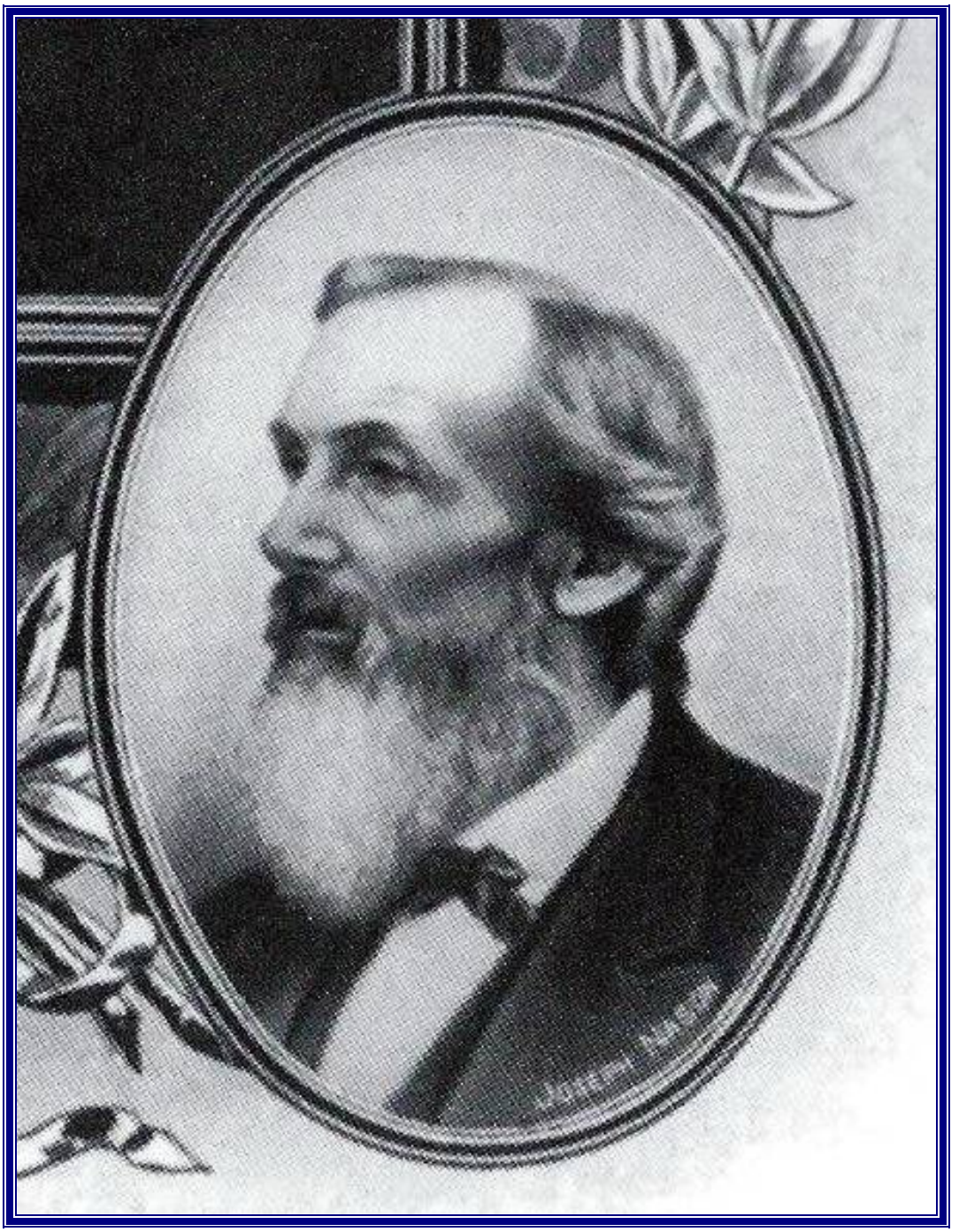
JOSEPH NASON

By EurIng Brian Roberts, CIBSE Heritage Group



Joseph Nason, 1815-1872

Joseph Nason is credited with the introduction of steam heating into the United States. On a trip to London he met Angier Perkins and worked for a time in his heating business. Through Perkins, he met with Thomas Russell of the pipe manufacturing family who had unsuccessfully tried to start a business in New York City. Russell sold this company to Nason. In 1842, Nason and his brother-in-law, James J. Walworth of Boston, founded the Walworth and Nason Company of Boston (later known as the Walworth Company) to manufacture and install steam heating equipment. They concentrated initially on producing malleable iron pipe fittings, then a difficult and expensive process.

