

(No Model.)

C. OTIS.
STEAM RADIATOR.

No. 447,241.

Patented Feb. 24, 1891.

Fig. 1.

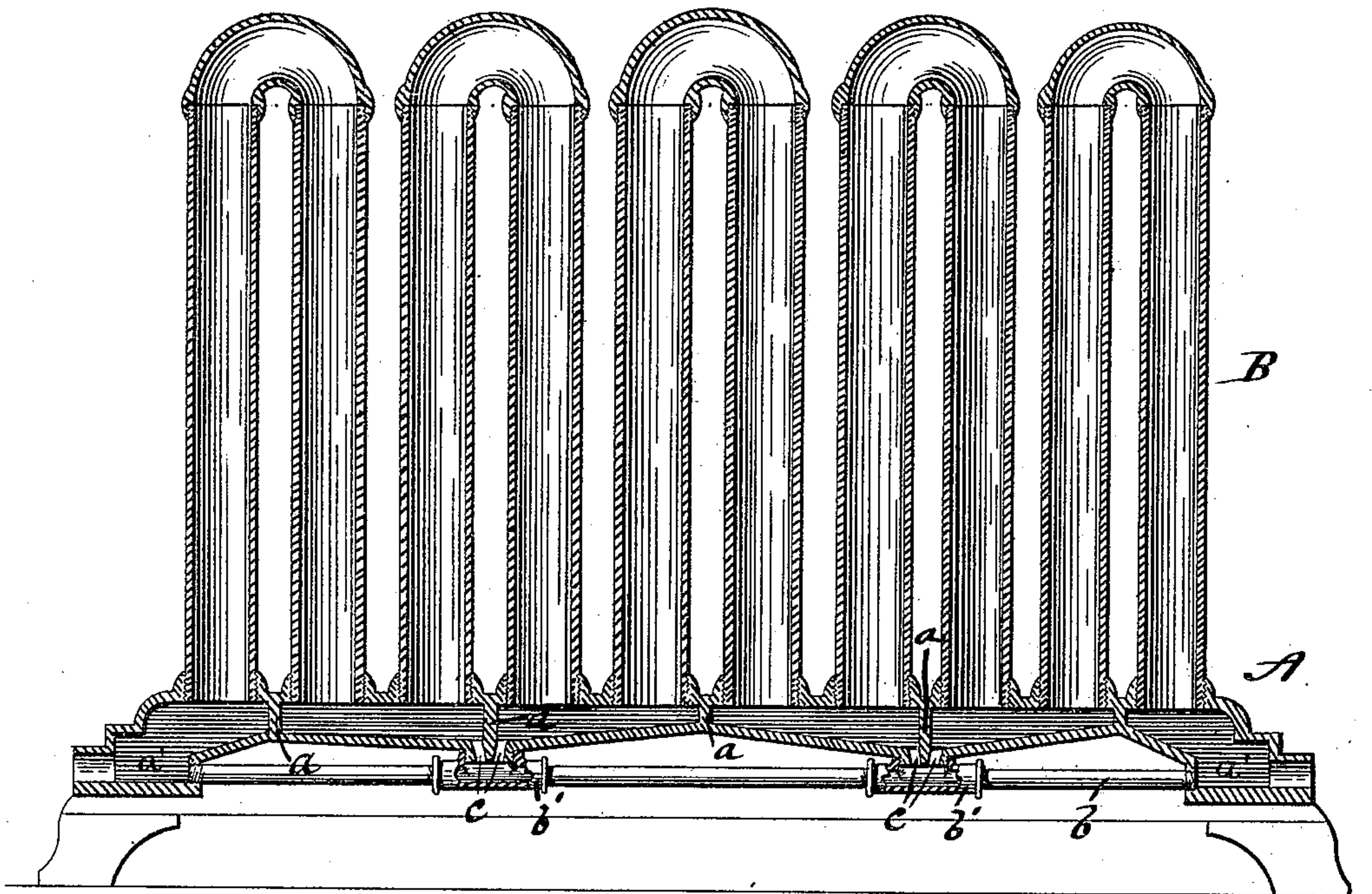
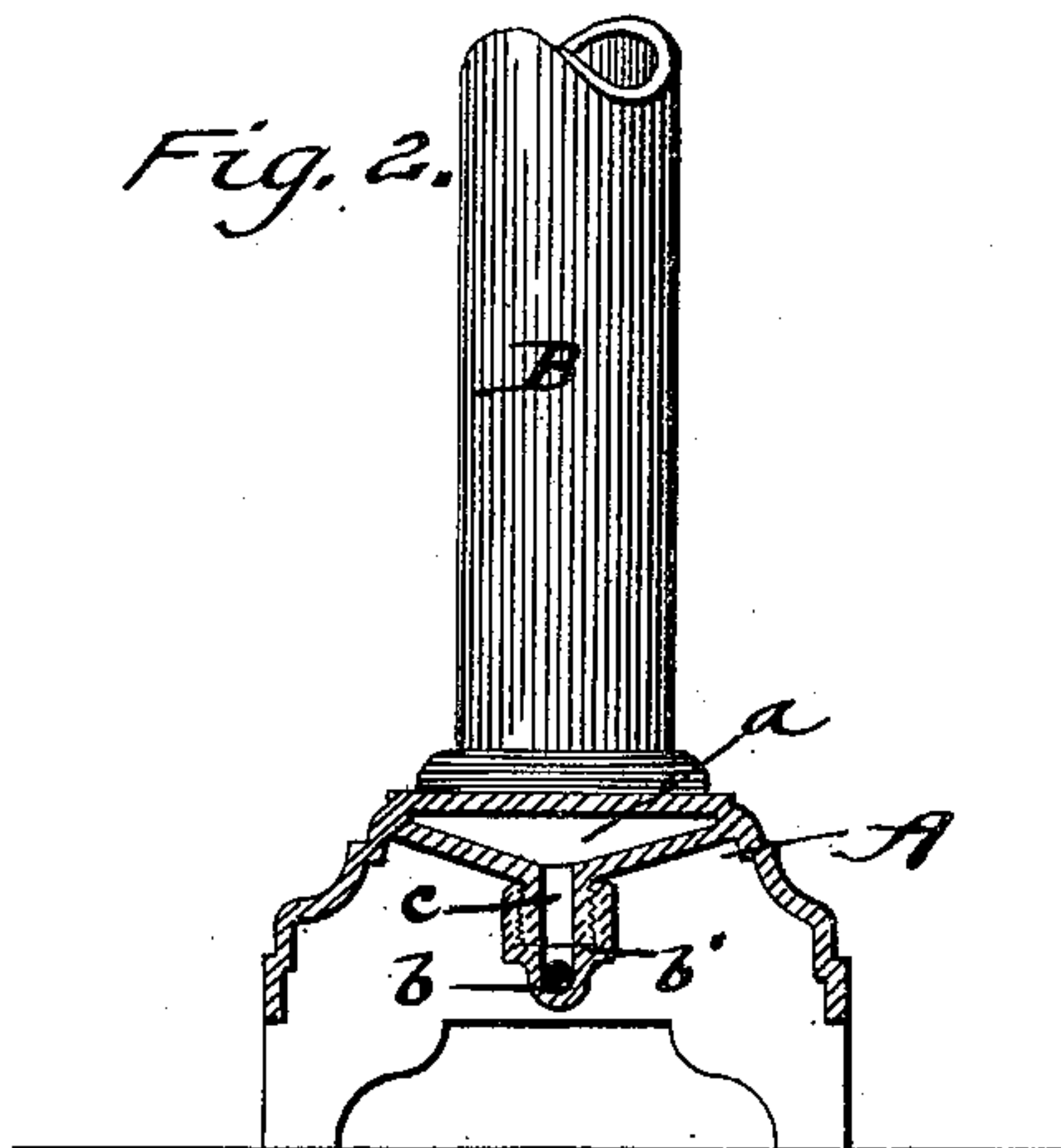


Fig. 2.



Witnesses
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By *his* Attorney
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UNITED STATES PATENT OFFICE.

