

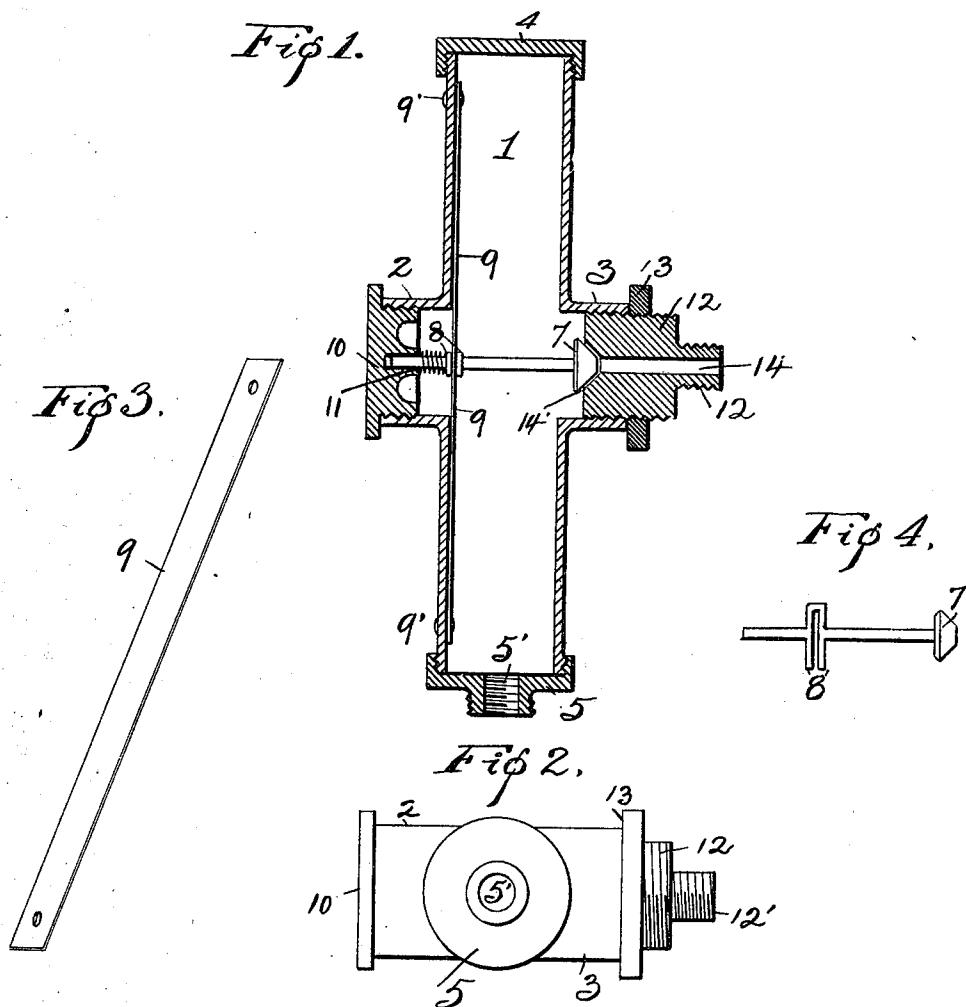
No. 669,474.

Patented Mar. 5, 1901.

W. BROAD.
STEAM TRAP.

(Application filed Oct. 27, 1900.)

(No Model.)



Witnesses;
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UNITED STATES PATENT OFFICE.

WILLIAM BROAD, OF BEAVER FALLS, PENNSYLVANIA, ASSIGNOR OF FOUR-FIFTHS TO SAMUEL McLAUGHLIN, HENRY J. MURPHY, CHARLES W. SHOEMAKER, AND ROBERT McLAUGHLIN.

STEAM-TRAP.

SPECIFICATION forming part of Letters Patent No. 669,474, dated March 5, 1901.

Application filed October 27, 1900. Serial No. 34,641. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM BROAD, (whose post-office address is Beaver Falls, Beaver county, Pennsylvania,) a citizen of the United States of America, residing at Beaver Falls, in the county of Beaver and State of Pennsylvania, have invented certain new and useful Improvements in Steam-Traps; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to certain new and useful improvements in an automatic steam-condensing trap.

The invention is adapted to be connected to the steam-supply pipe; and the object thereof is to relieve said pipe of the condensed steam or water.

I accomplish my object by means of the device illustrated in the accompanying drawings, in which—

Figure 1 is a vertical sectional view through the device. Fig. 2 is an end view of the same.

Fig. 3 is a perspective view of a metal strip employed in the device to operate the valve. Fig. 4 is a longitudinal side elevation of the valve.

Referring to the drawings, the numeral 1 designates a small cylinder having branches 2 and 3 thereon. A screw-cap 4 is secured upon one end of the cylinder to close the same, and upon the other end is secured a screw-cap 5, having an opening 5' therein to admit the steam. The stem of the valve has formed thereon the lugs 8, which engage the sides of a strip of copper 9, said copper strip being fixed at each end to the cylinder by rivets 9' and being normally straight.

Fitted tightly into the end of the branch pipe 2 is the screw-plug 10, and between the end of this plug and the copper strip is arranged a small spiral spring 11, which spring insures that the copper strip will bend or bow toward the valve 7, and thereby close the latter. When the copper strip contracts and straightens out, it lifts the valve from its seat and puts the spring 11 under tension. An adjustable screw-plug 12 is fitted within the branch 3. This plug is provided with a jam-nut 13 to engage the end of the branch and secure it in position. Through the center of this plug is formed an opening 14, which terminates in a valve-seat 14'.

The device is attached to the steam-supply pipe at the head 5. The steam causes the copper strip 9 to expand, and as it expands the small spring 11 forces the valve to its seat and closes the exit 14. When the temperature falls and the steam condenses, the copper strip contracts and draws the valve away from the seat, thus allowing the water to escape from the exit 14.

To regulate the device for different temperatures, the plug 12 is screwed in or out to decrease or increase the distance between the valve and its seat.

The device will work equally as well when placed inside or outside of the building, as it will not freeze up.

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

1. In a device for the purpose set forth, the combination of a cylinder having an inlet-opening and an outlet-opening, a thin metal strip rigidly secured at each end within the cylinder and being normally straight, a valve adapted to close the outlet-opening, said valve being connected to said strip and normally out of engagement with its seat, and a spring interposed between the strip and a fixed support and acting to bend the strip toward the valve-seat when said strip is expanded, substantially as set forth.

2. In a device for the purpose set forth, the combination of a cylinder having an inlet-opening and an outlet-opening, an adjustable valve-seat forming part of said outlet-opening, a thin metal strip rigidly secured at each end within the cylinder and being normally straight, a valve adapted to engage said seat to close the outlet-opening, said valve being connected to said strip and normally out of engagement with the seat, and a spring interposed between the strip and a fixed support and acting to bend the strip toward the valve-seat when said strip is expanded, substantially as set forth.

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

WILLIAM BROAD.

Witnesses:

ROBERT McLAUGHLIN,
JOS. C. ROUZER.