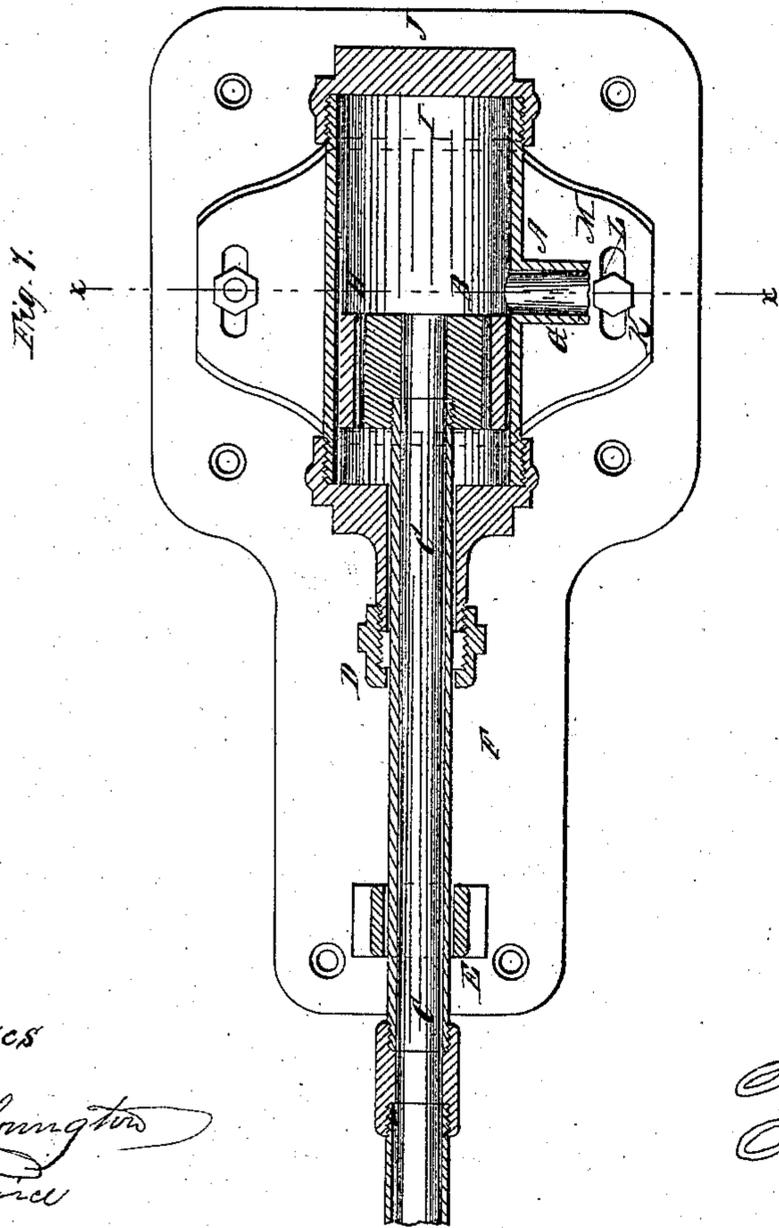
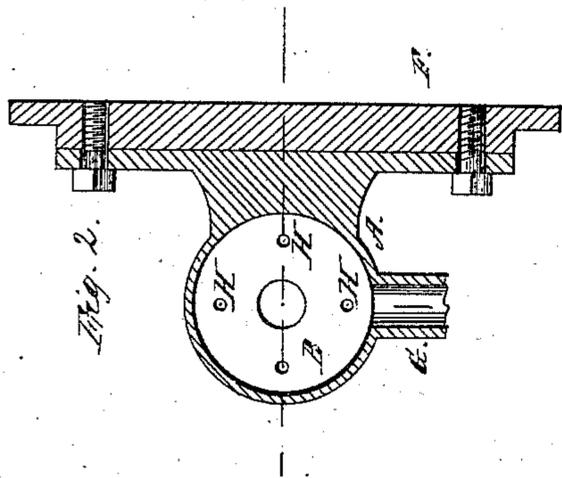


*A. M. Force,*

*Steam Trap,*

*No. 56,029,*

*Patented July 3, 1866.*



*Witnesses*

*J. M. Blount  
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# UNITED STATES PATENT OFFICE.

