I take pleasure in saying that I am perfectly satisfied with it. I should be very reluctant to again go back to stoves.

Very truly,
H. W. WADLEIGH.

MULLIN & BROWN,
(Successors to F. S. Merritt & Co.)
LEATHER DEALERS,
No. 1 High and 142 Summer Street.

M. F. MULLIN, }
H. W. BROWN. } BOSTON, May 18, 1888.

Mr. LESTER LELAND, Sec. and Treas.
Boston Heating Company.

Dear Sir: We are pleased to say that your system of heating continues to be a source of comfort and pleasure to us, as it has been since January, and we feel the same interest in your success as we expressed in our letter of March 7th.

Yours truly,
MULLIN & BROWN.

STANDARD BOTTLING COMPANY,
(W. O. TUTTLE & Co., PROPRIETORS,) MANUFACTURERS OF CONCENTRATED
GINGER FOR BOTTLERS.
New England Agents for the Famous Medical Lake Spring Water. Old
No., 170 Oliver Street.

W. O. TUTTLE, A. O. ATKINS,
DEALERS IN ESSENTIAL OILS, CITRIC ACID, SUGAR COLORING, FLAVORING
EXTRACTS, ETC.

168 to 176 Oliver Street, and 441 to 443 Atlantic Avenue.
LESTER LELAND, ESQ., BOSTON, May 18th, 1888.
Treas., Boston Heating Company.

Dear Sir; Yours of 17th duly received. In reply to your inquiries in relation to our experience with the heat you have supplied to us since January 20th, 1888, can most cheerfully say that we are greatly pleased with it. In our offices we have over 400 square feet of windows exposed, and at no time since the steam was put in have we experienced any uncomfortable weather in our offices. We like it—it is always here night and day.

Yours truly,
W. O. TUTTLE, & CO.

Office of J. L. & H. C. RODGERS,
 COMMISSION MERCHANTS IN HIDES, LEATHER AND SKINS.
 204 and 206 Purchase Street,

BOSTON, May 21st, 1888.

BOSTON HEATING COMPANY, City.

Gents: After nearly five months' use of your heat, we pronounce it satisfactory, and the cost as low as we anticipated.

Yours truly,
 J. L. & H. C. RODGERS.

NICHOLS & FARNSWORTH,
 SHOE MANUFACTURERS' GOODS,
 98 Summer St.,
 Telephone No. 405.

N. NICHOLS,
 E. M. FARNSWORTH, }
 CHAS. C. HOYT. }

BOSTON, May 19, 1888.

Mr. LESTER LELAND, Treas.

Boston Heating Company.

Dear Sir: Replying to yours of 17th inst., we take pleasure in stating that your system of heating gives entire satisfaction, and the continued use of it since we last wrote you, Feb. 20th, only strengthens our first approval of it. We cordially recommend the system to those in need of an economical and effective method of heating.

Yours very truly,

NICHOLS & FARNSWORTH.

LESTER LELAND, ESQ.,

BOSTON, May 29, 1888.

"Treasurer," Boston Heating Company.

Dear Sir: Your letter of the 17th inst, is received, in reply to which we would say that we have used your system of heating at our store, since early in January last, and have found it entirely satisfactory in every respect, the system being the most uniform of any we have ever used, imparting a soft, moist heat, being much improvement over the dry heat of the usual steam methods. A uniform temperature has been maintained throughout the coldest weather of the winter; we have employed both direct and indirect radiation in the use of your system, and both have worked well and satisfactory. In adopting your system we have removed several large furnaces from our building, giving us the use of valuable room which they occupied, and have discontinued the use of coal, saving the handling, and avoiding the dust usual in the use of furnace heat. We are so well pleased with your method that we are contemplating making further additions. We have also recently attached your system to our stationary engine, running two elevators and a large Sturtevant Blower, and are much pleased with the working of it, the steam has been uniform in pressure and is well adapted to the use of power.

Should you wish at any time to send any interested parties to our store to inspect the system in use by us, we shall be pleased to show it to them.

Yours very truly,

E. & A. H. BATCHELLER.

C. L. FOLSOM & Co., Manufacturers and Importers of
White Leads, Colors, Varnishes and
Lubricating Oils, 124 & 126 Purchase St.

BOSTON, May 22d, 1888.

