J. CLARY.

STEAM-RADIATOR.

No. 173,898. Patented Feb. 22, 1876.

Fig. 2.

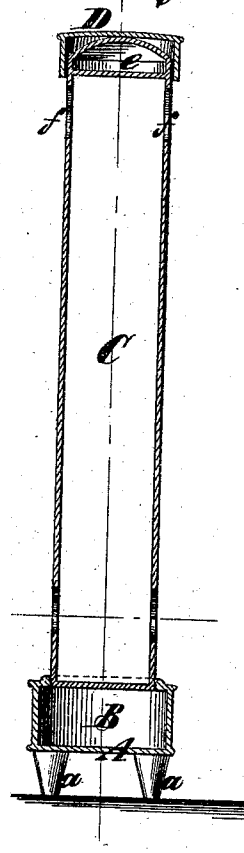


Fig. 1.

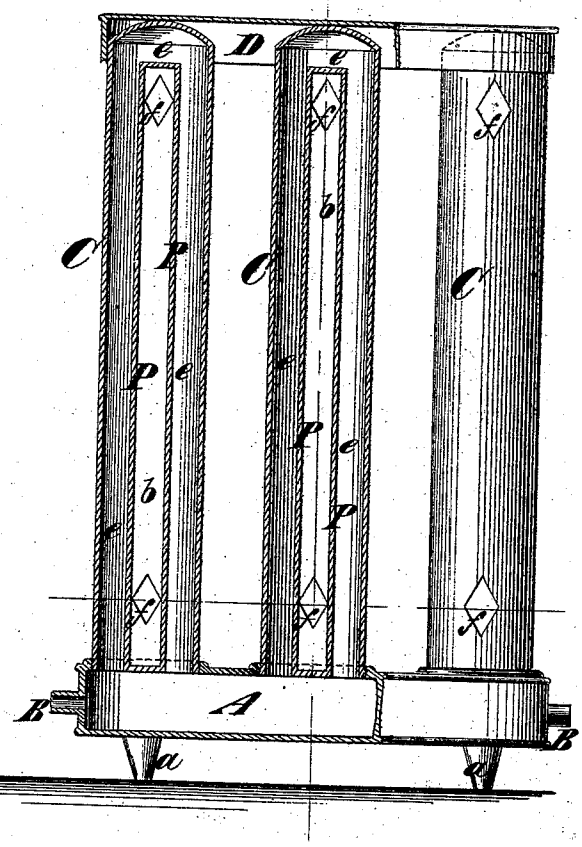
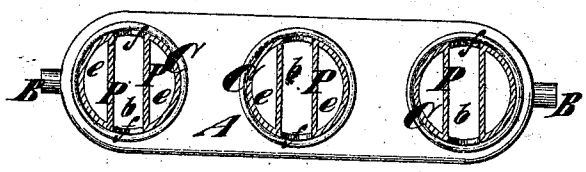


Fig. 3.



Witnesses.

John Becker

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UNITED STATES PATENT OFFICE.

JOHN CLARY, OF JERSEY CITY, NEW JERSEY.

IMPROVEMENT IN STEAM-RADIATORS.

Specification forming part of Letters Patent No. **173,898**, dated February 22, 1876; application filed April 9, 1873.

To all whom it may concern:

Be it known that I, JOHN CLARY, of Jersey City, in the county of Hudson and State of New Jersey, have invented an Improvement in Steam-Radiators, of which the following is a specification:

My invention consists in a radiator consisting of hollow columns rising from a connecting base, and each constructed with a pair of parallel partitions connected at top and bottom, dividing the column into an ascending and a descending flue, and forming between them an air-space, to which air is admitted through one or more apertures near the bottom, and from which it is discharged through one or more apertures near the top, as hereinafter described.

In the drawing, Figure 1 is a partly-sectional side view of a radiator made with my improvements. Fig. 2 is a transverse section of the same taken through one of the tubes or pipes, and Fig. 3 is a horizontal section of the radiator.

Similar letters of reference indicate corresponding parts in all three figures.

A is the base of the radiator. It is hollow, and is erected on legs *a a*, and is furnished with inlet and outlet pipes B B, for permitting the introduction of steam to it. The pipes or tubes C C of this radiator are somewhat peculiar in their construction. They may be of circular form in their transverse section, as represented, or, if desirable, may be of any other form; but whatever be their shape, they are provided with two parallel longitudinal partitions P P. These are united at the bottom of the tubes, and are likewise united near the top of the tubes, and thereby form central passages *b b*, through which air circulates, and contiguous direct and return steam-passages *e e*. These steam-passages are in communication with the base A, but the air-passages are shut off to themselves. They have, however, openings *f f* in the sides of the tubes, to admit air which is intended to circulate through them. A top or bonnet, D, covers the tops of the tubes, as shown in the drawing.

The steam, admitted to the base A of the radiator, circulates through the passages *e e* along the sides of the air-passage *b*, and warms the air as it circulates through this passage. Thus additional radiating-surface is afforded, and the efficiency of the radiator is much increased without additional bulk.

I am aware that radiators have before been constructed with inverted U-shaped pipes, producing steam-passages similar to those in my radiator. This, therefore, I do not claim; but my invention is superior to previous devices in affording an efficient and active steam circulation within separate and single vertical tubes by introducing within each two vertical partitions in the form of parallel planes connected at top, between which planes an air-heating space is formed, the air being admitted and discharged through openings in the shell of the tube communicating with the central space near the bottom and top. I am thus enabled at even a lower cost to produce a radiator of increased efficiency and of pleasing appearance, requiring no external open-work casing to conceal the pipes, though used in richly-furnished rooms.

I claim as new and desire to secure by Letters Patent—

The radiator herein described, consisting of separate vertical tubes C, connected with a common base, A, each of the said tubes having apertures *f* near the top and bottom, and a pair of straight parallel partitions, P, all as specified.

JOHN CLARY.

Witnesses:

MICHAEL RYAN,

FRED HAYNES.