

W. L. PHILLIPS.
Radiator.

No. 223,382.

Patented Jan. 6, 1880.

Fig. 1.

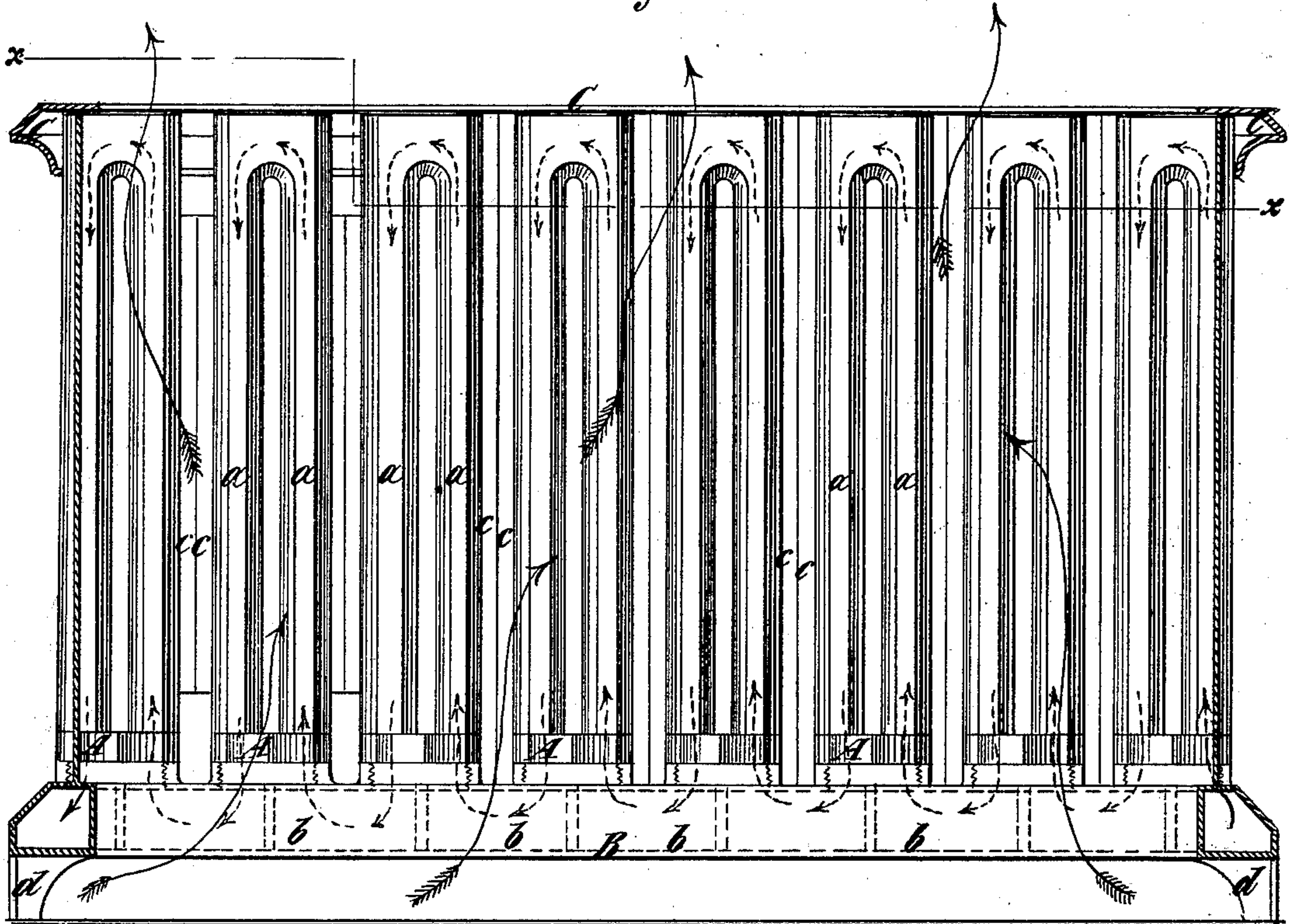
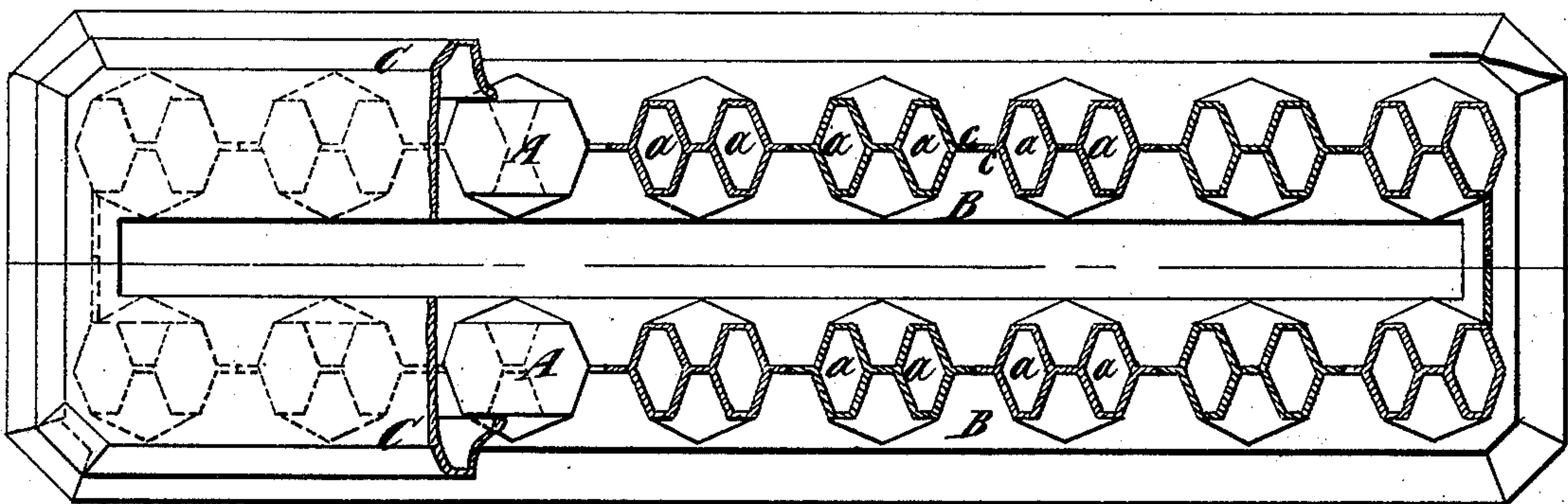


