

No. 667,075.

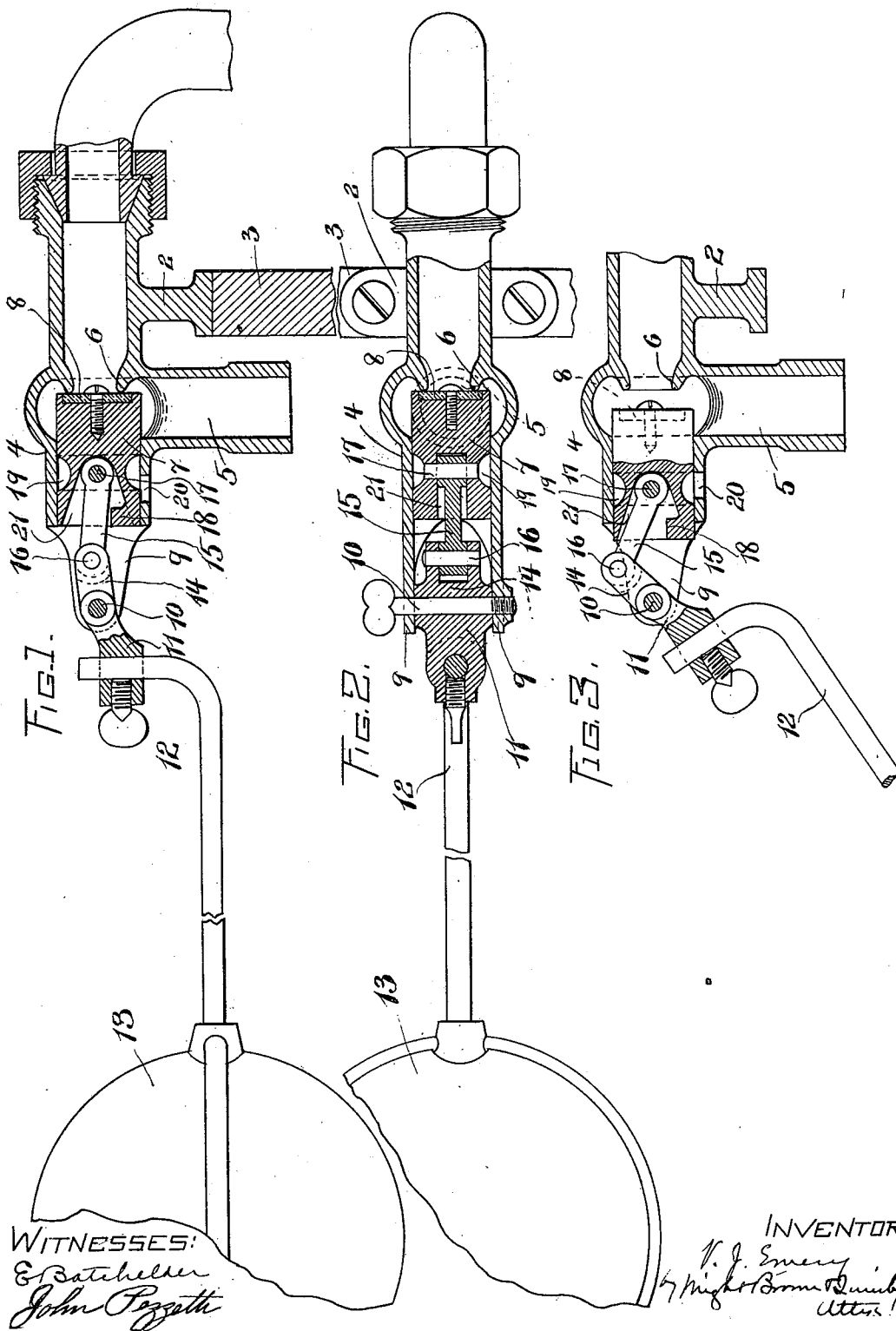
Patented Jan. 29, 1901.

V. J. EMERY.

FLOAT VALVE.

(Application filed Aug. 23, 1900.)

(No Model.)



UNITED STATES PATENT OFFICE.

VICTOR J. EMERY, OF WOLLASTON HEIGHTS, MASSACHUSETTS.

FLOAT-VALVE.

SPECIFICATION forming part of Letters Patent No. 667,075, dated January 29, 1901.

Application filed August 23, 1900. Serial No. 27,806. (No model.)

