W. H. SHOCK.

Steam Radiator.

No. 161,907. Patented April 13, 1875.

Fig. 1.

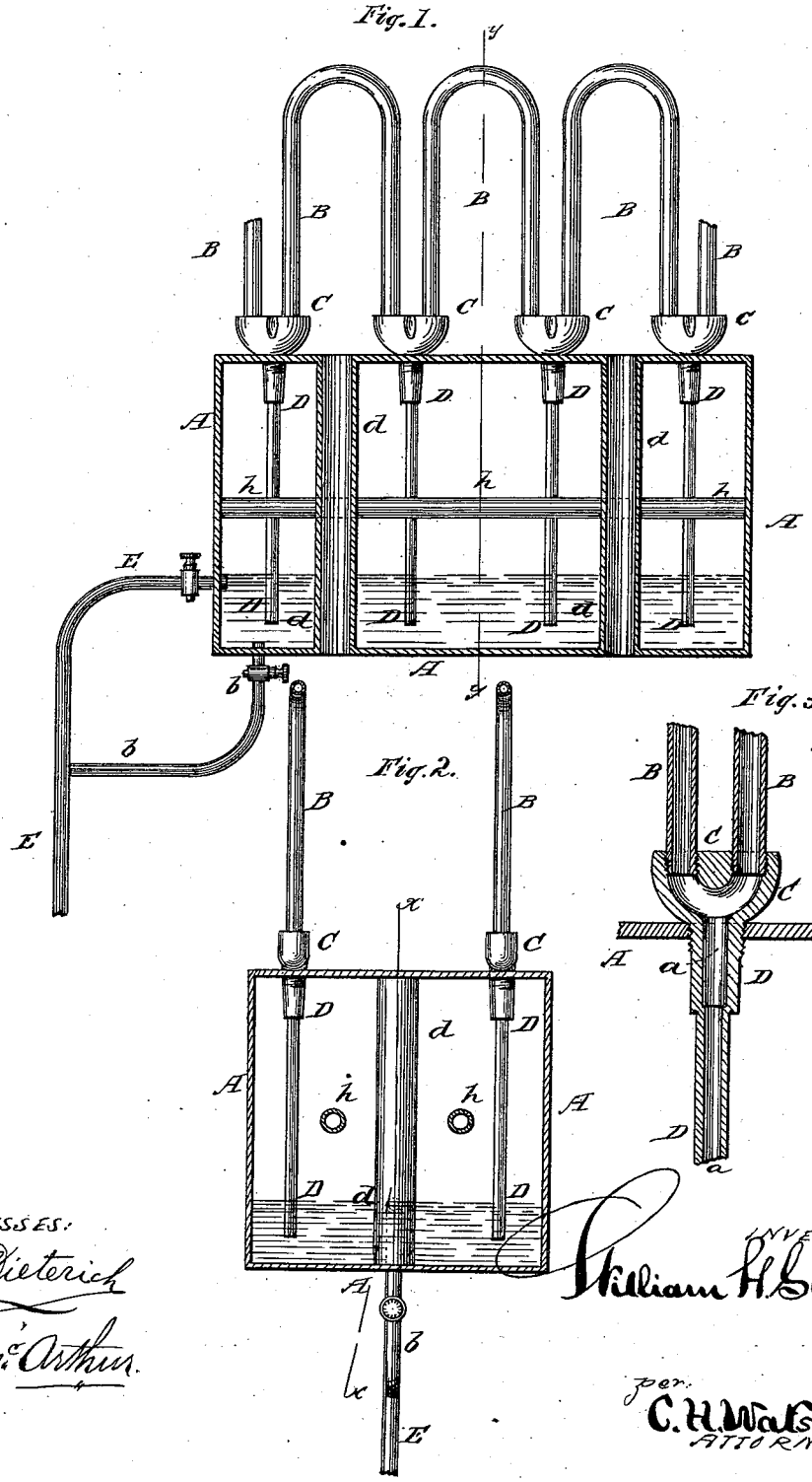
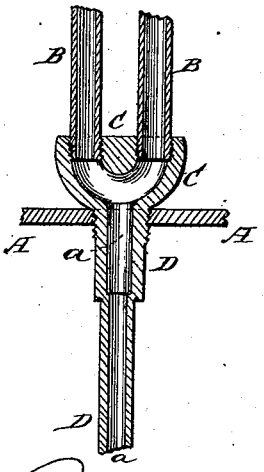


Fig. 2.

Fig. 3.



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UNITED STATES PATENT OFFICE.

WILLIAM H. SHOCK, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN STEAM-RADIATORS.

Specification forming part of Letters Patent No. **161,907**, dated April 13, 1875; application filed March 6, 1875.

To all whom it may concern:

Be it known that I, WILLIAM H. SHOCK, of Baltimore, and State of Maryland, have invented certain new and useful Improvements in Steam-Radiators; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to that class of steam-radiators in which one or more series of vertical tubes are arranged on top of a base or condensing-box, and the ends of the tubes connected, by means of U-shaped connections, to form continuous passages for the steam; and the nature of my invention consists in providing the lower end connections with hollow stems or tubes running down into the box, and terminating below the water-line therein. It also consists in the construction of the base or condensing-box, and in the combination of parts, as will be hereinafter more fully set forth.

In the annexed drawing, Figure 1 is a side elevation, partly in section, of a device embodying my invention. Fig. 2 is a section on line *y y* of Fig. 1, and Fig. 3 is a detail view of the same.

A represents the base of the radiator, made of any suitable shape in the form of a box. B B are the vertical radiating-pipes, connected at their lower ends by bent or U-shaped connections C C. Each of these connections is provided with a stem, D, to be screwed into the top of the base A. Through this stem is a passage, *a*, extending from the bore of the connection C to and through the end of the stem. E is the outlet-pipe from the base or box A, communicating therewith a suitable distance above the bottom, as shown, allowing the water collected by the condensation of the steam to stand at a certain height in the box. The stems or tubes D D extend down below the water-line in the base A, thereby forming a water-seal to prevent the escape of live steam into the box, while any condensed steam in the pipes and connections is allowed to pass down through the passages *a* in the stems D and escape into the box. As soon as the water rises above the water-line it passes out of the pipe E, thus always keeping at about the same height.

When desired, all the water in the box A can be drawn off through a pipe, *b*, in the bottom, communicating with the outlet-pipe E, said pipes being provided with suitable stop-cocks.

Through the box A pass a series of vertical tubes, *d d*, and also a series of horizontal tubes, *h h*, may pass, if desired, for the purpose of strengthening the box and for the passage of cold air. The vertical tubes *d* expose more surface to the cold air, and constantly supply cold air to the center of the nest of tubes B, and produce steady upward currents, and a thorough circulation of air throughout the apartments being warmed.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a steam-radiator, the combination, with the base or box A and tubes B B, of the U-shaped connections C C, provided with the stems D D, having passages *a a*, and extending down into the box below the connection of pipe E therein, substantially as and for the purposes herein set forth.

2. The box A, tubes B B, and U-shaped connections C, with stems D, having passages *a*, in combination with vertical air-tubes *d* and pipes E and *b*, all as and for the purpose set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

WILLIAM H. SHOCK.

Witnesses:

HENRY CASHMYER,

W. G. SHOCK.