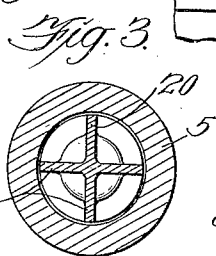
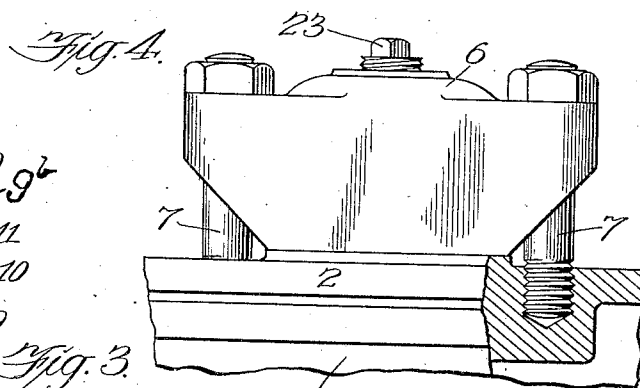
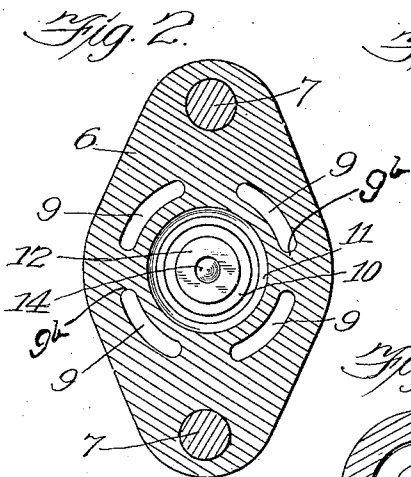
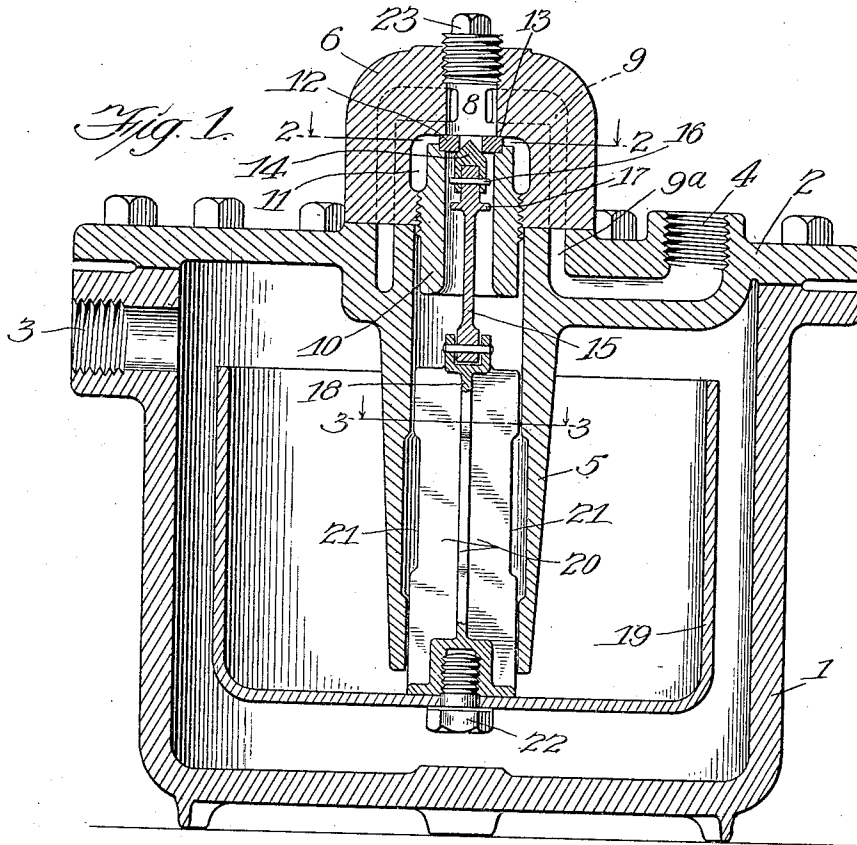


J. BOYLSTON.
STEAM TRAP.
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1,062,632.

Patented May 27, 1913.



Witnesses:
D. J. Lohmann
Edna K. Reynolds

Inventor
John Boylston
By
Parker & Carter
Attorneys:

UNITED STATES PATENT OFFICE.

JOHN BOYLSTON, OF CHICAGO, ILLINOIS.

STEAM-TRAP.

1,062,632.

Specification of Letters Patent.

Patented May 27, 1913.

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To all whom it may concern:

Be it known that I, JOHN BOYLSTON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Steam-Traps, of which the following is a specification.

This invention relates to steam traps and has for its object to provide a new and improved device of this description.

The invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a sectional view through a steam trap embodying the invention; Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1; Fig. 3 is a sectional view taken on the line 3—3 of Fig. 1. Fig. 4 is a side view showing the cap.

Like numerals refer to like parts throughout the several figures.