To all whom it may concern:

Be it known that I, VICTOR J. EMERY, of Wollaston Heights, in the county of Norfolk 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 float-valves for flushing and other tanks; and its object is to provide a valve which is simple, durable, and inexpensive and which will be uniformly operative without respect to the pressure of the water-supply which it controls.

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

Of the accompanying drawings, Figure 1 represents a longitudinal vertical section of a float-valve constructed in accordance with my invention. Fig. 2 represents a horizontal section thereof. Fig. 3 represents a detail vertical section showing the valve open.

The same reference characters indicate the same parts in all the figures.

Referring to the drawings, 1 represents a casing formed at one end for attachment to the supply-pipe and provided with the usual leg or bracket 2, whereby it is secured to the wall 3 of the tank. The casing 1 has a longitudinally-extending or horizontal valve-guiding branch 4, internally cylindrical and of uniform internal diameter, open at its outer end, a discharge branch 5 extending laterally in a downward direction from said valve-guiding branch, and a vertical valve-seat 6 at the junction of the said valve-guiding and discharge branches.

7 is a cylindrical valve-piston fitted to slide in the valve-guiding branch 4 of the casing and the inner end of which constitutes a valve to cooperate with the valve-seat 6 and control the discharge through the branch 5, the said valve having a yielding packing or facing 8, of leather or other suitable material.

Projecting longitudinally from the end of the valve-guiding branch 4 are two arms or ears 9 9, supporting a removable pintle or pivot-pin 10, which journals a lever 11, the latter having attached to its outer arm the stem 12 of a ball-float 13. 14 represents the inner arm of said lever, and 15 represents a link or arm pivoted at 16 at its outer end to

the arm 14 and pivoted at 17 at its inner end to the valve-piston 7. The arms 14 15 constitute a toggle operated by the rise and fall of the float 13 and operating the valve-piston 7. The rise of the float tends to straighten the toggle and bring the valve to its seat, as represented in Figs. 1 and 2, while the fall of the float tends to bend the toggle and unseat the valve, as represented in Fig. 3. The float exerts its greatest power on the valve just as the latter reaches its seat, and as the toggle then becomes substantially straight a locking action is exerted on the valve, the device being therefore made uniformly operative without respect to the water-pressure in the inlet-pipe. To prevent the toggle from bending downwardly and reopening the valve as the float rises, which action might occur should the valve-packing 8 become unduly compressed from continued use, I provide the valve-piston 7 with an abutment or stop 18, against which the under side of the toggle-arm 15 may abut to limit the straightening movement of the toggle.

The valve-piston 7 is shown as having a circumferential groove 19 about midway of its length and the valve-casing as having an aperture 20 on its under side in the wall of the branch 4 and registering with said groove, the object of this construction being to discharge any leakage which may occur past the inner portion of the valve-piston when the valve is open downwardly into the tank.

An important feature of my improved construction consists in pivoting the inner end of the toggle-arm 15 to the valve-piston at a substantial distance inwardly from the outer end of the latter to avoid cramping of the valve-piston in its guide under the influence of the toggle. This is accomplished by forming a recess 21 in the valve-piston 7 from the outer end thereof and extending the toggle-arm 15 into said recess, the pivotal point 17 being preferably at or near the middle of the valve-piston.

I claim—

1. A float-valve comprising a casing having a valve-seat and a valve-guide, a valve-piston slidingly mounted in said guide and having a recess 21 extending from its outer end inward substantially to the center of said piston, a toggle interposed between the cas-

ing and the valve-piston and operating to seat the valve by its straightening movement, the inner end of the toggle having a pivot extending across the inner end of said
 5 recess, and a stop 18 formed on the valve-piston and projecting into said recess and serving to limit the straightening movement of the toggle.

2. A float-valve comprising a valve-casing
 10 having a horizontal valve-guiding branch 4 which is internally cylindrical and of uniform internal diameter and open at its outer end, and a discharge branch 5 extending
 15 downward therefrom, a valve-seat 6 being formed at the junction of said valve-guiding and discharge branches, a cylindrical valve-piston 7 fitted to slide in the branch 4 and

having a recess in its outer end, the branch 4 being formed with longitudinal projecting arms or ears 9 9, a float-lever pivotally supported by a pin supported in said ears, a link
 20 15 pivotally connected with the inner end of said lever and having a pin pivotally connecting its inner end with the inner end of the recess in the valve-piston, and a stop 18
 25 for the side of said link, said stop projecting into the recess of the valve-piston.

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

VICTOR J. EMERY.

Witnesses:

HORACE BROWN,
 E. BATCHELDER.