(No Model.)

A. C. WALWORTH.

AIR VALVE FOR RADIATORS.

No. 345,747. Patented July 20, 1886.

Fig. 1.

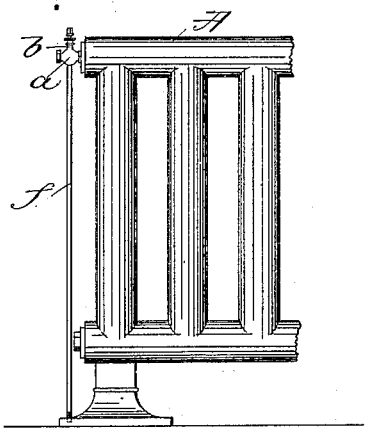
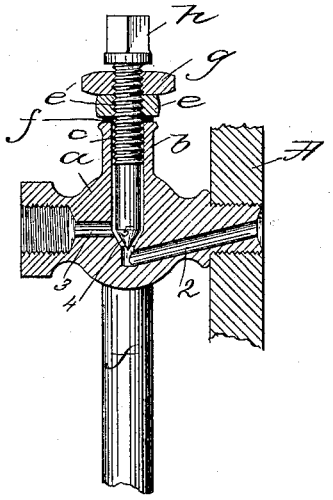


Fig. 2.



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UNITED STATES PATENT OFFICE.

ARTHUR C. WALWORTH, OF BOSTON, MASSACHUSETTS.

AIR-VALVE FOR RADIATORS.

SPECIFICATION forming part of Letters Patent No. 345,747, dated July 20, 1886.

Application filed April 25, 1885. Serial No. 163,478. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR C. WALWORTH, of Boston, county of Suffolk, and State of Massachusetts, have invented an Improvement in Air-Valves for Radiators, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object to simplify and improve the construction of valves employed in connection with steam-heating apparatus, the said valve being automatically opened and closed by the contraction and expansion of the steam-heater or radiator to which one part of the valve is attached.

The invention consists of a valve-case provided with a seat and neck and adapted to be secured to a radiator or steam-heater, said case having a passage through it for the outlet of air contained within said radiator or heater, combined with a plug connected with or suspended from an independent rod supported outside the radiator, the said plug passing downward through said neck in position to enable the valve-seat in the valve-case to be lifted against the end of the said plug by the rise of the valve-case due to the expansion of the radiator.

Figure 1 shows in elevation a portion of a radiator having an air-valve embodying my invention attached thereto, and Fig. 2 a longitudinal section of the valve.

The valve-case *a*, made of any suitable material and similar in shape to an ordinary globe-valve, is screwed to the radiator A or other suitable steam-heater preferably at that end opposite to which steam is admitted.

The valve-case *a* has a passage through it to permit the air contained within the radiator or steam-heater to pass out, said passage consisting, in this instance, of inlet and outlet ports 2 3, the inlet-port being inclined with relation to the outlet-port, as shown in Fig. 2.

The valve-case *a* is provided with a neck, *b*, which is bored to receive a plug, *c*, the opening made for the plug intersecting the inlet and outlet ports, and being of such shape as to leave a conical seat for the end of the plug, the latter moving freely therein.

The plug *c* is screw-threaded to permit of suitable adjustment, and made conical at its end, as at 5, to fit the valve seat 4. The plug *c* is passed through a screw-threaded eye, *e'*, of an overhanging part, *e*, of an independent rod, *f*, secured to the base of the radiator A, said plug to be turned in said eye *e'* to adjust it with relation to the valve-seat 4, it being retained in adjusted position by a check-nut, *g*.

The plug *c* is squared at its top, as at *h*, that a suitable wrench may be applied to facilitate the adjustment of the same. The outlet-port is screw-threaded, that a suitable drip-pipe may be connected with the case at that point.

The plug *c*, suitably adjusted with relation to the valve-seat 4, is made rigid with the rod *f* by the check-nut *g*.

When the radiator is cool, the valve is normally open, as shown in Fig. 2, the radiator or steam pipes being then filled with air, and consequently contracted. When steam is admitted to the radiator, it forces the air out through the ports 2 3, and the steam heating the radiator, the latter is immediately caused to expand, and the valve-case *a*, rigidly connected therewith, is consequently raised, and by the time that the air has been entirely expelled from the radiator and the same filled with steam the relative positions of the valve-case and plug have been so changed as to bring the seat of the case and the end of the plug in contact in such manner as to close the seat automatically.

It will readily be seen that as the valve-case *a* rises with the radiator, due to its expansion, the rod *f*, being independent and not being heated, remains stationary.

In devices of the nature herein described an objection has been raised as to their sensitiveness, and the close proximity that the mechanism for controlling the valve is located to the radiator-pipes has rendered them inoperative and objectionable after performing their function.

I claim—

1. The radiator A, having the valve-case attached thereto and leading therefrom, and provided with a seat, combined with an independent rod and a plug adjustably attached to said rod, the valve-case being moved bodily

by the expansion and contraction of the radiator to place the seat against the plug, substantially as described.

2. The radiator A, the valve-case *a*, attached thereto and leading therefrom, and having inlet and outlet ports and a valve-seat, combined with an independent rod and a plug adjustably attached to said rod, and co-operating with said valve-case to automatically open and close its ports as said valve-case rises and falls by the contraction and expansion of the radiator, substantially as described.

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

ARTHUR C. WALWORTH.

Witnesses:
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