

FLUSH TANK.

933,409.

Patented Sept. 7, 1909.



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FLUSH-TANK.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ALBERT D. WILLIAMS, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Flush-Tanks, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to water closet flushing systems, and has specially in view a novel type of flushing tank and coöperating automatically acting valves which control the delivery of water therefrom, the arrangement of the valves and their connection being such that the flushing of the closet bowl is accomplished by the weight of the person using the same.

In carrying out the objects of the invention generally stated above, it will, of course, be understood that the essential features thereof are susceptible of changes in details and structural arrangements, one practical and preferred example of which is shown in the accompanying drawings, wherein—

Figure 1 is a longitudinal sectional view of the improvement. Fig. 2 is a top plan view of the closet seat, showing its lever connections with the valve operating rod of the flushing tank. Fig. 3 is a top plan view of one of the valves used in connection with the invention.

Like characters of reference designate corresponding parts.

Referring to the accompanying drawings, 1 designates a conventional representation of a flushing tank which has the usual, or any preferred type of float valve communication with a source of water supply. Said tank is divided horizontally by means of a diaphragm 2 to form an upper chamber or compartment 3 in which the float valve communication with the source of water supply is mounted, and a lower compartment 4. An opening 5 formed in the diaphragm 2 is provided with a valve seat 6, said opening forming the communication between the upper chamber 3 and the lower chamber 4 and is controlled by means of a valve 7 having a stem 7^a which projects through and is guided by a gland extension 8 carried by the valve seat 6. The lower chamber or compartment 4 has an opening 9 formed through its bottom which receives a bushing 10 provided with exterior threads 11 which are en-

gaged by an interiorly threaded end 12 of a valve chamber 13 having a valve seat 14 formed in its upper portion. The stem 7^a of the valve 7 extends through the lower chamber 4 and into and below the valve seat 14 in the valve chamber 13 and carries a valve 15.

A short pipe section 16 has its upper end held in engagement with the bottom of the valve chamber 13 by means of a detachable coupling 17, said pipe having its lower end nested within another pipe section 18 the lower end of which is provided with a longitudinal slot 19 and held within an enlarged coupling head 20 of the pipe 21 that delivers the flushing water to the closet bowl. The coupling head 20 is of considerably larger diameter than the pipe section 18, and at one side has a bulged out portion 22 which is open to the atmosphere.

The stem or rod 7^a is fast within the valve 15 and projects beyond the same, and its projected end carries a threaded coupling 23 which holds in engagement therewith a valve operating rod 24 that extends through the two pipe sections 17 and 18 and has its lower end portion upturned as indicated at 25, and projected through the slotted end of the pipe section 18 and up through the bulged portion of the coupling head 20. The end of the upturned portion 25 is threaded for the reception of a lock nut 26 which retains an eye 27 thereon from which projects a vertically arranged pivot ear 28 which has a pivotal connection with a vertically arranged rod 29 the lower end of which carries a pivot ear for pivotal connection one to end of a rocker arm 30. Said rocker arm 30 has its outer portion bifurcated to form two spaced apart strap members 31—32 which have pivot openings 33 formed through them for engagement with a hinge connection 34 carried by the water closet seat framing 35. The ends of said strap members 31 and 32 carry ears 36 which receive pintles 37 of hinge members 38 carried by the water closet seat 39. The seat cover 40 has the usual hinge connection 41 with the closet seat 39.

In Fig. 1 of the accompanying drawings the closet seat and valve connection with the source of water supply is shown in the positions they assume when the closet is not in use. In this position the weight of the water in the upper compartment 3 of

the tank keeps the valve tightly to its seat thereby depressing the rod 24, moving the valve 15 from its seat 14, and causing the rocker arm 30 to hold the closet seat raised 5 from its framing. It will be seen that when the seat is occupied, the rocker arm exerts an upward pressure on the rod 24 sufficient to push the valve 15 to its seat 14, and through the connection between said valve 15 10 and the valve 7, raise the latter valve from its seat and thereby permit the water from the upper compartment to escape into the lower compartment 4 and the valve chamber 13 filling the same, but be retained therein 15 owing to the valve chamber being closed through the seating of the valve 15. When the weight is removed from the seat, the pressure of the incoming water in the upper compartment 3 will force the valve 7 to its 20 seat, thereby cutting off the supply of water to the lower compartment 4, and remove the valve 15 from its seat 14, to allow the water that has accumulated in the said compartment 4 and valve chamber 13 to flow into 25 and flush the closet bowl.

