G. U. MERRILL.

STEAM TRAP.

APPLICATION FILED SEPT. 13, 1913.

1,108,603.

Patented Aug. 25, 1914.

2 SHEETS—SHEET 1.

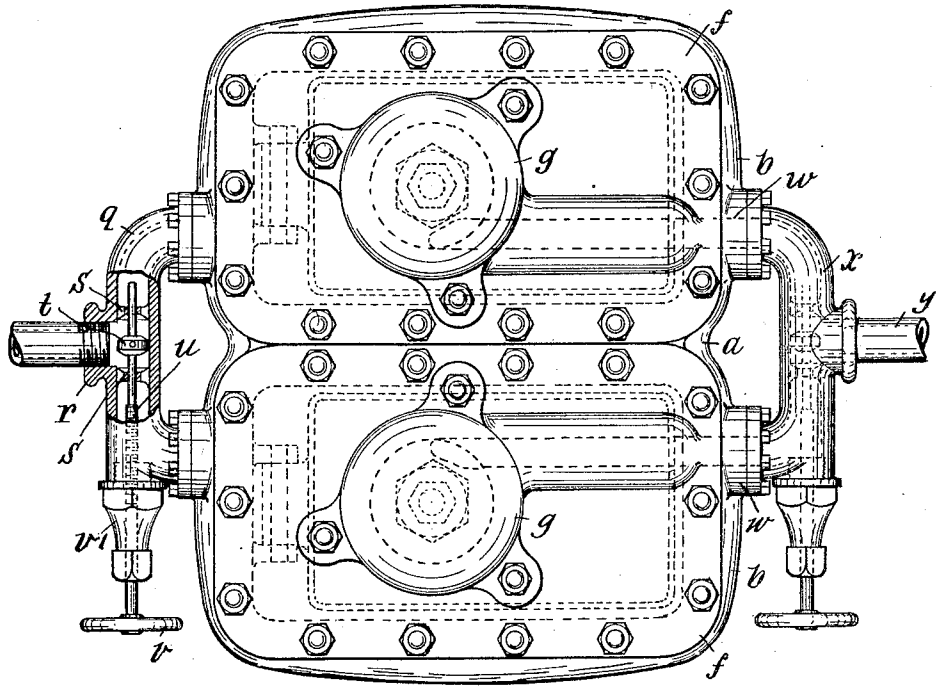


Fig. 1.

WITNESSES

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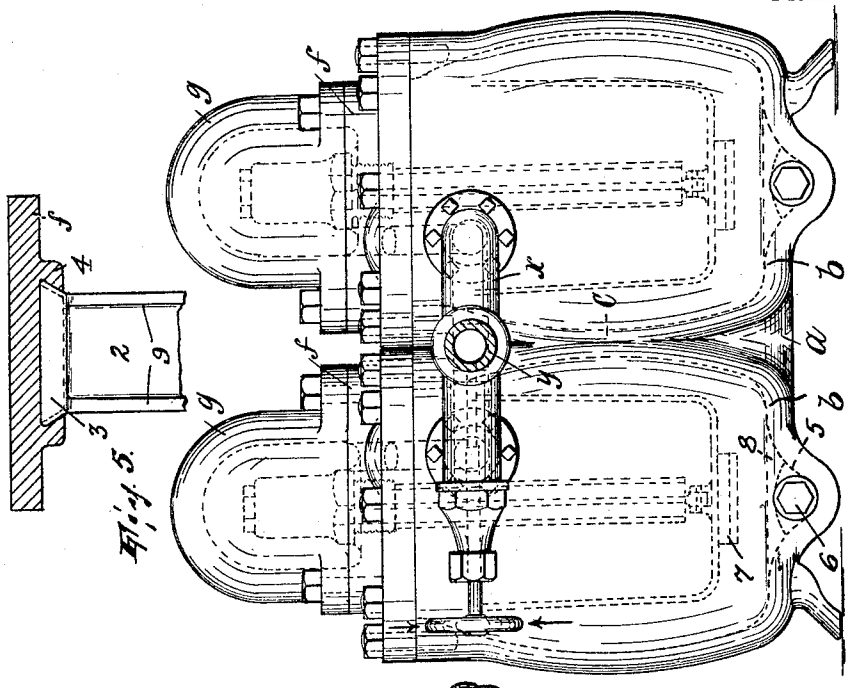


Fig. 3.

