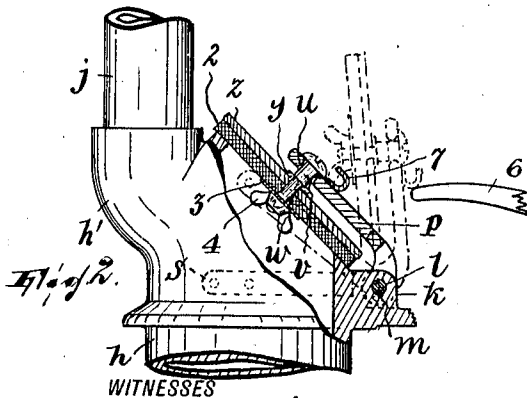
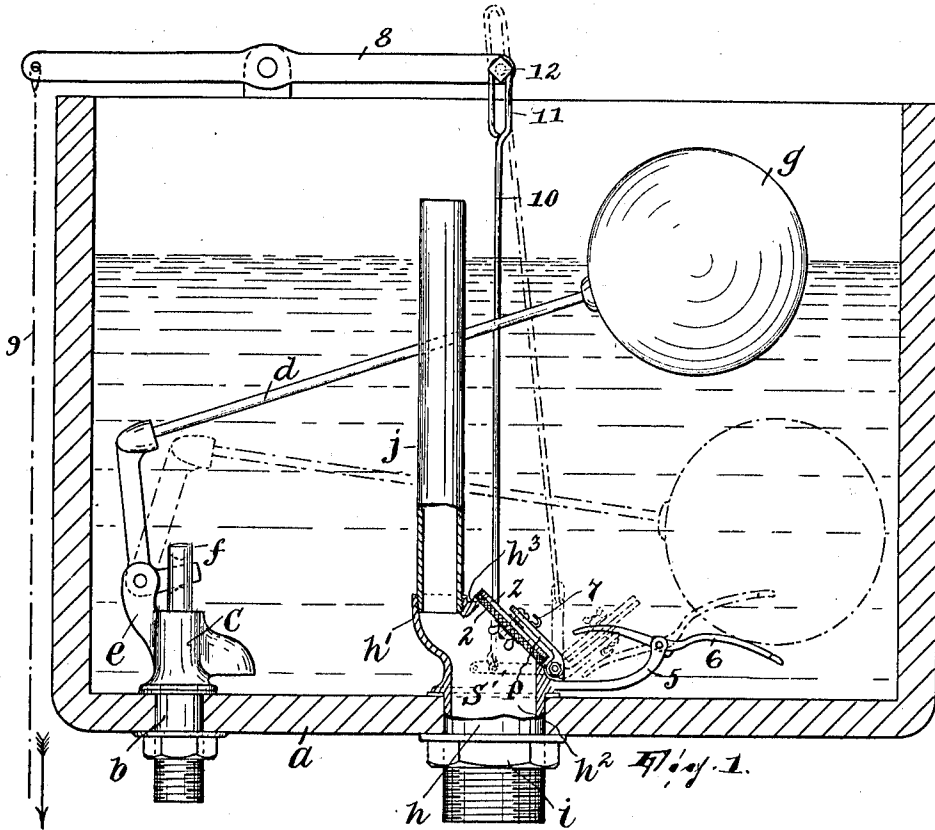


A. SUMMERS.
FLUSHING APPARATUS.
APPLICATION FILED MAY 13, 1912.

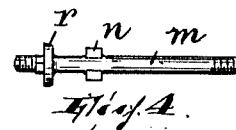
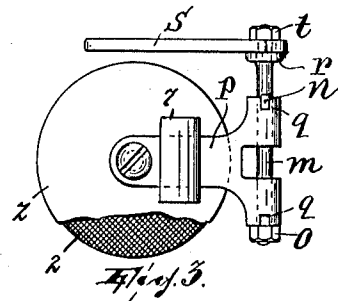
1,039,332.

Patented Sept. 24, 1912.



WITNESSES

Mr. Dr. L.
Elias Kaufmann



INVENTOR,

Archibald Summers,

BY

John W. Steward,
ATTORNEY.

UNITED STATES PATENT OFFICE.

ARCHIBALD SUMMERS, OF PATERSON, NEW JERSEY.

FLUSHING APPARATUS.

1,039,332.

Specification of Letters Patent. Patented Sept. 24, 1912.

Application filed May 13, 1912. Serial No. 696,806.

To all whom it may concern:

Be it known that I, ARCHIBALD SUMMERS, a citizen of the United States, residing at Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Flushing Apparatus, of which the following is a specification.

This invention relates to flushing apparatus, and it consists in certain improvements in such apparatus whereby the flushing may be accomplished under conditions involving a fully effective discharge of water from the tank without noise and the perfect sealing off of the discharge outlet automatically effected once the reserve of water in the tank is discharged, and whereby the construction is rendered simple and durable and less dependent on attention to preserve it in properly operative condition than flushing apparatus commonly used.

In the accompanying drawing, Figure 1 is a vertical sectional view of the apparatus showing certain parts in side elevation; Fig. 2 is a side elevation, partly in section, of the means for controlling the discharge of the water from the tank; Fig. 3 is a plan view, partly broken away, of a valve including lever structure forming a part of said means; and, Fig. 4 illustrates a detail of said structure.

