(No Model.)

F. P. H. PROX.

RADIATOR.

No. 365,758. Patented June 28, 1887.

Fig. 2.

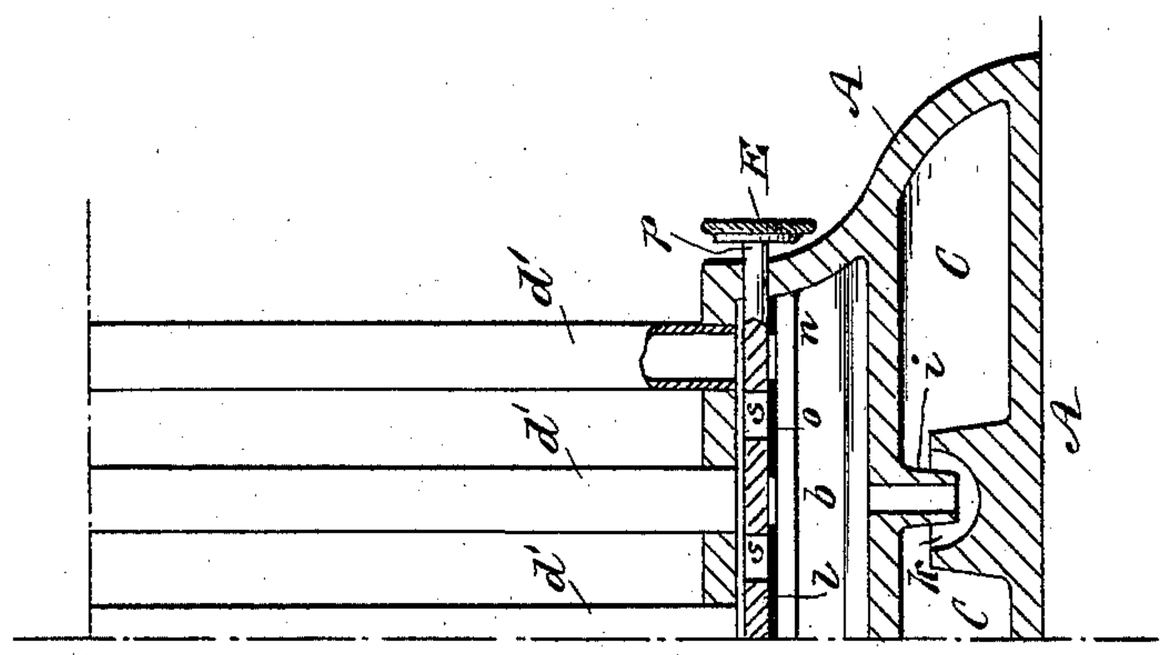
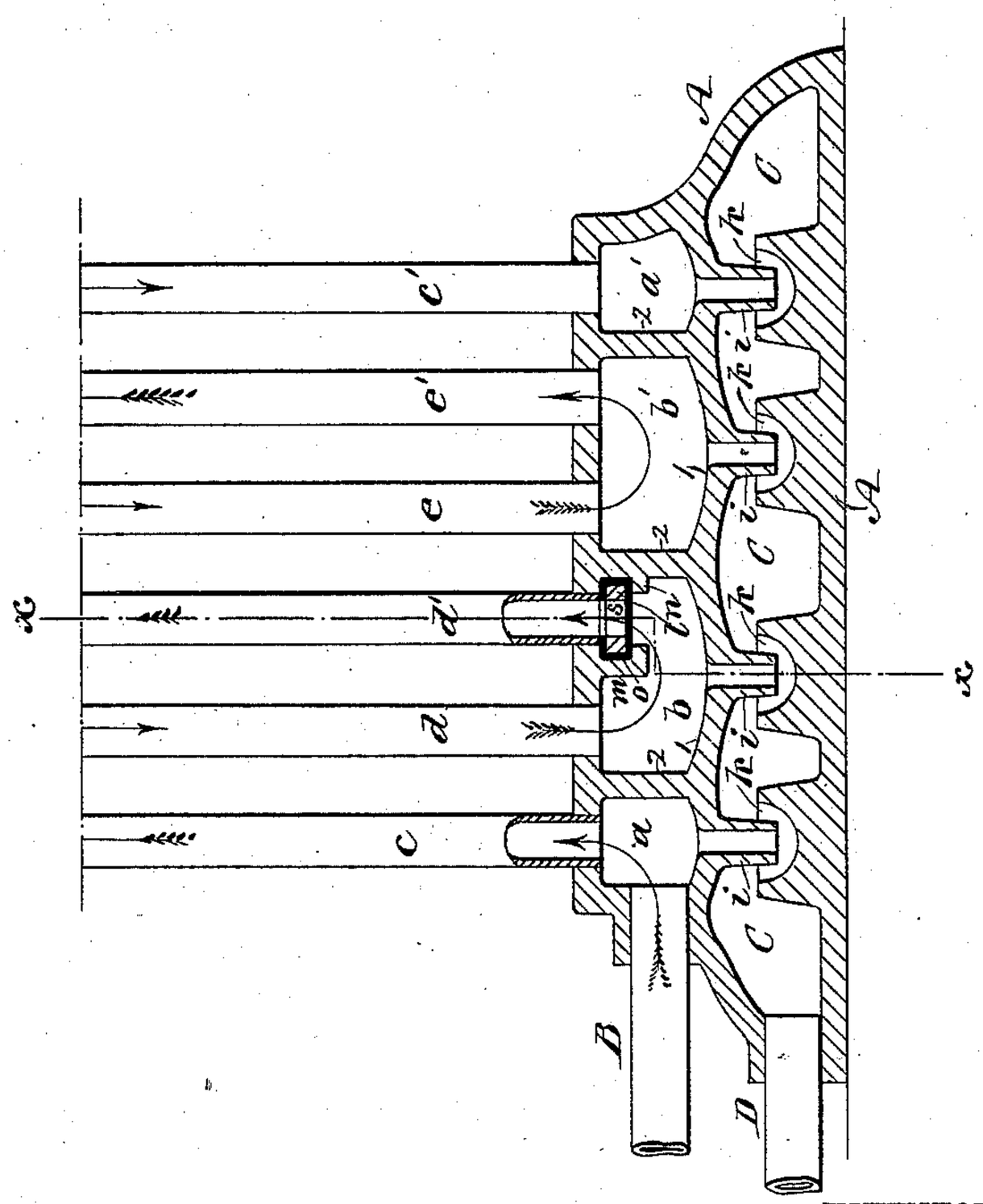