Fig. 2.



Witnesses

John Becker
Chandler Hall

Inventor

William L. Phillips
by his Attorney
Edwin D. Brown

UNITED STATES PATENT OFFICE.

WILLIAM L. PHILLIPS, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-HALF
OF HIS RIGHT TO WYLLYS H. WARNER, OF SAME PLACE.

RADIATOR.

SPECIFICATION forming part of Letters Patent No. 223,382, dated January 6, 1880.

Application filed May 8, 1879.

To all whom it may concern :

Be it known that I, WILLIAM L. PHILLIPS, of Brooklyn, in Kings county and State of New York, have invented certain new and useful Improvements in Radiators, of which the following is a specification.

The object of my improvements is to produce a simple radiator of greater efficiency than the radiators now generally in use.

To this end my invention consists in a radiator comprising the combination of a base-piece forming a source of supply for a heating agent, a number of pipes made separate from and independent of each other extending from said base-piece and receiving the heating agent therefrom, and flanges or pieces connecting said pipes and preferably forming part of the same, the whole being arranged and organized so as to form in the direction of their length a flue wherein air will be warmed, and, ascending, will escape at or near the top, drawing in fresh air from at or near the bottom, and thus establish a circulation of air and utilize the inside surface of the pipes or passages for heating as well as the outside. As the colder strata of air, situated at the bottom of the apartment where the radiator is used, will thus be drawn into the radiator, and, when heated, will be delivered into a much higher part of the apartment, a constant circulation is maintained by the radiator.

