

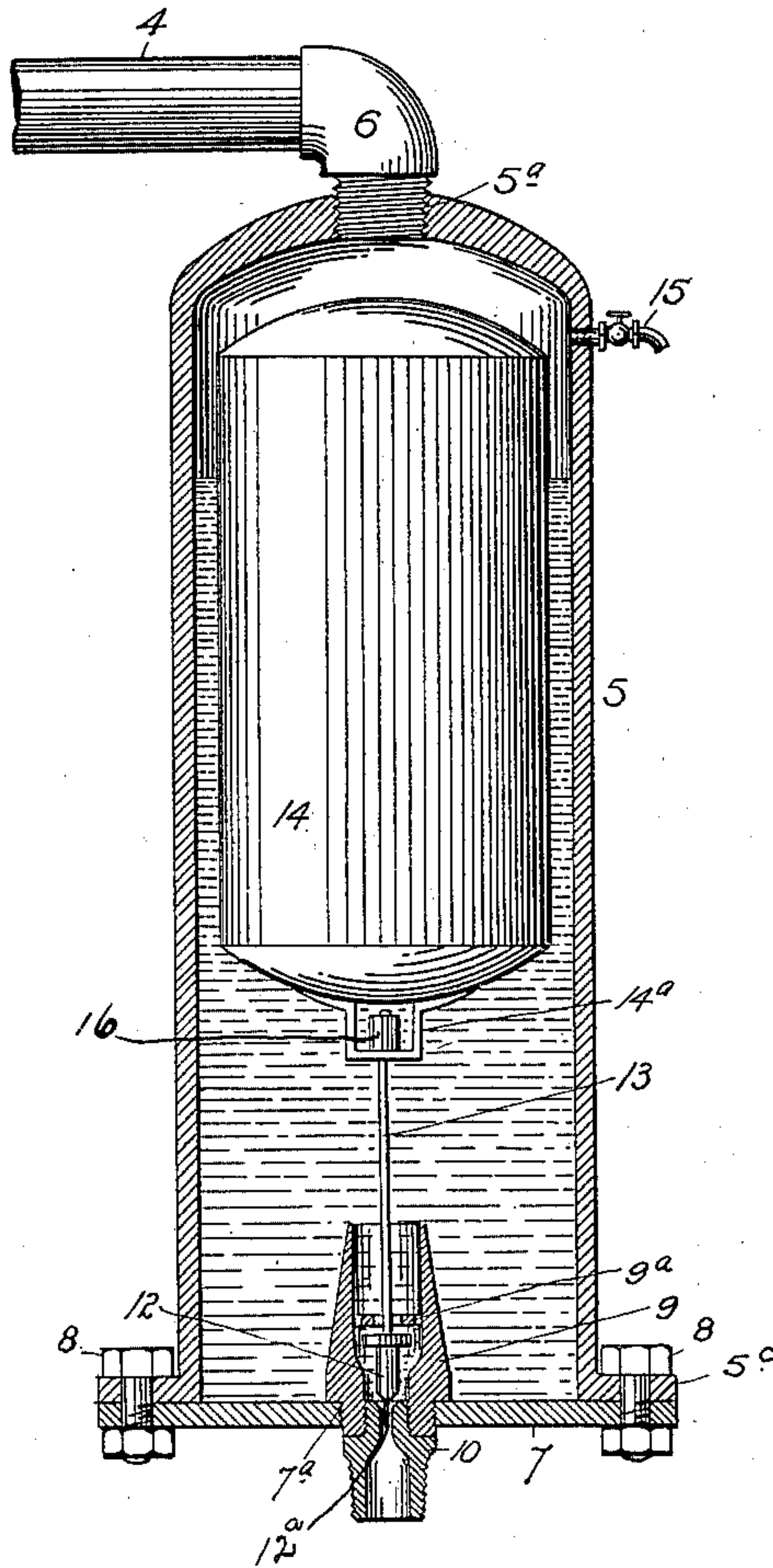
No. 610,862.

Patented Sept. 13, 1898.

H. HELLING.  
STEAM TRAP.

(Application filed Feb. 7, 1898.)

(No Model.)



Witnesses  
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# UNITED STATES PATENT OFFICE.

HENRY HELLING, OF DENVER, COLORADO.

## STEAM-TRAP.

SPECIFICATION forming part of Letters Patent No. 610,862, dated September 13, 1898.

