F. W. BAMFORD.

VALVE OPERATING APPARATUS FOR FLUSHING TANKS.

APPLICATION FILED AUG. 29, 1911.

1,075,681. Patented Oct. 14, 1913.

Fig. 2.

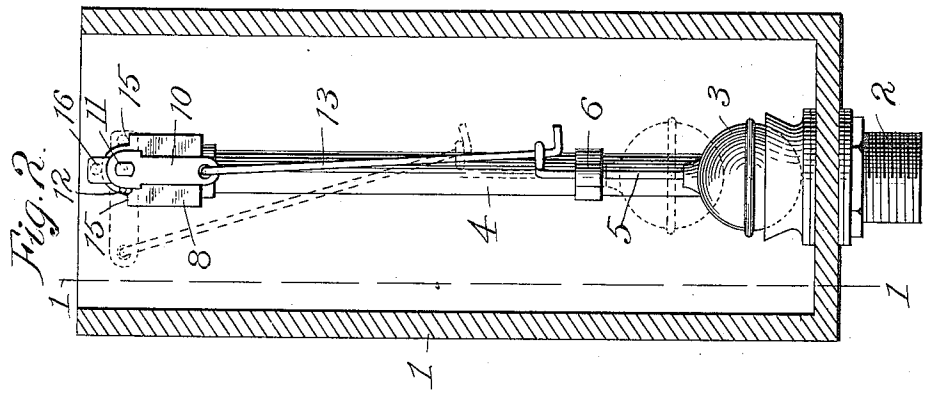


Fig. 3.

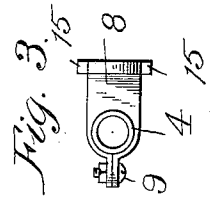


Fig. 1.

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VALVE-OPERATING APPARATUS FOR FLUSHING-TANKS.

1,075,681. Specification of Letters Patent. Patented Oct. 14, 1913.

Application filed August 29, 1911. Serial No. 646,641.

To all whom it may concern:

Be it known that I, FRANK W. BAMFORD, a citizen of the United States of America, residing at Trenton, county of Mercer, State of New Jersey, have invented certain new and useful Improvements in Valve-Operating Apparatus for Flushing-Tanks, of which the following is a specification.

My invention relates to flushing tanks for water closets and applies more particularly to the variety known as "low down" flushing tanks which have a valve operating apparatus connected to an external member, such as a lever or plunger which is adapted to be grasped by the hand of the operator.

The invention consists of a simple, direct acting mechanism for so operating the flushing valve, a novel arrangement of the same in the tank, and various details hereinafter described.

The best form of apparatus at present known to me embodying my invention is illustrated in the accompanying sheet of drawings in which,

Figure 1 is a vertical longitudinal section of a tank on line 1—1 of Fig. 2 with parts broken away, showing my invention installed therein. Fig. 2 is a cross section of the tank on line 2—2 of Fig. 1, and Fig. 3 is a detail of the preferred form of crank shaft bearing.

Throughout the drawings like reference characters indicate like parts.

1 is the usual tank of rectangular horizontal cross section generally supported on the end of an outlet pipe 2. This outlet pipe 2 connects with a stand pipe 4 within the tank which standpipe extends up to the normal water level in the tank. The outlet also has a direct opening to the lower part of the tank which opening is controlled by the usual ball valve 3 having a stem 5 working in guide 6. The perforated arm forming such guide is adjustably mounted on the lower portion of stand pipe 4, being held in any desired position thereon by setscrew 7.

8 is an angle piece or casting perforated at one end to form a journal bearing for the crank shaft 11, and adjustably mounted on the upper end of stand pipe 4. Preferably this mounting is effected by splitting the portion of the angle piece which encircles the stand pipe and drawing the split sections together by setscrew 9. The crank 10 is fastened to the crank shaft 11 in any convenient manner as by setscrew 12 and connecting rod 13 affords an operative connection from crank to valve stem 5. The crank shaft 11 preferably extends lengthwise of the tank, projecting through the end wall thereof and on the outer end is mounted the depending hand lever 14. The angle piece 8 is preferably provided with stops or shoulders 15, 15, on either side of the journal bearing for the crank shaft, and a pin or projection 16 from the crank engages these shoulders to limit the extent of oscillation of the crank and crank shaft on either side of its normal perpendicular position.

In operation the parts are normally in the position shown in full lines in Figs. 1 and 2, the flushing valve being closed. When the operator swings the hand lever 14 to either side the crank 10 turns with it and lifts the valve, as shown in dotted lines in Fig. 2. This allows the water to run out of the tank.

The advantages of my invention comprise the simplicity and directness of action of the valve operating mechanism, the avoidance of necessity for cutting the tank for various lever bearings by mounting the mechanism on the stand pipe, the ease of adjustment of the guides and bearings, and the convenience of location of the operating lever at the end of the tank. It is also possible with my construction to put the outlet valve in any position in the tank bottom and still have the valve operating mechanism directly over it.

To simplify the drawing the usual inlet valve and automatic mechanism for operating the same are omitted.

Having, therefore, described my invention, I claim:

1. The combination with a flushing tank of rectangular cross section and the usual stand pipe and discharge valve in the bottom thereof, of a shaft extending lengthwise of the tank from the interior thereof and through the end wall thereof, a bearing for the inner end of said shaft on the stand pipe, connections from the inner end of the shaft to the discharge valve adapted to trip said valve on a partial rotation of the shaft in either direction, and a depending crank handle mounted on said shaft outside of the tank.

2. The combination with a flushing tank

and the usual standpipe and discharge valve in said tank, of an adjustable bearing piece mounted on the upper end of said standpipe and provided with a perforation to form a journal bearing and shoulders forming stops on either side of such journal bearing, a crank connected to the valve and journaled in said bearing, and provided with a projection adapted to engage said shoulders, and means for oscillating said crank, said means comprising a shaft extending through the walls of the tank and a depending lever on the outer end of said shaft.

3. The combination with a flushing tank and the usual standpipe and discharge valve in said tank, of an angle piece mounted on the upper end of said standpipe and provided with a perforation to form a journal bearing and shoulders forming stops on either side of such journal bearing, a crank connected to the valve and journaled in said bearing, and provided with a projection adapted to engage said shoulders, and means for oscillating said crank, said means comprising a shaft extending through the walls of the tank and a depending lever on the outer end of said shaft.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."