April 19, 1927. 1,625,311

N. J. GONDOLF

FLUSHING TANK

Original Filed June 6, 1922

Fig. 1.

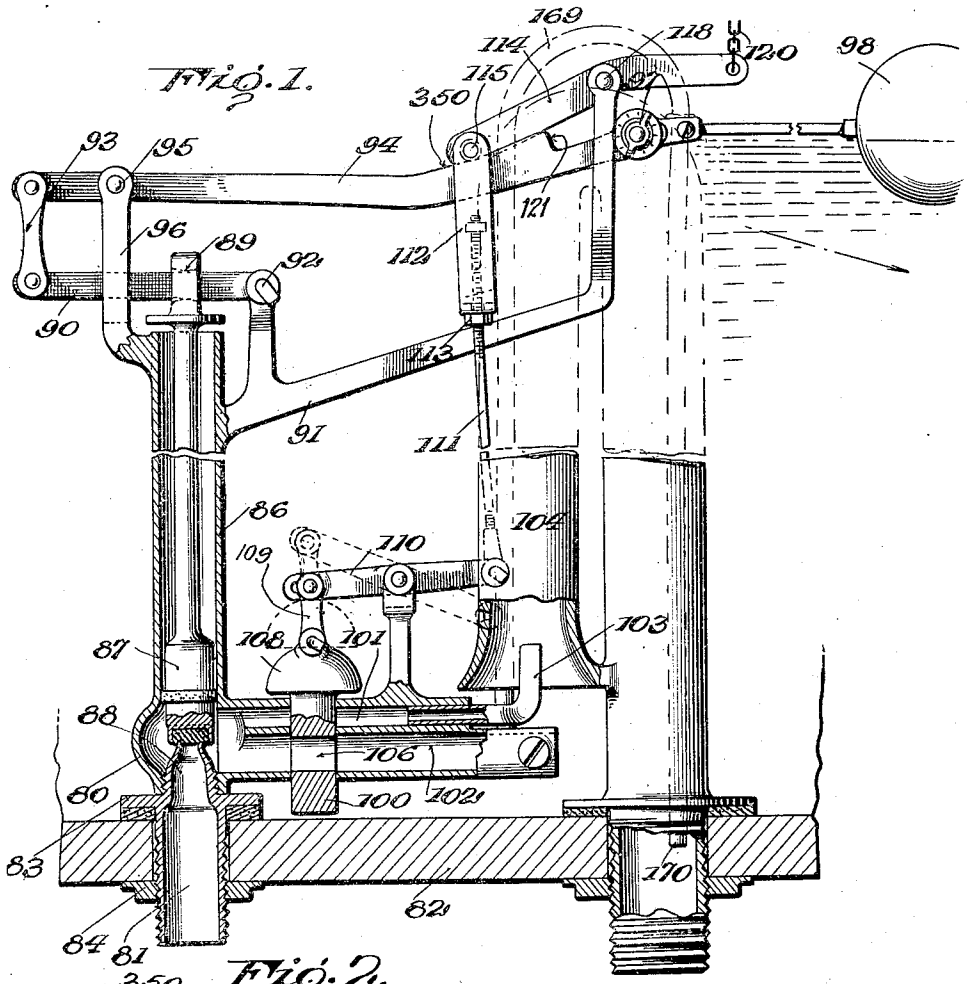


Fig. 2.

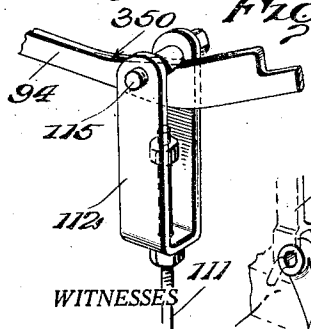


Fig. 3.

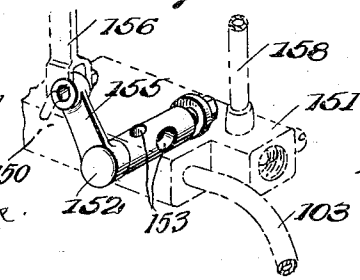
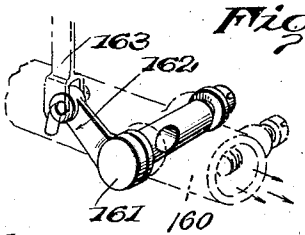


Fig. 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

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FLUSHING TANK.

Original application filed June 6, 1922, Serial No. 566,338. Patent No. 1,556,100, dated October 6, 1925. Divided and this application filed December 1, 1924. Serial No. 753,285.

