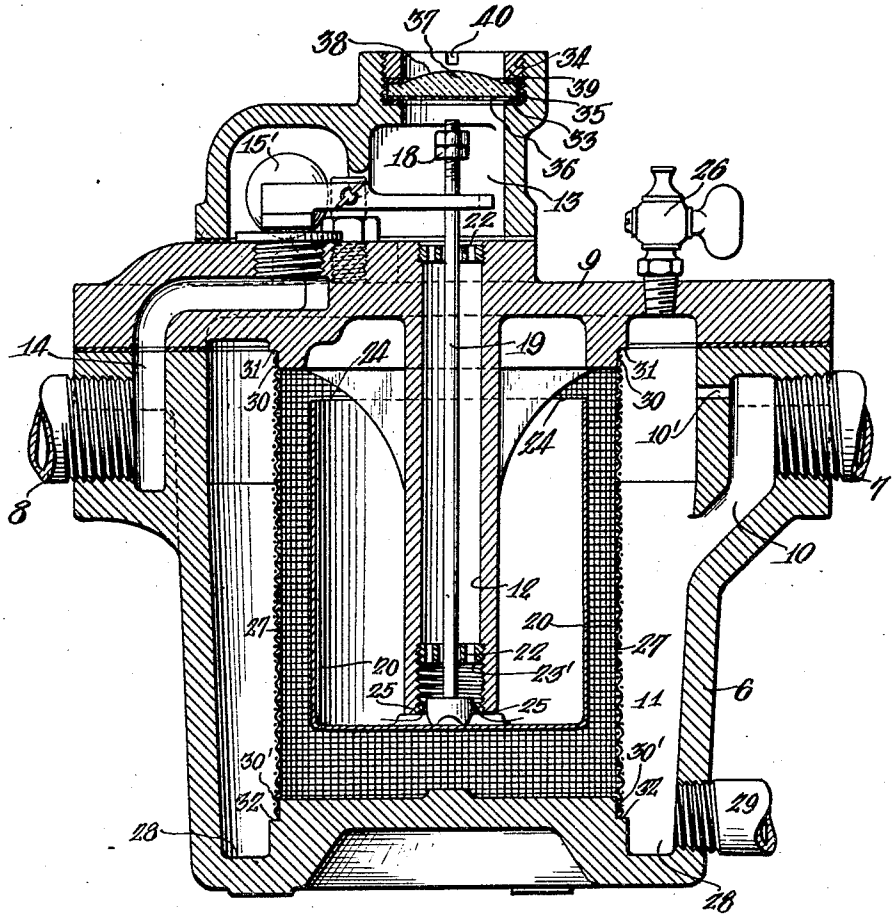
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STEAM TRAP

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STEAM TRAP

Original application filed August 6, 1927, Serial No. 211,058. Divided and this application filed March 1, 1929. Serial No. 343,774.

My invention relates to steam traps having an operating bucket which is floated and subsequently sunk by the condensed steam.

A main purpose of my invention is to provide a sight opening by which the position of the bucket may be determined.

Further purposes will appear in the specification and in the claims.

I have preferred to illustrate my invention by but one form among a number in which it might appear selecting a form which is simple, practical and highly effective and which well illustrates the principles involved.

The figure is a vertical section through my steam trap showing the preferred form in accordance with the statute requiring that I illustrate my invention in the best form known to me. I have illustrated it in connection with a particular form of trap bucket operating construction including valves which is shown and described in large measure in the application for patent filed by D. Robert Yarnall, Ser. No. 127,534, filed August 6, 1926, but from my standpoint considering this as a conventional showing merely since my invention will obviously operate with a great variety of buckets and bucket operating and valve constructions.

The present application is a division from my application entitled "Steam trap", Ser. No. 211,058 filed August 6, 1927.

I show a lower casing 6 flaring outwardly at the top, having inlet 7 and outlet 8 and closed at the top by a cap 9. The water from the inlet traverses a passage 10, vented at 10′, into the interior 11 and travels out through the hollow of tube 12, space 13 and outlet passage 14. The valves are in the form of balls 15 closing openings in valve seats 16. They are tilted or rolled by means of a pivoted lever 17 engaged by any projection 18 upon a rod 19 which travels with the cylindrical bucket 20.

The rod 19 is guided by sleeve 22, 22′ threaded for adjustment within the threaded interior 23, 23′ of the tube.

There is enough condensed steam in the compartment at all times to lift the bucket provided there be but little water in it. This allows the valve or valves to close. When the water pours over the top edge 24 of the bucket the latter sinks and fills, causing the projection 18 to give a hammer blow to the lever and thus to open the valves. The bucket rim should sink well below the level of the water to ensure complete filling.

As soon as the valves are opened, steam pressure upon the surface of the water in the bucket forces the water through lateral passages 25 at the bottom into the interior of the tube, up through it and out through the valves and outlet connections. This outward flow of water continues until the bucket is nearly free from water. While the lateral passages are still covered by water and thus sealed the reduction in weight of the bucket content of water permits the bucket to float and the valve or valves is or are closed, completing a cycle.

A screen 27 of rather fine mesh surrounds the bucket and protects it against dirt or other foreign matter which may have been carried by the steam and which is screened out and dropped to the bottom of the lower compartment. I have located an annular groove or gutter 28 at the bottom which is intended to receive and store the mud thus accumulated. This is closely adjacent the blow off connection so that part at least of the mud thus accumulated can be blown out through the blow off connection 29.

As it is desirable to have the screen 27 extend the entire height of the compartment and to support it well against lateral movement I provide oppositely facing annular supports 30 and 30′ approximately fitting the interior of the cylindrical screen used and limit upward and downward extension of the screen between shoulders 31 and 32.

This construction has been selected merely as an illustration of one construction to which my invention may be accommodated and by which it may be well illustrated.

I find it is quite desirable to keep track of the position of the bucket and for that purpose I provide a sight opening directly above the rod 19. For this purpose I illustrate an annular seat 33 surrounded by an internally threaded rim 34. Upon the seat I show an annular rubber gasket 35, a mica

disc 36 and a sight glass 37, preferably convexed at 38 so as to magnify the view beneath it. One function of the mica is to protect the glass from the etching action of the steam in the trap. Above the glass an annular copper washer or ring is illustrated, located between the glass and the nut 39. The latter is turned to place by a wrench fitting into spanner opening 40.

The screen and sight opening are obviously advantageous with a great variety of constructions and regardless of the relation between the bucket and container.

In view of my invention and disclosure, variations and modifications to meet individual whim or particular need will doubtless become evident to others skilled in the art, to obtain part or all of the benefits of my invention without copying the structure shown, and I, therefore, claim all such in so far as they fall within the reasonable spirit and scope of my invention.

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

1. In a steam trap of the bucket type, a casing, a bucket movable therein, a rod movable with the bucket and a sight tube giving view of the rod, comprising a seat, a rubber gasket thereon, a mica disc upon the rubber, a sight glass upon the disc and tightening means for holding the sight glass in place against the mica.

2. In a steam trap, a casing, a bucket therein, a rod adapted to guide the bucket, and a sight tube in line with the rod, a sight glass therein adapted to magnify the view, a disc of transparent protective material below the glass, a rubber gasket below this material, a copper ring above the glass and annular threaded means for tightening the copper ring against the glass.

JAMES W. GARRETT.