By connecting this radiator with a chimney it may serve as a ventilator, whereby impurities in the atmosphere of an apartment may be exhausted from the lower part thereof.

Other improvements consist in details and combinations of parts hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a central longitudinal section of a radiator embodying my improvements, and Fig. 2 is a partial top view and partial horizontal section of the same, as indicated by the dotted line *x x* in Fig. 1.

Similar letters of reference designate corresponding parts in both figures.

A designates a series of vertically-arranged pipes having, in this instance, two vertical passages, *a*, through one of which steam may ascend, and through the other of which it may

descend. These pipes are erected upon a base-piece, B, having a central opening through it, and comprising a number of compartments, *b*, severally establishing communication between adjacent passages *a* of different pipes in such manner that steam introduced into the base-piece through a suitable inlet may pass up through the adjacent passage *a* of one pipe, A, down through the other passage *a* of said pipe, thence through a compartment, *b*, of the base-piece, into and up the adjacent passage *a* of another pipe A, and so on through the radiator, as indicated by the short dotted arrows in Fig. 1. These pipes A are designed to be so combined as to form component parts of a flue, and in the present instance they are furnished with ribs or flanges *c*, extending from their sides and meeting the corresponding ribs or flanges *c* of adjacent pipes, so as to preclude the passage of air between them, at least to any considerable extent. In lieu of these ribs or flanges, strips or narrow pieces of metal or other material inserted between the pipes A may be employed.

The base B is shown as elevated upon feet *d*. Hence air may enter below and through it into the flue formed by the pipes A, and, becoming heated, will ascend therein and escape above, as indicated by the long arrows in Fig. 1, drawing in more cool air from below.

C designates a cap-piece, made of sheet metal or other suitable material, having a central opening for the escape of air through it, and adapted to fit upon the tops of the pipes A and impart an ornamental appearance to the radiator.

Instead of constructing the radiator so that air will enter through the base and escape through the cap-piece, the flanges *a*, or pieces between the pipes, may extend only from a short distance above the base-piece to a short distance below the cap-piece, as shown at the left side of Fig. 1. In such case air will enter between the base-piece and the said flanges *a* or pieces, and will escape between the said flanges or pieces and the cap-piece.

In any case, however, the flue formed by the radiator has no openings except one at the bottom for the entrance of air and another at the top for the escape of heated air.

I do not confine myself to a single row of pipes or passages, as several rows may be employed with advantage. Indeed, I may use an inner row of pipes, A, combined, as above
5 described, to form a flue, and an outer row of pipes isolated from each other in the manner in which they are ordinarily arranged in a radiator. I desire to remark, moreover, that it is not even necessary that the pipes A should
10 be arranged vertically, as represented.

If a radiator such as I have described be connected, by a sheet-metal pipe or otherwise, with a chimney, a very desirable ventilator for dwellings, and especially public buildings, will
15 be produced, for air will then be drawn from the bottom of an apartment and exhausted efficiently from the same.

What I claim as my invention, and desire to secure by Letters Patent, is—

20 1. A radiator comprising the combination of a base-piece forming a source of supply for a heating agent, a number of pipes made separate

from and independent of each other extending from said base-piece and receiving the heating agent therefrom, and flanges or pieces connect- 25 ing said pipes, the whole being arranged and organized so as to form in the direction of their length a flue for the reception of air to be heated, substantially as specified.

2. A radiator comprising the combination of 30 a base-piece forming a source of supply for a heating agent, a number of pipes made separate from and independent of each other extending from said base and receiving the heating agent therefrom, and flanges or pieces 35 forming part of and extending from them, the whole being arranged and organized so as to form in the direction of their length a flue for the reception of air to be heated, substantially as specified.

WILLIAM L. PHILLIPS.

Witnesses:

W. H. WARNER,
R. M. JOHNSON.