This invention relates to flushing tanks, and more particularly to water controlling means therefor.

The invention forming the subject matter of this application is an improvement over the construction illustrated in my several prior patents as well as a division of my application Serial No. 566,338, which was patented October 6, 1925, No. 1,556,100, and is especially designed for successful operation in places where the water pressure is low. However, the invention is also designed for operation in connection with high as well as low pressure systems.

Also the invention aims to provide a flushing device which is extremely quiet in its operation and which may be installed after the tank is set, without elaborate alterations.

A further object is to provide a flushing device having novel means whereby the same will operate when the pressure returns to a predetermined point, so that if the pressure temporarily drops below a predetermined point, the device will be operated as soon as the pressure returns.

A further object is to provide a flushing device which is of highly simplified construction, durable in use, and cheap to manufacture.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings, forming a part of this application, and in which like numerals are employed to designate like parts throughout the same.

Figure 1 is a side elevation of the improved flushing device, parts being shown in section,

Figure 2 is a fragmentary perspective illustrating a portion of the improved flushing device.

Figure 3 is a fragmentary perspective illustrating a slight modification of the invention,

Figure 4 is a similar view illustrating a further modification of the invention.

In the drawing wherein for the purpose of illustration is shown a preferred embodiment of the invention, the inlet valve is designated by the numeral 80 and is provided with an attaching stem or branch 81 which is extended through the bottom of the tank. The branch 80 may be provided on one side of the tank 82 with a flange 83 and on the other side with a nut 84 by means of which the valve may be securely held in position.

In carrying out the invention, the upper side of the valve casing 80 is provided with a long upstanding branch 86 to receive the valve 87 adapted to engage a seat 88 within the casing.

Figure 1 illustrates that the upper portion of the valve 87 is arranged exteriorly of the branch 86 and is provided with a slotted head 89 which freely receives a lever 90 connected to a stationary bracket 91 as indicated at 92. The link 93 is also connected to a main actuating lever or float arm 94 pivoted as indicated at 95 to a bracket 96. The float arm 94 is in turn connected to a float 98 through the medium of an adjustable connecting member 97 which permits the float 98 to be adjusted with relation to the arm 94 whereby the supply of water may be cut off early or late. It is believed to be obvious that when the float arm 94 is forced downwardly, as will be later described, the lever 90 is forced upwardly so as to permit water to enter the tank. On the other hand, as the level of the water in the tank raises the float 98 will elevate the float arm 94 and thereby gradually close the valve 87.

The discharge of water from the valve casing 80 is controlled by means of a secondary valve 100 slidable through upper and lower ports 101 and 102, the port 101 having communication with a priming jet 103 which directs the priming water into the siphon 104.

The lower port 102 supplies the water to fill the tank and when the valve 100 is in its lowermost position as illustrated in Figure 1, the transverse port 106 in the valve 100 is in communication with the port or passage 102 so as to allow the water to pass directly into the tank. On the other hand, when the valve 100 is in its elevated position as illustrated in dotted lines in Figure 1, the port 106 is in communication with the priming port 101 so that water will be passed through the priming jet 103. It will be observed that when the valve 100 is elevated the lower portion of the same will completely close the port 102 so that all the water is directed

through the jet. This occurs only during the priming of the siphon. During the filling of the tank a quantity of water is passed through the after fill pipe 169 for providing a water seal in the bowl.

The valve 100 which is weighted as indicated at 108 is pivotally connected to links 109 which are in turn pivoted to a lever 110. The lever 110 is connected to a link 111 which includes upper and lower sections slidably connected in the manner illustrated in Figure 2.

The upper section of the link 111 is designated by the numeral 112 and is of U-shaped formation and has its bight portion formed with an opening to receive the lower portion of the link. A nut 113 is threaded onto the link 111 and regulates the effective length of the link.

The upper portion of the section 112 is pivotally connected to a main actuating lever 114 through the medium of a pivot bolt 115 and with reference to Figure 1, it will be observed that the main actuating lever 114 is pivoted intermediate its ends as indicated at 118 to the bracket 91. A flexible element 120 is connected to the main lever 114, and when the flexible element is drawn upwardly the link 111 will be moved downwardly so as to elevate the valve 100 and as previously stated, when the valve 100 is elevated to occupy the dotted line position in Figure 1, the priming of the siphon is started.

Figures 1 and 2 illustrate that the pivot bolt 115 engages the float arm 94 as the float arm is confined between the sides of the U-shaped section 112.

