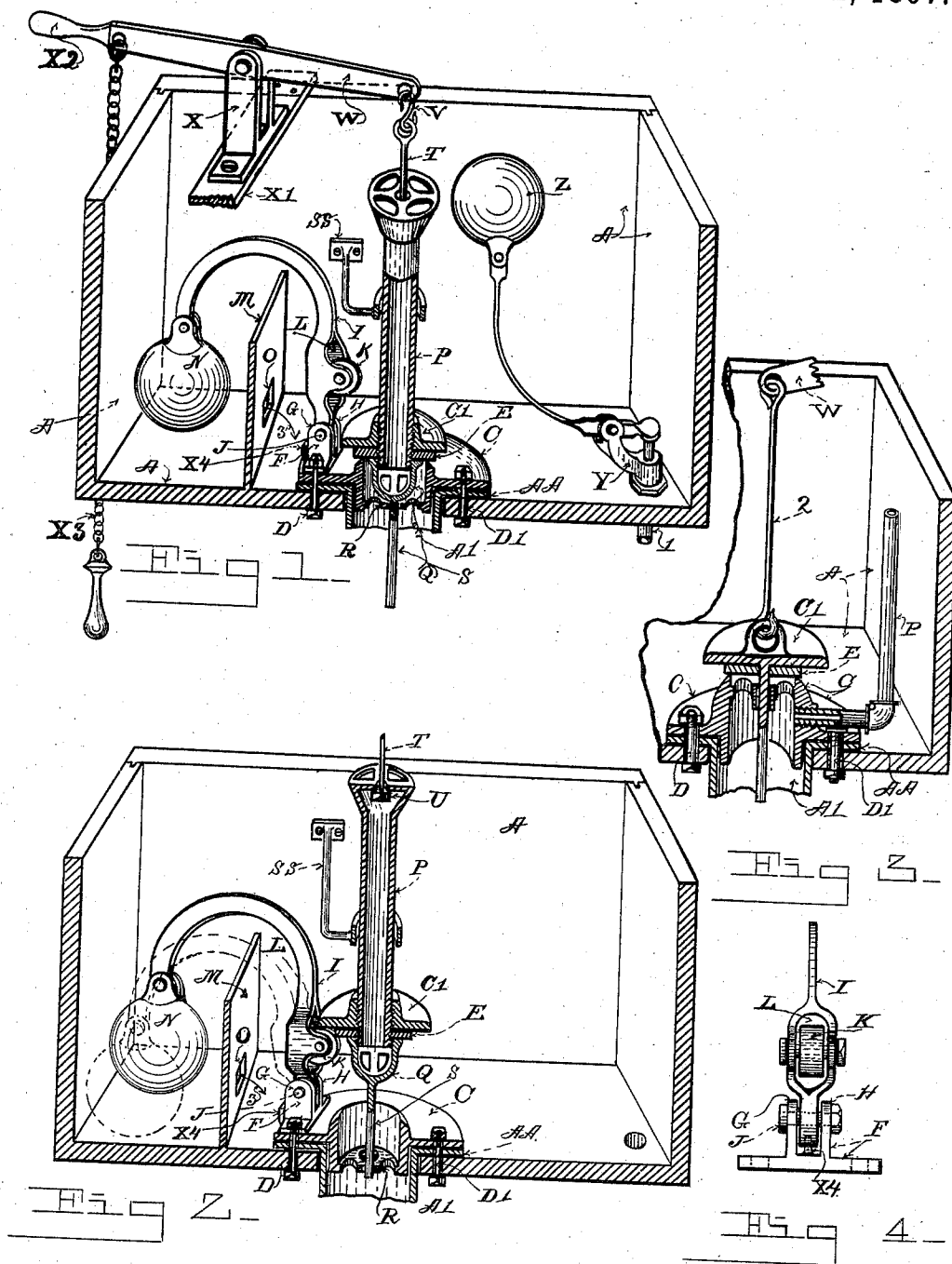


(No Model.)

