No. 729,956. PATENTED JUNE 2, 1903.

C. F. MURRAY.

STEAM TRAP.

APPLICATION FILED MAY 20, 1902.

NO MODEL.

Fig. 2.

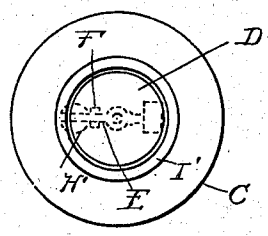
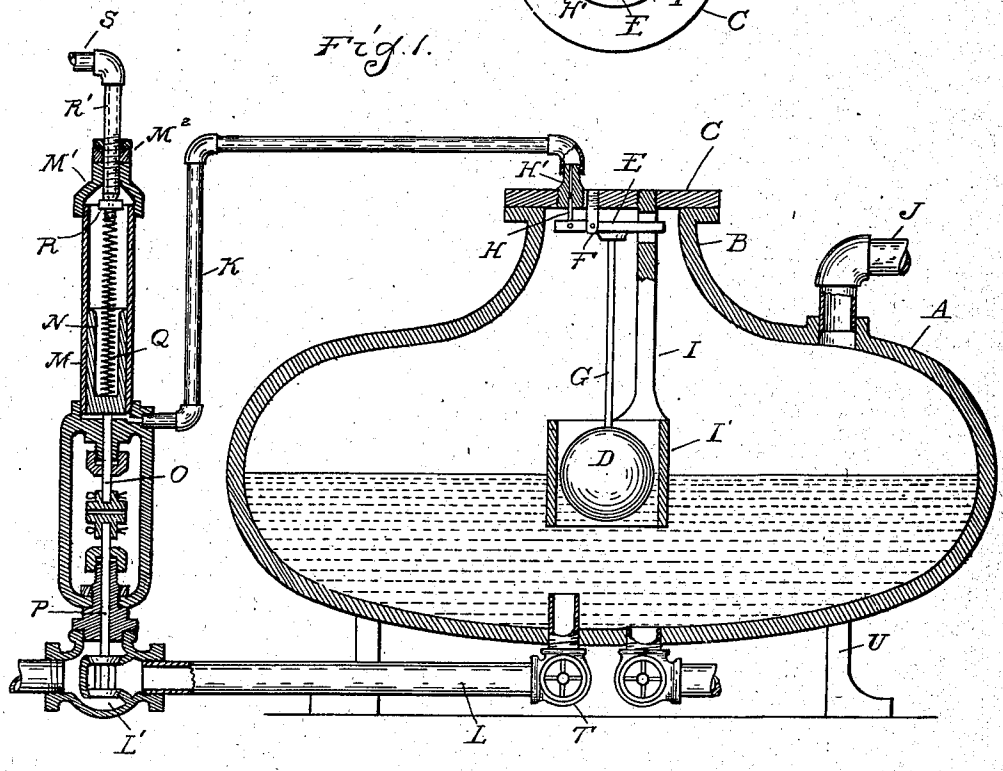


Fig. 1.



Witnesses
B. C. Smith.
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 729,956. Patented June 2, 1903.

UNITED STATES PATENT OFFICE.

CHARLES F. MURRAY, OF DETROIT, MICHIGAN.

STEAM-TRAP.

SPECIFICATION forming part of Letters Patent No. 729,956, dated June 2, 1903.

Application filed May 20, 1902. Serial No. 108,225. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. MURRAY, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Steam-Traps, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to steam-traps intended for use wherever it is desired to automatically discharge the water of condensation from the steam-conduit.

It is the object of the invention to obtain a construction in which the operating parts are above the water-line, so that there will be less danger of corrosion and the consequent liability of the trap becoming inoperative.

The invention consists in the construction as hereinafter shown and described.

In the drawings, Figure 1 is a sectional elevation of the trap. Fig. 2 is a bottom plan view of the cover of the trap, showing the arrangement of the operating parts secured thereto.

A is a casing which, as shown, is of oval form and is provided with a central neck B, which is closed at the top by a detachable cover C. The opening through the neck D is of sufficient area to admit the float D, which is employed for operating the valve.

E is a lever fulcrumed in a post F, secured to and depending from the cap C. At the inner end this lever is connected to a stem H of a valve H', which controls connection between the interior of the casing and a conduit K, connecting with the aperture through the cap C.

G is a stem secured at its upper end to the lever E and at its lower end connecting with the float D.

I is an arm depending from the cover C, which at its lower end carries a cylindrical guide I' for the float D, adapted to limit its lateral movement.

J is a steam-inlet pipe connecting with the casing A at any suitable point above the normal water-level therein.

L is an outlet-pipe connecting centrally with the bottom of the casing and having connected therein a valve L'. This valve is adapted to be automatically operated whenever the water within the casing A rises above a certain level. The means employed for operating the valve consists of a cylinder M, in which is arranged a piston N, having a stem O projecting downward therefrom and out from the cylinder and connecting with a stem P of the valve L'. The piston N is preferably of cup shape and has arranged therein a spring Q, which at its upper end bears against an adjustable stop R. The latter is formed by a screw-threaded stem R', passing through a correspondingly-threaded aperture in the cap M' of the cylinder and held in different positions of adjustment by lock-nuts M^2. The stem R' is preferably hollow to form an exhaust-passage from the cylinder M and may, if desired, be connected at its upper end to an escape-pipe S. The lower end of the cylinder is connected to the conduit K, leading from the casing A, the arrangement being such that whenever steam is admitted into said conduit by the opening of the valve H' it will enter the cylinder M below the piston N, causing said piston to rise and through its stem O and connection with the valve-stem P to open the valve L'.

It will be understood that the valve H' will be opened whenever the lever E is operated by the upward push of the stem G and float D, and the latter will rise whenever the level of the water within the casing A rises above normal. Thus whenever the condensation entering the casing through the inlet-pipe J raises the water-level sufficiently the valve L' will be opened in the manner just described, which will allow the water within the casing to pass out through the conduit L. To gage the outflow of water, a valve T is preferably arranged intermediate the valve L' and the casing A. As shown, this valve is in the form of an angle-valve arranged at the point of connection between the conduit L and casing A, the latter being preferably supported by feet U, which raise it a sufficient distance above its support to permit of the operation of said valve. When the water-level within the casing is lowered sufficiently to permit the valve H' to again close, steam will be shut off from the conduit K and cylinder and that which still remains within the cylinder will slowly leak around the piston N and exhaust through the tubular stem R' and exhaust-pipe S. At the same time the tension of the

spring Q will cause the piston N to descend, thereby closing the valve L'.

It will be noticed that all the operating parts within the casing A are connected to the detachable cap C, so that they may be readily removed for adjustment, repair, or lubrication. It will also be noticed that the lever and valve are at the top of the casing, where they will be within the dry-steam space, so that corrosion is prevented.

What I claim as my invention is—

A steam-trap comprising a casing having a contracted neck at its upper end and provided with inlet and outlet connections, a cap for said contracted neck, a valve, an actuating mechanism therefor secured to the under side of said cap, a float depending from said mechanism, and an annular guide for said float having a securing connection depending from said cap, said guide, float, valve, and mechanism being adapted to be withdrawn from said casing by the removal of said cap.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES F. MURRAY.

Witnesses:
M. B. O'DOGHERTY,
H. C. SMITH.