Fig. 5.

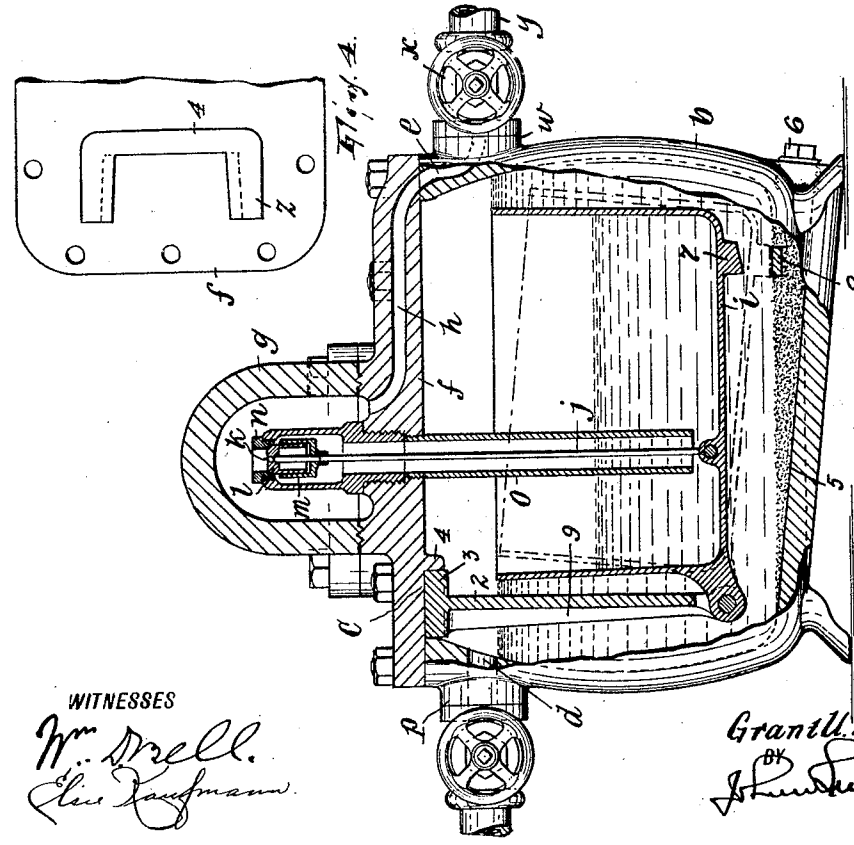


Fig. 2.

Fig. 4.

WITNESSES

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UNITED STATES PATENT OFFICE.

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STEAM-TRAP.

1,108,603. Specification of Letters Patent. Patented Aug. 25, 1914.

Application filed September 13, 1913. Serial No. 789,670.

To all whom it may concern:

Be it known that I, GRANT U. MERRILL, a citizen of the United States, residing at Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Steam-Traps, of which the following is a specification.

This invention relates to steam traps, and particularly steam traps of the class in which a floating bucket controls the escape of the accumulating water, and it consists in certain improvements in such apparatus having for their object to better the construction and increase the efficiency thereof.

In the accompanying drawings, Figure 1 is a plan of the improved steam-trap; Fig. 2 is a vertical sectional view through one of the pots in substantially the plane of its inlet and outlet; Fig. 3 is an elevation of the inlet side of the trap; and, Figs. 4 and 5 illustrate certain details.

In carrying out my invention I provide a unitary structure *a* comprising two pots *b b* each open at the top and separated from each other by the partition *c*. Each pot has an inlet passage *d* in its back wall and, leading downwardly and then outwardly through its front wall, an outlet passage *e*. On each pot is removably secured a cover-structure including a plate *f* and a dome *g* removably secured on the plate, said plate having a port *h* leading from the dome to and communicating with the passage *e* corresponding to said pot and forming a passage with means (to be described) affording communication between the dome and the interior of said pot.

