

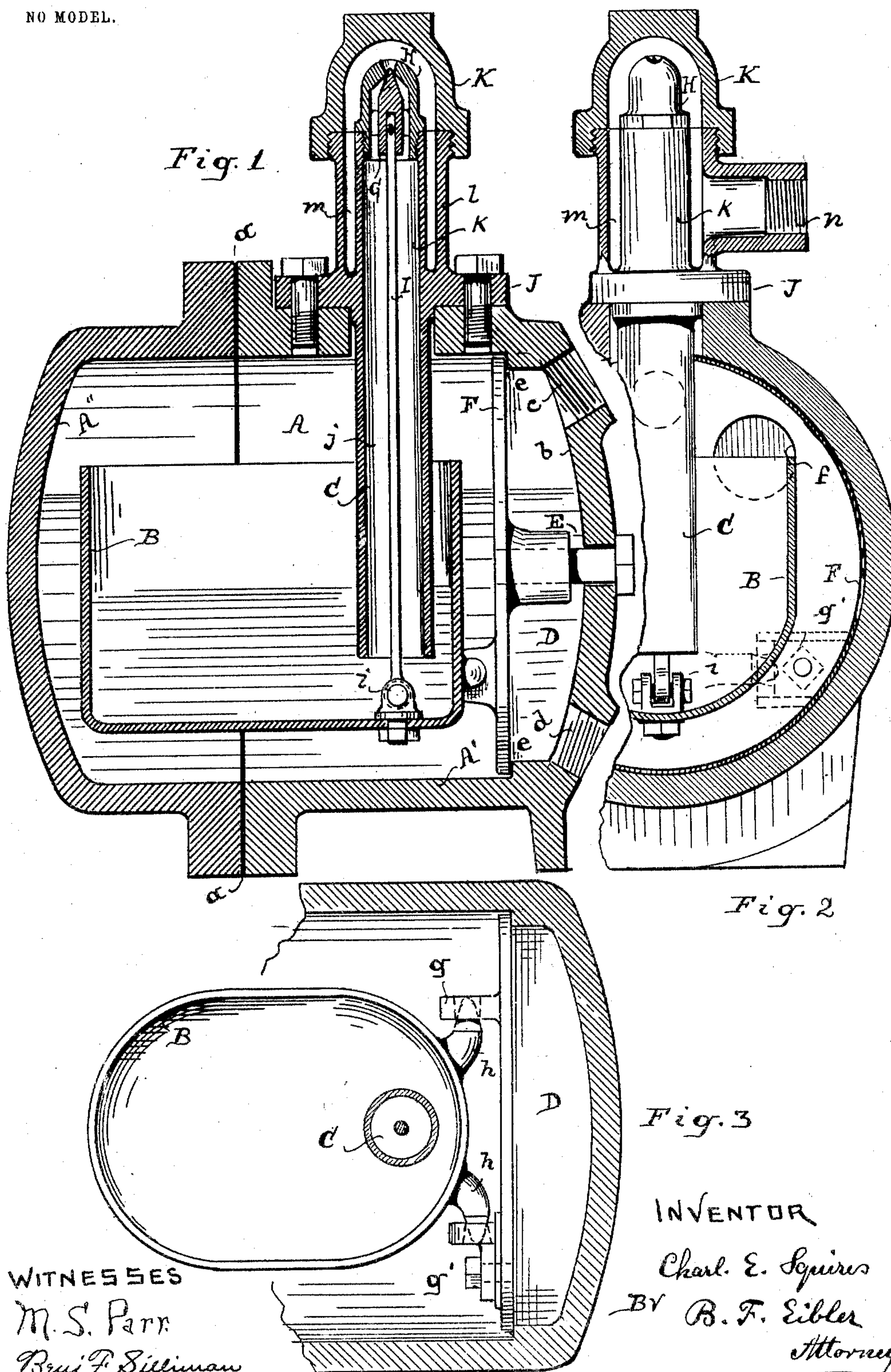
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PATENTED NOV. 29, 1904.

C. E. SQUIRES.
STEAM TRAP.

APPLICATION FILED APR. 21, 1904.

NO MODEL.



UNITED STATES PATENT OFFICE.

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STEAM-TRAP.

SPECIFICATION forming part of Letters Patent No. 775,943, dated November 29, 1904.

Application filed April 21, 1904. Serial No. 204,203. (No model.)

To all whom it may concern:

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

My invention relates to improvements in steam or draining traps which are used in a system or line of steam-pipes for the purpose of expulsing automatically condensations therefrom.

The object of my invention is to provide an apparatus for this purpose which is extremely simple in construction, easily accessible, and reliable in point of operation.

