

WILLIAM ROBINSON.
No. 125,487.

Improvement in Steam Traps.
Patented April 9, 1872.

Fig. 1.

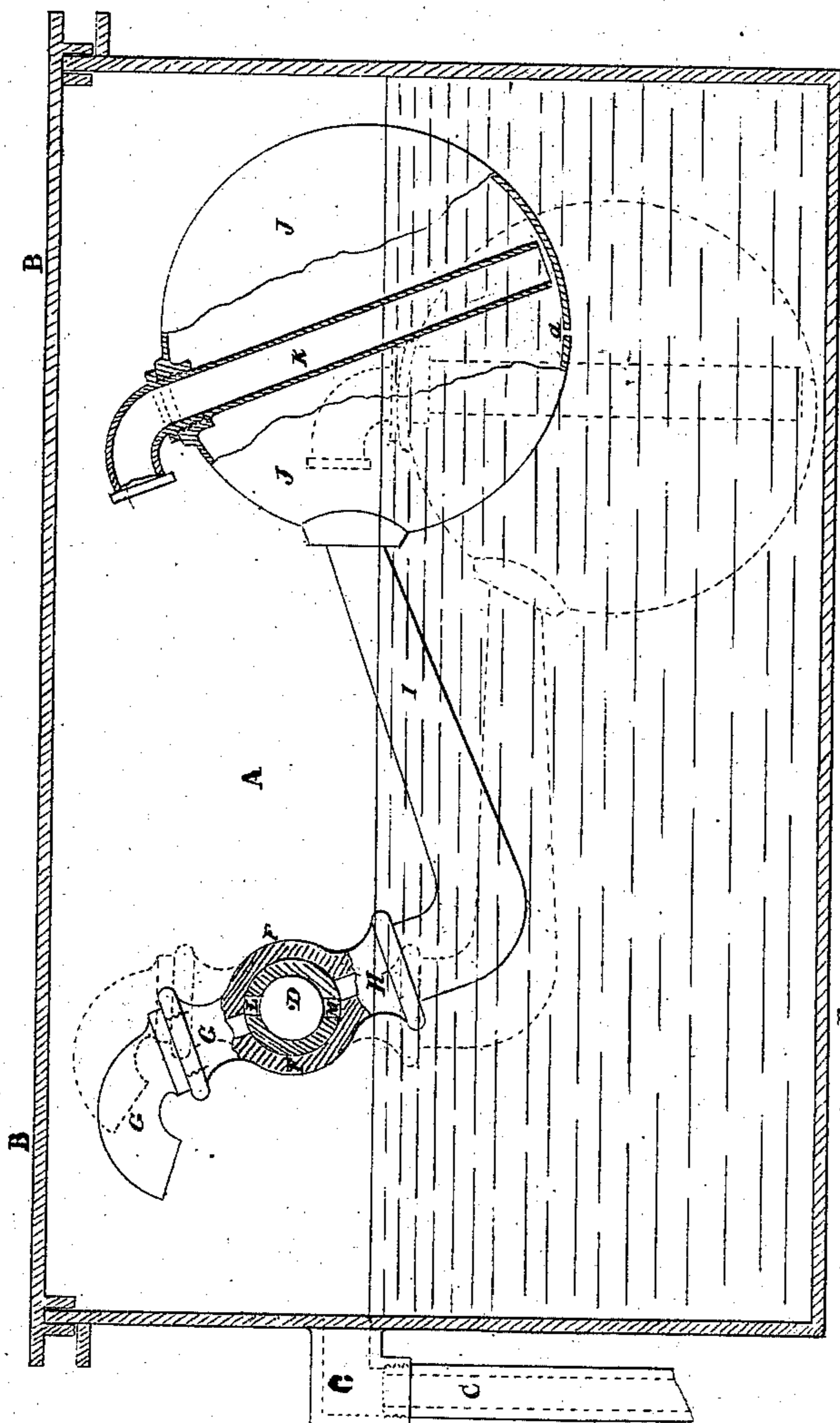


Fig. 2.

