

A. H. CALDWELL.
VALVE.
APPLICATION FILED FEB. 24, 1912.

1,123,844.

Patented Jan. 5, 1915.

Fig. 1-

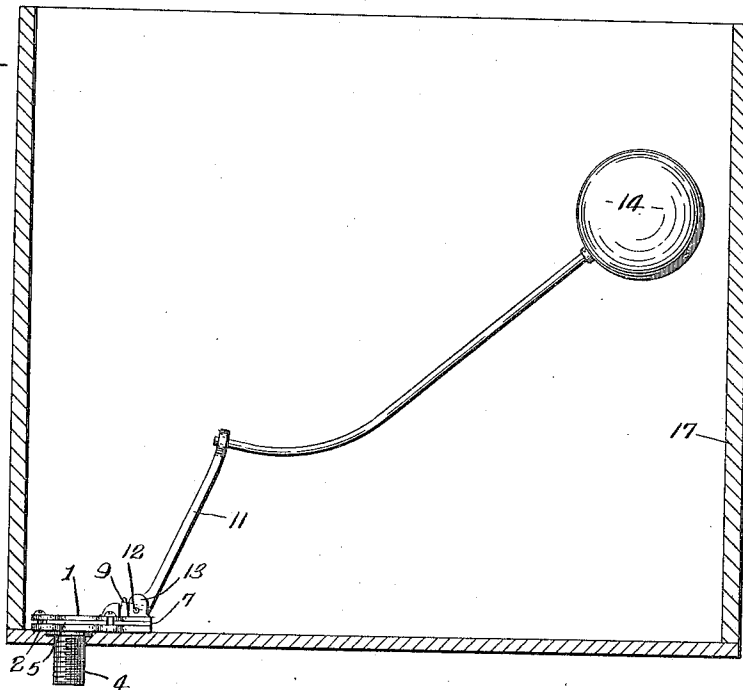
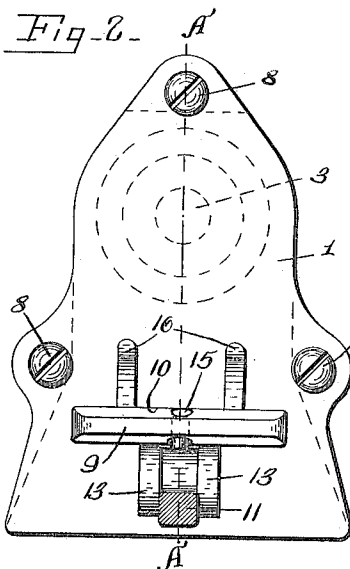


Fig. 2-



WITNESSES:

Chas. Young.
J. B. Smith.

Fig. 4-

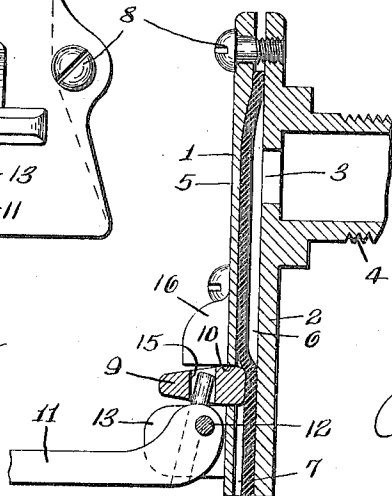
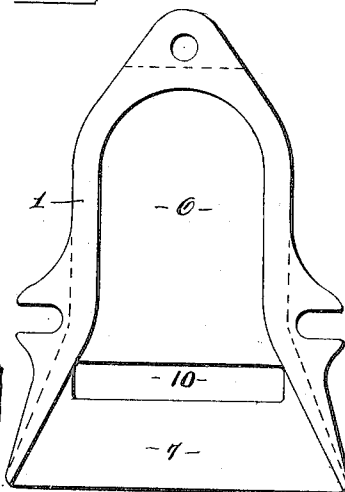


Fig. 3-



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VALVE.

1,123,844.

Specification of Letters Patent.

Patented Jan. 5, 1915.

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To all whom it may concern:

Be it known that I, ANDREW H. CALDWELL, of Port Byron, in the county of Cayuga and State of New York, have invented a certain new and useful Valve, of which the following is a specification.

This invention has for its object the production of a valve particularly applicable for flush closets which is particularly simple in construction, economical of manufacture, readily repaired, and highly efficient and durable in use; and it consists in the combinations and constructions hereinafter set forth and claimed.

In describing this invention reference is had to the accompanying drawing in which like characters designate corresponding parts in all the views.

Figure 1 is a sectional view of a flush closet tank showing my valve therein in elevation. Fig. 2 is a plan of my valve, partly broken away. Fig. 3 is an inner face view of the plate forming part of the casing of my valve. Fig. 4 is a sectional view on line "A—A," Fig. 2.

This valve comprises a casing formed with a chamber having inlet and an outlet, a flexible valve piece located in the chamber in position to cover the inlet, the flexible valve piece being held at portions of its margin and having other portions thereof free, and means for clamping the free portion of the margin toward the side of the chamber through which the inlet opens.