I attain this object in an apparatus constructed substantially as illustrated in the accompanying drawings, in which—

Figure 1 represents a longitudinal central vertical sectional view of said apparatus. Fig. 2 is a partial transverse sectional view of same, and Fig. 3 is a horizontal sectional view illustrating the lower portion thereof.

Like letters of reference denote like parts in the drawings and specification.

Substantially this apparatus comprises a vessel A, a bucket B, a valve-controlled outlet-conduit C, and a sediment collecting or separating chamber D. The vessel A is formed of the casings A' A'', which preferably have a flanged joint, as at *a*, adapted for removable bolt connection.

In the end wall *b* of casing A' provision is made for connecting the steam-pipe line therewith, as at *c*, while at *d* attachment is afforded for a purge or drain cock for the chamber D.

By means of a bolt or cap-screw E the plate F is held secure against the shoulder *e* of member A', thereby and therewith forming the chamber D, above alluded to.

One or more apertures *f* establish communication between said chamber and the vessel proper.

By the brackets *g g'* hinged support is furnished for the pivots *h h* of bucket B. Preferably the bracket *g'* is arranged removable

to enable convenient insertion of said pivots, which admit of an oscillating movement of or for the bucket.

The bucket B itself consists of a thin metallic shell intended to serve in its state of buoyancy as a means of forcing the valve G against its seat-bearing cap H, the stem I establishing operative connection between said valve and bucket and the stem itself having jointed connection with the bucket, as shown at *i*.

A bonnet J is attached on top of the vessel. The tubular part *j* thereof extends into the bucket B, while the part *k* furnishes support for the cap H and in connection with shell *l* forms a port *m*, leading to outlet *n*. (See Figs. 1 and 2.)

The cover K admits of ready access to the valve and its cap should inspection be advisable and repairs found necessary.

This apparatus is intended to drain automatically condensation from steam-pipe lines or steam-pipe systems. Steam or condensation therefrom enters at *c*, and as long as the water-level in the vessel is below the edge of the bucket the relations and adjustments of the parts above mentioned are such that the buoyancy of the bucket retains the valve in forced condition against its seat. Meanwhile the contents of the vessel remain in confined condition. However, as soon as the water rises to the edge of the bucket then the latter begins to sink, whereupon the valve can descend and establish an outlet for the contents of the vessel, the steam forcing the water up and outwardly by way of tube *j*.

In forcing water from out of the bucket the latter regains its buoyant condition, whereupon the valve G closes the orifice of the cap, and for a time no more water is disposed of until the condensation of steam again assumes proportions sufficient to sink the bucket by overflowing into same.

From the foregoing it can readily be seen that condensed steam will first settle in compartment D and only purified water can reach the interior of the vessel proper, provided the drain-cock is opened from time to time to purge

the chamber D of its sediment contents. Furthermore, the valve G is readily accessible, so that with little attention and labor an apparatus of this kind can at all times remain in
5 proper working condition for the purpose of freeing steam-pipes from an injurious or detrimental accumulation of condensation.

The valve G and cap H, being located outside and above the vessel, can conveniently be
10 reached without removing any other part of the trap, and since the valve and cap are practically the only parts subjected to wear experienced or skilled attendance is not required.

What I claim, and desire to secure by Letters Patent, is—
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1. In a condensing steam-trap the combination with the vessel parts thereof of a buoyant bucket B having hinged connection with an internal partition, a sediment-collecting
20 chamber formed by said partition and one part of the vessel, an inlet for said chamber, an outlet-conduit extending into said bucket and above the vessel, a bonnet with side outlet secured on top of the vessel, a stem hinged to
25 said bucket, a valve removably connected with said stem, a cap furnishing the seat for said valve and a cover surrounding said cap and establishing communication with the outlet-port of said bonnet all constructed and ar-

anged substantially as and for the purpose set forth. 30

2. In a condensing steam-trap the combination with the vessel, a floating bucket therein, and a stem secured to said bucket of a valve removably secured to the free terminal of said stem, a bonnet comprising a tubular part which extends into said bucket and furnishes support for the cap of said valve and a side outlet, the cap for said valve, and a cover inclosing said cap and communicating with said
40 side outlet all constructed and arranged substantially as and for the purpose set forth.

3. In a steam-trap in combination, a partition therein establishing a sediment-chamber, and the discharge-controlling buoyant bucket,
45 the said partition having a fixed and a removable bracket adapted to receive laterally-projecting pivots of said bucket as shown and for the purpose set forth.

4. In a condensing steam-trap a buoyant
50 bucket having pivots formed integrally therewith said pivots engaging supports of a removable interior wall of said vessel as shown and set forth.

CHARLES E. SQUIRES.

Witnesses:

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BENJ. F. SILLIMAN.