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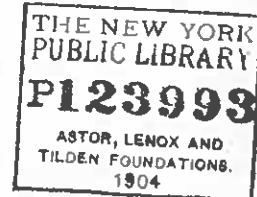
496647

The United States Heating and Power Company

Was duly Incorporated under the Laws of the State of New York, Jan. 10, 1880.

CAPITAL, \$10,000,000. 15

SHARES, 100,000, OF \$100 EACH.



The objects for which the company was formed are as follows:—

"To furnish, convey, conduct and supply, by mechanical means, power, electricity and gas in streets, roads and avenues, and in buildings and other places in towns and cities, and for generating and manufacturing heat, steam, power, electricity and gas, and laying, constructing, manufacturing, erecting and maintaining mains, pipes, apparatus and contrivances for said purposes.

"The said company was formed for carrying on some part of its business at places out of the State of New York: in all the towns, cities and counties of the other States and Territories of the United States and the District of Columbia."

The company organized immediately after its incorporation and petitioned the Board of Aldermen for the franchises, which it has granted.

The following resolution was passed by a *two-thirds* vote of the Board of Aldermen of this city, March 16, 1880.

As to the liberality and value of the franchises granted, the resolution speaks for itself.

Resolved, That the United States Heating and Power Company, a corporation existing and duly organized under the Laws of the State of New York, their heirs, successors and assigns, shall have and is hereby granted the right to lay mains and pipes in the streets, avenues, alleys, lanes and public places in this city, with such connections as may be required for the purpose of conveying hot water and steam, to supply to the city and its inhabitants heat and power for all domestic and other purposes for which hot water or steam may or can be used, under the following conditions, viz.:

The company shall, in advance of opening the streets, furnish to the Department of Public Works an accurate map of the work proposed to be done, with the intended position of the mains and pipes, and give a bond to the city, to be approved by the Comptroller, in the sum of fifty thousand dollars, to protect the city against any accident that may occur under the permission hereby conferred, as well as to replace the pavement in any of the streets, avenues or places where such mains or pipes may be laid.

The Department of Public Works shall have the right to change the positions of such mains and pipes whenever they interfere with free access to the sewers, mains and pipes belonging to the city, and should any changes be hereafter made in the mains, pipes and sewers belonging to the city by which a necessity should arise for changing the position of the mains and pipes of the United States Heating and Power Company, such change shall be made without expense to the city.

The company shall furnish such heat and power as may be required for streets and public buildings at prices to be fixed by the Board of Estimate and Apportionment.

The number and position of the hydrants shall be determined by the Department of Public Works.

An annual report, under oath, shall be made by the secretary of the company to the Board of Estimate and Apportionment, which shall have the power, after receipt of such report, if in its judgment shall be just, to impose a tax of three cents per lineal foot on the mains laid by the company, and two per cent. of the net of the company for the year for which such report has been made.

The right to lay mains and pipes in this city shall cease and determine in three years from this date, unless the company shall have then laid and opened for public use two miles of mains, unless prevented by legal proceedings.

Under and subject to the foregoing conditions, the United States Heating and Power Company shall and is

The company has been fortunate in securing the services of W. C. BAKER, Esq., as its superintendent of the mechanical and construction department of its business, for a period of two years from the time it commences operations. It has also secured all his inventions relating to his system for supplying heat and power through the mediums of steam or hot water.

The company's business will consist in carrying out, on an extensive scale, what Mr. BAKER has been engaged in for the last twenty-five years. The firm of Baker, Smith & Co., of this city, of which he was the head, has done the largest business, in the matters of steam and water heating, of any party in the United States.

Amongst the plans he will introduce for the production of heat and power throughout wide areas, will be one for returning to the battery of boilers the water at a high degree of temperature after it has accomplished the purpose of its mission, as in the system for supplying heat adopted by him in the "Grand Central Depot" in this city, and in other large blocks here, in Chicago, and in many other cities in this country; also in all of the Pullman, Wagner and other palace coaches. By this principle of heating, the water is kept in constant circulation throughout the system of pipes, as is the blood through the arteries and veins of the human body; hence there is no waste of it or loss of its temperature except by radiation.