As illustrated in the drawings, the trap consists of a casing 1 provided with a removable cover 2. An inlet 3 is associated with the casing and an outlet 4 is associated with the cover. Connected with the cover is a downwardly projecting hollow part 5. Located above the part 5 is a removable cap 6 held in position by suitable bolts 7. The cap 6 is provided with an opening 8 located above the opening in the hollow part 5 which opening communicates with the chamber 9 in said cap, which chamber communicates with the chamber 9^a in the cover, the said latter chamber being connected with the outlet 4. A guide 10 is removably attached to the cap 6 and has an end projecting therefrom which fits into the opening in the part 5. The upper end of the guide 10 is reduced in size and projects into a receiving space 11 in the cap 6. A valve seat 12 is clamped between the guide 10 and the shoulder 13 on the cap 6. As herein shown, the end of the guide 10 is recessed to receive the valve seat 12, said valve seat being removably held in place by the guide. This valve seat is preferably of hardened material. Coöperating with the valve seat 12 is a suitable valve, which when closed, closes the passage way leading from the inlet 3 to the outlet 4. As herein shown, this valve 14 is preferably made of hardened material and is recessed to receive the end of the connecting piece 15, the valve being removably held in place by means of the pin 16. The connecting piece 15 is provided with the centering device 17 which projects into the

guide 10 and tends to center the valve so as to insure its being properly seated. Pivoted to the connecting piece 15 is a second connecting piece 18 which projects beyond the piece 15 and is removably connected with the bucket 19, in any manner as by means of the screw 22. The connecting piece 18 is provided with the webs 20 which engage the inner face of the part 5 so as to prevent lateral movement of the bucket. These webs are cut away at 21 and the part 5 is recessed opposite these cut away portions so as to reduce the engaging faces and thus reduce the friction. The cap 6 is preferably provided at its top with an opening normally closed by the plug 23. When the trap is used for example, in connection with a steam heating system the inlet 3 is connected with the discharge end of the heater of the system and the outlet 4 is connected with the sewer.

When the system is started in operation, the bucket 19 is resting upon the bottom of the casing 1 and the valve 14 open so that air in the system may freely escape. As the steam condenses the water of condensation passes into the casing 1 and since the bucket is empty, said bucket will be floated by this water and will lift the valve 14 to its valve seat, thus closing the connection between the inlet 3 and outlet 4 to prevent steam from escaping. When the water of condensation reaches the top of the bucket 19, it will flow into the bucket. When a sufficient amount passes into the bucket the weight of the water causes the bucket to sink, thus moving the valve 14 from its valve seat and opening the communication to the outlet 4. The water is then forced from the bucket and passes out through outlet 4. When enough water has been withdrawn to make the bucket light enough to float, it moves upwardly and closes the valve 14, while there is still some water in the bucket and thus prevents the escape of the steam. It will thus be seen that the valve 14 is alternately moved into contact with the valve seat 12 and out of contact therewith and that the wear is taken by this valve and valve seat. It becomes necessary therefore, to renew this valve and valve seat. The passage is also apt to become clogged at this point and hence for these and other reasons it is desirable to have the valve easily accessible and the valve seat and valve easily renewable.

In the construction herein shown, when

the cap 6 is removed the valve 14 is exposed and can be easily and quickly repaired or renewed. When it is desired to renew the valve seat it is only necessary to remove the guide 10. This may be done by unscrewing it whereupon the valve seat will drop out as it is simply clamped in place by the guide 10. It will thus be seen that the wearing faces are very small and can be easily and quickly removed and replaced and that the valve is made accessible by simply removing the cap 6. The chamber 9 is provided with the ribs 9^b which connect the walls thereof together.

I claim:

1. A steam trap comprising a casing, a cover therefor, a hollow projecting part on said cover projecting into said casing, a removable cap above said hollow projecting part, a guide removably connected with said cap one end of said guide projecting into the hollow of said hollow part the other end thereof projecting beyond the top of said cover and into said cap, a valve seat clamped between said guide and a portion of said cap, a valve cooperating with said valve seat, a connecting piece with which said valve is removably connected a removable pin connecting said valve and connecting piece and a bucket in said casing connected with said connecting piece.

2. A steam trap comprising a casing, a cover therefor having an opening extending therethrough, a cap removably connected with said cover and having an opening in alinement with the opening in the cover, a guide removably connected with said cap and projecting into said opening said guide screw-threaded near its middle and having a portion at each end free from screw

threads, one of said portions projecting above said cover and separated from the cap by a free space, a valve seat clamped between said guide and a portion of said cap said valve seat having an opening less in diameter than the opening in the cap, said guide projecting into the opening in the cover, a valve cooperating with said valve seat and a bucket in said casing connected with said valve.

3. A steam trap comprising a casing, a cover therefor having an opening extending therethrough, a cap removably connected with said cover and having an opening in alinement with the opening in the cover, a guide removably connected with said cap and projecting into said opening, said guide screw-threaded near its middle and having a portion at each end free from screw threads, one of said portions projecting above said cover and separated from the cap by a free space, a valve seat clamped between said guide and a portion of said cap, said valve seat having an opening less in diameter than the opening in the cap and located above the upper portion of said top, said guide also projecting into the opening in the cover, a valve having a connecting piece projecting through said cover so that the valve is outside of the casing and the cover and adapted to engage said valve seat and a bucket to which the connection for the valve is attached.

Signed at Chicago, Illinois, this 9th day of January, A. D. 1911.

JOHN BOYLSTON.

Witnesses:

LILLIAN NELSON,
EDNA K. REYNOLDS.