CLARK OTIS, OF FARMER VILLAGE, NEW YORK.

STEAM-RADIATOR.

SPECIFICATION forming part of Letters Patent No. 447,241, dated February 24, 1891.

Application filed September 18, 1890. Serial No. 365,386. (No model.)

To all whom it may concern:

Be it known that I, CLARK OTIS, a citizen of the United States, residing at Farmer Village, in the county of Seneca and State of New York, have invented certain new and useful Improvements in Steam-Radiators, of which the following is a specification, reference being had therein to the accompanying drawings.

In the accompanying drawings, Figure 1 is a vertical longitudinal sectional view of my improved steam-radiator, and Fig. 2 a transverse sectional view of the base thereof.

The invention has relation to certain new and useful improvements upon that class of steam-radiators wherein are employed vertical pairs of steam-circulating pipes connected together at their upper ends and communicating at their lower ends with the interior of a hollow base, as will more fully hereinafter appear.

The special object I have in view is to provide simple means for quickly collecting and carrying off the waters of condensation from the interior of the radiator, as will presently appear.

In the accompanying drawings, the letter A designates a hollow cast-metal base, which has screwed into openings in its upper side vertical circulating-pipes B, connected together at their upper ends to form pairs in the usual manner. The base is supported, as usual, upon suitable legs or feet, and is provided at its opposite ends, respectively, with the usual steam inlet and outlet. The interior of the base is divided into separate chambers by imperforate vertical transverse walls *a*, which extend entirely across the interior of the base and are connected to the bottom and top thereof. These partitions are located between the pipes of each pair, so that the adjacent pipes of the adjoining pairs will communicate only with each other at their lower ends. With this arrangement of pipes and partitions, it will be observed, the steam may circulate freely and continuously, passing up one pipe, down the next, through the base, and up the next pipe, and so on through the entire radiator until it makes its exit at the outlet-opening.

A horizontal water-pipe *b* extends along beneath the base and is connected at its ends to depending chambers *a'*, formed on the ends of the base. This water-pipe is connected to the interior of the base at two points in its length by means of T-couplings *b' b'*, the vertical portions of the couplings screwing over enlargements formed on the bottom of the base. Two small vertical passages *c c* are formed through each of the enlargements, so as to connect the interior of each chamber with the T-coupling. The bottoms of the base-chambers are inclined toward their drip-passages *c*, so that the water will be readily emptied into the water-pipe beneath. It will be perceived that by placing the T-couplings directly beneath the partitions *a* each coupling will receive the condensed water from two base-chambers, and it will also be observed that each chamber receives the drip-pings from two circulating-pipes B. The condensed water passes down into the water-pipe *b*, and from thence into the end chambers *a'*, from whence the water runs into the steam-conducting pipes and is thereby carried back to the boiler or other point, as usual.

It is evident that this radiator may also be employed as a hot-water radiator. It will also be observed that by my construction the condensed water will readily and entirely pass out of the radiator, leaving the whole empty when not in use.

Having thus fully described my invention, what I claim is—

1. The combination of a series of vertical steam-pipes connected together at their upper ends to form pairs, a hollow base communicating with the lower ends of the said pipes and provided with a series of transverse partitions *a*, thereby dividing the base into a series of independent chambers, each of which has its bottom inclined toward a drip-opening *c*, depending chambers *a'*, formed at the ends of the base and provided, respectively, with an outlet and inlet opening, a horizontal pipe arranged under the base and having its ends communicating with the said depending chambers, and couplings on this pipe communicating with the drip-openings, whereby all the water of condensation may readily run

out of the radiator as fast as formed, substantially as described.

2. The combination of a series of vertical pipes, a hollow base communicating therewith
5 and provided at its ends with depending chambers $a' a'$, communicating, respectively, with the inlet and outlet openings of the radiator, and a horizontal pipe arranged under the base

and communicating with the said depending chambers, substantially as described. 10

In testimony whereof I affix my signature in presence of two witnesses.

CLARK OTIS.

Witnesses:

J. M. CHADWICK,
O. G. WHEELER.