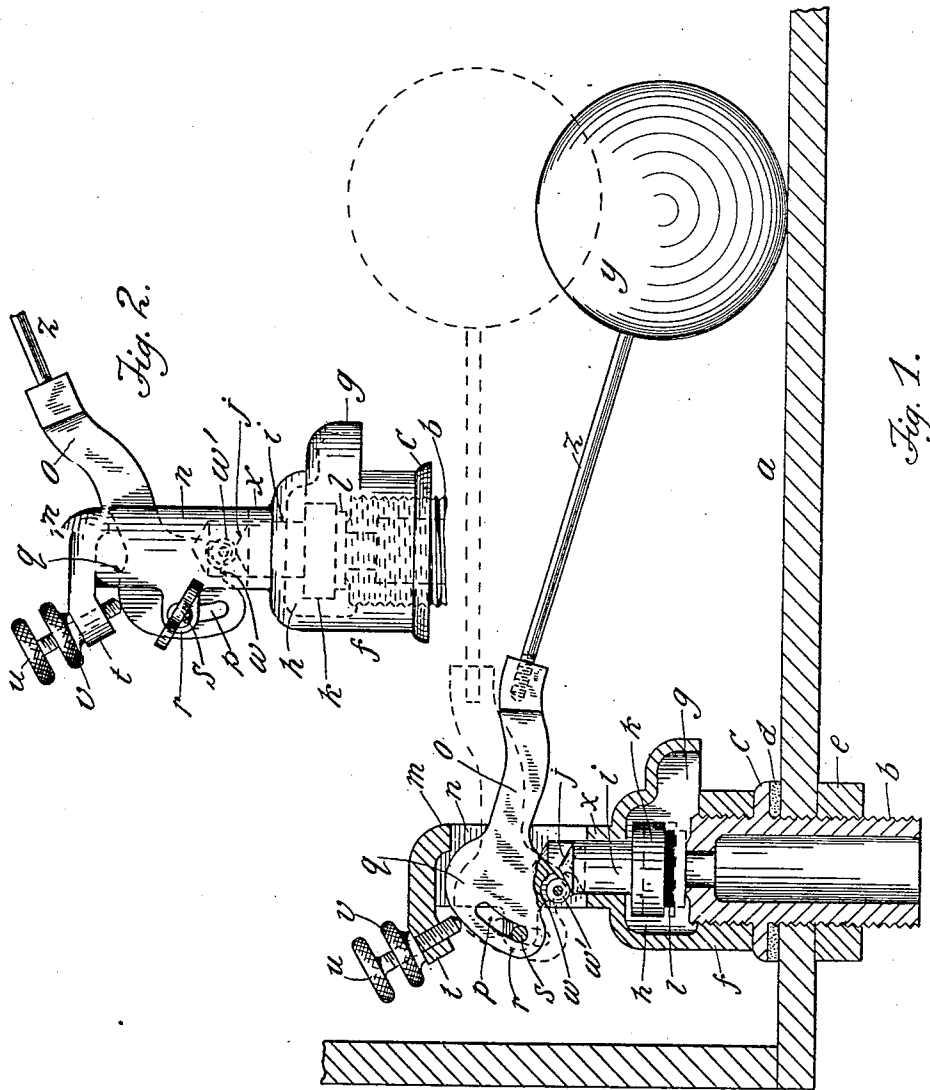


W. LOSER.
BALL VALVE FOR FLUSHING TANKS.
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1,041,824.

Patented Oct. 22, 1912.



WITNESSES:

Cecil Long
O. Martin.

INVENTOR

William Loser.

BY

E. J. Feister
ATTORNEY

UNITED STATES PATENT OFFICE.

WILLIAM LOSER, OF PORTLAND, OREGON.

BALL-VALVE FOR FLUSHING-TANKS.