In 1842, Walworth & Nason moved to Boston and went on to complete a number of steam heating installations beginning with the "counting room" of the Middlesex Mill in Lowell, Massachusetts. In 1845, the firm provided steam heating for the Eastern Exchange Hotel in Boston "accomplished by pipe coils, predecessors to the cast-iron radiators that replaced them later in the century." That same year they installed steam heating in a Woollen Mill in Burlington, Vermont. In 1846, they installed, possibly, the first fan ventilation apparatus in the United States for the Boston Custom House.

The Walworth and Nason Partnership was dissolved in 1852. Since Nason was unable to withstand the severe Boston winters he decided to set up a similar business in New York. Nason held patents for the globe and angle valve, the steam trap, cast and malleable taper joint pipe fittings, and the "radiator," which name he created.

In 1855, the problems of heating and ventilating the new House and Senate of the US Capitol were passed to Captain Montgomery Meigs. After deciding on the arrangement of rooms in the new wings, Meigs called Joseph Nason to Washington to discuss the heating and ventilating requirements. Nason proposed "to supply all necessary pipe and fittings at fifteen percent discount from printed list prices, to furnish an engineer and a draughtsman for six dollars a day, and first and second class workmen at proportionate rates." Nason's services were to be supplied at no extra charge. Meigs accepted.

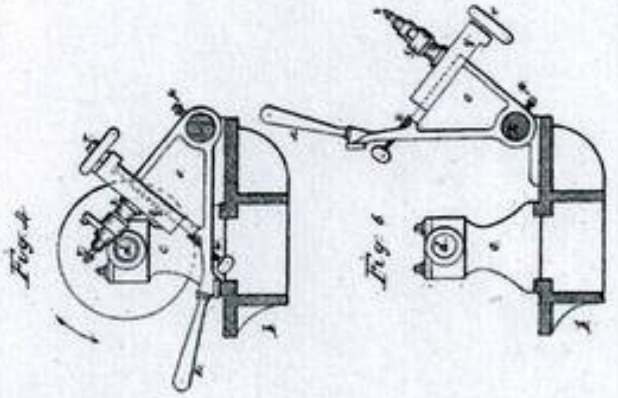
Joseph Nason and James Walworth continued to co-operate in business, taking over the Totoket Company of Branford, Connecticut, to manufacture pipe fittings, the factory being ideally situated between New York and Boston on a busy waterfront and next to a newly built railway. The new company was organized as the Malleable Iron Fittings Company (MIF). James Walworth became President of the company. Joseph Nason returned to New York to run Joseph Nason and Company, although he continued to cooperate closely with Walworth. The early MIF was essentially a subsidiary of the Walworth Company. It produced malleable iron castings that were shipped to the Walworth Company for finishing. The Walworth Company continued as a separate company while MIF grew and earned a reputation of its own. The company, however, got off to a slow start. At first it was able to produce barely a half ton a day. But as the steam heating industry grew, so did MIF.

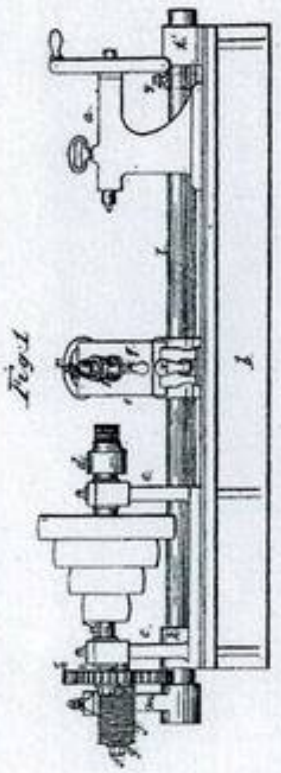
From 1862, the Nason Manufacturing Company built a thriving radiator manufacturing business. (It is interesting to note that one of Nason's associates for a time was Henry R Worthington, inventor of a steam pump and founder of the Worthington Pump & Machinery Corporation). It should also be mentioned that Caleb C Walworth, the younger brother of James, not only improved manufacturing methods at Walworth but went on, in 1875 and 1880, to patent new designs of radiator.

