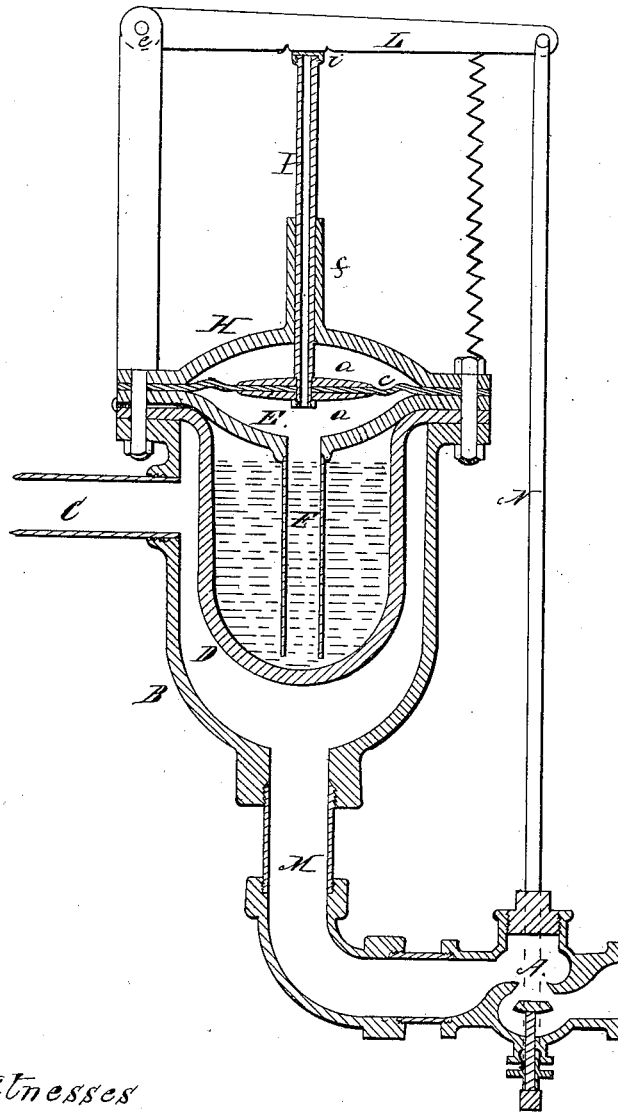


J. W. Bishop.
Steam Trap.

No. 47,182.

Patented Apr. 11, 1865.



Witnesses

John E. Earle
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J. W. BISHOP, OF NEW HAVEN, CONNECTICUT.

IMPROVEMENT IN STEAM-TRAPS.

Specification forming part of Letters Patent No. 47,182, dated April 11, 1865.

To all whom it may concern:

Be it known that I, J. W. BISHOP, of New Haven, in the county of New Haven and State of Connecticut, have invented a new and Improved Steam-Trap; and I do hereby declare the following to be a full, clear, and exact description of the same, when taken in connection with the accompanying drawing and the letters of reference marked thereon, and which said drawing constitute part of this specification, and represents a vertical central section of the trap, with inlet and outlet pipes broken off.

The object of my invention is to allow the condensation to pass from steam-pipes without the escape of steam therefrom, principally used in connection with pipes for steam-heating purposes, or other long run of steam-pipe.

To enable others skilled in the art to make and use my steam trap I will proceed to describe the construction and operation of the same, as illustrated in the accompanying drawing.

B is a hollow metal vessel; C, the steam-pipe through which steam is conducted, and which opens into the vessel B near its top. From the bottom of the said vessel a waste-pipe, M, leads to a valve, A, operated as hereinafter described, which when free is always open, as shown. Within the vessel B, and supported by a rim resting on a corresponding rim of the vessel B, I place a second vessel, D, of such size as to leave a space around the vessel D. The said vessel D has no communication with the vessel B surrounding it. Over the second vessel, D, I place a plate, E, resting in the rim of the vessel D, and constructed so as to form the lower part of a chamber, *a*. Into the said plate E, I insert a tube, F, which extends nearly to the bottom of and opens into the vessel D, and also through the plate E to the chamber *a*, I form and fix a diaphragm, *c*, of any suitable flexible material, then cover the whole with a plate, H, constructed so as to form a second chamber, *a'*. The said chamber *a'* should have an opening, through which air may pass to or from the said chamber, accordingly as the diaphragm is lowered or raised, increasing or decreasing the capacity of the said chamber, then, by sufficient bolts or otherwise, I secure the several parts together, sub-

stantially as shown in drawings. To the said diaphragm I attach a hollow spindle, I, the upper end of which is closed by a cap, *i*. The said spindle extends up through the plate H, in a suitable guide, *f*, to and under a lever, L, which said lever has its fulcrum at *e*, the other end of the said lever L connected by a rod, N, to operate the valve A. Before placing the cap *i* upon the spindle, I fill the vessel D, through the said tube I, with water or other fluid, as denoted in blue. Now place the cap over the spindle, set the lever onto the cap, connected with the valve, as before described, and the trap is complete.

When steam is first admitted into the pipe C, and continually thereafter more or less condenses, the trap must be placed at a low point, so that the pipe C may incline toward it. The condensed steam will run into the vessel B, through, and out at the open valve A. As soon as the condensation has ceased and steam enters the vessel B, which will quickly generate steam from the fluid in the inner vessel, D, the fluid in the said vessel D, by the pressure of the steam so generated upon it, will rise through the tube F, fill the chamber *a*, and force the diaphragm *c*, with the spindle thereto attached, upraising the lever L, which, being connected with the valve A, closes it, and thus prevents the escape of steam therefrom, and will so remain until the vessel B shall have become so far filled with condensed steam as to cool the fluid or condense the steam in the vessel D sufficiently to allow the diaphragm to fall, when the valve A will be again opened and the water flow from the vessel B, as before described.

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

The combination of the vessels B and D, diaphragm *c*, or its equivalent, with inlet and exit pipe C and M, constructed and arranged to operate a valve, A, substantially as and for the purpose specified.

J. W. BISHOP.

Witnesses:

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