

C. J. MACKEREY.
STEAM TRAP.
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1,044,211.

Patented Nov. 12, 1912.

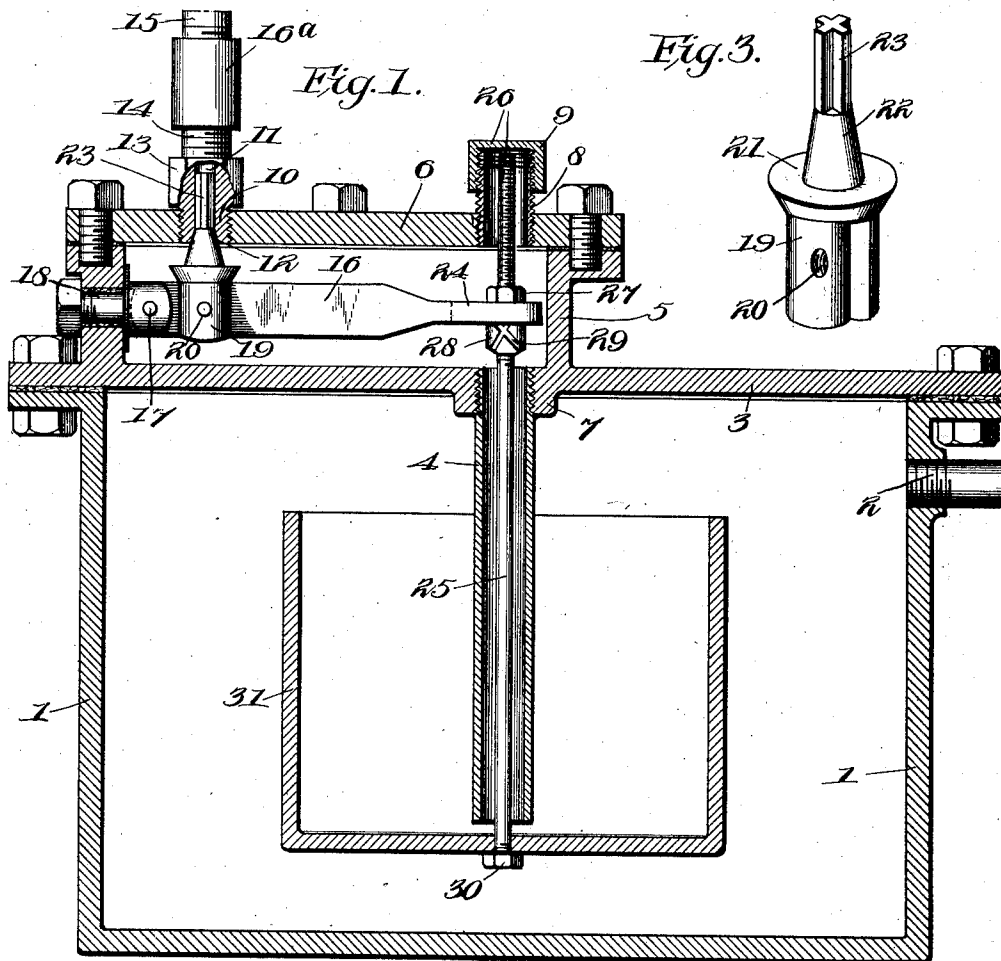
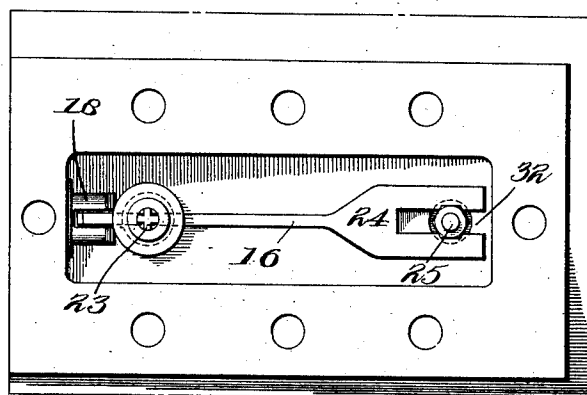


Fig. 2.



Witnesses

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STEAM-TRAP.

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To all whom it may concern:

Be it known that I, CHARLES J. MACKEREY, a citizen of the United States, and a chief machinist mate, United States Navy, have invented certain new and useful Improvements in Steam-Traps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in steam traps, and has for its object to provide means for collecting the water of condensation from steam engines, radiators, or similar steam apparatus, or from compressed air systems and conducting said condensed water back again to the boiler or other receptacle for further use, or otherwise discharging same from the system.

While the invention is not restricted to the exact details shown and described, still for the purpose of disclosure reference is had to the accompanying drawings illustrating a practical and preferred embodiment of the invention, in which drawings like characters designate the same parts in the several views, of which—

Figure 1 is a vertical longitudinal section through the trap, the valve and other parts being shown in elevation. Fig. 2 is a plan view of the valve casing with the top omitted, and Fig. 3 is a perspective view of the valve.