The first district in this city within which the company propose to construct a plant to furnish heat for the various purposes needed, is bounded by Broadway, Chambers, New Chambers, Roosevelt, Front, Old Slip and Beaver Streets.

By a careful estimate, the said district is found to comprise not less than 3,547 lots. As each lot, with scarcely an exception, is built upon, we estimate that number of buildings therein.

To reach a conclusion approximately accurate as to the *average* size of the buildings, and, therefore, as to the cubical contents of the space they enclose, upon which to base a calculation of the amount of heat needful to keep the same at a proper degree of temperature when artificial heat is necessary, we have deducted from said number of buildings 507—one-seventh part—which will embrace a class not worthy of estimation. Therefore we bring into our estimate only 3,040 buildings, and estimate their *average* size at 25×70×50 feet.

Upon this basis W. C. BAKER, Esq., has estimated that 72,787 tons of coal of 2,240 lbs. each, will be required annually to give them a proper degree of heat for warming purposes, and for doing the estimated amount of cooking in the district.

The cooking required in the district he estimates to be equal to what would be done in 100 first-class restaurants.

He estimates 90,780 tons of coal of 2,240 lbs. each, for supplying annually 10,000 horse powers in the district. Total amount of coal for all purposes, 163,567 tons.

ESTIMATED COST OF PLANT FOR THE ENTIRE 1ST DISTRICT.

106,000 lineal ft. of pipes averaging 9 in. @ \$1.95.....	\$206,700 00
38,000 " " service pipes 3 in. @ 28½c.....	10,830 00
960 crosses and elbows for pipes averaging 9 in. @ \$15.....	14,400 00
2,320 expansion joints " " 9 in. @ \$50.....	116,000 00
800 stop cocks for pipes averaging 9 in. @ \$37.50.....	30,000 00
1,520 " " for service pipes 3 in. @ \$6.80.....	10,336 00
160 150 H. P. boilers, including smoke bonnet and cast iron base and grate @ \$1,000.....	160,000 00
160 sheet iron casings and mineral wool packing @ \$35.....	5,600 00
160 boiler valves—4½ in. @ \$11.20.....	1,792 00
160 " " 3 " @ \$6.80.....	1,088 00

160 water gauges @ \$2.25.....	\$360 00
160 safety valves— $2\frac{1}{2}$ in. @ \$11.....	1,760 00
16 steam gauges to register 200 lbs. @ \$20.....	320 00
160 blow off cocks—3 in. @ \$6.80.....	1,088 00
160 nipples 15 in. long—3 in. @ 75c.....	120 00
480 try cocks for boilers @ \$1.00.....	480 00
640 ft. 20 in. pipe for boiler drums @ \$19.....	12,160 00
640 " 18 in. " " " " @ \$16.....	10,240 00
2 receiving drums @ \$2,500 each.....	5,000 00
160 T's for 20 in. pipe @ \$35.....	5,600 00
160 T's " 18 in. " @ \$28.....	4,480 00
8 caps for 20 in. " @ \$20.....	160 00
8 " " 18 in. " @ \$18.....	144 00
15 12 in. valves for mains at boiler @ \$50.....	750 00
15 14 in. " " " " " @ \$60.....	900 00
15 12 in. flange unions @ \$20.....	300 00
15 14 in. " " @ \$26.....	390 00
160 $4\frac{1}{2}$ in. " " @ \$3.25.....	520 00
160 3 in. " " @ \$1.80.....	288 00
160 rubber packings @ \$5.....	800 00
160 coverings for boiler pipes @ \$20.....	3,200 00
49,750 lineal ft. of trenches—digging, filling, etc., @ $66\frac{2}{3}$ c.....	33,167 00
1,900 " " " " for service pipes @ 30c.....	570 00
49,750 " " of boxing, packing and placing pipes @ \$1.00.....	49,750 00
1,900 " " mineral wool packing for service pipes.....	1,395 00
Pumps, machinery and wells for supplying water.....	20,000 00
Labor for fitting pipes, making connections, etc.....	20,000 00
Cartage and handling of boilers—160 @ \$25.....	4,000 00
Fitting up boilers ready for use—160 @ \$20.....	3,200 00
160 sets of fire implements @ \$4.....	640 00
Tools.....	1,000 00
Miscellaneous.....	5,000 00
9 lots and necessary buildings.....	160,000 00
	\$904,528 00

