

R. NEWTON.

STEAM TRAP.

No. 282,558.

Patented Aug. 7, 1883.

Fig. 1.

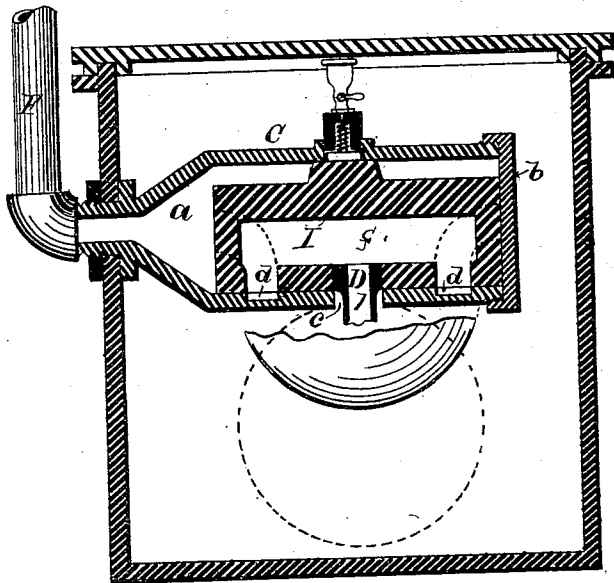
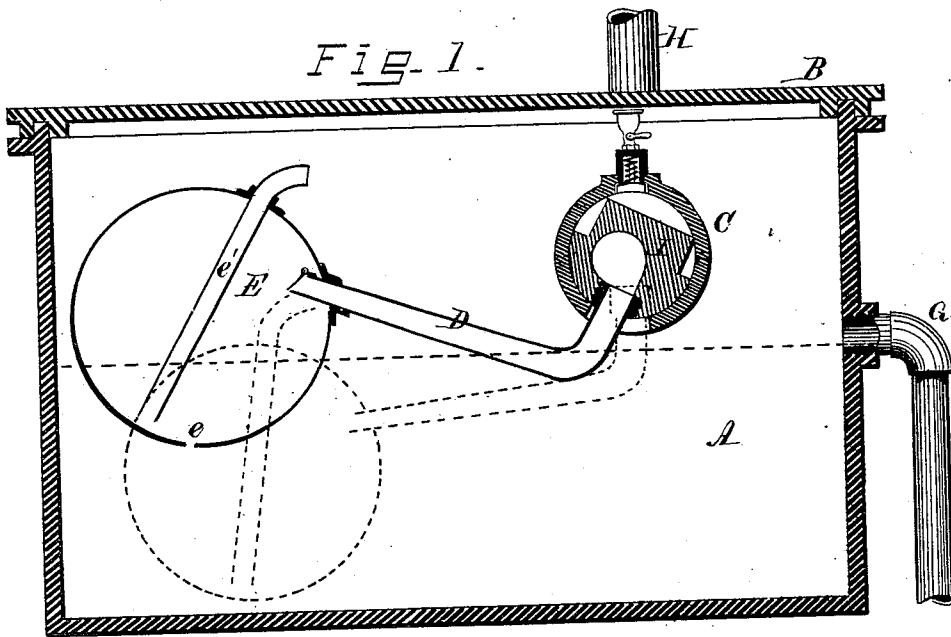


Fig. 2.

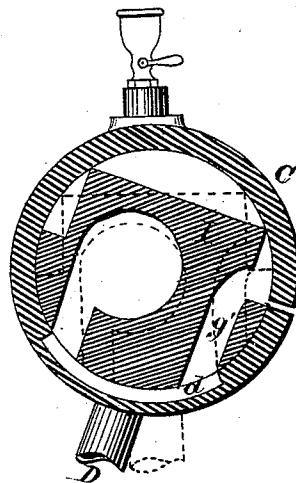


Fig. 3.

WITNESSES

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(No Model.)

