

C. E. SQUIRES.
 STEAM TRAP.
 APPLICATION FILED JULY 19, 1909.

959,636.

Patented May 31, 1910.

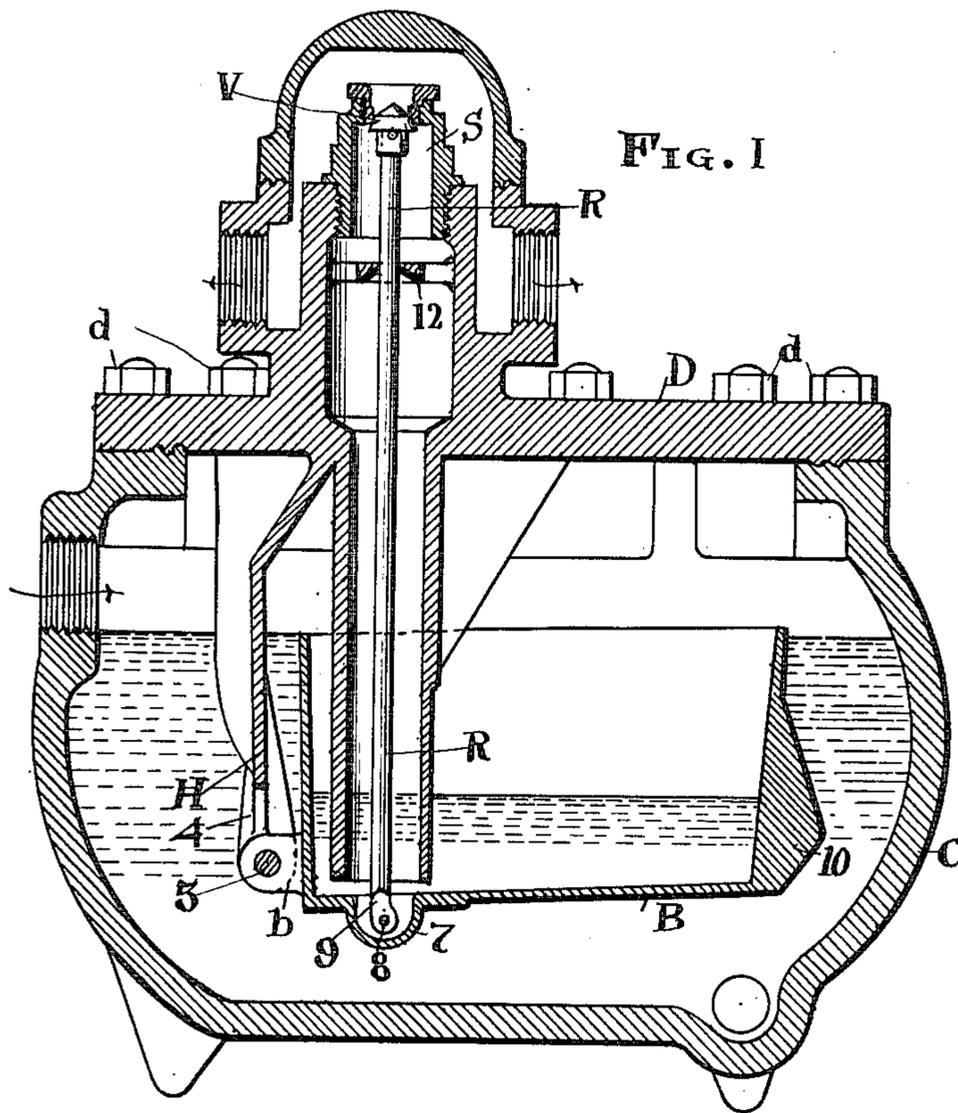


FIG. 1

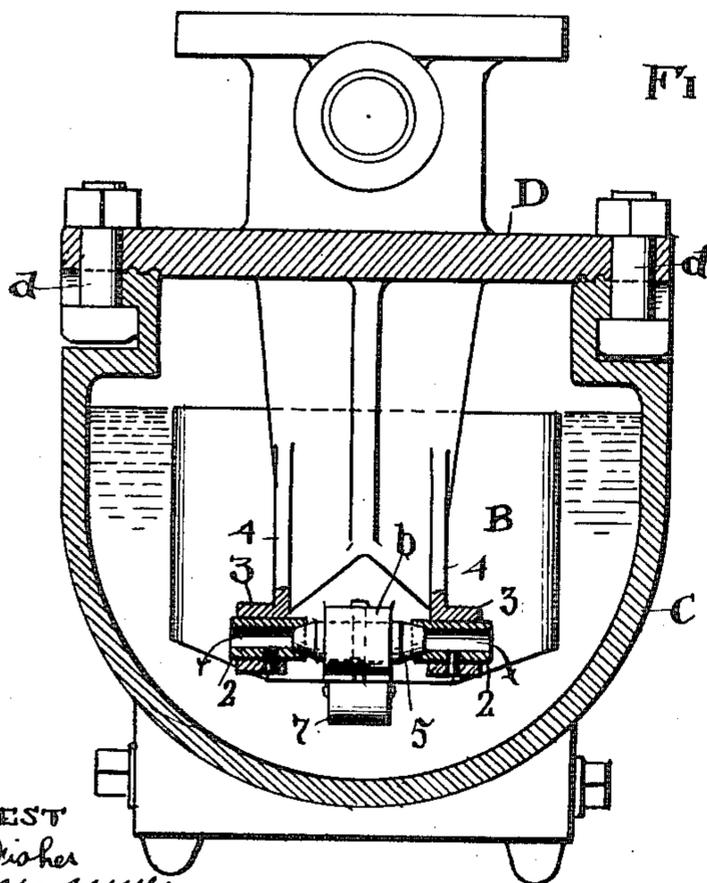


FIG. 2.

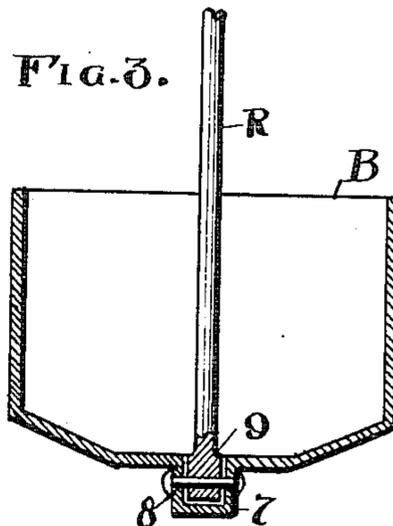


FIG. 3.

ATTEST
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UNITED STATES PATENT OFFICE.

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STEAM-TRAP.

959,636.

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To all whom it may concern:

Be it known that I, CHARLES E. SQUIRES, citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Steam-Traps, of which the following is a specification.

My invention relates to an improvement in steam traps, and consists in the construction shown and described and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a sectional elevation of my new and improved trap lengthwise thereof and Fig. 2 is a transverse sectional elevation. Fig. 3 is a sectional elevation of the bucket alone.

C represents the casing or body of the trap and D the top or cover removably fixed thereon by bolts *d*. B is the bucket and R the valve rod having the outlet valve V secured to its upper end as usual. As to these parts it is to be understood that they are not considered to be broadly new in this case, but said parts do contain certain new and original features which materially improve the trap as a whole and as will now appear.

Thus, the body or casing C is constructed with a wide open top so as to enable bucket B to be lifted bodily out and to be conveniently replaced when the cover is put on, and said bucket is pivotally mounted at one end on a hanger H integral with cover or lid D in this instance and hence also removable with the cover.

As to the bucket itself, the said part possesses several novel features comprising, first, a projection *b* at its bottom and end provided with a transverse bore or hole in which I mount a relatively hard steel bearing pin 5 having conical or cone shaped bearing points at its ends which operatively rest in correspondingly shaped or flaring seats in the inner ends of bearing tubes 2 mounted removably in ears 4 depending from the bottom of hanger H. Said ears or extensions 4 have tubular enlargements 3 of a size to receive the short steel bearing tubes 2 which are removably fastened therein and serve to support the bucket. This provides a bearing for the bucket B which not only is serviceable so far as duration is concerned, and which can be replaced when worn out, but which has the operating advantage of being self cleansing. This is one of the important advantages of the cone shaped bearings, and being kept clean so far as dirt or

other accumulations are concerned they materially prolong the life of the said bearings as well as afford ease of operation for the bucket.