Any suitable means may be employed for supplying the necessary air to the lower compartment 4 of the flushing tank, one convenient form being illustrated in the drawings wherein an upstanding pipe 42 carried by the diaphragm 2 communicates with the air above the upper compartment 3 and delivers the air through an opening 43 to said lower compartment.

35 In addition to the automatically acting features of the valves, it will be seen that the present system is one that is so arranged that the various connections thereof may be readily disconnected to permit of the operating mechanism being readily inspected or 40 repaired, or replaced, should the same be necessary or desirable. For instance the valve chamber 13 may be readily disconnected from the bushing carried by the tank; 45 the pipe section 16, through its coupling connection 17 may be readily disconnected from the valve chamber to permit inspection or repair of the valve 7 or the coupling between the valve stem and the rod 24; and 50 the connections between the pipes may be readily disconnected. Also, the connections between the rocker arm and the seat, and the connections between the valve operating rod 24 and said rocker arm, is one that may 55 be readily disconnected.

Claims:—

1. A flushing system comprising a tank, a pipe for delivering water therefrom, said pipe being provided with an enlarged and 60 slotted portion, a rod extending through said pipe and into said tank, valves on said rod for controlling the flow of water from the tank and through the pipe, said rod having an upturned end which projects 65 through the enlarged slotted portion of the

pipe, a water closet seat, and a connection between said seat and the upturned end of said rod whereby movement of said seat actuates said rod.

2. A flushing system comprising a tank, a 70 discharge pipe therefor having a slotted portion, a rod slidable in said pipe and projecting into said tank, one end of said rod projecting through the slotted portions of said pipe, valves on said rod for controlling the 75 discharge from the tank and through the pipe, a water closet seat, and a connection between said seat and the end of the rod which projects through the slot of the pipe, whereby movements of said seat will actuate 80 said rod.

3. A water closet flushing system comprising a tank, a discharge pipe therefor having a slotted end, a coupling surrounding said slotted end and having an outstanding open 85 side portion, a rod extending through said pipe and into the tank and provided with means for controlling the discharge of the same, said rod having an angular end which projects through the slot of the pipe and 90 through the open side of the coupling, a water closet seat, and a connection between said seat and the angular end of the rod for actuating said rod when the seat is moved.

4. A water closet flushing system comprising 95 a tank, a valve chamber suspended therefrom, a discharge pipe carried by said chamber and having a slotted end, a rod extending through said pipe and having an upturned end projecting through the slotted 100 end of the pipe and into said tank, valves on said rod for controlling the discharge from the valve chamber and tank, a water closet seat, and a connection between said seat and the upturned end of said rod whereby move- 105 ment of said seat actuates said rod.

5. A flush system for water closets comprising a tank, a valve chamber suspended therefrom, a sectional pipe projecting from said chamber, one of said sections having a 110 slotted end, a coupling surrounding said slotted end and having an outstanding bulged portion, a rod extending through the sectional pipe chamber and into the tank, means carried by said rod for controlling 115 the discharge from said tank and chamber, said pipe having an upturned end projecting through the slotted end of said pipe section and through the outstanding portion of the coupling, a water closet seat, and a connection 120 between said seat and the upturned end of said rod, whereby movement of said seat actuates said rod.

6. A flushing system for water closets comprising a tank, a discharge pipe therefor, a 125 rod extending through said pipe and provided with means for controlling the discharge from the tank, a water closet seat, an arm pivoted thereto, a vertical rod pivoted to said arm, and a pivotal connection be- 130

tween said vertical rod and the discharge pipe rod whereby movement of said seat actuates said discharge pipe rod.

5 7. A flushing system comprising a tank, a discharge therefor, a rod extending through said discharge and controlling the same, a water closet seat frame, a rocker arm having a bifurcated end pivotally mounted on said seat frame, a seat having a hinge connection
10 with the ends of the bifurcated portion of

said arm, and a pivotal connection between said arm and said rod whereby movement of said seat actuates said rod.

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

ALBERT D. WILLIAMS.

Witnesses:

F. P. SCHROEDER,
H. C. SCHROEDER.