Fig. 1.



WITNESSES:

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UNITED STATES PATENT OFFICE.

FRANZ P. H. PROX, OF TERRE HAUTE, INDIANA.

RADIATOR.

SPECIFICATION forming part of Letters Patent No. 365,758, dated June 28, 1887.

Application filed August 19, 1885. Serial No. 174,809. (No model.)

To all whom it may concern:

Be it known that I, FRANZ P. H. PROX, of Terre Haute, in the county of Vigo and State of Indiana, have invented a new and Improved Radiator, of which the following is a full, clear, and exact description.

My invention relates to an improvement in that class of radiators in which steam is admitted to a hollow base upon which are mounted a series of vertical twin-pipes, which communicate with the interior of the base.

The objects of my improvement are, first, to so construct the base that all condense water from the steam shall be quickly and thoroughly drained from the steam-chamber and the pipes mounted thereon, thereby insuring an unobstructed and noiseless circulation of steam; and, second, to provide means whereby circulation of steam may be discontinued in a portion of the radiator without interfering with the operation of the remaining active portion, all as hereinafter fully described.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a vertical sectional elevation of a portion of my improved form of radiator; and Fig. 2 is a sectional view of the same, taken on line *x x* of Fig. 1.

The interior of the hollow base A is divided by a horizontal partition, 1, into two nearly-equal portions. The upper portion is subdivided by transverse partitions 2 2 2 into a series of separate steam-chambers, *a*, *b*, *b'*, and *a'*, and the lower portion forms a single water-chamber, C.

Communication is established between the steam-chambers *a*, *b*, *b'*, and *a'* by means of a series of twin-pipes, *c d*, *d e*, and *e' c'*, the upper ends of each pair of pipes being united by a half-turn coupling, (not shown,) thus forming a continuous passage between adjacent chambers.

Steam is admitted to the chamber *a* from the steam-pipe B, and passes in the direction of the arrows through the several pipes. Tubes *i i* lead from the under side of each of the chambers above named into cups *k k*, that rise within the water-chamber C, formed in the base A, below the chambers *a a' b b'*, so that all water condensed in any of the upper chambers or in the pipes will eventually run into the lower chamber, C, a water-seal being, however, formed beneath each steam-chamber by the water held by the cups *k k*, and any excess of water over and above the amount held by the cups *k k* will run back to the boiler, or to such other receptacle as may be employed through the pipe D.

In mild weather, when the full power of the radiator is not required to heat the apartment, it is desirable that a portion of the radiating-surface should be cut off; and to this end I provide a cut-off valve for the series of pipes marked *d'*, or the valve can be applied to the pipes *e'* of the chamber *b'*; or, if the radiator contained a greater number of steam-chambers, to such other of the upward-conducting pipes as is deemed advisable. This valve consists of a bar, *l*, mounted in ways formed by the lugs *m n*, cast upon the base A within the chamber *b*, the bar being closely packed to prevent leakage by the strips *o*. The valve-stem *p* projects through the base A, and is provided with the manipulating-knob E. The bar *l* is formed with openings *s s*, which may be brought into register with the pipes *d'*, as shown in Fig. 1, or the bar may be moved to close the entrance to the pipes, as shown in Fig. 2.

It will be observed that the arrangement of valve *l* and chambers *a* and *b*, with their connecting-pipes, is such that when the valve is closed the normal course of steam-circulation and water-drainage in that portion of the radiator is not in any way changed or disturbed, and that this active portion of the radiator when thus cut off from the rest is therefore as complete and perfect in all its parts as the whole is when the valve is open.

Radiators constructed as above described provide for a perfect circulation of the steam through all the pipes, provision being made for the removal of every drop of condensed water from each pipe and steam-chamber immediately upon its condensation, and consequently there is no noise.

The direct circulation insured by the construction above described causes the radiating-tubes to be equally hot at all points, for, as before stated, the tubes will be free from all

water or air which would interfere with the equal distribution of the heat, and in my construction every portion of the surface of every tube is a heat-radiating surface.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a radiator, the combination of a water-chamber provided with a series of cups projecting upward from its bottom, a series of steam-chambers above the water-chamber, and provided with a series of eduction-tubes projecting into the cups of the water-chamber, and a series of steam-tubes projecting from the several steam-chambers, the series of tubes of one chamber being connected to the series of tubes of the adjacent chamber, substantially as herein shown and described.

2. In a radiator consisting of a base having formed therein a series of separate steam-chambers arranged side by side, and several series of pipes connecting said chambers, each chamber being connected to the next adjacent chamber by a series of pipes, a sliding bar arranged to slide within one of said steam-chambers and to cover the ends of said series of pipes, and having a series of perforations which register with said series of pipes, whereby steam may be admitted to a part or all of the chambers of the series, substantially as specified.

FRANZ P. H. PROX.

Witnesses:
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