LESTER LELAND, Esq.,
Treasurer Boston Heating Co.,

Dear Sir: We have used your steam for heating since January 15th, and are very much pleased with it. We consider the method a grand success, and can recommend it to anyone for heating purposes, as it has never failed, and has needed no attention from us.

Yours truly,
C. L. FOLSOM & CO.

B. F. STURTEVANT.

Patentee and Sole Manufacturer of the Sturtevant Blower and Exhaust Fan for Cupola Furnaces, Forges, Steam Boilers, Heating Furnaces, Drying Wool, Cotton, etc., and for purposes of ventilation. For carrying off Shavings and Sawdust, Dust from Sand and Emery Wheels, Removing Gas, Smoke and all noxious fumes.

Salesroom, 115 Purchase Street, cor. Hartford. Office and Works at Jamaica Plain Station, on B. & P. R. R., Ward 23.

(Dictated to Stenographer.)

BOSTON HEATING COMPANY, BOSTON, Jan. 18th, 1888.

63 Pearl St., Boston, Mass.

Gentlemen: It gives us pleasure to express our perfect satisfaction with your system. We were formerly supplied from a boiler in an adjoining building and were greatly troubled with wet steam, and snapping and hammering in the pipes. The steam supplied by you has, upon the other hand, been remarkably dry and has never disturbed us by noise either in the pipes or radiators.

The convenience of the system must be tried in order to be appreciated.

Yours very truly,
B. F. STURTEVANT,
E. N. FOSS, Manager.

171 Congress St. and
Leather Square.

H. CURTIS & CO.,
Manufacturer of Gent's Fine Shoes
BOSTON, Jan, 18th, 1888.

LESTER LELAND, Esq.,
Boston Heating Company.

My dear Sir: Your kind favor 17th at hand. In answer would say that we are only too glad to express our utmost approval to the satisfaction given us through your system of heating our store, and shall only be too happy to have you send any one to us for examination and personal inspection.

Kindly yours,
H. CURTIS & CO.

ZENAS SEARS,

BOOT AND SHOE MANUFACTURERS' GOODS,
25 High Street, corner Federal Street.

BOSTON HEATING COMPANY.

BOSTON, May 17, 1888.

Gentlemen : I have had steam heat from your Company nearly three months, and I find the heat is everything you claimed for it. I cheerfully recommend it to parties requiring heat for large buildings.

Yours truly,

ZENAS SEARS.

Largest circulation of any paper of its class. Established 1872. Weekly \$3 per year. W. I. HOLMES, Manager, and Treasurer.

H. O. KITTRIDGE, Editor.

BOSTON JOURNAL OF COMMERCE.

AND COTTON, WOOL AND IRON,

BOSTON, May 17th, 1888.

128 Purchase Street.

MR. LESTER LELAND, Treasurer.

BOSTON HEATING COMPANY,

Boston, Mass.

Dear Sir : We are much pleased to state at this time, after having used your system four months for power and heating, that it is all we could ask for. We have experienced no inconveniences in any way and have come to look upon it with such confidence as to warrant dismantling our boiler and are dependent upon it for the printing and issue of our paper. It has proved, thus far, to have been a more constant and uniform source of power than could be maintained with the ordinary facilities and requires absolutely no attention on our part. Our experience with it has been so satisfactory that we earnestly hope the system may be extended, to the Back Bay at least, for the heating of residences, feeling confident it will become very popular in that respect. We remain

Yours truly,

W. I. HOLMES, Treas.

1888, May 17th

ordinary facilities and
constant and uniform
power and issue of our
printing and issue of our
to warrant dismantling
convenience in any way and
after having

THE MANUFACTURERS' GUILD
100 West, corner Federal Street
Boston, May 1, 1892
I have been told from your Company that
you are covering up your claims for a
long time and for large buildings
Yours truly,
W. I. HUBBARD

Established 1872. W. I. HUBBARD
and Son
H. O. KETTLE
MOTION PICTURES, 100 COMMERCIAL
and Cotton, West, and East
Boston, May 1, 1892

Dear Sir,
I am much pleased to state in this letter
that your machine for power and heating has
been experienced as convenient and reliable
and upon it with such confidence as to expect
it will be dependent upon it for the printing and
pressing of all the work to have been a more constant
service than could be maintained with the other
power in operation in our plant. Our experience
has been that we are very happy to have the system
and we look for the best of results, being
very grateful in that respect. We remain
Yours truly,
W. I. HUBBARD





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Central station heating and power supply



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