The tank *a*, the inlet nipple *b*, the inlet valve *c*, carried by said nipple, the lever *d* fulcrumed in the arm *e* of the valve *c* and, by swinging on its fulcrum, raising and lowering the valve stem *f* of said valve so as to open or close, respectively, the valve, and the ball float *g* carried by said lever, are or may be all substantially the same as in ordinary flushing apparatus.

h is a tubular member affording the outlet for the tank and adapted to have attached to it the discharge pipe (not shown), the same being secured in the bottom of the tank by means of the usual nut *i*. Projecting upwardly from this member and screwed into it is an overflow pipe *j*. The part *h'* of member *h* into which pipe *j* is screwed forms a lateral projection of the member *h*, so that the pipe *j* is somewhat offset with respect to the main passage *h²* of said member. Above the passage *h²* member *h* has an inclined valve seat *h³* ground flat and smooth, the lowest part of the valve seat being relatively opposite to the projecting part *h'* of member *h* and the incline and

interior diameter of the valve seat being such that the port of admission which it affords from the tank to the interior of member *h* not only approximates the cross-sectional dimension of the passage *h²* but well overlies the same, thus allowing both a considerable and direct flow of the water through said port and thereon down through the passage.

Adjacent the lower side of the valve seat *h³* a lug *k* is formed on member *h*, the same having a horizontal opening *l*. A pin *m* is journaled in this opening, the same having the radial lugs *n* and, on one end, the nut *o*. This pin penetrates the forked fulcrum end of an arm *p* whose said forked end straddles the lug *k* and is adapted to receive in one of two notches *q* formed at each side thereof the radial lugs *n* while the nut *o* bears against the other side of said forked end of the arm *p*. By this construction the pin and arm articulate as one. On the end of the pin opposite the nut *o* is a shoulder *r* against which an arm *s* is held by means of a nut *t* screwed onto the pin.

The free end of the arm *p* has an aperture *u* through which is passed a screw *v* having a shoulder *w* disposed slightly further from the head *x* of the screw than the thickness of the arm *p*. Against this shoulder bears a washer *y* and against the washer bears a rigid disk *z* of metal or the like. The disk *z* affords a backing for a soft elastic valve disk 2, say of rubber, against which a washer 3 is held by means of a wing nut 4 screwed onto the free end of the screw *v*. The construction of the valve or valve structure comprising the parts *v*, *y*, *z*, 2, 3 and 4 in the adaptation just described is such that said structure has certain freedom of movement independently of the arm *p*, which insures the valve seating accurately on its seat *h³* as shown in the drawings; further, the valve structure being revoluble in the arm, it will rotatively change its position more or less each time the apparatus is operated, thus distributing and equalizing the wear on the disk 2.

5 is a rigid arm projecting from the lug *k* and having a lever 6 of the first kind fulcrumed therein.

When the valve structure is swung to the open position represented by dotted lines in Fig. 1 a cross-piece 7 on its arm *p* rests on the inner end of the lever 6. The other arm of lever 6 is its longer arm, and it stands

in the path of downward movement of the float *g*.

8 is the usual lever fulcrumed at the top of the tank and having attached to one end thereof a suitable means 9 for operating it and to the other end thereof a link 10 which is connected at one end with the arm *s* of the valve-including lever structure shown in Fig. 3 and has an elongated loop 11 at its other end receiving a stud 12 on lever 8.

When the parts stand in the position representing the closed position of the valve the arm *s* extends horizontally.

Operation: Upon a pull being exerted on the means 9 the valve-including lever structure is swung into the dotted line position shown in Fig. 1, the cross-piece 7 in such movement of the lever structure engaging the short arm of lever 6 and tilting the latter into the dotted line position in said figure where said short arm of the lever rests on the arm 5 and thus supports said lever structure. The water in the tank now discharges through the passage *h*², involving the descent of the float *g* and, when nearly all of the water has flowed from the tank, the opening of the valve *c* in the usual manner to replenish the supply. As the float approaches its lowest limit it engages the long arm of the lever 6 and, thus imparting a relatively quick movement to the short arm of said lever, causes the latter to tilt the valve-including lever structure back to its initial position, where the valve disk 2 rests on the seat *h*³. In each movement of the lever structure, as soon as it passes its center of gravity it falls to the rest position. When in the position where the valve is seated, the pressure of the water will preserve the valve tightly closed, its universality of movement with respect to the arm *p* permitting it to adjust itself to the seat; when opening and resting on the lever 6 the disposition of the valve is such that it is not affected by the tendency of the outflowing water to close it although, as stated, when the float engages the lever, it requires but a comparatively small movement to throw the lever structure into seating relation to the outlet, such

occurring with the minimum of friction and tendency of the parts to bind because the bearing of lever 6 stands in the same perpendicular to the axis of the lever structure in said which lever 6 has engagement with the cross-piece 7.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. An outlet attachment for a flushing apparatus including, in combination, an outlet member having an upwardly open discharge port, a lever fulcrumed on a horizontal axis in said member and projecting toward said port, and a lever-structure fulcrumed in said member on a horizontal axis relatively between said port and the axis of said lever, said lever-structure being movable relatively over its axis past its center of gravity, in one direction against said member and in the other against the adjoining part of said lever, and including a valve adapted to seat against said member over said port, substantially as described.

2. In combination, with a tank and a float arranged therein, an outlet member for the tank having an upwardly open discharge port, a lever of the first kind having one arm longer than the other and being fulcrumed on a horizontal axis in said member with its short arm projecting toward said port, and a lever-structure fulcrumed in said member on a horizontal axis relatively between said port and the axis of said lever, said lever-structure being movable relatively over its axis past its center of gravity, in one direction against said member and in the other against the short arm of said lever, and including a valve adapted to seat against said member over said port, the float being above and adapted to impinge against the long arm of said lever on descending substantially as described.

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

ARCHIBALD SUMMERS.

Witnesses:

JOHN W. STEWARD,
WM. D. BELL.