(No Model.)

C. E. ASHCROFT.

RADIATOR.

No. 326,473. Patented Sept. 15, 1885.

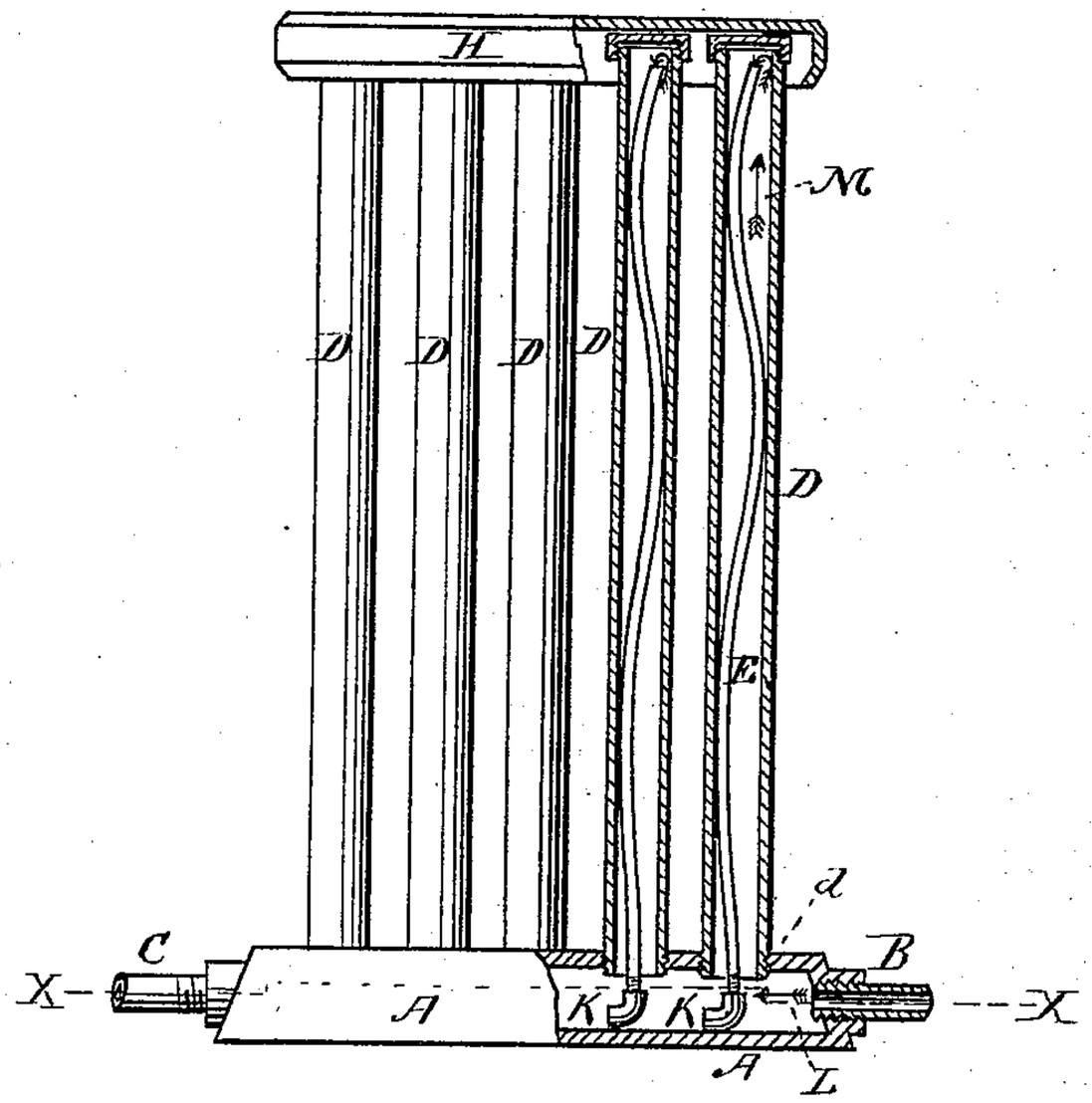

Fig. 1.

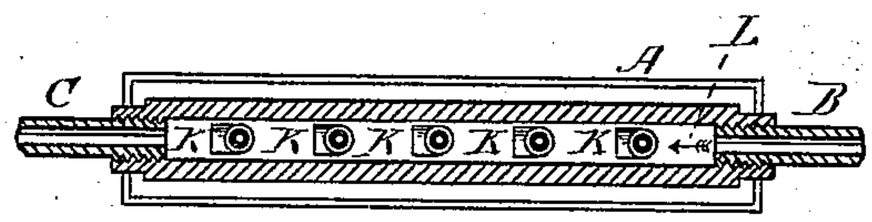

Fig. 2.

WITNESSES.

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CHARLES E. ASHCROFT, OF LYNN, MASSACHUSETTS.

RADIATOR.

SPECIFICATION forming part of Letters Patent No. 326,473, dated September 15, 1885.

Application filed June 28, 1884. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. ASHCROFT, of Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Radiators, of which the following is a specification.

My invention has for its object to so construct the steam-pipes and their adjuncts that a circulation of steam shall be maintained at all times when any pressure is on, thus enabling me to use the steam in the most economical manner and to secure prompt heating action when the steam is first turned on. This object I attain by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a view partly in elevation and partly in vertical section, and Fig. 2 is a horizontal section taken on line *x x* of Fig. 1.

In the drawings, let A represent the base of the radiator. This base may be made of any suitable design and size, and is provided with an inlet-pipe, B, and an outlet-pipe, C, for supplying and discharging the steam or hot water which is used for heating the radiator.

D D D represent a series of metallic tubes which are screwed into the base A, as shown in the case of one of them at *d*, Fig. 1. These pipes D D D are closed at their upper ends, and may be surmounted by an ornamental cap-piece, H, Fig. 1.

Within each of the pipes D, I place a small pipe, E, open at both ends. Each of the small pipes E is made secure within its large pipe D by any well-known mechanical device.

The method of securing a constant flow through the radiator is as follows: I place at the lower end of each of the small pipes E a "quarter-turn," K, so that the steam in flowing past them in the direction of the arrow L will have the action of a "Giffard injector," and cause a current to flow from the lower ends of the pipes E. Instead of the quarter-turns K, the pipes E may be bent so as to form a turn equivalent to the quarter-turn.

By so constructing the pipes E that their lower end discharge shall be in line with the general current passing through the base A, I produce a partial vacuum, or what is sometimes called an "induced current," in the pipe E. The induced current in the pipe E will soon exhaust all of the air from the pipe E and also from the pipe D, and thus insure a complete circulation of steam in and through both pipes.

I claim—

In a radiator, the combination of the base A, having an inlet-pipe, B, and outlet-pipe C, and the radiating-pipes D, with the circulating-pipes E, located within the radiating-pipes D, each circulating-pipe E having a curved lower end, K, whereby its delivery is parallel with the general flow through the base A, all operating together substantially as described, and for the purpose set forth.

CHARLES E. ASHCROFT.

Witnesses:
HELEN M. FEGAN,
ALBERT D. GROVER.