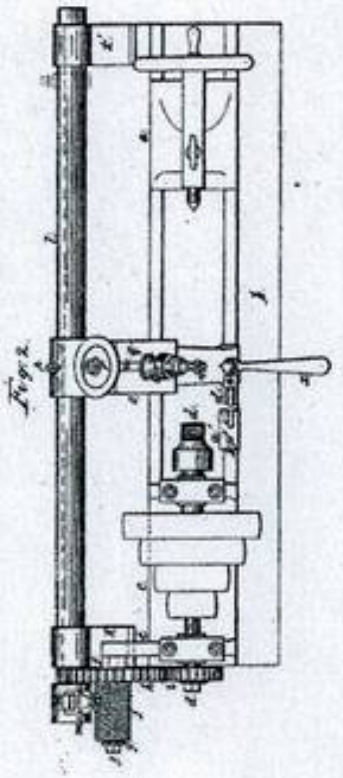
J. Nason,

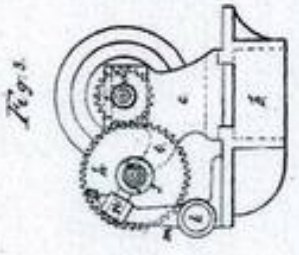
Screw-Threading Machine,

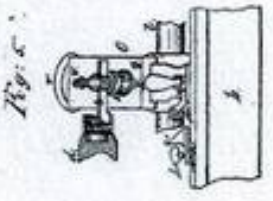
No. 10,383. Patented Jan. 3, 1854.











Nason & Briggs,

Steam Heater,

No. 34,643. Patented Mar. 11, 1862.

