F. M. WRIGHT.

FLUSH TANK.

APPLICATION FILED JULY 13, 1915.

1,182,957.

Patented May 16, 1916.

2 SHEETS—SHEET 1.

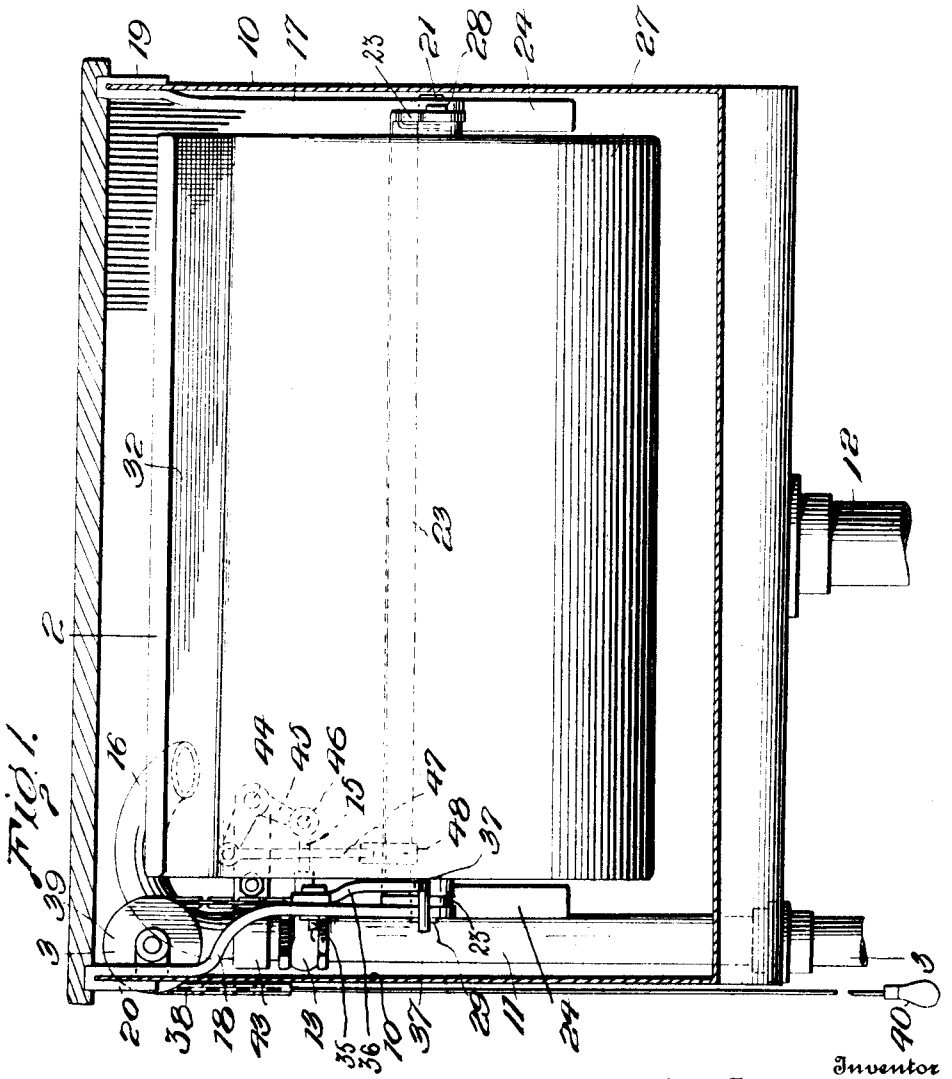


Fig. 1.