Application filed February 7, 1898. Serial No. 669,310. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY HELLING, a citizen of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Steam-Traps; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in steam-traps, my object being to provide a device of this class which will be simple in construction, economical in cost, reliable, durable, and efficient in use; and to these ends the invention consists of the features, arrangements, and combinations hereinafter described and claimed, all of which will be fully understood by reference to the accompanying drawing, in which is illustrated an embodiment thereof.

The drawing shows a vertical longitudinal section taken through my improved steam-trap.

The casing 5 occupies a vertical position and is provided with a threaded opening 5<sup>a</sup> in its top, into which is screwed an elbow connection 6, communicating with the steam-pipe 4 of the system or other apparatus where a steam-trap is needed. The casing 5 should be attached to the lowest pipe of the system in order to thoroughly drain the pipes of the water of condensation. The bottom of the casing 5 is provided with an exterior horizontal flange 5<sup>c</sup>. The bottom of the casing is closed by a head-plate 7, which is attached to the casing by bolts 8, which pass through registering apertures formed in the plate and flange 5<sup>c</sup>. In this plate 7 is formed a threaded aperture 7<sup>a</sup>, into which is screwed the lower extremity of a tube 9, which projects upwardly into the casing 5. The lower extremity of this tube is provided with a threaded aperture, into which is screwed an apertured nipple 10, whose upper extremity forms a seat for the valve 12, which is attached to a small rod 13, whose upper extremity is threaded and passes through an

aperture formed in a stirrup-shaped bracket 14<sup>a</sup>, formed on the bottom of a hollow float 14, inclosed by the casing. A nut 16 is screwed upon the threaded extremity of the rod for regulating the length of the rod below the stirrup, whereby the position of the valve may be adjusted to allow the water to escape more or less quickly, as desired. The upper extremity of the valve 12 is enlarged, forming a stop adapted to engage a perforated disk 9<sup>a</sup>, formed in the tube 9, for the purpose of limiting the upward movement of the valve. The valve-rod 13 passes through an opening formed in the perforated disk which forms a guide therefor. The lower extremity of the valve 12 is provided with a guide-pin 12<sup>a</sup>, which projects below the valve-seat when the valve is open and maintains the valve in place at all times. The tube 9 forms a shield to prevent the stopping of the escape-orifice in the nipple 10 by reason of the accumulation of dirt or settleings in the bottom of the casing. A small valve 15 is inserted in the top of the casing. This valve is normally closed, but may be opened to permit the escape of any air that may accumulate in the top of the casing.

The operation of the device is as follows: Assuming that the casing is empty and the valve closed by the gravity of the float and its attachments, the steam and water of condensation enter the casing by way of the pipe 4 and the elbow 6. As the water accumulates in the casing the float rises and opens the valve, allowing the water to escape until it is lowered sufficiently to allow the float to drop and close the valve, thus preventing the escape of steam. The valve will then remain closed until the water again accumulates to raise the float and open the valve, as before explained.

Having thus described my invention, what I claim is—

1. In a steam-trap, the combination of a casing having an opening in its top for the entrance of the water of condensation from the steam system or other apparatus, a float inclosed by the casing and provided with a stirrup-shaped bracket attached to its bottom and provided with an opening, an escape-opening formed in the bottom of the casing and surrounded by a valve-seat, a shield sur-



rounding said valve-seat and projecting upward into the casing, a valve located in the shield, its lower extremity being provided with a guide-pin adapted to project below the  
5 valve-seat when the valve is open, a rod connected with the upper extremity of the valve, the upper extremity of the said rod being threaded and passing through the opening  
10 formed in the stirrup-shaped bracket attached to the bottom of the float, and a nut screwed upon the threaded extremity of the said rod and resting upon the bracket, as and for the purpose set forth.

2. In a steam-trap, the combination with a  
15 casing having an opening in its top for the water of condensation from the steam system or other apparatus, a float inclosed by the casing and provided with an apertured stirrup-shaped bracket attached to its bottom,

an escape-opening being formed in the bottom 20 of the casing and surrounded by a valve-seat, a shield surrounding said valve-seat and projecting upward into the casing, a valve located within the shield and adapted to engage the valve-seat, a rod connected with the  
25 upper extremity of the valve, the upper extremity of the said rod being threaded and passing through the aperture formed in the stirrup-shaped bracket attached to the bottom of the float, and a nut screwed upon the  
30 threaded extremity of the said rod and resting upon the bracket.

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

HENRY HELLING.

Witnesses:

A. J. O'BRIEN,

EDITH HEINSWORTH.