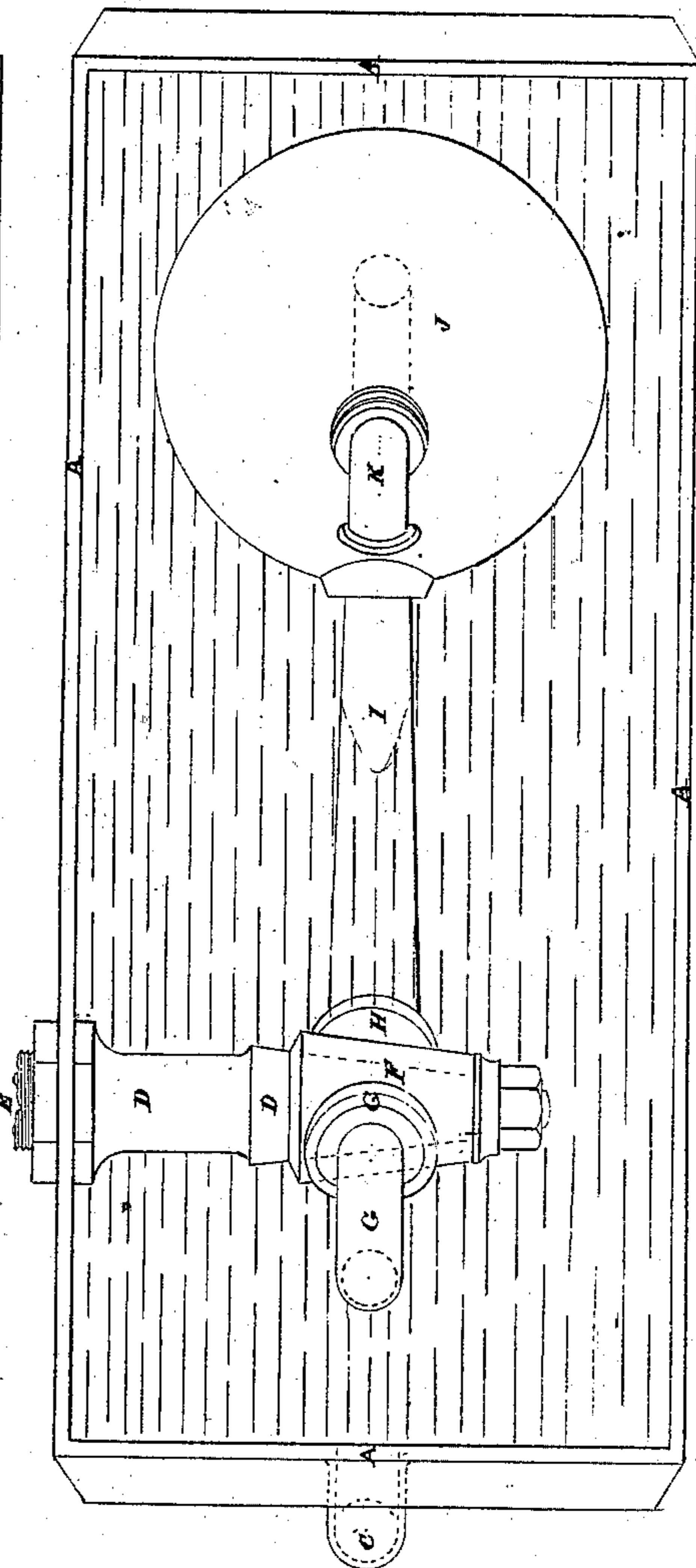