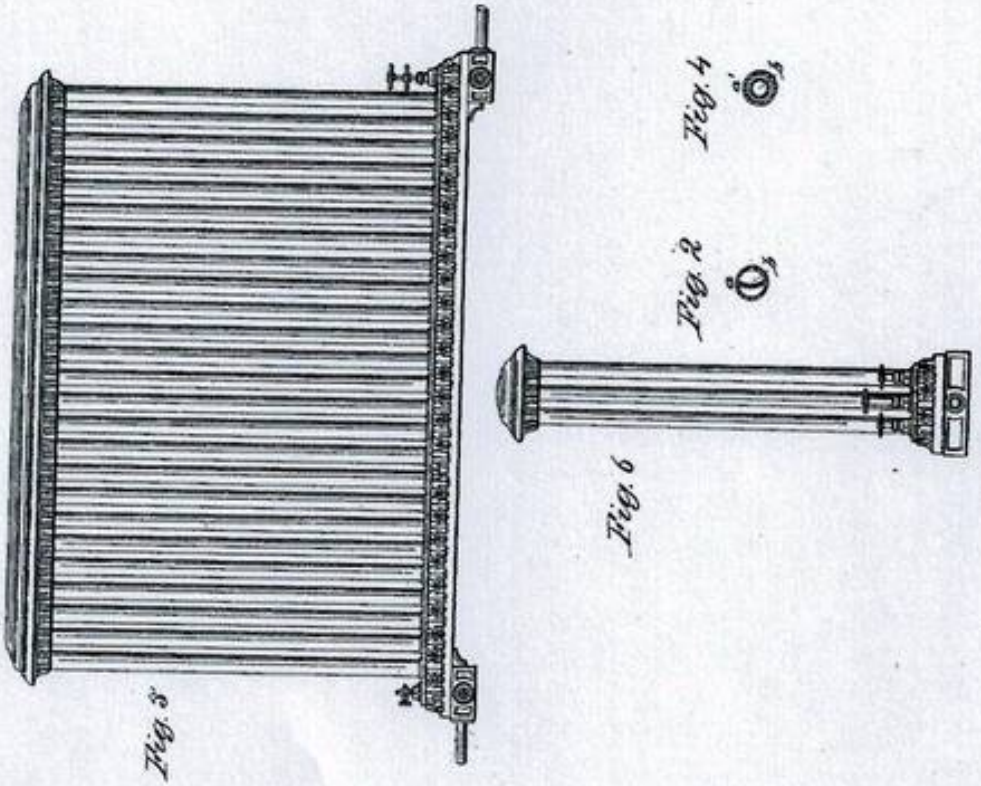


Fig. 5

Fig. 6

Fig. 4

Fig. 2

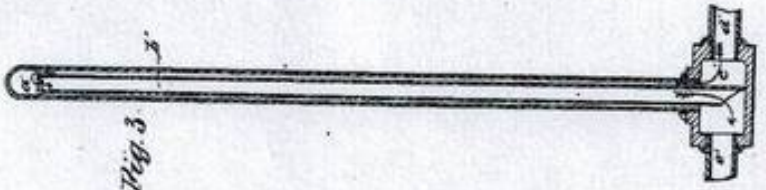


Fig. 3

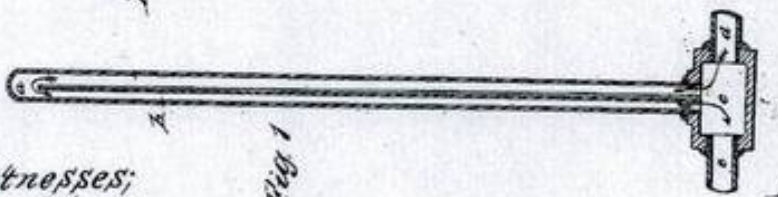


Fig. 1

Witnesses;
Wm. H. Thomas
H. G. Fisher

Inventors;
Joseph Nason
Robt. Briggs

UNITED STATES PATENT OFFICE.

JOSEPH NASON, OF NEW YORK, AND ROBERT BRIGGS, OF BROOKLYN, ASSIGNORS TO JOS. NASON, OF NEW YORK, N. Y.

IMPROVEMENT IN STEAM-RADIATORS.

Specification forming part of Letters Patent No. **34,643**, dated March 11, 1862.

To all whom it may concern:

Be it known that we, JOSEPH NASON, of the city, county, and State of New York, and ROBERT BRIGGS, of Brooklyn, Kings county, State of New York, have invented a new and useful Improvement in Tubular Radiators and Condensers, which we declare to be fully described and set forth in the following specification and accompanying drawings, in which—