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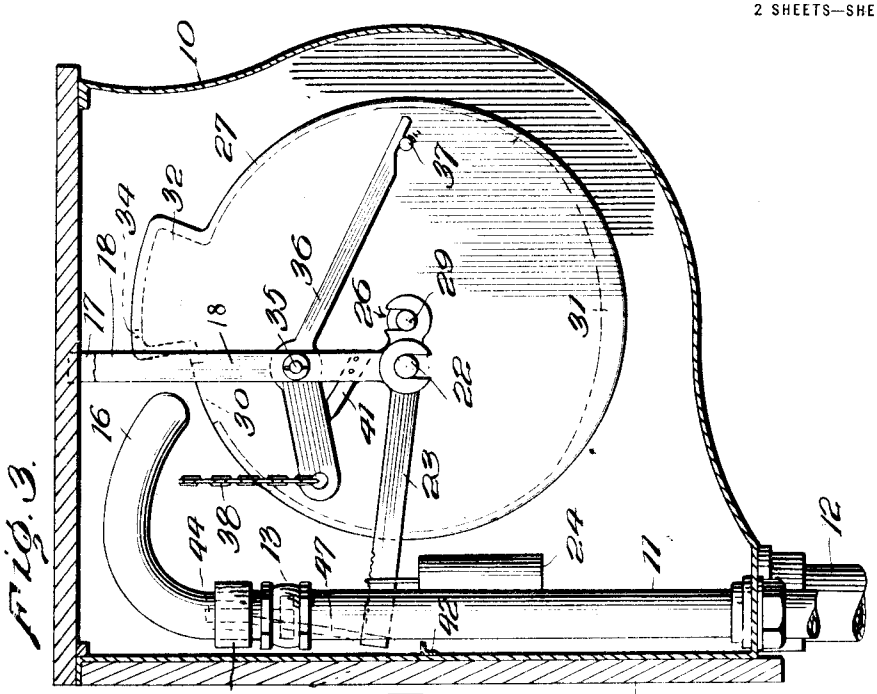


Fig. 3.

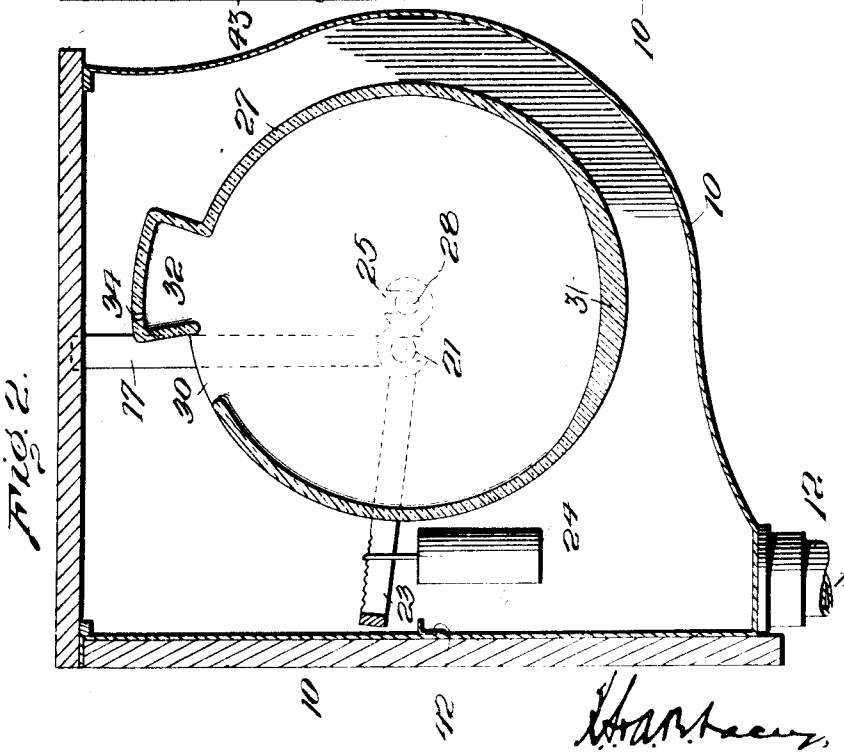


Fig. 2.

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UNITED STATES PATENT OFFICE.

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FLUSH-TANK.

1,182,957. Specification of Letters Patent. Patented May 16, 1916.

Application filed July 13, 1915. Serial No. 39,573.