D. S. WALLACE.
FLUSHING TANK.

No. 577,899.

Patented Mar. 2, 1897.



Witnesses

Isaac Robert Labagh

Charles Gustavus Holme

Inventor
David Stark Wallace
By his Attorney
H. S. Bailey

UNITED STATES PATENT OFFICE.

DAVID STEELE WALLACE, OF DENVER, COLORADO, ASSIGNOR TO THE WALLACE PLUMBING IMPROVEMENT COMPANY, OF SAME PLACE.

FLUSHING-TANK.

SPECIFICATION forming part of Letters Patent No. 577,899, dated March 2, 1897.

Application filed May 12, 1896. Serial No. 591,285. (No model.)

To all whom it may concern:

Be it known that I, DAVID STEELE WALLACE, a citizen of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Flushing-Tanks; and I do 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in flushing devices for water-closets; and the objects of my invention are, to provide an improved flushing-valve mechanism with means for manually opening the flushing-valve and for automatically locking it in an open position for a predetermined period of time sufficient to retrap the closet and then automatically releasing the valve and allowing it to close by its own weight. I attain these objects by the mechanism illustrated in the accompanying drawings and described in the following specification, in which—

Figure 1 represents a perspective view of a section of a flushing-tank embodying my improvements, some of the parts being shown in section and the valve being in a closed position. Fig. 2 represents a similar view with the valve held in an open position. Fig. 3 represents a modification of the valve and overflow-pipe. Fig. 4 represents a front elevation of the valve's float supporting and locking lever.

Similar letters and figures of reference refer to similar parts throughout the several views.

Referring to Fig. 1, A designates the flushing-tank. Centrally through its bottom end I make an aperture in which I first place a rubber or other suitable gasket A', which has a flanged top AA, that lies around the edge of the hole and forms a flexible cushion for the base of the valve. The base of the valve comprises a flange C, which is bolted to the bottom of the tank by the bolts D' and D, which pass through and clamp these three pieces together. The depending end of the rubber gasket may be secured to a pipe leading to the flushing-

inlet of a water-closet or it may be secured directly to the flushing-inlet itself of a water-closet. The seat portion of the valve comprises, preferably, an upward-projecting circular extension from the flange, but may be of any of the usual patterns in use. The valve proper, C', comprises a circular disk enough larger in diameter than its seat to form a circular projecting flange beyond the diameter of the seat wide enough to receive on its under side a holding-support. To the under side of the valve-disk I secure a rubber disk E, which makes an adjustable cushion and seat for the valve. To the flange of the base of the valve I secure a block F, which is provided with two upward projections G and H. These are spaced a little way apart and are adapted to form a pivotal support for the lower end of the locking-lever I, which is pivoted to them by the bolt J. This lever I has pivotally secured to it a roller K, which is located, preferably, in a centrally-arranged recess L. The roller is positioned in such a manner that its top and front extend in front of the edge of the lever. This roller, the lever, and the supporting-block are located in a position to bring the roller into engagement with the edge of the valve as it is manually raised, which engagement forces the roller back, causing the lever to swing back on its pivot J. The lever above the location of the roller is curved to extend over a partition M and at its end is secured a float N.

The partition M extends across the flushing-tank and extends to about one-half of the tank's height and divides the flushing-water held by it from the main body in the tank. Close to the bottom of the partition I make a perforation O through it of predetermined size, through which the water held by the partition escapes, as will be fully described hereinafter.