Preferably the casing is formed with a flattened chamber and the inlet opens through one of its broad sides, and the chamber is open at one edge forming the flattened outlet opening; and the valve piece is in the form of a tongue extending between the broad sides of the chamber and held at its sides and one end and having its other end extending into the outlet opening and free, such free portion being adapted to be clamped toward the side of the chamber through which the inlet opens in order to shut off the flow of water.

In the illustrated embodiment of my invention, the casing comprises upper and lower plates 1, 2 and means for clamping the plates together, the lower plate 2 being formed with an inlet 3 and with a nipple 4 by which a pipe can be coupled thereto, and a flexible valve piece 5 is inserted between the plates 1, 2 in position to cover the in-

let 3. As here shown the inner side of the plate 1 is recessed and together with the lower plate forms an elongated flattened chamber 6 which is open at one end, the open end serving as an outlet 7, such outlet flaring laterally as seen in Fig. 3. The plates are clamped together by any suitable means as screws 8 located at one end and at the sides of the plates. The valve piece 5 is in the form of a tongue having its sides and one end clamped between the plates and the end portion thereof extending into the outlet 7 free for permitting the water to flow through such outlet. The means for clamping the free portion of the valve piece 5 toward the wall of the chamber 6 formed with the inlet opening, that is toward the inner face of the plate 2, comprises a member 9 movable through a transverse slot 10 formed in the upper plate 1 near the mouth of the outlet, and means for operating said member.

The operating means is here shown as a lever 11 fulcrumed between its ends at 12 between lugs 13 rising from the plate 1 in front of the slot 10, the lever having long and short arms, the long arm of which is provided with a float 14 and the short arm of which is connected to the member 9. As here shown the short arm extends into a slot 15 in the member 9 but obviously if desired it may be fixed to, or formed integrally with, said member 9. The member 9 is guided in its movement by lugs 16 rising from the upper face of the plate 1 in rear of the slot 16.

In operation, as the water flows out of the box 17, to flush the closet, the float 14 will descend raising the clamping member 9 and permitting water to flow through the outlet 7 into the box. As the box refills with water, the float raises and depresses the clamping member 9 until it presses the flexible valve piece 5 against the plate 2, thus shutting off the water.

My valve is particularly advantageous in that it is not complicated, is easily installed, and repaired and can be repaired by an unskilled workman or layman, as the only part to become worn is the flexible valve piece and this can be removed upon the removal of the screws 8 and a new valve piece can be easily cut from a piece of leather or other material and inserted between the plates. Owing to the flattened outlet and

chamber of the valve casing, the valve is practically noiseless.

What I claim is:

1. The combination with a reservoir having a substantially flat bottom, of a valve for controlling the flow of liquid to the reservoir comprising a flat plate resting upon the inner face of the bottom wall of the reservoir and having an opening there-
 5 through and a laterally projecting nipple disposed in axial alinement with said opening and extending through the bottom wall of the reservoir for connection to a pipe,
 10 and a second flat plate of substantially the contour of the first plate, means for detachably connecting the plates, said plates being so formed as to provide an interposed chamber opening out at corresponding ends of the plates and in communication with said
 15 opening through the first-named plate, and a substantially flat flexible member carried by the plates and extending from side to side of said chamber and of substantially the full length thereof, the second plate
 20 having an opening therethrough disposed out of alinement with the said opening in the first plate, a member movable through the opening in the second plate for engaging one face of the flexible member for
 25 pressing the opposite face thereof into contact with the inner face of the first-named plate and means for shifting said member, substantially as and for the purpose described.

35 2. The combination with a reservoir having a substantially flat bottom, of a valve for controlling the flow of liquid to the reservoir comprising a flat plate resting upon the inner face of the bottom wall of the reservoir and having an opening there-
 40 through and a laterally projecting nipple disposed in axial alinement with said opening and extending through the bottom wall of the reservoir for connection to a pipe,
 45 and a second flat plate of substantially the contour of the first plate, means for detachably connecting the plates, said plates being so formed as to provide an interposed chamber opening out at corresponding ends of
 50 the plates and in communication with said opening through the first-named plate, and a substantially flat flexible member carried by the plates and extending from side to side of said chamber and of substantially
 55 the full length thereof, an elongated opening through the second plate out of alinement with the opening in the first plate and of a length substantially equal to the width of the contiguous part of said chamber, a
 60 narrow relatively long member movable in the opening in the second plate for cooperation with the flexible member, and means for shifting the second-named member, substantially as and for the purpose specified.