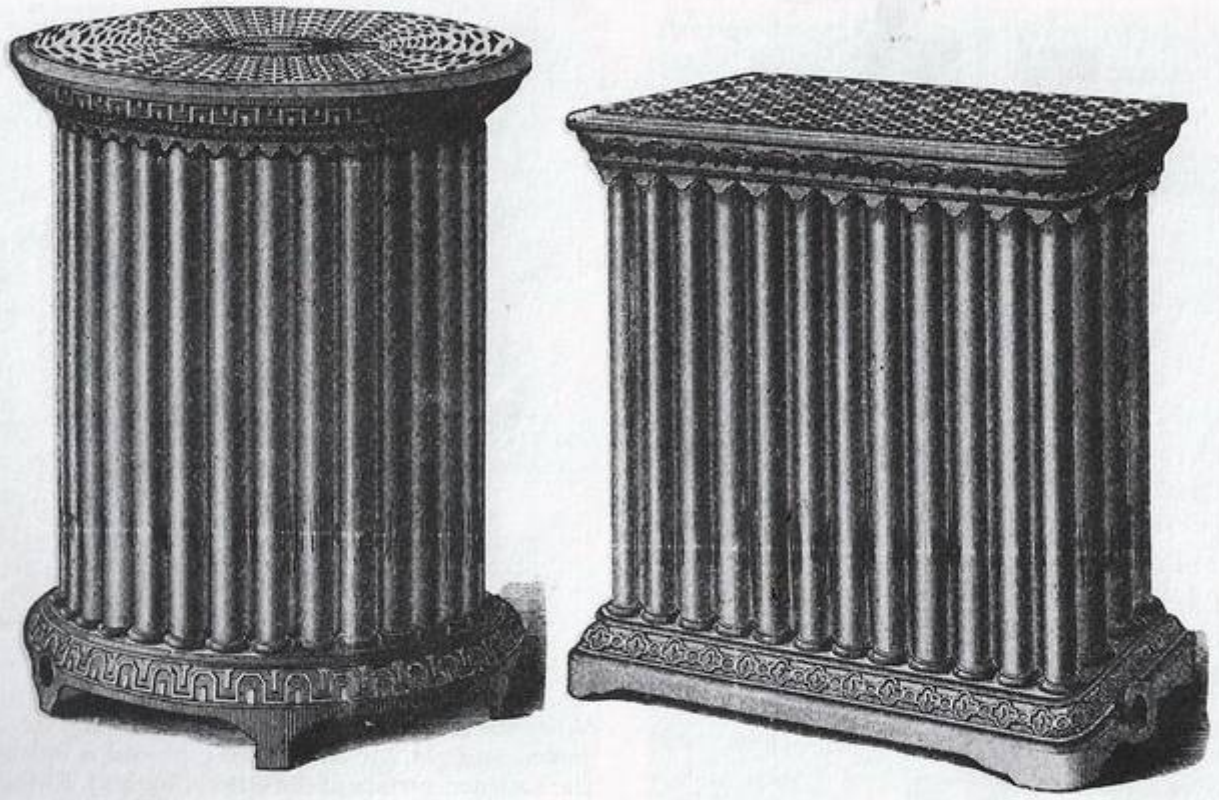
Figure 1 is a vertical longitudinal section of a radiating-tube with its interior diaphragm; Fig. 2, a transverse section of the radiating-tube and diaphragm; Fig. 3, a vertical longitudinal section of a radiating-tube with its interior tube; Fig. 4, a transverse section of the radiating-tube and interior tube; Figs. 5 and 6, a front elevation and end view in which the radiating-tubes are inserted in a steam-pedestal and combined to form a steam-radiator.

If the upper end of a vertical or inclined tube whose length considerably exceeds its diameter be closed and its lower end inserted in a steam-vessel, it is found, upon admitting steam to the vessel, that the air contained in the tube (although specifically heavier than steam of the same density) does not suffer any material displacement, but remains permanently in equilibrio and prevents the ingress of steam. It follows, therefore, that such a tube is practically useless for the purposes of steam radiation and heating. We have found, however, that by the introduction of an interior diaphragm or an interior tube in the manner hereinafter set forth this condition of equilibrium is prevented and that an inward current of steam and an outward current of air are at once established and maintained upon opposite sides of the diaphragm or the interior tube until the influent steam has completely displaced the air and filled the radiating-tube; and our invention relates exclusively to the construction of compartments or separate passages in radiating-tubes by means of diaphragms, plates, or interior tubes, as herein set forth.

The first modification of our invention is shown in Figs. 1 and 2, in which *a* is the radiating-tube; *b*, the diaphragm; *c*, the steam-pedestal; *d*, the inlet-pipe; *e*, the outlet-pipe. The diaphragm *b*, extending from the bottom of the radiating-tube *a* nearly to the top, may be made of sheet-iron or other metal or suitable material. Its width should be such that when slightly curved and pushed into the tube it will be kept securely in place by the frictional contact of its edges against the surface of the tube. When steam is admitted to the pedestal *c* through the inlet-pipe *d*, if no air be present it will enter and fill the radiating-tube *a;* but if the tube be wholly or partially filled with air, as usually happens at starting, the air will be gradually and completely displaced and ejected in the manner before explained, the inferior gravity of the steam causing it to flow upward into the tube on one side of the diaphragm and the superior gravity of the air causing it to flow downward on the opposite side of the diaphragm into the pedestal *c*, and thence outward through the outlet-pipe *e*, as indicated by the arrows.