ESTIMATED ANNUAL EXPENSE OF OPERATING THE ENTIRE PLANT IN THE 1ST DISTRICT
BY THE PRESENT OR ORDINARY MODE OF HEATING BOILERS.

Superintendence.....	\$7,500 00
Labor.....	22,200 00
163,569 tons of coal @ \$4.....	654,276 00
10 per cent. for wear and tear of the plant—and contingencies.....	90,965 00
Total.....	\$774,941 00
Total Cost for warming and cooking.....	344,852 00
Total cost for power.....	430,089 00
Total.....	\$774,941 00

Cost of warming and cooking, average building, per annum.....	\$113 44
Cost of horse power per annum.....	43 00

In estimating the cost of heat under the present or old plans for producing it, the following items of expense must enter into the calculation—viz : the cost of coal, chiefly at *retail* prices—cost of putting it into the buildings in places convenient for use—labor in taking charge of the fires—wood for kindling them—removal of ashes—stoves and furnaces—cleaning and keeping them in repair—if the heat is for power, the cost of boilers, their repairs, and the wages of an engineer.

Annual cost of warming and cooking average building, <i>now</i>	\$300 00	
“ “ “ “ “ “ by the “Baker system,” as estimated.....	113 44	
Difference in favor of Baker's system.....		\$186 56
Annual cost of a horse power as <i>now</i> furnished.....	\$75 00	
“ “ “ “ by the “Baker system”.....	43 00	
Difference in favor of Baker's system.....		\$32 00

CONDENSED STATEMENT OF THE RESULTS OF THE FOREGOING ESTIMATES.

Annual cost of Heat in entire 1st District as now produced.

3,040 buildings averaging \$300 each, for warming and cooking.....	\$912,000 00
10,000 horse power \$75 each.....	750,000 00
Total cost.....	<u>\$1,662,000 00</u>

ANNUAL COST OF HEAT *in entire* 1ST DISTRICT UNDER THE SYSTEM THE
UNITED STATES HEATING AND POWER CO. WILL INTRODUCE.

Showing an amount equal to about 98 per cent. of the estimated cost of plant.

In estimating the annual expense of operating the plant, it will be perceived that 10 per centum of its estimated cost, for its wear and tear and for contingencies, was added to said expense. The difference exhibited by the comparative cost of heat under a well-devised "system" for producing and distributing it, and the present old plans, devoid of system, clearly indicate that capital invested in this company's undertaking will receive ample remuneration, and that a tariff of prices for the products of the business can be readily adjusted to the mutual satisfaction of the producer and consumers. But were there no diminution of the cost of heat to the consumer, it is likely they would avail themselves of the numerous advantages which will attend this great innovation in its mode of supply. These advantages are clearly set forth in the pamphlet recently published by Mr. Baker, entitled "A Practical Plan for Heating Cities and Large Villages with Steam or Hot Water," which should be read in connection with what is herein stated as to the cost of establishing his system in a given district in this city, etc.