65 3. The combination with a reservoir hav-

ing a substantially flat bottom, of a valve for controlling the flow of liquid to the reservoir comprising a flat plate resting upon the inner face of the bottom wall of the reservoir and having an opening there-
 70 through and a laterally projecting nipple disposed in axial alinement with said opening and extending through the bottom wall of the reservoir for connection to a pipe,
 75 and a second flat plate of substantially the contour of the first plate, means for detachably connecting the plates, said plates being so formed as to provide an interposed chamber opening out at corresponding ends of the plates and in communication with said
 80 opening through the first-named plate, and a substantially flat flexible member carried by the plates and extending from side to side of said chamber and of substantially the full length thereof, an elongated open-
 85 ing through the second plate out of alinement with the opening through the first plate and of a length substantially equal to the width of the contiguous part of said chamber, a member freely movable in said
 90 opening and having a part for engaging with the flexible member, said member having an opening therein, and an operating lever having a part loosely extending into the opening in said member and cooperating
 95 with the wall of the same for shifting the member, substantially as and for the purpose set forth.

4. A valve mechanism comprising a substantially flat plate having an opening there-
 100 through and a nipple located in axial alinement with said opening, a second plate having a depression in one face thereof extending to one edge of the plate and into proximity to the remaining edges thereof, a
 105 relatively raised marginal portion being provided around said remaining edges of the plate, said marginal portion having a flat face corresponding to the inner face of the first-named plate, a substantially flat
 110 flexible medium having marginal portions arranged between the inner face of the first-named plate and the marginal portion of the second-named plate and having its end free contiguous the first-named edge of the
 115 second plate, and means for detachably securing said plates together whereby a chamber is provided therebetween corresponding to the area of said depression in the second-named plate and with said medium clamped
 120 between, a transverse opening in the second-named plate arranged out of alinement with the opening in the first-named plate and of a length substantially equal to the width of the contiguous portion of said chamber, a
 125 pressing member movable through the opening in the second plate into engagement with said flexible member, and means for shifting the pressing member, substantially
 130 as and for the purpose described.

5. A valve mechanism comprising a substantially flat plate having an opening there-through, and a nipple projecting from one face thereof and in axial alinement with said opening, a second plate having a depression in one face thereof extending to one edge of the plate and providing a marginal relatively raised portion around the other edge portions of the plate, said marginal portion having a flat face corresponding to the flat inner face of the first-named plate, a substantially flat flexible medium having marginal portions clamped between the inner face of the first-named plate and the marginal portion of the second-named plate, means for detachably securing said plates together with the said medium interposed as aforesaid whereby a chamber is provided therebetween corresponding to the area of said depression in the second-named plate, a transverse opening in the second-named plate arranged out of alinement with the opening in the first-named plate and of a length substantially equal to the width of the contiguous portion of said chamber, guiding members projecting from the outer face of the second-named plate and located on opposite sides of said opening, a pressing member movable between said guiding members and the wall of the opening in the second plate, and a device for shifting the pressing member, substantially as and for the purpose specified.

6. A valve mechanism comprising a substantially flat plate having an opening there-through, and a nipple projecting from one face thereof and in axial alinement with said opening, a second plate having a depression in one face thereof extending to one edge of the plate and providing a marginal relatively raised portion around the other edge portions of the plate, said marginal portion having a flat face corresponding to the flat inner face of the first-named plate, a substantially flat flexible medium having marginal portions clamped between the inner face of the first-named plate and the marginal portion of the second-named plate, means for detachably securing said plates together with the said medium interposed as aforesaid whereby a chamber is provided therebetween corresponding to the area of said depression in the second-named plate, a transverse opening in the second-named plate arranged out of alinement with the opening in the first-named plate and of a length substantially equal to the width of the contiguous portion of said chamber,

guiding members projecting from the outer face of the second-named plate, said members being located contiguous opposite sides of said opening, a pressing member movable in a rectilinear direction between said guiding members and the wall of the opening in the second plate, and a device for shifting the pressing member, said device comprising a lever pivotally connected to a guiding member located at one side of said opening, substantially as and for the purpose specified.

7. A valve mechanism comprising a substantially flat plate having an opening there-through, and a nipple projecting from one face thereof and in axial alinement with said opening, a second plate having a depression in one face thereof extending to one edge of the plate and providing a marginal relatively raised portion around the other edge portions of the plate, said marginal portion having a flat face corresponding to the flat inner face of the first-named plate, a substantially flat flexible medium having marginal portions clamped between the inner face of the first-named plate and the marginal portion of the second-named plate, means for detachably securing said plates together with the said medium interposed as aforesaid whereby a chamber is provided therebetween corresponding to the area of said depression in the second-named plate, a transverse opening in the second-named plate arranged out of alinement with the opening in the first-named plate and of a length substantially equal to the width of the contiguous portion of said chamber, guiding members projecting from the outer face of the second-named plate, said members being located contiguous opposite sides of said opening, a pressing member movable in a rectilinear direction between said guiding members and the wall of the opening in the second plate, and a device for shifting the pressing member, said device comprising a lever pivotally mounted on one of said guiding members and having a part loosely engaging the pressing member, substantially as and for the purpose set forth.

In testimony whereof, I have hereunto signed my name in the presence of two attesting witnesses, at Port Byron, in the county of Cayuga, in the State of New York, this 19th day of Feb. 1912.

ANDREW H. CALDWELL.

Witnesses:

W. P. STILWELL,
J. A. WARD.