(No Model.)

S. H. HOWLAND.

STEAM TRAP.

No. 363,641. Patented May 24, 1887.

Fig. 3.

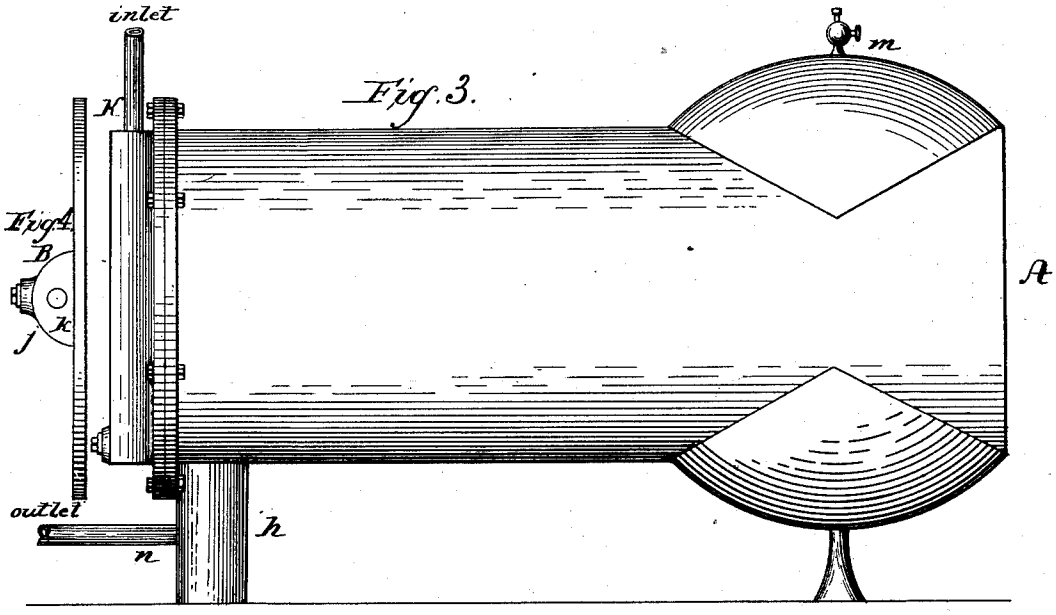


Fig. 1.

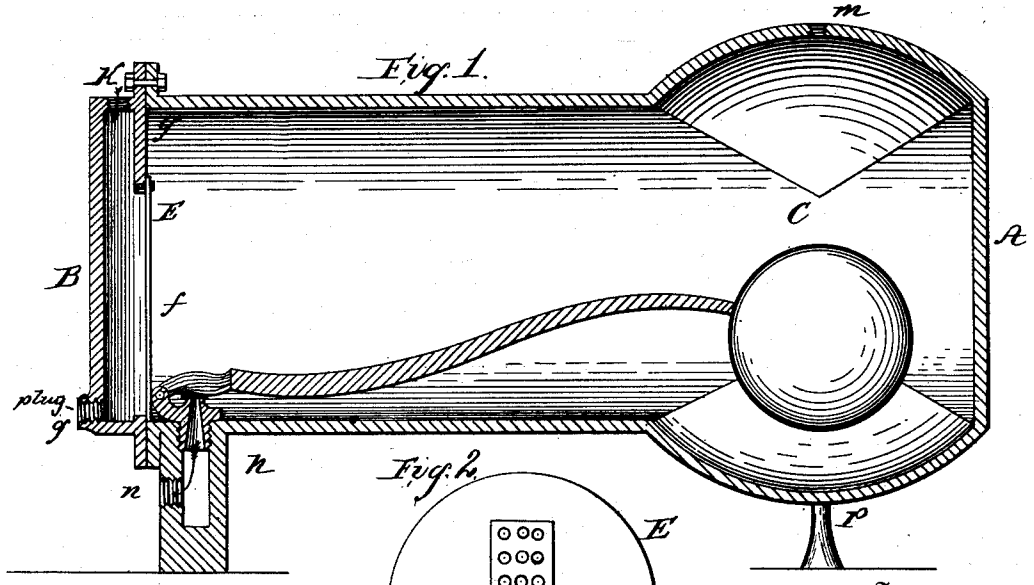
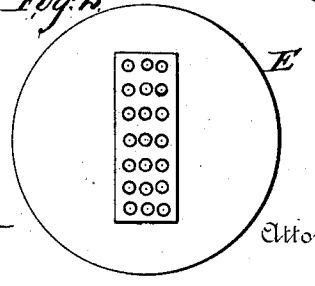


Fig. 2.



