C. E. SQUIRES.

STEAM TRAP.

APPLICATION FILED AUG. 13, 1910.

980,694. Patented Jan. 3, 1911.

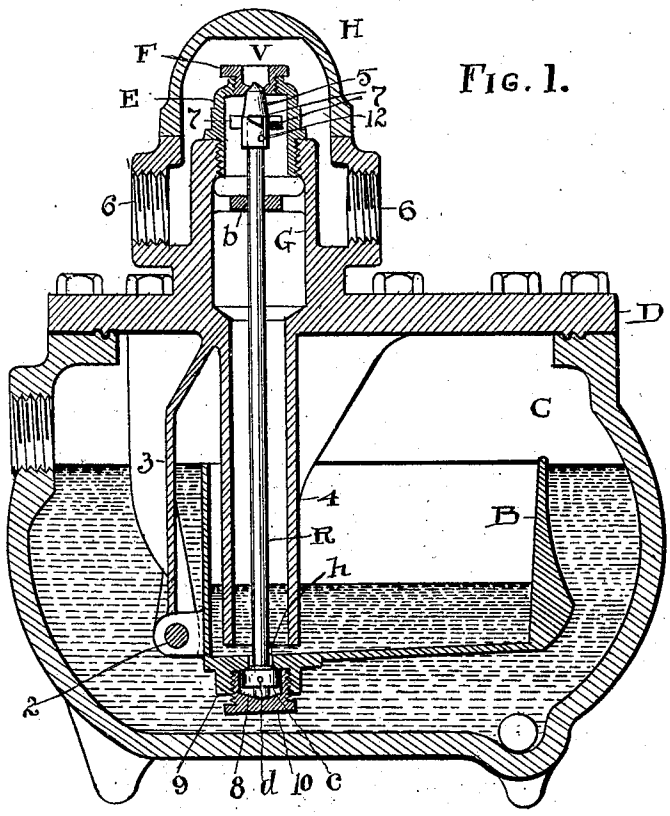

FIG. 1.

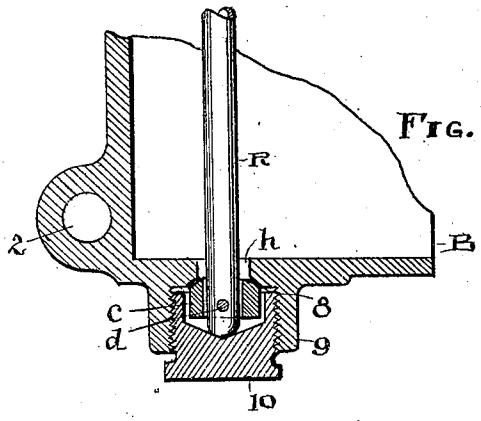

FIG. 2.

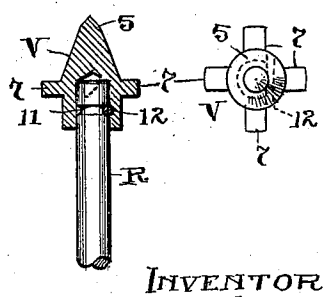

FIG. 3.

FIG. 4.

ATTEST

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UNITED STATES PATENT OFFICE.

CHARLES E. SQUIRES, OF CLEVELAND, OHIO.

STEAM-TRAP.

980,694. Specification of Letters Patent. Patented Jan. 3, 1911.

Application filed August 13, 1910. Serial No. 576,959.

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 steam traps, and the invention consists in certain new and original details of construction which I believe very greatly improve the operation of the trap, all substantially as shown and described and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical sectional elevation of the trap complete and operative in all its parts. Figs. 2, 3 and 4 are sectional details. Thus Fig. 2 is a section of the cup or bucket on the line of the coupling for the valve rod in the bottom thereof, and Fig. 3 is a section of the valve proper at the top of said rod and including a portion of the top of the rod on which it is mounted. Fig. 4 is a plan view of said valve.