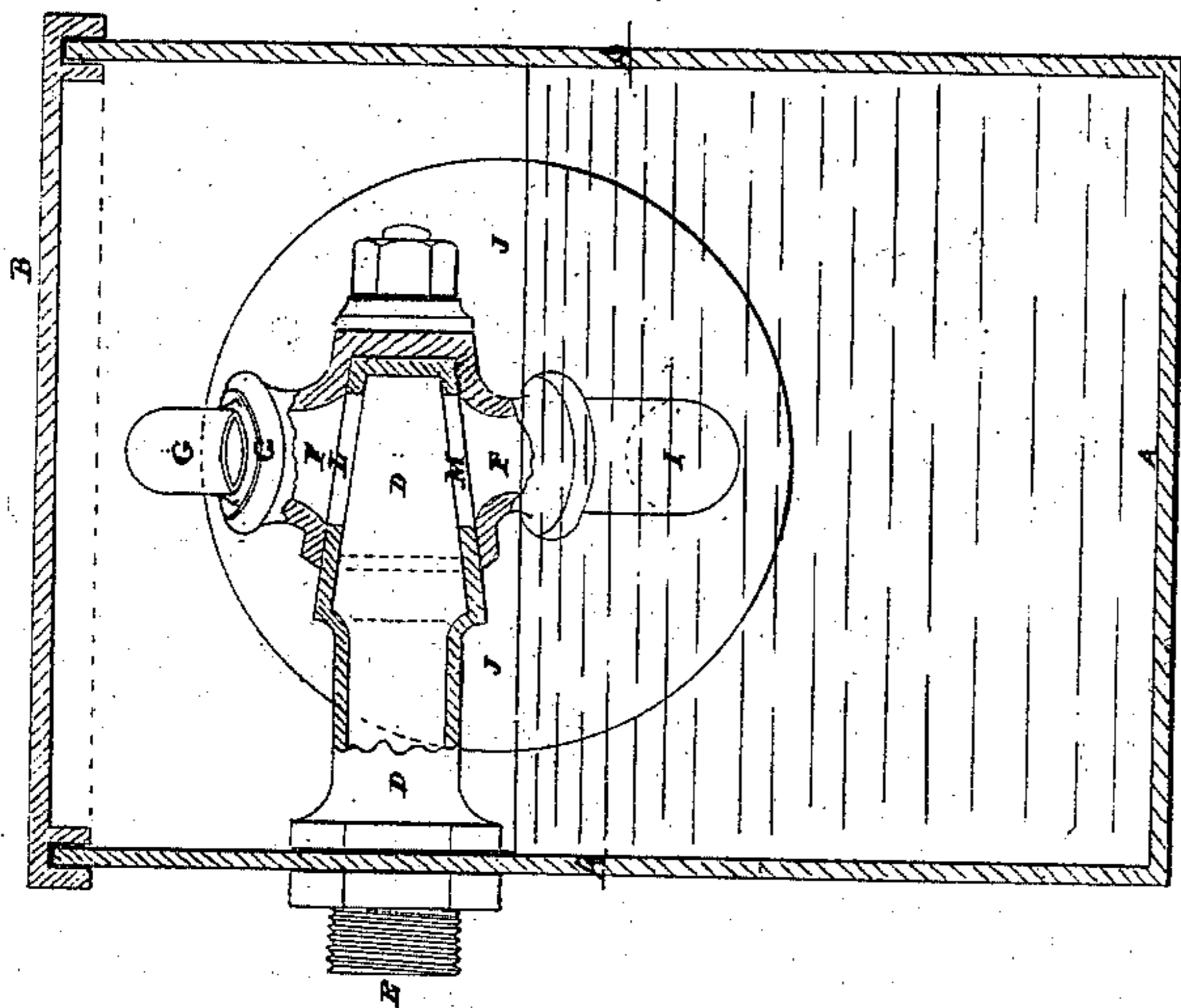