1,041,824.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM LOSER, a citizen of the United States, and a resident of Portland, county of Multnomah, State of Oregon, have invented a new and useful Improvement in Ball-Valves for Flushing-Tanks, of which the following is a specification.

This invention relates to the ball valve of the flushing tank used in connection with a water closet, and has for its object to obtain a perfectly operated valve; and, furthermore, one which incorporates the following features; that is to say, a valve which will close water-tight and not leak in service; also to so arrange the parts that by lifting on the end of the float stem the valve may be locked shut, as may be convenient for the purpose of making a repair, and thus avoiding the necessity of turning off the water by the closing of the stop-cock of the pipe.

The particular construction of the parts through which the enumerated advantages are obtained are hereinafter fully described, and illustrated in the accompanying drawings constituting a part hereof.

In such drawings: Figure 1 is a longitudinal vertical partial section of the flushing tank, showing my valve installed therein as in practice, the valve being shown in its open position, and is also shown, in dotted outline, in its closed position, so as to make the operation of my valve clear; and Fig. 2 is a partial elevation of my valve, showing the same locked shut by lifting the extremity of the float stem.

The flushing tank, *a*, is of any convenient construction. In it is inserted a nipple *b*, provided with a circumferential flange *c*, seated on a washer *d*; the nipple, *b*, being rigidly secured in place by a nut *e*. On the upper end of the nipple, *b*, is affixed the valve housing, *f*, provided with a spout *g*, discharging downward into the flushing tank. The outlet, or flush pipe, from the flushing tank is not shown. In the valve chamber *h* is inserted the valve *i*, formed with a conical top or end *j*, and an enlarged base *k*, to the under face of which is affixed a gasket *l*. The valve housing, *f*, is provided at the top with a vertical extension *m*, comprising walls, *n*, spaced apart and between which is inserted the cam arm *o*, provided with a cam-head *q* made with a curved slot *p*. The walls, *n*, of the extension, *m*,

are further provided with lateral extensions *r*, through which is inserted a fulcrum pin or screw, *s*, located to one side of the axis of the valve stem and extending through the slot *p* of the cam head *q*. The extension, *m*, is provided at the top with a lateral projection *t*, in which is threaded a set-screw *u*, provided with a lock-nut *v*. The cam-head, *q*, is provided at the bottom with a protuberance *w* for facilitating the riding of the cam head up on the conical top of the valve stem. In the protuberance, *w*, may be journaled an anti-friction roller *w'*. The use of the latter, however, is optional; it merely introduces an additional means for facilitating the climbing up of the cam-head on the conical top *j* of the valve *i*. The latter, as will have been observed, reciprocates in the bearing *x* formed in the roof of the valve housing *f*.

The open position of the valve is shown in Fig. 1, it being assumed that there is a pressure caused by a flow of water into the flushing tank, *a*, through the nipple *b*, which has lifted the valve, *i*, to the position in which it is shown. As the flushing tank fills with water the hollow ball *y*, at the end of the float stem *z*, will be lifted to the position in which it is shown in dotted outline, thus placing the cam arm, *o*, in corresponding position, and closing the valve.

The purpose of the set-screw, *u*, is to limit the lift of the cam arm *o*, and the adjustment of the set-screw *u* is fixed by the lock-nut *v*.

In case any repair becomes necessary, requiring the shutting off of the water flowing in through the nipple *b*, the set-screw, *u*, may be adjusted so as to permit the cam arm, *o*, to be lifted to a position above any normal lift, as shown in Fig. 2, thus bringing the anti-friction wheel *w* slightly over the center or axis of the valve *i*, and in so doing locking the valve shut.

I claim:

1. In a ball valve for flushing tanks, the combination of a valve housing having an outlet and an exterior extension constituting a bearing; a valve having a stem reciprocating in the roof of the valve housing and projecting there-through, said valve stem formed with a conical end; an arm and a hollow ball affixed to the end thereof, said arm provided with a cam head made with a slot; a fulcrum pin inserted through such slot of the cam head and affixed in said

extension of the valve housing, said pin located to one side of the axis of the valve stem; and the bottom face of said cam head made with a protuberance adapted to ride on said conical end of the valve stem.

