

UNITED STATES PATENT OFFICE.

GEORGE S. BRAINERD, OF BOSTON, MASSACHUSETTS.

FLOAT-VALVE.

SPECIFICATION forming part of Letters Patent No. 583,322, dated May 25, 1897.

Application filed January 30, 1897. Serial No. 621,278. (No model.)

To all whom it may concern:

Be it known that I, GEORGE S. BRAINERD, of Boston, (Dorchester,) in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Float-Valves, of which the following is a specification.

This invention relates to valves intended to be actuated by floats for the purpose of permitting the intermittent escape of water from a receptacle and is intended particularly for use in connection with steam-traps.

The invention has for its object to enable the float-lever, which is actuated by the rise and fall of water in the receptacle, to efficiently control the valve and impart thereto a sufficiently ample opening and closing movement without sacrificing any of the compactness desirable in an apparatus of this class.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a sectional view of a steam-trap provided with my improved valve. Fig. 2 represents a sectional view of the valve and a portion of the float-lever.

The same letters of reference indicate the same parts in both figures.

In the drawings, *a* represents the casing or chamber of a steam-trap, the same having a suitable inlet for steam and water of condensation and a suitable outlet at *a'* for the water.

b represents a valve-casing, which has suitable inlet-ports *b'* *b*² communicating with the interior of the casing *a*, the arrangement being such that when the valve *e* is given a vertical upward movement its inlet-ports will be opened and water will be permitted to pass to the outlet-port. When the valve is depressed and seated on the ports *b'* *b*², the escape of water from the casing *a* is prevented.

The valve is operated by a float-lever which is pivotally connected at *c* to ears rising from the upper end of the valve-casing, the float *c'* being located near the opposite end of the chamber *a*. The float-lever comprises a longer arm *c*² at one side of the pivot *c*, said arm being attached to the float *c'*, and a

shorter arm *c*³ at the opposite side of the pivot *c*. The said shorter arm is curved or extended downwardly under the pivot *c* and between the latter and the valve *e*. The valve has an upwardly-projecting shank *e'*, in which is formed a horizontal groove or way *e*², into which projects the rounded end of the shorter arm *c*³. The form and relative arrangement of the arms *c*² and *c*³ are such that when the longer arm *c*² is held in a substantially horizontal position, as shown in full lines in Figs. 1 and 2, the shorter arm *c*³ will be depressed and will hold the valve closed upon its seat or seats. When the arm *c*² is raised by the action of liquid on the float *c'*, the shorter arm *c*³ is moved in the arc of a circle that is indicated in dotted lines in Figs. 1 and 2, its lower end being thus caused to slide in the groove *e*² of the valve-stem and at the same time to move upwardly toward the pivot of the lever, thus raising the valve from its seat.

The construction shown enables all of the interior parts to be supported by the wall *E* of the chamber without forming more than a single threaded opening therein, that single opening being formed to receive the outlet-pipe *a'* of the valve-casing.

I find that by dividing the float-lever into a longer arm, carrying the float, and a shorter arm, which is curved downwardly and engaged with the valve at a point below the pivot of the lever, I not only provide for an ample opening and closing movement of the valve and an effective control over the valve by the float and the longer arm of the lever, but I also secure a desirable compactness of construction by reducing to the minimum the space required for the float lever and valve.

In Letters Patent No. 546,606, granted to me September 17, 1895, I show a float-lever having but one arm and that connected with the valve by means of a link at one side of the pivot which connects the float-lever to its support. With that construction, in order to obtain a sufficient amplitude of opening and closing movement, the link has to be connected with the valve at a considerable distance from the pivot, whereas with my improved two-armed lever the pivot can be located almost directly above the valve and in the line of movement thereof. The differ-

G. S. BRAINERD.
FLOAT VALVE.

Patented May 25, 1897.



P. W. Pezzutti

INVENTOR:

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