The general features of the invention as thus shown are not regarded as broadly new, such as the bucket B, the condenser chamber C, the separate cover D and some other parts, and the novelty appears rather in certain details which have to do with the valve V and the coupling or connection of the valve rod R with the cup or bucket B. The said bucket and valve are located in relation to the condenser chamber C about as usual, the said bucket being pivoted at its base and rear at 2 in a depending portion 3 from the cover or lid D of said chamber and said cover is a separately cast part secured upon the chamber or casing C by bolts as usual

A tube 4 hangs from the bottom of cover D and is open at both ends, the lower end dipping into bucket B to near its bottom and the upper end opening through cover D into what is practically an extension of said tube 4 above said cover but with a larger cross sectional area in this instance and having a tubular shell E screwed therein from above. Said shell is provided with a valve seating plug F of approximately cup shape screwed into its top and which has an opening in its center and bottom forming a seat for the tapered or conical seating extremity 5 of said valve. A dome or hood H surmounts or covers over the parts just described and affords a space beneath and within the same through which open communication exists with the exits or exhausts 6 on opposite sides of said parts. The said valve V is peculiar in this that it is rotatably mounted upon the end of rod or stem R so as to automatically change its seating relations and wear evenly all around upon itself as well as upon its seat in part F, and to this end the said valve is provided with a socket in which said valve stem R is loosely engaged and has a number of lateral projections 7 which are constructed with inclined or beveled sides adapting the same to operate as vanes or blades against which the escaping fluid will impinge and cause the valve to turn when this occurs. A very slight turn will suffice for this purpose, and said projections 7 may have any suitable shape to effect this object. This rotation of the valve does not however necessarily involve the supporting rod R, which has a construction and arrangement of parts peculiar to itself at its lower end. Thus, the said rod is anchored in the bottom of the bucket, or, in fact, in a small chamber 8 formed beneath said bottom proper and constituted by an opening or hole down through said bottom beneath which there is an annular flange 9 about said hole forming the outer wall about said chamber, while a screw plug 10 is threaded into said annular wall from beneath and has a cavity inside with a somewhat rounded or concave bottom upon which the valve stem normally rests. Said stem is preferably rounded and might be pointed more or less at its end where it rests in said cavity, and is held in said plug 10 in otherwise free working relation by means of a collar *c* secured on said end by a pin *d* extending through said collar and the end of the rod, and which affords a pivotal engagement for the rod in the collar. The collar *c* is comparatively loose or free in respect to rod R as seen in Fig. 2, except as they are united by pin *d* and is more or less rounded on its top where it bears against a correspondingly rounded or concave surface on the bottom of the bucket about the hole *h* through the same. This construction affords rod R all the freedom of movement it needs in connection with the operations of the bucket and of valve V, and a spider or bridge *b* in the extension G above the cover D serves as a guide for the valve rod.

Valve V is rotatably secured upon rod R by a pin 12 which passes through the

valve body to one side of its axial center and seated in annular groove 11 about the rod.

The advantage of having the chamber H at the bottom of the bucket is that it permits the outlet tube 4 to come into very close relations in the bottom of the bucket. Again, this construction permits the rod R to be removed from the bottom of the bucket by removing the valve V and screw plug 10. Furthermore, the use of a bearing collar C and rod R extending beneath the same with a rounded end permits a free but close seating engagement with the bottom of the bucket and with screw plug 12 which may be adjusted if occasion arises. The lower end of the rod sustains the uplift of the bucket and the collar the downpull upon the rod, all of which is of advantage in the operation of the device.

What I claim is:

1. In steam traps, a bucket adapted to tilt having a relatively small chamber underneath the bottom thereof open at its bottom, and a valve supporting rod extending down through the bottom of the bucket and pivotally anchored in said chamber and apart from the wall thereof, and means adapted to hermetically close the bottom of said chamber having threaded engagement with the wall thereof.

2. In steam traps, a condenser casing and a bucket pivotally supported at its side and bottom in said casing and having a hole in its bottom and a downwardly extending annular flange about said hole on the bottom of said bucket, a valved rod with one end through said hole and a collar loosely mounted on said rod and confined about its side by said annular flange, and a closure threaded on said flange supporting said rod.

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

CHARLES E. SQUIRES.

Witnesses:

E. M. FISHER,

F. C. MUSSUN.