(No Model.)

W. BURLING.

RADIATOR.

No. 457,601. Patented Aug. 11, 1891.

FIG. 4

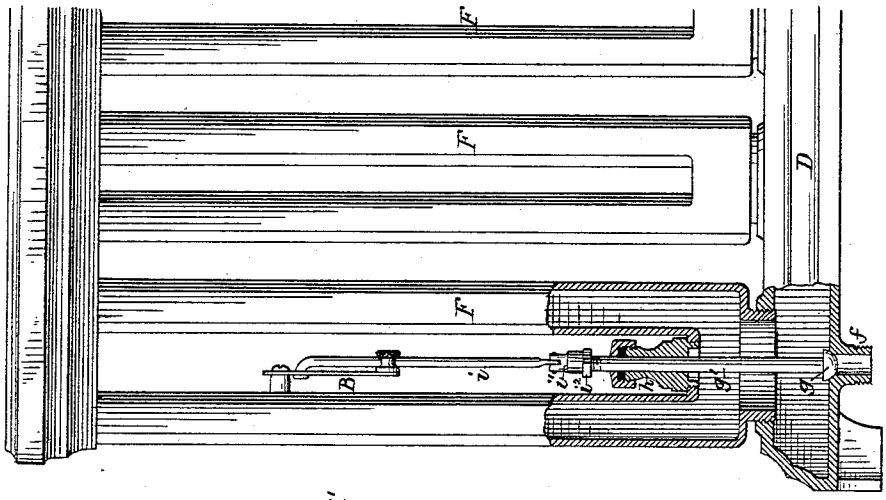


FIG. 2.

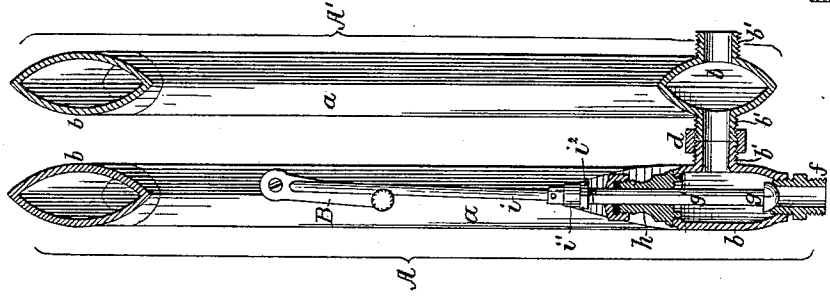


FIG. 1.

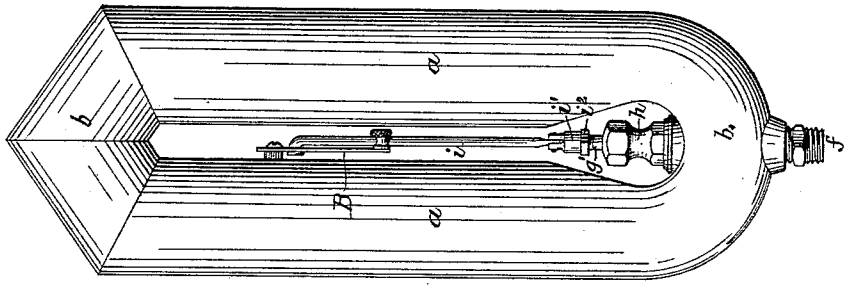
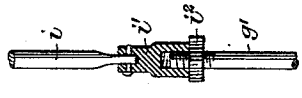


FIG. 3



Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM BURLING, OF OXFORD, PENNSYLVANIA.

RADIATOR.

SPECIFICATION forming part of Letters Patent No. 457,601, dated August 11, 1891.

Application filed March 11, 1891. Serial No. 384,555. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM BURLING, a citizen of the United States, and a resident of Oxford, Chester county, Pennsylvania, have invented certain Improvements in Radiators, of which the following is a specification.

My invention, although as to some of its features applicable to steam-radiators generally, has been devised especially in connection with that class of radiators used on what is known as a "single-line" system, in which the steam enters and the water of condensation escapes through the same opening in the radiator.