2. In a ball valve for flushing tanks, the combination of a valve housing having an outlet and an exterior extension constituting a bearing; a valve having a stem reciprocating in the roof of the valve housing and projecting there-through, said valve stem formed with a conical end; an arm and a hollow ball affixed to the end thereof, said arm provided with a cam head made with a slot; a fulcrum pin inserted through such slot of the cam head and affixed in said extension of the valve housing, said pin located to one side of the axis of the valve stem; and the bottom face of said cam head made with a protuberance adapted to ride on said conical end of the valve stem, said protuberance being provided with an anti-friction device.

3. In a ball valve for flushing tanks, the combination of a valve housing having an outlet and an exterior extension constituting a bearing; a valve having a stem reciprocating in the roof of the valve housing and projecting there-through, said valve stem formed with a conical end; an arm and a hollow ball affixed to the end thereof, said arm provided with a cam head made with a slot; a fulcrum pin inserted through such slot of the cam head and affixed in said extension of the valve housing, said pin located to one side of the axis of the valve stem; the bottom face of said cam head made with a protuberance adapted to ride on said conical end of the valve stem; and the parts being so arranged that when the extremity of the arm of the cam head is lifted above the normal the protuberance on the bottom face of the cam head will have climbed up the conical end of the valve stem and be positioned past the center thereof and lock the valve in its shut position.

4. In a ball valve for flushing tanks, the combination of a valve housing having an outlet and an exterior extension constituting a bearing; a valve having a stem reciprocating in the roof of the valve housing and projecting there-through, said valve stem formed with a conical end; an arm and a hollow ball affixed to the end thereof, said arm provided with a cam head made with a slot; a fulcrum pin inserted through such slot of the cam head and affixed in said extension of the valve housing, said pin located to one side of the axis of the valve stem; the bottom face of said cam head

made with a protuberance adapted to ride on said conical end of the valve stem; and a set-screw arranged for regulating the lift of the arm of the cam head.

5. In a ball valve for flushing tanks, the combination of a valve housing having an outlet and an exterior extension constituting a bearing; a valve having a stem reciprocating in the roof of the valve housing and projecting there-through, said valve stem formed with a conical end; an arm and a hollow ball affixed to the end thereof, said arm provided with a cam head made with a slot; a fulcrum pin inserted through such slot of the cam head and affixed in said extension of the valve housing, said pin located to one side of the axis of the valve stem; the bottom face of said cam head made with a protuberance adapted to ride on said conical end of the valve stem; said protuberance being provided with an anti-friction device; and the parts being so arranged that when the extremity of the arm of the cam head is lifted above the normal the protuberance on the bottom face of the cam head will have climbed up the conical end of the valve stem and be positioned past the center thereof and lock the valve in its shut position.

6. In a ball valve for flushing tanks, the combination of a valve housing having an outlet and an exterior extension constituting a bearing; a valve having a stem reciprocating in the roof of the valve housing and projecting there-through, said valve stem formed with a conical end; an arm and a hollow ball affixed to the end thereof, said arm provided with a cam head made with a slot; a fulcrum pin inserted through such slot of the cam head and affixed in said extension of the valve housing, said pin located to one side of the axis of the valve stem; the bottom face of said cam head made with a protuberance adapted to ride on said conical end of the valve stem; said protuberance being provided with an anti-friction device; the parts being so arranged that when the extremity of the arm of the cam head is lifted above the normal the protuberance on the bottom face of the cam head will have climbed up the conical end of the valve stem and be positioned past the center thereof and lock the valve in its shut position; and a set-screw arranged for regulating the lift of the arm of the cam head.

WILLIAM LOSER.

Witnesses:

CECIL LONG,

O. O. MARTIN.