ALBERT M. FORCE, OF NORWICH, CONNECTICUT.

## IMPROVEMENT IN STEAM-TRAPS.

Specification forming part of Letters Patent No. 56,029, dated July 3, 1866.

*To all whom it may concern:*

Be it known that I, ALBERT M. FORCE, of Norwich, in the county of New London and State of Connecticut, 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 thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

The present invention relates to a novel construction and arrangement of the trap, whereby efficiency and reliability of operation and simplicity are secured, as will be obvious from the following detail description thereof, reference being had to the accompanying plate of drawings, in which—

Figure 1 is a central longitudinal vertical section of the steam-trap, and Fig. 2 a transverse vertical section taken in the plane of the line *x x*, Fig. 1.

Similar letters of reference indicate like parts.

A in the drawings represents a cylinder, made of brass or other suitable metal or material, in which cylinder is a piston, B, secured to one end of a tube or pipe, C, forming the stem or rod thereof, which tube passes out through the stuffing-box D at one end of the cylinder, resting upon and playing in the upper end of an upright, E, of the bed-plate F, with which end of the tube is to be coupled one end of a pipe, of from eight to twelve feet long, the opposite end of which is to be rigidly fixed to any suitable support therefor, this pipe being connected with the drip-pipe. This pipe, coupled to the piston-stem, is to be made of such a metal as will expand and contract by the action of heated steam, according as the temperature of the same is more or less; and as such pipe is to be fixed at one end it can only act in one direction—that is, toward the piston—and thus move the same forward and backward within the cylinder, closing or opening the escape-port G upon one side of the same, as the case may be, the port G being opened by the contraction of the pipe and closed by its expansion.

The tube constituting the stem of the pis-

ton B extends entirely through the thickness of the piston, and is open at its back end, passages H H being also made through the piston B, establishing communication between the portions of the cylinder upon each side of the piston.

The end I of the cylinder is closed by a screw cap or cover, J, suitably steam-tight packed, so as to prevent the escape of steam through it, while at the same time it can be easily removed for the cleansing of the interior of the cylinder.

The cylinder is secured to the bed-piece by means of screws K K passing through slots L of its side arms or brackets M of the cylinder, these slots extending in the direction of the length of the cylinder, thereby allowing it to be moved in either direction to the right or left, to bring the piston to the proper adjustment with reference to the escape-port G of the cylinder.

Having thus described the construction and arrangement of my improved steam-trap, I will now proceed to explain its mode of operation.

The steam, entering through the expansion-pipe of the piston tube or stem, expands the same by its heat, thus causing the piston to move across and close the escape-port G of the cylinder, when the steam becoming condensed in such pipe, it begins to contract, thereby opening the escape-port G, through which the condensed steam or water then flows out or escapes, when the pipe again expanding by the action of the steam, the escape-port G is again closed, and so on, as long as the communication of the steam with the trap is maintained or allowed, the pressure of steam upon both sides of the piston being equal, and perfectly balancing the same, as free communication between the two chambers of the cylinder upon each side of the piston is established through the passages H H, hereinbefore referred to.

What I claim as new, and desire to secure by Letters Patent, is—

1. The cylinder, having escape-port G, piston B, attached to a hollow stem or tube, C, connected with an expanding tube fixed at one end, when combined and arranged to-

gether, substantially in the manner described, so as to operate as and for the purpose specified.

2. So hanging the cylinder to the bed-piece that it can be moved laterally thereon to adjust its escape-port to the piston, substantially as described.

3. So constructing or forming the piston B that the steam within its chamber or cylinder

will act upon both sides, and thus balance the same, substantially as specified.

The above specification of my invention signed by me this 21st day of February, 1866.

ALBERT M. FORCE.

Witnesses:

M. M. LIVINGSTON,  
ALBERT W. BROWN.