To all whom it may concern:

Be it known that I, FREDERICK M. WRIGHT, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Flush-Tanks, of which the following is a specification.

This invention relates to improvements in flushing tanks, and has for one of its objects to improve the construction and increase the efficiency and utility of devices of this character.

Another object of the invention is to provide a simply constructed device including an inner tank having a discharge at one side and mounted for both vertical and rotary movement within an outer tank and supported by counterweights and connected with a controlling valve, whereby the operation of the inner tank is effected, and the inner tank caused to automatically assume its normal position with the discharge directed upwardly to receive its supply of water for the next operation.

A further object of the invention is to provide a simply constructed device including an inner tank which may be installed in a main or outer flush tank of the ordinary construction without material change in the main tank or its attachments.

With these and other objects in view, the invention consists in certain novel features of construction as hereinafter shown and described, and then specifically pointed out in the claims; and in the drawings illustrative of the preferred embodiment of the invention; Figure 1 is a side elevation of the improved attachment located within an ordinary flushing tank, the flushing tank being in section; Fig. 2 is a transverse section on the line 2—2 of Fig. 1; Fig. 3 is a section on the line 3—3 of Fig. 1.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawings by the same reference characters.

The improved device comprises an attachment to be located within a flush tank, indicated as a whole at 10, preferably of the form shown, but which may be of other forms, and it is not desired to limit the device to any special form of the flush tank.

The tank 10 is provided with an intake pipe 11 and a discharge 12 of the usual construction. The controlling valve of the intake pipe 11 is represented conventionally at 13 and is preferably of the ordinary gate form and having a stem 15. At its upper end, the intake 11 is curved inwardly and toward the center of the outer tank 10, as indicated at 16, to discharge nearer the center of the outer tank the object to be hereafter explained. Supported upon the ends of the outer tank 10 are hanger devices 17—18, the upper ends of the hanger devices being preferably in hook-like form, as indicated at 19—20, to engage over the upper edges of the ends of the outer tank. Pivoted at 21—22 to the lower ends of the hanger devices 17—18 is a U-shaped frame, represented as a whole at 23, and extending toward the rear of the outer tank 10 and provided with relatively heavy weights 24 suspended by bails from the member 23.

The member 23 is provided with notches to receive the bails of the weights so that the weights can be adjusted upon the member 23. The bearings for the pivots 21—22 open downwardly and are spaced away from the ends of the U-shaped member 23 and the terminals of the member 23 are provided with upwardly opening bearings 25—26.

An inner tank, represented as a whole at 27, and preferably of glass or like material and cylindrical in shape, is provided with trunnions, indicated at 28—29, and engaging in the bearings 25—26. The member 27 is provided with an opening 30 at one side and weighted, as shown at 31, preferably increasing the thickness of the lower wall at the side opposite to the opening 30. By this means, when the member 27 is empty, the weighted portion 31 will maintain the opening 30 upwardly, as will be obvious. Formed upon the shell of the member 27 is an outwardly and longitudinally directed chamber or pocket-like receptacle 32 upon the inner tank 27 and opening into the interior of the same. The chamber 32 is provided with a plurality of minute draining orifices 34, the object to be hereinafter explained.

Pivoted at 35 to one of the hangers, for

instance the hanger 18, is a lever arm represented as a whole at 36, the pivot being located intermediate the lever with one end of the lever heavier than the other end. The lighter end of the lever is reduced and adapted to engage a stud 37 projecting from the adjacent end of the inner tank 27. A pull member, for instance a chain 38, is connected to the heavier end of the lever arm 36 and passes over a guide pulley 39 and thence through one end of the outer tank and depends to a convenient point for the operator and terminates in a pull handle 40. Attached to the hanger member 18 is a stop 41 to limit the movement of the lever arm 36. A stop 42 is attached to the inner face of the rear wall of the outer tank to limit the downward movement of the bail member 23.