Fig. 3.

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UNITED STATES PATENT OFFICE.

WILLIAM ROBINSON, OF GUIDE BRIDGE, ASSIGNOR TO ROBERT HARLOW,
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IMPROVEMENT IN STEAM-TRAPS.

Specification forming part of Letters Patent No. 125,487, dated April 9, 1872; antedated March 26, 1872.

SPECIFICATION.

I, WILLIAM ROBINSON, of Guide Bridge, in the county of Lancaster, England, have invented certain Improvements in Steam-Traps, of which the following is a specification:

This invention relates to an improved arrangement of apparatus called a steam-trap, designed for the purpose of allowing of the escape of air and condensed water from steam-pipes, steam-chests, drying-cylinders, and so forth, and at the same time to prevent the escape of the steam; and this invention consists in the use and application to the purpose of a three-way cock, the hollow plug of which is fixed in a horizontal position—by preference inside a casing containing water—and is connected to the steam-pipe or other vessel at or near its lowest point. Two passages are formed through the plug of the cock, corresponding with passages formed through the tail ends of the body of the cock, one of which tails is extended upward, and forms the escape for the air from the steam-pipe, and the other or lower tail is connected to a hollow float, which forms the medium of escape for the condensed water, as hereinafter described.

Description of Accompanying Drawing.

Figure 1 is a side sectional view; Fig. 2, an end sectional view; and Fig. 3, a plan of a steam-trap constructed according to this invention.

General Description.

A represents a metallic cistern or box, which may be open to the atmosphere at the top, or may be closed with a loose cover, B, as seen in Figs. 1 and 2. This cistern or box contains water up to the level of the overflow-pipe C, which is arranged to carry off any surplus water as it escapes from the steam-pipe. Inside this cistern, and above the level of the water, is fixed, in a horizontal position, a hollow tapered plug, D, seen in section in Figs. 1 and 2, the back extremity of which plug, marked E, passes through one side of the cistern A, and is there connected to the steam-pipe or other vessel from which it is desired to withdraw the air and condensed water. Upon this plug (which forms part of a three-way cock)

the body F of the cock is mounted, and branching from such body are two tail-pipes, G and H, the extremity or nose of the upper one (marked G) being bent downward, and forming the escape for the air, and the lower tail (marked H) being connected by a pipe, I, to a hollow metallic float, J, which has a vent-pipe, K, (seen in Fig. 1,) loosely screwed into it at the top, as illustrated, and extending downward inside such float to near the bottom, where a small hole or aperture, a, is formed to allow the escape of the water which would otherwise gather below the bottom of such vent-pipe. Two passages are formed through the hollow plug D, the upper one (marked L) corresponding with a passage leading into the tail-pipe G, and the lower one (marked M) corresponding with a passage leading through the tail-pipe H into the pipe I, and from thence into the inside of the float J.

The mode of fixing this steam-trap is as follows: The hollow plug D is connected by its screwed tail E to the steam-pipe or other vessel from which it is required to withdraw the air and condensed water. The cistern A being now filled with water, and the vent-pipe K being unscrewed and removed, the float J should also be filled with water. This done, the vent-pipe K may be replaced in the float, being screwed loosely into its original position, as it does not require to be air-tight. The float J will then sink in the cistern A to the position indicated by dotted lines in Fig. 1, and thus open the passages in the three-way cock to the widest extent. The steam-trap is now ready for action, and the steam being turned on, any air in the steam-pipe or other vessel to which the trap may be connected will first find its way into the hollow plug D, from whence it will escape through the passage L and the tail-pipe G. The water will next find its way into the hollow plug D, and flow away through both passages L and M until the arrival of the steam, which will force all the water out of the float J through the vent-pipe K, causing such float to become buoyant, when it will consequently rise in the cistern and float on the water, as illustrated, thereby completely closing the passage L and leaving the passage M just sufficiently open to allow the condensed water to trickle down into the float

until it has accumulated therein in sufficient quantity, when the float will again sink and open a wider passage for the admission of steam, which will force the condensed water out of the float through the vent-pipe K, and then rise again to float on the top of the water, as before.

Instead of having the float J in a cistern containing water, the tail-pipe G may be extended and have a weight affixed at its extremity to counterbalance the float, and thus the cistern and water may be dispensed with, the

plug of the cock being connected direct to the steam-pipe or other vessel.

I claim as my invention—

The vent-pipe K in the float J, in combination with the hollow plug D, body F, and tail-pipes G and H, forming a three-way cock, when all constructed and arranged for operation substantially as and for the purposes shown and described.

Witnesses: WILLIAM ROBINSON.
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