Again, the bucket is provided with a depression or pocket 7 in its bottom and rear of a size adapted to receive the lower end of valve rod R. Heretofore it has been customary to construct the bucket with lugs inside on its bottom and to secure the valve rod in working position therein by a pin through said lugs, but this was objectionable for several reasons and chiefly because it was very difficult to reach the pin in the bucket either for insertion or removal. Hence I conceived the idea of the present construction wherein the depression 7 drops down below the bottom of the bucket and has relatively close parallel side walls and a pin hole through the same so that pin 8, which engages the valve rod therein, may be inserted and removed from the outside. The sides of the head 9 of rod R are shown as flattened to work comfortably between said side walls and this helps to keep the valve rod in place laterally and to center the same so as to afford even and uniform seating of valve V. When inserted the ends of pin 8 are upset to make a close fit and prevent leakage.

Finally as to bucket B, I cast the same with an enlargement 10 on its free end in order that I may have a point from which to grind or file as much extra weight as the bucket may require to insure buoyancy or poise on the water and without working injury to the bucket to effect this result. This enlargement or protuberance is of a size that will bear all the filing or cutting away which a bucket is likely to require to give it the desired balance, and thus I avoid the usual surface filing or grinding heretofore practiced to bring buckets to uniform and buoyant weight and the consequent injury to the bucket. In such former practice it was customary to grind or cut down the wall of the bucket until the desired balance was obtained, but it was easy to injure the bucket by thus working upon the wall thereof because of the danger of thinning the wall in spots as well as removing the tough scale on the surface of the casting and thus exposing the metal to the deteriorating effects of acids present in the water. Hence I have provided a specially designed enlargement 10 on the bucket which can be reduced or

cut down as much as may be needed to obtain a balanced condition without possible injury to the bucket.

Heretofore it has been customary to provide valve V with centering pins or projections about its side adapted to bear against the wall of the shell S within which the valve seats, but I have found that centering of the valve chamber can be done more certainly by means of a bridge or web 12 in the exhaust passage for the water near the upper end of the valve stem and providing said bridge with a hole corresponding in size to said stem and with a reduced or approximately knife edge next to the rod to avoid undue friction. This construction of guide for stem R also cooperates with the special manner of supporting rod R at its lower end in cavity or depression 7, and together the centering of said rod and valve V is assured when bucket B is in normal or rest position Fig. 1.

What I claim is:

1. In steam traps, a body open across its top, in combination with a cover removably bolted upon said body and provided with a hanger on its inside, a bucket pivotally mounted in said hanger having a projection at its rear and bottom, a pivot pin mounted in said projection and having conical extremities and bearing tubes in the bottom of said hanger in which said extremities are engaged.

2. A trap comprising a body and a cover

thereon having a hanger on its inside, in combination with a bucket pivotally supported at one end in said hanger and having a projection on its rear and bottom, a bearing pin fixed in said projection having conical ends and removable bearing tubes fixed in the bottom of said hanger having flared extremities matching the conical ends of said bearing pin.

3. The body of the trap and a removable cover therefor, in combination with a bucket pivotally supported from said cover and provided with a depression in its bottom having parallel side walls, a valve rod extending into said depression and a coupling pin therefor projecting through said side walls, and a guide for the upper end of said valve rod to center the valve on its seat.

4. In steam traps, a bucket having a relatively narrow and elongated depression in its bottom centrally at one end, in combination with a valve rod having its lower end extending into said depression, a pin transversely through the wall, said depression and said rod and a fixed guide for the upper end of said rod in the exhaust passage for the trap.

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

CHARLES E. SQUIRES.

Witnesses:

E. M. FISHER,
F. C. MUSSUN.