One object of my invention is to provide the radiator with a simple form of valve and valve-seat contained within the limits of the radiator structure and permitting direct connection of the supply and discharge pipe to the bottom of the radiator, the valve being also conveniently opened or closed without stooping or kneeling, as required in manipulating the valves now generally used; and a further object of my invention is to provide a simple form of radiator structure in which such a valve is employed. These objects I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is an end view of one section of a radiator provided with valve and valve-operating device in accordance with my invention. Fig. 2 is a longitudinal sectional view of part of the radiator structure, showing the end section and the next adjacent section coupled thereto. Fig. 3 is an enlarged view of part of the valve-operating device. Fig. 4 is a side view, partly in section, illustrating the application of my improved valve and valve-operating device to another form of radiator.

In Figs. 1 and 2, A represents the end section or loop of a radiator structure, and A′ the next adjacent section or loop of the same, each loop comprising opposite vertical legs *a*, with transverse connections *b* at top and bottom, the lower connecting portion *b* having a threaded neck *b′* for being coupled by means of a nut *d* or other suitable union to a like neck *b′* of the next loop.

To the bottom of the lower connection *b* of the end loop A is adapted a threaded branch *f*, and to the outer portion of the latter may be directly connected the supply or discharge pipe for the radiator, so that the radiator structure can be placed close into the corner of a room or apartment, a location which is not permissible when a longitudinally-projecting pipe connection with valve and elbow are employed, as in ordinary radiators. The inner end of the branch *f* forms a seat for a valve *g*, having a stem *g′*, which passes up through a stuffing-box *h*, formed or mounted on the lower portion *b* of the loop A, the projecting end of said stem *g′* being connected by a rod *i* to a lever B, which is pivoted to a suitable stud formed on one of the legs *a* of the loop A at such a height from the lower end of the loop that said lever can be conveniently manipulated without stooping, and the valve thus readily opened or closed, the parts being preferably so arranged, as shown in Fig. 2, that when the valve is closed the upward thrust upon the rod *i* will be exerted in line with the fulcrum of the lever B. Hence said lever cannot be accidentally raised by the upward pressure upon the valve.

The connection of the valve-stem *g′* and rod *i* is effected through the medium of a coupling-block *i′*, threaded internally for the reception of the threaded upper end of the valve-stem, as shown in Fig. 4, so that the valve-stem can be readily adjusted to compensate for wear of the valve, and the tight seating of the latter can thus at all times be insured, a lock-nut i^2 preventing accidental movement of the stem in the block.

The same form of valve and valve-operating device may be applied with advantage to other forms of radiators than that shown in Figs. 1 and 2. For instance, in Fig. 3 I have shown said valve and valve-operating device applied to a radiator having a base D and vertical loops F secured to said base, the threaded branch *f* for the reception of the supply or discharge pipe being in this case formed in one piece with the base structure D, and, if desired, said branch *f* may be in one piece with the loop A in the radiator shown in Figs. 1 and 2, although the use of a separate branch is preferred.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. A radiator structure having within the limits of the same a downwardly-projecting branch for connection with the supply or discharge pipe, in combination with the valve seated at the inner end of said branch, a vertical stem passing through the stuffing-box on the radiator, a lever hung between the legs of one of the loops of the radiator and swinging vertically into line therewith when the valve is open or closed, and a connecting-rod whereby the movement of said lever is transmitted to the stem of the valve, substantially as specified.

2. A radiator structure consisting of a series of loops, each composed of opposite vertical legs with upper and lower connections and coupling-necks on said lower connections, a downwardly-projecting branch on the end loop for connection with the supply or discharge pipe, a stuffing-box upon the lower connection of said end loop, a lever hung to said loop some distance above the bottom of the same, a valve adapted to a seat at the inner end of the projecting branch of the loop and having a stem passing through the stuffing-box, and a rod connecting the projecting end of said stem to the operating-lever, substantially as specified.

3. The combination of the radiator structure having a downwardly-projecting branch for connection with the supply or discharge pipe, a valve seated at the inner end of said branch, a vertical stem passing through a stuffing-box in the radiator, an operating-lever and connecting-rod for the valve, and a threaded coupling-block whereby said rod is joined to the valve-stem in order to permit adjustment of the valve, substantially as specified.

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

WILLIAM BURLING.

Witnesses:
EUGENE ELTERICH,
HARRY SMITH.