It should be kept in mind that the showing in this paper relates only to a small fraction of the city, that the franchise granted to the company embraces the whole city. Furthermore, that this company is a parent company, and contemplates the organization of other companies in its interest in any portion of the United States, and the sale to them of the valuable patents it has secured to itself. *It should also be borne in mind that it is not necessary to procure all the money*

represented by the estimated aggregate cost of the plant in the said district, before commencing business. The plant will be so constructed that it can be operated in sections—a section can be made to comprise whatever portion of the district the company may decide to embrace in its first undertaking, and it can be operated independently until it desires to extend it to cover more territory. In fact such a mode of procedure would be more economical than to cover the entire district as rapidly as would be possible if the means for doing so were in hand.

In addition to valuable patents of Mr. W. C. BAKER secured by the company, is one for Mackenzie's process for making heating gases, and the manner of applying them to boilers for heating water or generating steam.

Mr. Mackenzie claims that by his mode of heating boilers, the annual expense of operating the company's plant, as stated herein, as far as the estimated cost of coal and labor are concerned, would be reduced 40 per cent. As the estimated cost of coal and labor amounts to \$683,976, 40 per cent. reduction would effect an annual saving of \$273,590 and, of course, proportionately lessen the cost of heat, and increase the profits of the business, as shown in the foregoing estimates.

He states that the cost of the apparatus, consisting of generators, feeding hoppers, governor, connections and fittings for producing the heating gas, and applying it to the boilers to produce the heat stated as necessary to supply the First District, would not increase the cost of the plant beyond what has been estimated more than thirty thousand dollars.

A TABLE OF THE RESULTS OF EXPERIMENTS MADE BY THE "FRANKLIN INSTITUTE"
OF PHILADELPHIA, AS TO THE TEMPERATURE ATTAINED, UNDER CERTAIN
PRESSURES, ABOVE THE BOILING POINT, FROM STEAM
OR HOT WATER.

At	1 lb. pressure above boiling point, -	-	-	-	-	-	-	-	-	-	-	212
"	5 lbs. " " " " " " " " " " " "	-	-	-	-	-	-	-	-	-	-	228
"	10 " " " " " " " " " " " "	-	-	-	-	-	-	-	-	-	-	241
"	15 " " " " " " " " " " " "	-	-	-	-	-	-	-	-	-	-	251
"	20 " " " " " " " " " " " "	-	-	-	-	-	-	-	-	-	-	269
"	25 " " " " " " " " " " " "	-	-	-	-	-	-	-	-	-	-	276
"	30 " " " " " " " " " " " "	-	-	-	-	-	-	-	-	-	-	283
"	35 " " " " " " " " " " " "	-	-	-	-	-	-	-	-	-	-	289
"	40 " " " " " " " " " " " "	-	-	-	-	-	-	-	-	-	-	295
"	45 " " " " " " " " " " " "	-	-	-	-	-	-	-	-	-	-	301
"	50 " " " " " " " " " " " "	-	-	-	-	-	-	-	-	-	-	306
"	55 " " " " " " " " " " " "	-	-	-	-	-	-	-	-	-	-	311
"	60 " " " " " " " " " " " "	-	-	-	-	-	-	-	-	-	-	315
"	65 " " " " " " " " " " " "	-	-	-	-	-	-	-	-	-	-	320
"	70 " " " " " " " " " " " "	-	-	-	-	-	-	-	-	-	-	324
"	75 " " " " " " " " " " " "	-	-	-	-	-	-	-	-	-	-	328
"	80 " " " " " " " " " " " "	-	-	-	-	-	-	-	-	-	-	332
"	85 " " " " " " " " " " " "	-	-	-	-	-	-	-	-	-	-	335
"	90 " " " " " " " " " " " "	-	-	-	-	-	-	-	-	-	-	339
"	95 " " " " " " " " " " " "	-	-	-	-	-	-	-	-	-	-	342
"	100 " " " " " " " " " " " "	-	-	-	-	-	-	-	-	-	-	342

(Bread bakes and wood scorches,)

NEW YORK, 1880.

W. C. BAKER,
Superintendent.