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UNITED STATES PATENT OFFICE

STEPHEN H. HOWLAND, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO CHARLES E. BUELL, OF SAME PLACE.

STEAM-TRAP.

SPECIFICATION forming part of Letters Patent No. 363,641, dated May 24, 1887.

Application filed January 19, 1887. Serial No. 224,817. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN H. HOWLAND, of Springfield, Hampden county, State of Massachusetts, have invented Improvements in Steam-Traps, of which the following is a specification.

My invention consists, primarily, in the combination, with a metal case or shell having an outlet, of a cap or end therefor that is removably attached thereto, and is provided with a filter-like adjunct, and with an induction and an eduction port, substantially as hereinafter described.

Figure 1 shows my invention in a side elevation in cross-section. Fig. 2 shows the filter-like adjunct. Fig. 3 is a view of the exterior of a steam-trap arranged according to my invention, and Fig. 4 is a detailed part of the same.

Referring to Fig. 1, A is a cast-iron shell with one end sealed and its opposite end open, and provided with a flange, the sealed-up end being enlarged by swells to give space at desired points, for purposes to be referred to hereinafter. The legs *h* and *p* are preferably cast with the shell or body of the trap, but may be added thereto. The leg *h* is made hollow, as shown, and is used as a water-way to draw off the water of condensation in the normal operation of the apparatus, and is tapped at points *i* and *n* to receive, respectively, the drip-cock *i* and a waste-water pipe or conduit. By this arrangement the lever *d*, with its float C, pivoted upon the drip-cock *i*, can be wholly within the shell or body of the device, and permit of the employment of the removably-attached end B, for other additional uses, with advantages not heretofore afforded.

The end B is of cast-iron, and is a flanged chamber half cylindrical in shape, as shown in plan view in Fig. 4. This chamber is provided with a partition-like projection, *g*, (shown in Fig. 1,) and to this and a slight inward projection on each side of the center at the bottom of the chamber is attached the brass filter-like adjunct *f*, which may be mounted upon a circular sheet of metal, that could be affixed to the partition-like portions of the chamber B, or be held between the flanges of the chamber B and the body A.

The filter *f* may extend to the bottom of chamber B, to allow of complete dripping of the apparatus; but a like result is accomplished by leaving a slight space beneath the filter *f*, or the piece on which it is mounted, and the bottom of the chamber B.

The induction-port K at the top of chamber B receives the inlet-pipe from a system of steam-pipes, and the sediment from the said pipes is retained in the chamber B, while the water of condensation filters into the shell or body A, and is trapped off by the rising of the float C through the drip-cock *i*, leg *h*, and outlet *n*.

When it is desired to remove the accumulated sediment from the chamber B, it can effectually be done by the removal of the plug normally in the eduction-port *j*, when the steam will blow out the sediment, thus avoiding the removal of the chamber B from the body A to remove sediment, as in other steam-traps, the chamber B requiring to be removed only to repair the float and drip-cock, if that should become necessary.

A vent-cock is provided at *m*, to allow air to escape from the trap when desired.

What I claim is—

1. In a steam-trap, the combination, with the body of a steam-trap, of a float-actuated cock wholly within said body, and a chamber removably attached to said body that is provided with an induction and an eduction port, and a filter-like adjunct between said body and said chamber, the whole arranged and operating substantially as described.

2. In a steam-trap, the combination, with the body of a steam-trap, of a float-actuated cock having its outlet through a supporting-leg of said trap, and a chamber removably attached to said body that is provided with an induction and an eduction port, and a filter-like partition between said body and said chamber, substantially as set forth.

3. In a steam-trap, the combination, with the body A, having one end sealed up, of a chamber removably attached to its opposite end, that is provided with an induction and an eduction port, and a filter-like partition between said body A and said chamber.

4. In a steam trap, the combination of the following elements: the body A, the float C, cock *i*, the leg *h*, the chamber B, with filter *f*, and vent *m*, the whole arranged substantially as described.

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