Attached to the supply conductor 11 is an arm 43, and pivoted at 44 in the free end of the arm is a bell-crank lever 45. The bell crank lever is pivoted at one end at 46 to the stem 15 of the valve 13 and provided with a pull rod 47 at its other end. At its lower end the pull rod 47 is connected to a clip 48 attached to the rear portion of the bail 23. By this means it will be obvious that when the bail 23 moves into its downward position the valve 13 will be actuated through the connecting members 45 and 47. By this simple arrangement, it will be obvious that when the lever arm 36 is actuated by a pull upon the member 38 the terminal of the lever acting upon the stud 37 will rotate the inner tank 27 on its trunnions 28—29 a distance sufficient to cause the inner tank to be partly overturned. When the inner tank 27 is filled with water, the weight will be sufficient to maintain the shorter ends of the frame 23 in lower position and the weights 24 in upper position, as shown in Figs. 2 and 3. When the parts are in this position, it will be noted that the bell crank 45 acting through the link connecting members 47 will maintain the valve 13 closed and shut off the flow through the intake 11.

When the flushing operation is to be produced, a downward pull upon the member 38 will cause the member 36 to rotate the inner tank 27 for a certain distance and thus cause the weighted portion 31 to assume a position at one side of the center of the inner tank and to cause the major portion of the weight of the water to overcome the inertia of the weighted portion 31 and completely overturn the inner tank whose contents are quickly discharged through the opening 30. As the inner tank 27 rotates to bring the opening 30 in a downward position, the relatively small pocket-like chamber 32 will be filled with water and is large enough to contain a sufficient quantity of water to maintain the tank in its downward position against the pull of the weights 24, as shown in Fig. 3, and thus hold the valve 13 closed. The water in the pocket 32 will gradually flow out through the orifices 34 and when this takes place the weight of the tank 24 below its center is lessened to an extent sufficient to permit the weights 24 to return the tank 27 to its upper position, thus causing the lever mechanism 45—47 to open the valve 13 and permit the water to flow through the supply 11. At the same time that the pocket-like chamber 32 is emptied, the weighted portion 31 of the inner tank again becomes active and instantly returns the inner tank 27 to its upper position.

As before stated, the terminal 16 of the intake 11 is extended toward the center of the outer tank, and is in position to discharge through the opening 30 of the inner tank when the opening is disposed in upper position. The weights 24 are sufficiently large to maintain the inner tank 27 in its upper position and the valve 13 open until the water flowing into the inner tank rises to a certain predetermined height, and when the inner tank is thus supplied it will be depressed against the pull of the weights 24 and again close the valve 13. When the tank 27 is thus restored to its former normal position, the stud 37 will likewise be disposed in its former position relative to the releasing member 36, as will be obvious.

The improved device is simple in construction, can be inexpensively manufactured and applied, and by slightly modifying the lengths of the lever mechanism between the frame 23 and the valve 13 the improved device may be applied to any of the various forms of flush tanks manufactured.

The stud 37 engages the member 23 when the tank 27 is overturned, and thus prevents the tank from completely overturning, but moves over about one half a full revolution and thus insuring its return to upright position after each flushing operation.

Having thus described the invention, what is claimed as new is:—

1. In a device of the class described, an outer tank having an intake provided with a controlling valve, a yoke frame including sides spaced apart and each provided with an upwardly opening bearing and a downwardly opening bearing, suspension devices engaging said outer tank and having journals engaged by the downwardly opening bearings, connecting means between said yoke frame and said controlling valve, an inner tank mounted for rotation in said upwardly opening bearing and having an opening in one side to receive the discharge from the intake when in one position, and means for initially overturning the inner tank.

2. In a device of the class described, a tank having an opening in one side and

weighted at the opposite side, a supplemental chamber communicating with the interior thereof and having drainage orifices, means for mounting said tank for vertical and rotary movement, a supply device including a controlling valve, means whereby the vertical movement of said tank controls the movements of the valve, and means for initially moving said tank rotatively, the contents of the supplemental chamber operating to hold the rotative tank in overturned position.

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

FREDERICK M. WRIGHT. [L. S.]

Witnesses:

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