2 Sheets—Sheet 2.

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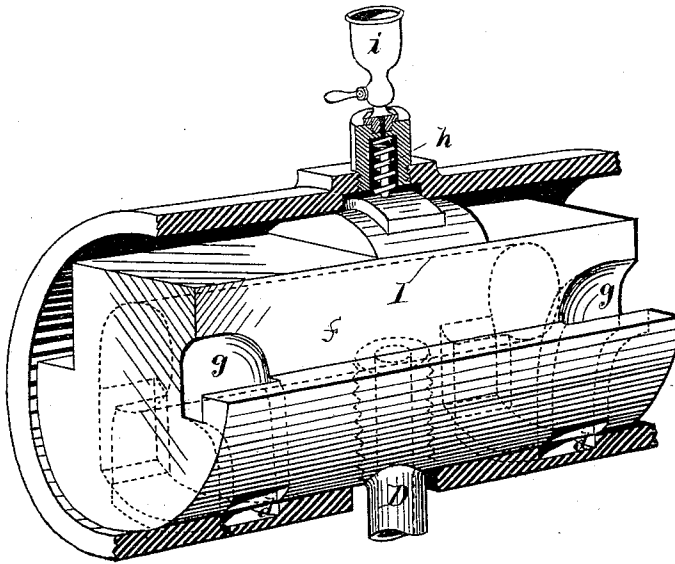


FIG. 4.

WITNESSES

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# UNITED STATES PATENT OFFICE.

ROBERT NEWTON, OF PROVIDENCE, RHODE ISLAND.

## STEAM-TRAP.

SPECIFICATION forming part of Letters Patent No. 282,558, dated August 7, 1883.

Application filed January 2, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT NEWTON, of the city and county of Providence and State of Rhode Island, have invented a new and useful Improvement in Steam-Traps; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

This invention has reference to an improvement in the valve of a steam-trap; and it consists in the peculiar and novel construction of the valve and its connection with a hollow sphere, as will be more fully set forth hereinafter.

The usual cock-valves, provided with ports to connect the hollow stem with the discharge, are liable to stick and be tampered with, so as to make them inoperative.

The object of this invention is to so construct a valve for this class of steam-traps that wears tight, is held against its face by the pressure of the steam, and that is inclosed in a case, so that it cannot be tampered with.

Figure 1 is a sectional view of a steam-trap provided with my improved valve. Fig. 2 is a sectional view through the axis of the valve and its case placed into the steam-trap. Fig. 3 is a cross-section, on an enlarged scale, of the valve, shown in solid lines open to discharge the condensed water, and in broken lines when closed. Fig. 4 is a perspective view of my improved valve, part of the case being shown in broken lines.

In the drawings, A is the box of the steam-trap. B is the cover of the same. C is the valve-case; D, the curved arm connecting the same with the sphere E. F is the inlet; G, the outlet, and H the air-vent.

When in operation the sphere E fills with water through the small hole *e* until it sinks to the position shown in Fig. 1 in broken lines. The valve is thereby opened, and the condensed water in the pipes connected with the steam-trap flows into the sphere, from which it is discharged through the curved pipe *e'* until the following steam empties the sphere, and it rises on the water, as shown in solid lines in Fig. 1, and thereby closes the valve.

The valve consists in the case *a*, to which the inlet-pipe F is secured at one end, the other end being closed with the cap *b*. The interior of the case is bored out perfectly cylindrical, and is provided with the central

slot, *c*, in which the pipe D moves, and also with two passages, *d d*.

I is the valve proper. It is provided with the passage *f* through or nearly through its axis, connecting near each end with the passages *d d* in the valve-case, and also with the outlet-pipe D, near the center.

*g g* are two inlet-ports, one at each end of the valve. These also connect with the passages *d d* in the valve-case, so that when the valve is oscillated, and in the position shown in Fig. 3 in solid lines, the passages *g* and *f* are connected by the passages *d d*, and when in the position shown in broken lines in the same figure the inlet-passages *g g* will be closed.

*h* is a light spring to keep the valve in place when the steam-trap is not in use. When in use the steam-pressure keeps the valve well on its face.

*i* as an oil-cup for lubricating the valve.

This valve cannot be tampered with, as it cannot be reached until the cap *b* is removed. It insures a free discharge of the water, is not affected by the variation of temperature between the steam and the water, and is not liable to stick.

My present invention is an improvement on Patent No. 233,004, granted to myself and Barnard Collingham, October 5, 1880, to which reference is hereby made.

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

1. In a steam-trap, the combination, with the box A, the sphere E, provided with the hole *e*, and discharge-pipe *e'*, of the arm D, and the valve consisting of the cylindrical case C and valve I, constructed as described.

2. In a steam-trap, the combination, with the valve-case C, provided with the slit *c* and passages *d d*, of the valve I, provided with the passages *f* and *g*, constructed to form a continuous passage when placed in one position and close the same when in the other position, as described.

3. A steam-trap consisting of a closed cylindrical valve-case connected with the inlet-pipe, a valve connected with the curved pipe D, and provided with the passages *g d f*, constructed to be operated by the sphere E, to discharge the condensed water and prevent the discharge of steam, as described.

Witnesses: ROBERT NEWTON.

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