1 designates a casting or well provided with an exhaust steam inlet pipe 2, the well being provided with a top 3, bolted or otherwise secured thereto and having a depending sleeve 4 terminating at a position above the bottom of the well, and communicating at its upper end with a valve casing 5 formed integrally with the top casting 3 and provided with a removable top 6 bolted or suitably secured to the casing 5 illustrated. The depending sleeve 4 may be secured to the valve casing, as shown in the drawings, by being threaded into a threaded bushing 7 formed on the top 3, which top constitutes the bottom of the valve casing.

The top 6 of the valve casing is provided with a threaded nipple 8 communicating with the valve casing and provided at its upper end with a cap 9. The other end of the valve casing is provided with a threaded projection 10, having a cylindrical bore 11 and a recess 12 communicating with the

valve casing and providing a seat for a valve hereinafter referred to, and which valve and valve seat are inverted with respect to the usual position. In the drawings this recess 12 is illustrated as being conical. The projection or plug 10 may be held locked against inward movement by a nut 13 having a threaded extension 14, which latter may be connected with piping 15 by the coupling 16, the piping 15 being an outlet for the trap and carrying the blown off water back to the boiler or other receptacle, or otherwise discharging same. With this arrangement of valve and valve seat, the outlet pipe 15 is, at all times, maintained free from sediment or other accumulation, resulting in that the apparatus as a whole works smoothly and does not require to be continuously disassembled for cleaning or adjustment. And by having the removable top 6 for the valve chamber, the mechanism therein is readily accessible without requiring entry into the well, which would otherwise be the case when said mechanism is located within the chamber constituting the well.

16 designates a valve lever pivoted as at 17 to the casing, illustrated in the drawings as being pivotally supported in the bifurcated end of a screw bolt 18. Adjacent the valve seat 12 a valve is pivotally supported on the lever 16, and this valve consists of the bifurcated base 19 straddling the lever 16 and provided with apertures 20 to receive the pivot pin, the upper end of the valve being in the form of a cylindrical head and cap 21 having a conical extension 22 terminating in a longitudinally corrugated cylindrical stem 23 substantially cruciform in cross section. The free end of the lever 16 terminates in a flat tongue 24 apertured to receive the rod 25, the upper end of which is threaded, as at 26, and extends into the hollow nipple 8 terminating adjacent the cap 9 thereof. This flat end 24 of the lever is disposed between the nut 27 and the threaded abutment 28, which latter is grooved on its exterior 29 to permit of communication between the sleeve 4 and the valve chamber, even though the abutment 28 should be lowered to extend within the sleeve 4, thus permitting at all times, the passage of fluid from the well into the valve chamber above. The lower end of the rod 25 is provided with a head

or a nut 30 and suspends a bucket 31 within the well, the rod 25 extending through the sleeve 4. As shown more clearly in Fig. 2 the flat end of the lever 24 is slotted or bifurcated as at 32.

It will be understood that in operation the well is partially filled with water sufficient to float the bucket 31, which being threaded to the rod 25 its buoyancy will force said rod upwardly, carrying with it the free end of the lever and shoving the valve 22 home. The steam from the steam apparatus is delivered through the pipe 2 to the steam trap where it condenses and finally overflows into the bucket 31, the weight of the water therein overcoming the bucket's buoyancy and automatically operating to unseat the valve 22, the valve being open the pressure of the steam will force the water from the bucket 31 up through the sleeve 4 into the valve casing and out through the bore 11 of the plug, the cruciform construction of the rod allowing this. After a portion of the water has been blown out of the bucket its buoyancy is restored and the parts are automatically worked to reseat the valve.

The abutment 28 being threaded may be adjusted upwardly or downwardly on the rod 25, and when moved downwardly a sufficient distance the valve lever drops, unseating the valve and providing for a continuous blowing out of the water, when such is desired, instead of automatically opening and closing the valve at periods. The distance of the top of the rod 25 from the cap 9 is sufficient to allow the bucket to be moved upwardly a limited distance, from the position shown, when the abutment 28 is screwed downwardly, but not sufficient to enable the bottom of the bucket to engage the bottom

of the sleeve and thereby close communication with the valve casing.

While for the purpose of brevity and clearer understanding, I have referred to my invention under the well known title of steam trap, still it will be understood that the words steam trap are to be construed where used in the sense of also including fluid under pressure other than steam, such for instance, as compressed air in systems of that type.

Having thus described the invention, what I claim is:—

In a steam trap, the combination of a covered well; a casing mounted above said well; a sleeve depending from said casing and providing a communicating passage between said casing and the well, said casing provided with an outlet having a valve seat; a lever fulcrumed on said casing; a valve on said lever for the valve seat; a floating member within said well and surrounding said sleeve; a rod secured to said floating member and passing through said sleeve, said rod provided with a screw-threaded portion at its upper end; a pair of nuts on said screw-threaded portion securing said rod to said lever, one of said nuts adapted to move within the sleeve when the float is lowered; and said last named nut provided with openings forming a communicating passage between the well and the casing when the float is in its lowered position, substantially as described.

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

CHARLES JOSEPH MACKEREY.

Witnesses:

KEITH MARSHALL BAKER,
RAYMOND VANCE.