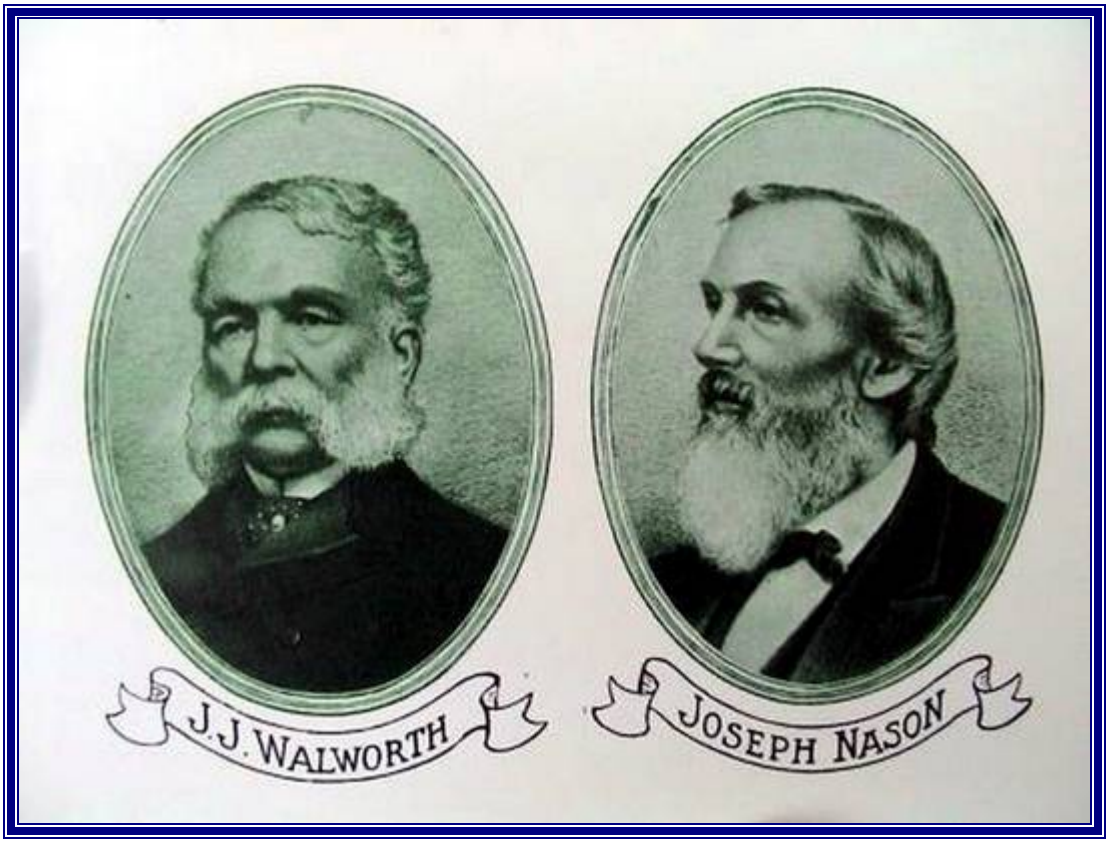
The second modification of our invention is shown in Figs. 3 and 4, in which *a'* is the radiating-tube; *b'*, the interior tube; *c'*, the steam-pedestal; *d'*, the inlet-pipe; *e'*, the outlet-pipe. The interior tube *b'* extending from the lower part of the pedestal *c'* nearly to the top of the radiating-tube *a'*, may be made of sheet-iron or other suitable metal, and its function of separation will be adequately performed if the metal is simply bent into cylindrical form and the edges brought tolerably well in contact without joining or fastening. It may be placed loosely in the radiating-tube *a'* with its lower end resting upon the bottom of the pedestal *c'*. When steam is admitted to the pedestal *c'*, its inferior gravity will cause it to flow upward into the radiating-tube *a'*, while the superior gravity of the air will cause it to flow downward through the interior tube *b'* into the lower part of the pedestal *c'*, and thence outward through the outlet-pipe *e'*, as indicated by the arrows.