In operation, the flexible element 120 is operated so as to swing the main actuating lever 114 in a counter clockwise direction. When the lever 114 is thus operated, the link 111 is forced downwardly so as to swing the valve 100 upwardly and thereby permit the water to pass into the siphon by way of the jet 103. However, when the main operating lever 114 is swung about the axis 118 the pivot bolt 115 will engage the float arm 94 and thereby swing the same downwardly against the buoyancy of the ball 98. As the float arm 94 is swung downwardly the pivot bolt 115 will ride along the inclined upper edge 350 of the float arm and the pivot bolt will then engage a locking shoulder 121 formed on the float arm. When the pivot bolt 115 is locked in engagement with the shoulder 121, the float arm will be locked downwardly and consequently the valve 87 will be held in an elevated position even while the water in the tank is at a high level.

However, as the water is discharged from the tank and the level drops, the float arm 94 will drop below the point at which it was locked and the link 111 will therefore be released. When the link 111 is thus released, the weight 108 will return the valve 100 to its seated position so that the water which is supplied through the valve casing 80 will refill the tank.

In use, the parts normally occupy the position illustrated in full lines in Figure 1, and when the flexible element 120 is operated the valve 87 will be unseated and the valve 100 will be simultaneously elevated so that all the water will be directed into the siphon for priming the same and when the water drops to the level at which the float is locked, the link 111 will be released so as to permit the valve 100 to return to its original position, and thereby cause the tank to refill. As the level of the water in the tank is again raised the float 98 will of course be elevated for returning the valve 87 to its seated position.

In carrying out the invention the after fill pipe 169 is extended into the top of the vent pipe 170 and discharges the water for the after fill into the pipe 170. In the form of the invention illustrated in Figure 3 the outlet ports are designated by the numerals 150 and 151 and are provided with a rotatable valve 152 having ports 153 in communication with the ports 150 and 151. The valve 152 is provided with a crank 155 which is adapted for connection with a link 156 by means of which it is operated. If desired, a suitable vent pipe 158 is connected to the port 151 and the vent pipe will in that case be joined with the siphon.

In the form of the invention illustrated in Figure 4 there is provided a single outlet port 160 through which a valve 161 extends and the valve 161 is provided with a radial crank 162 which is connected to an operating link.

Having now particularly described my invention, what I claim is:

1. A flushing apparatus comprising a valve casing having inlet means and an upper siphoning port and a lower tank filling port, a main valve arranged in said casing, a lever connected to said valve, a float arm having connection with said lever and provided with a float, a second valve for controlling the flow of water through said ports, a lever connected to said second named valve, a link connected to said second named lever and having a pivot pin engaging said float arm, said float arm being provided with a shoulder adapted to engage said pivot whereby to lock the link in a set position, and a main actuating member connected to said pivot.

2. A flushing apparatus comprising a valve casing having a seat and priming and tank filling ports, a valve slidable through said ports and having a weight, a lever pivoted to said valve, a link pivoted to said lever and including upper and lower slidably connected sections, a main actuating lever pivoted to the upper section of said

link, and an operating member connected to said main actuating lever.

3. The construction set forth in claim 2, and a float arm having connection with the upper section of said link and adapted to be forced downwardly thereby.

4. The construction set forth in claim 2, said upper link being U-shaped and having a pivot pin connecting the same to said main actuating lever, a float arm confined between the sides of said U-shaped section and beneath said pivot pin, and an inlet valve operated by said float arm and controlling the admission of water to said ports.

5. The construction set forth in claim 2, said valve being movable through said ports and having a transverse opening adapted for communication with each of said ports.

6. The construction set forth in claim 2, said upper section of said link being U-shaped and having an upper pivot pin connecting the same with the main actuating lever, a float arm extending between the sides of said U-shaped link section and beneath said pivot pin and provided with a locking shoulder adapted to be engaged by the pivot pin, and an inlet valve operated by the float arm and controlling the admission of water to said ports.

7. A flushing apparatus comprising a valve casing having priming and tank filling passages, a valve movable thru said passages and adapted for controlling the flow of water through the same, a lever pivoted to said valve, a link pivoted to said lever and inclusive of a pair of slidably connected sections having means whereby the same may be adjusted, a pivot pin connected to one of the sections of said link, a main actuating lever connected to said pivot pin, a float arm arranged beneath said pivot pin and having a locking shoulder engaged by the pin whereby to temporarily hold the float arm downwardly, a valve arranged in said casing and operated by said float arm, and an after fill pipe connected to said tank filling passage beyond said first named valve.

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