P designates an overflow-pipe. It is preferably threaded to the valve-disk and to a stemmed spider Q, which is thus secured to the rubber seat and valve. The stem of the spider extends freely through the center of a spider-partition R, formed across the delivery-passage in the base-piece of the valve. The stem S of the spider Q holds the valve in

alinement with its seat. The overflow-pipe is freely supported in vertical alinement with the valve by a bracket SS, which is secured to the side of the tank. The upper end of the
 5 overflow-pipe is flared outward. It is provided with a spider-top the center of which contains a hole, through which the rod T passes and is freely secured thereto by means of a head or nut U on its lower end. The
 10 upper end of said rod is freely secured to one end of a link V, which connects said rod to a lever W, which is the operating-lever. This rod is pivoted intermediate of its ends to a supporting-block X, which is secured to a
 15 cross-strip X', secured to the top of the tank. At the outer end of the operating-lever a handle X² is formed and adjacent to the handle a pull-chain X³ is secured, which can be used to move the lever and trip the valve
 20 when the tank is placed high above the closet. The handle is adapted for use when the tank is placed directly on the water-closet, as shown in Letters Patent No. 558,130, granted to me on the 14th day of April, 1896, or when the
 25 tank is fastened to the wall but a few inches above the closet.

Y designates a water-inlet valve, Z the float, and 1 is a supply-pipe.

In Fig. 3 I illustrate a modified arrangement of the valve and the overflow-pipe. In this arrangement the valve is provided with an eye located centrally on its top, which is connected directly to one end of the operating-lever by a rod 2, while the overflow-pipe
 30 is located to one side of the valve and is connected to the discharge-passage thereof by an elbow and nipple which enters the base of the valve below the spider, the spider in this
 35 valve being located nearer the valve-seat than in the other views.

My improved flushing-tank is particularly adapted for siphon water-closets, which require a larger amount of water to retrap them than any other class of closets.

45 The operation is as follows: When the tank is empty, the float Z drops toward the bottom and opens the valve Y, which allows the water to flow in and fill the tank even with the top of the overflow-pipe. To flush the tank, press
 50 down on the handle of the operating-lever. This movement lifts the overflow-pipe and the flushing-valve, and as it rises it contacts with the roller of the locking-lever and tips it back on its pivot J and out of its way until it rises about it, when the float N, which
 55 has a tendency to rise to the top of the water, moves up and also moves the lever quickly back into normal position, the lug X⁴, which is cast on the block, preventing its moving
 60 too far toward the valve, which carries the roller under the flange of the valve, and when the handle is released the valve settles down and rests on it. The minute the valve is raised the water discharges rapidly from
 65 the tank through the discharge-passage in its valve, and in a few seconds the tank is empty with the exception of the body of water

confined in the tank by the partition. This body cannot escape from behind the partition except through the aperture at its bottom, which is made just large enough to allow
 70 it to escape gradually. As long as this body of water is higher than the center of the float N the locking-lever and roller will hold the flushing-valve open, and the size of the aperture in the partition is gaged to allow the water
 75 behind the partition to consume time enough in escaping to allow the main body to escape and the inlet-float to drop and open the water-inlet valve, which allows the supply-water to
 80 flow into the tank and to flow through the valve into the closet, which is fully retrapped thereby. Meanwhile the water behind the partition is running out of the aperture in the direction of the arrow 3, and as it sinks
 85 below the float the float lowers with it and draws the roller from under the flange of the valve-disk, which releases it, and it drops onto its seat and closes the discharge-passage, when the tank refills in the usual manner. This
 90 valve-operating mechanism is simple, durable, and compact and not liable to get out of order. The roller makes the engagement between the locking-lever and valve almost frictionless, and the separation of a portion of
 95 the main body of the flushing-water by a fixed partition in the tank, in conjunction with the float, the locking-lever, and roller, making a new and simple arrangement for operating
 100 the valve.

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

1. In a flushing-tank, the combination of a tank, an outlet-valve secured in the bottom thereof, means for manually opening said
 105 valve to discharge the contents of said tank, an integral, transverse partition in said tank adapted to divide the flushing-water into two parts, means for discharging the two bodies
 110 of water in predetermined, differential periods of time, and means, including a lever and float, for holding said valve open until both bodies of water are discharged, substantially as described.

