

L. D. C. WOOD.
RADIATOR.

No. 176,915.

Patented May 2, 1876.

Fig. 1.

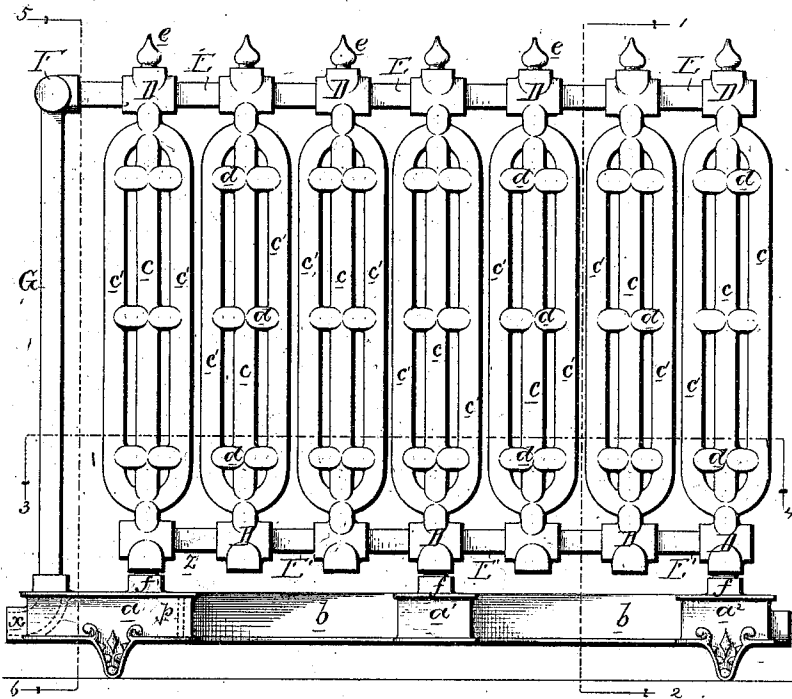


Fig. 2.

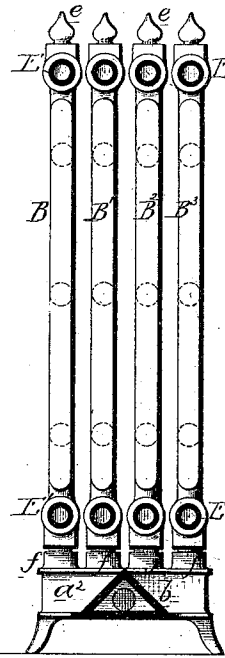


Fig. 4.

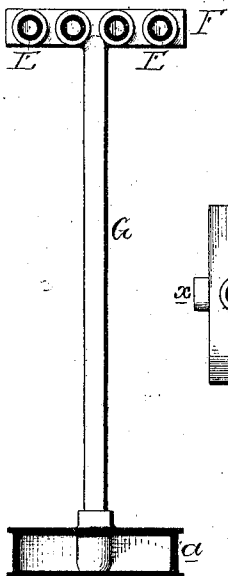
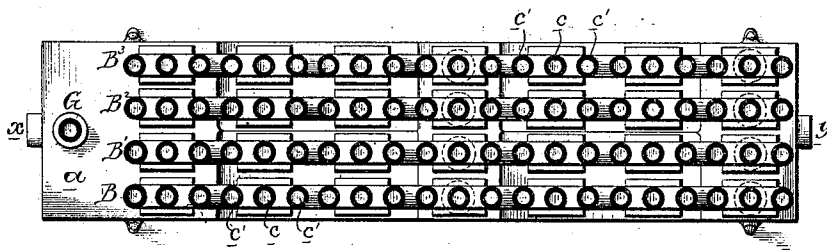


Fig. 3.



Witnesses:
John Dupont
Harry Howson

Lorenzo D. C. Wood
by his Atty.
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UNITED STATES PATENT OFFICE.

• LORENZO D. C. WOOD, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN RADIATORS.