The drawings are confined to the illustration of our invention as applied to steam-radiators for heating purposes. It is not deemed necessary to exhibit its application to condensers, as the only modification of the exhibited arrangement would be to immerse the tube or series of tubes in a cooling medium in the manner well known and practiced in what is called "surface condensation."



NASON'S

"STANDARD" WROUGHT IRON TUBE RADIATOR



C. C. WALWORTH.

Steam-Heater Radiators.

No. 158,612. Patented Jan. 12, 1875.

Fig. 1.

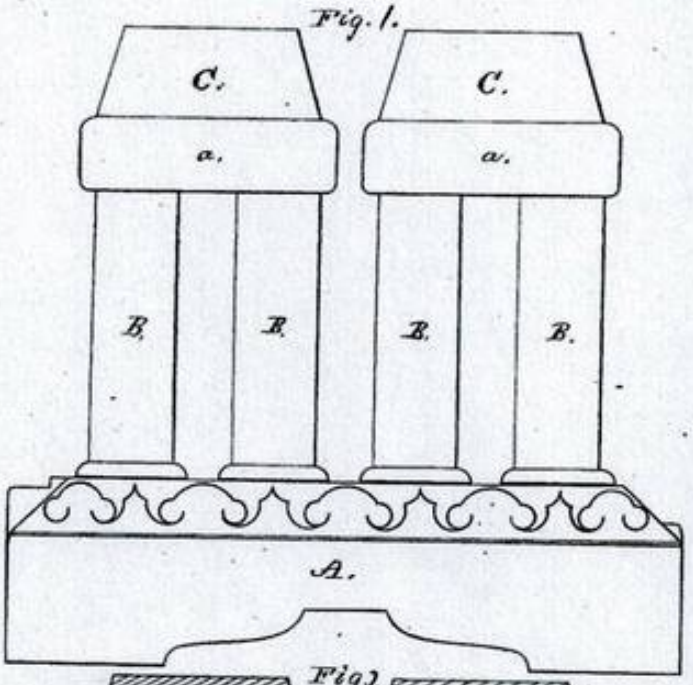
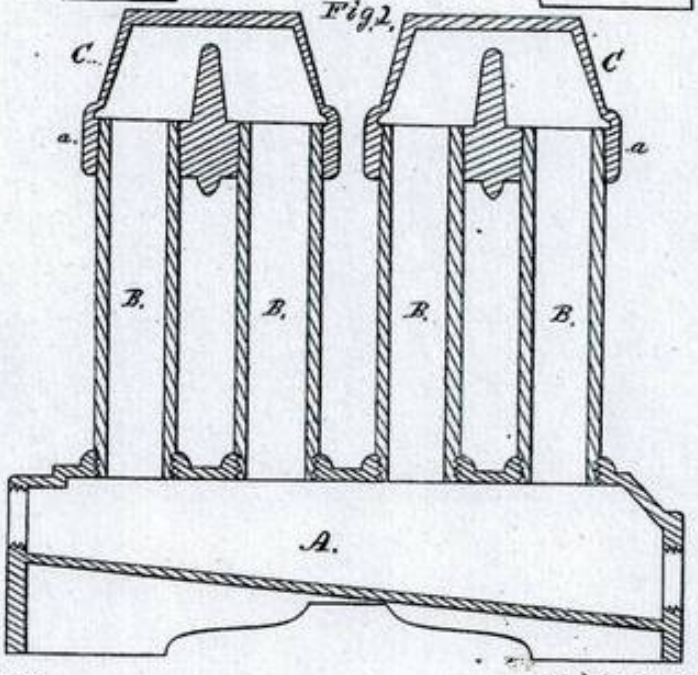


Fig. 2.



Witnesses.

Geo Gray

F. C. Hale

Caleb C. Walworth

by his attorney

F. P. Hale.

(No Model.)

C. C. WALWORTH.
Steam Radiator.

No. 230,368. Patented July 20, 1880.

Fig. 1.