2. In a flushing-tank, the combination of a tank, a flushing-valve therein, means for manually opening said valve, with a lever pivoted adjacent to said valve, a roller pivoted to said lever to operatively engage said valve
 120 when it is opened, and means including a transverse integral partition having an aperture at its bottom and extending from the bottom of the tank upward a portion of its height, and a float secured to said lever and confined
 125 between said partition and the end of said tank for automatically locking said valve open for a predetermined period of time and then releasing the same to allow it to close, substantially as described.

3. In a flushing-tank, the combination of the tank, the float-controlled inlet-valve, and the flushing outlet-valve, with means for manually unseating said outlet-valve, an overflow-

pipe connected to said outlet-valve, a locking-lever pivoted at one end to swing laterally to and from said inlet-valve, a roller pivoted to said lever and adapted to roll under the valve when it is unseated, a return and downward curve on the opposite end of said lever, a float at the end of this curved end of said lever, a transverse partition in said tank integral with its bottom and sides for a portion of the tank's height and located between said lever-float and the pivotal end of said lever and an aperture near the bottom of said partition whereby as the valve is raised it is locked open by said lever and its roller, and as the water recedes a portion of it is confined by said partition and discharged through said aperture in a predetermined differential period of time from that required for the discharge of the main body of the water, whereby said locking-lever is automatically actuated to lock said valve open and release it at the proper time, as set forth.

4. The combination in a flushing-tank, of a tank having a float-controlled supply inlet-valve, a discharge-valve, an overflow-pipe connected therewith, means substantially as shown and including a rock-arm and a pivotal connection between said rock-arm and said valve for unseating said valve, a lever pivoted at one end and having a float at its free end arranged and adapted substantially as herein shown and described for locking said valve open, and a transverse partition in said tank integral with its bottom and sides for a portion of its tank's height, arranged to inclose between it and one end of said tank said locking-lever's float, and adapted to confine a portion of the water during its discharge for a predetermined outflow and to actuate said locking-lever to control the closing of said valve, substantially as described.

5. The combination with the tank and the float-controlled inlet-valve, of a discharge-valve provided with a flanged valve-seat, a disk valve adapted to said valve-seat and enough larger in diameter to form a projecting flange, means for unseating said valve, a block secured to the flange of said valve-seat a semicircular-shaped lever pivoted at one end to said block, a float on the opposite end

of said lever, a roller pivoted to said lever and arranged and adapted to be engaged by said valve-disk when it is unseated and moved back, and to be moved under its edge by said float when the valve-disk is raised above said roller, and a transverse partition in said tank integral with its bottom and sides and having an aperture at its bottom of predetermined size and interposed between the pivotal end of said lever and said float, whereby a portion of the water in said tank is held and confined and gradually discharged for a predetermined outflow and inflow, and said float is thereby sustained to operate said lever and roller and to control the closing of said valve, substantially as described.

6. The combination in a flushing-tank of a tank having a transverse partition adapted to divide a portion of its height into two unequal parts, a discharge-valve, means for unseating said discharge-valve, a lever pivoted at one end in operative relation to said valve and adapted to engage the same when it is unseated, a semicircular hook formed on the opposite end of said lever and extending over said partition and down toward the bottom of the tank, a float on the end of the hooked end of said lever, and a discharge-aperture in the bottom of said partition, substantially as and for the purpose specified.

7. The combination in a flushing-tank, of an automatic-controlled water-inlet valve, a discharge-valve, and means for manually unseating the same, with a transverse partition in said tank adapted to delay the outflow of a portion of the normal discharge of the tank, and a float-controlled locking-lever pivoted to move laterally in operative relation to said discharge-valve, and arranged to coact with said partition and the delayed contents of said tank to lock said valve in opened position and to release the same after a predetermined outflow, as specified.

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

DAVID STEELE WALLACE.

Witnesses:

ISAAC HEBER LABAGH,

CHARLES GUSTAVUS HOLME.