Specification forming part of Letters Patent No. **176,915**, dated May 2, 1876; application filed March 1, 1876.

To all whom it may concern:

Be it known that I, LORENZO D. C. WOOD, of Brooklyn, New York, have invented certain Improvements in Radiators, of which the following is a specification:

The object of my invention is to so construct a radiator as to insure a perfect circulation therein of steam, hot air, or water, present a large extent of heating-surface, and to allow for the free expansion and contraction of the different parts of the radiator without impairing the joints, and these objects I attain in the manner which I will now proceed to describe, reference being had to the accompanying drawing, in which—

Figure 1 is a side view of my improved radiator; Fig. 2, a section on the line 1 2; Fig. 3, a sectional plan on the line 3 4, and Fig. 4 a section on the line 5 6.

A is the hollow base, consisting, in the present instance, of three chambers, *a*, *a'*, and *a''*, having connections *b* of the triangular shape shown in Fig. 2. There are, in the present instance, four rows of radiators, B, B¹, B², and B³, each row consisting of a number of groups of pipes, and each group consists, in the present instance, of a central vertical pipe, *c*, and two vertical pipes, *c'*, the side pipes joining the central pipe near each end, and being also attached to the same at intervals by means of short tubes *d*, through which the steam, air, or water may or may not pass, as desired. Each group of pipes has formed on or secured to its upper end a head, D, which has both a vertical and horizontal passage, the former passage being closed by a stop or plug, *e*, and the latter being threaded for the reception of the ends of short pipes E and E', which serve to connect the various groups together in forming the row. The pipes E at one end of the upper series communicate with a transverse tube, F, which is connected by means of a pipe, G, with the steam-inlet *x* of the radiator. Each of the chambers *a*, *a'*, and *a''* of the base has as many lugs *f* as there are rows of radiators, and the lugs of the end chambers *a* and *a''* bear against the heads D of the end groups of pipes in each row, and serve to support the same, while the lug of the central chamber not only supports the central group of pipes, but communicates therewith through a suit-

able connecting-pipe, so that the only connection which the radiator has with the base is through this central chamber *a'*.

Steam entering at *x* passes through the pipe G into the tube F, and thence into the pipes E of each row of radiators, which it enters at the top, forcing out the air or water of condensation into the central chamber *a'* of the base A, from which it escapes through the exit-pipe *y*. By this means a perfect circulation is maintained, a large extent of heating-surface is presented by the pipes *c*, *c'*, and *d*, and the "throbbing" caused by the steam getting beneath the water of condensation is entirely prevented.

Owing to the angular shape of the connections *b* of the base the free admission of cold air to the spaces between the rows of radiators is not interfered with. In some instances it may be convenient to dispense with the tubes F and G and admit the steam or other heating medium directly to the end group of each row of radiators through the chamber *a*, in which case an elbow, *p*, should be formed in the base, and the end pipe *z* of the lower series E' removed. As each group of pipes has a head, D, at each end, radiators of any length desired may be readily built up by connecting the groups by means of the short pipes E and E', which are provided with right and left handed threads adapted to similar threads in the heads D.

It will be evident that my invention may be applied, with slight modifications, to circular radiators, or to radiators of other forms.

An important feature of my invention consists in having but one connection between the radiators and the base, as this allows the free expansion and contraction of the various parts of the radiator without impairing the joints.

I claim as my invention—

1. A radiator, consisting of a number of groups of pipes arranged side by side, each group being connected by means of heads D to pipes E and E' at the top and bottom, as specified.

2. The pipe *c*, connected at both ends to a head, D, in combination with the side pipes *c'* and lateral rods or tubes *d*.

3. The combination of the base A with one

or more rows of radiators, each having but one communication with said base, as described.

4. The combination of the radiators with the base A, consisting of two or more chambers with intervening triangular connections b.

5. The combination of the radiators and their connecting-pipes E with the transverse tube F and inlet-pipe G, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LORENZO D. C. WOOD.

Witnesses:

JAMES KINNY,
GEO. W. NILES.