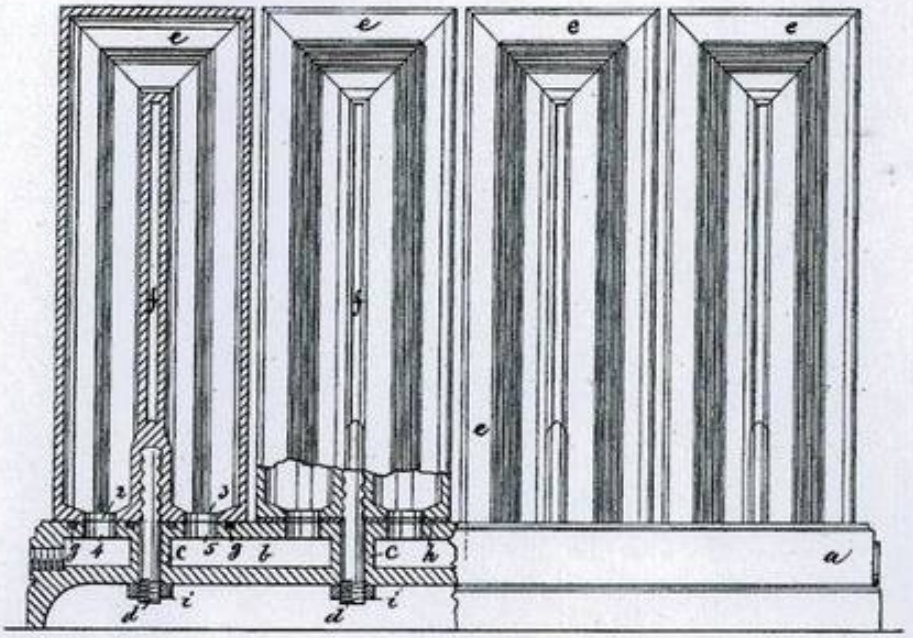


Fig. 2.

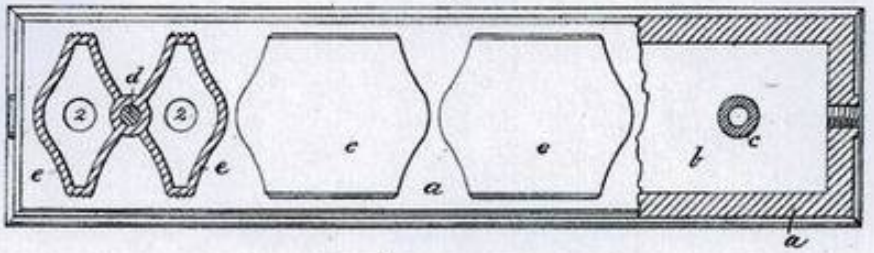


Fig. 3.

Witnesses.
L. F. Connor.
V. D. Scarton.

Inventor.
Caleb C. Walworth,
by Crosby Gregory Attys

References

The Early Days of Steam Heating, James J Walworth, Heating and Ventilation, 15 June, 1893 (Reviews Joseph Nason's contributions*)*

Beginning of the Manufacture of Wrought-Iron Pipe in the United States, Henry G Morris, Engineering Review, Vol. 15, December, 1905

First Fan Installations in the United States, Arthur C Walworth, Engineering Review, Vol. 22, September, 1912

A History of the Development of the Radiator, Ara Marcus Daniels, Domestic Engineering, 11 January, 1930

Walworth, 1842-1942, J A Murphy, Walworth Company, 1945

Building Services Engineering: A Review of Its Development, Neville S Billington & Brian M Roberts, Pergamon Press, 1982

Building Early America, Charles E Peterson (Ed): The Astragal Press, New Jersey, USA, 1976:
(1) *An Historical Sketch of Central Heating: 1800-1860*, Eugene S Ferguson
(2) *Building the Capitol, Mario E Campioli*

*Heat & Cold: Mastering the Great Indoors***,** Barry Donaldson & Bernard Nagengast, ASHRAE, 1994

The Comfort Makers, Brian Roberts, ASHRAE, 2004