The trapping means may be any accepted type, that shown in the drawings being one well known and comprising the following elements: The pivoted bucket *i* floating in the water accumulating in the pot normally holds elevated a stem *j* whose upper end obturates an orifice *k* in an inverted cup-shaped valve *l* fitted into a cup *m* fixed on the stem *j*, said valve taking against a seat *n* formed at the upper end of a tubular structure *o* that is suitably fitted in and extends through the plate *f* and depends suitably below the water level in the pot. Normally the passage through structure *o* is closed by the valve, but when the water accumulates in the pot sufficiently to overflow into the bucket, on the descent of the latter and the valve the pressure of the steam forces the water in the bucket up through said structure, past the valve, into the dome, from whence it finds outlet via the port *h* and passage *e;* as soon as the buoyancy of the bucket is restored by depletion of the water body therein, the incidental rise of the bucket reseats the valve, thus stopping the flow past the valve.

The points of inlet for the two passages *d* are afforded by bosses *p* formed on the back of each pot. Removably secured thereto are the flanges of a two-way fitting *q* having a substantially straight intermediate portion provided with a threaded nipple *r* to receive the pipe leading from the system to be drained. Between the nipple *q* and each extremity of the fitting is a valve seat or spider *s* against either of which valve seats may bear a common valve *t* carried by a stem *u* carrying a hand-wheel *v* and having preferably a threaded connection with a part, as *v'*, of the fitting. Upon shifting the valve one way or the other the flow through the fitting may be established in one direction and cut off in the other, as will be obvious. The passages *e* have their outlet ends terminating in bosses *w* like the bosses *p*, and removably secured to these bosses are the flanged ends of a fitting *x* substantially identical to the fitting *q* and having a nipple for the eduction pipe *y*, valve seats, a valve, a stem carrying the valve, a handle, a hand-wheel on the stem and a part with which the stem has a threaded connection, all substantially identical to the corresponding parts appertaining to the fitting *q*.

In view of the foregoing it will be apparent that, assuming that one side of the steam-trap has been in operation and for some reason the flow therethrough must be stopped, the valves of the fittings *q* and *x* are moved so as to cut off the flow through said side of the trap; this leaves the flow to continue uninterrupted through the other side of the trap, and in the meanwhile access may be had to the interior of the side of the trap which has been cut off by removing its cover structure. Each bucket *i* is commonly pivoted at the back and bottom thereof in a leg depending from the cover structure. This leg, cast integral with the cover structure, sometimes becomes broken off in shipping the trap. According to my construction the under side of the cover structure has a dovetailed socket *z* opening rearwardly and the leg 2 has at its upper end a dovetailed head or tongue 3 adapted

to be entered into said socket to a limit afforded by the stop 4 thereof. Thus the leg becomes a separable piece and may be detached from the cover structure in shipping. When the parts are assembled the leg is kept in place by the rear wall of the pot, which obstructs its rearward movement out of the socket. The bottom of each pot is preferably formed with a channel 5 inclining forwardly and terminating in a vent closed by the plug 6. In this channel sediment may accumulate and be drawn off from time to time, thus preventing it from interfering with the full downward movement of the bucket, which in this case is limited in its downward movement, always at the same level, by contact of its foot 7 with a bridge 8 spanning the channel. Steam admitted at *d* may be employed to clear the channel in removing the sediment, its action being concentrated on the channel by the rear vertical ribs 9 of the leg 2, which ribs serve also to strengthen the leg.

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

1. In a steam-trap, a hollow structure having an inlet and means whereby to discharge the water accumulating in said structure and also having a removable cover, trapping means for the discharge means including a floating bucket housed in said structure, and a depending leg to which said bucket is pivoted removably attached to the cover and held against removal by said structure in the assembled disposition of said structure and cover.

2. In a steam-trap, a hollow structure having an inlet in one side thereof and means whereby to discharge the water accumulating in said structure, and trapping means for the discharge means including a floating bucket, said structure having a depending leg opposite and relatively close to the inlet affording a pivot for the bucket and said leg having a vertical channel on the side thereof adjoining the inlet, and said structure also having a sediment channel substantially alined with said channel of the leg and under the bucket, an outlet in the side of said structure opposite that having the inlet and communicating with said channel, and means to close said outlet.

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

GRANT U. MERRILL.

Witnesses:
JOHN W. STEWARD,
WM. D. BELL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."