C. H. MOORE.

WATER CLOSET.

APPLICATION FILED NOV. 14, 1906.

953,484. **Patented Mar. 29, 1910.**

2 SHEETS—SHEET 1.

Fig. 1.

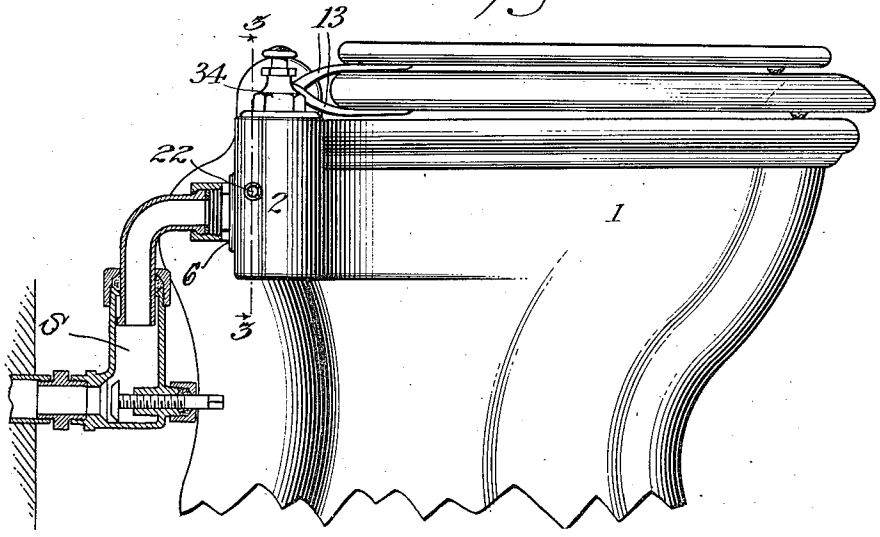


Fig. 2.

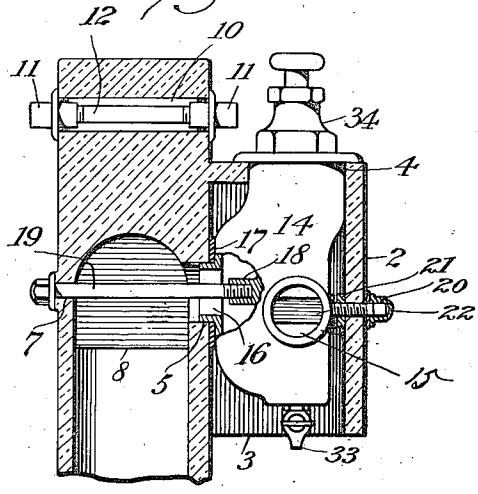
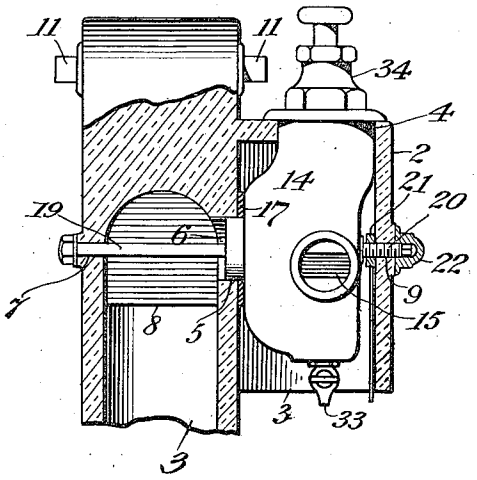


Fig. 3.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 4.

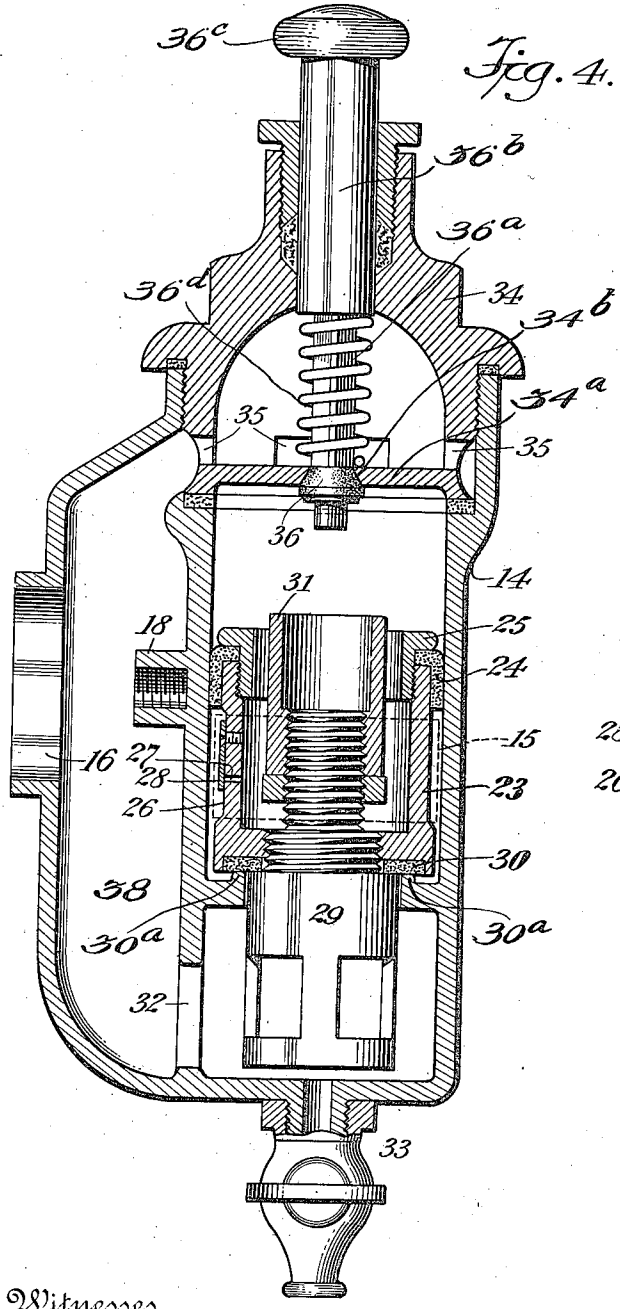
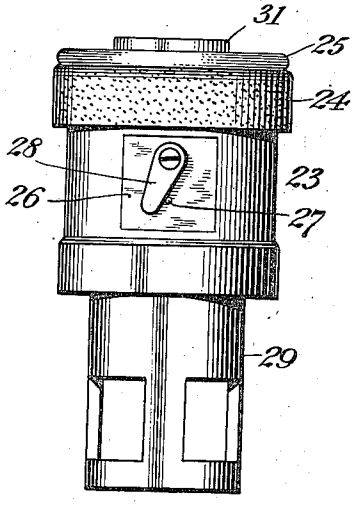


Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

CHARLES H. MOORE, OF NEW YORK, N. Y., ASSIGNOR TO THE J. L. MOTT IRON WORKS, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

WATER-CLOSET.

953,484. Specification of Letters Patent. Patented Mar. 29, 1910.

Application filed November 14, 1906. Serial No. 343,320.

To all whom it may concern:

Be it known that I, CHARLES H. MOORE, a citizen of the United States, and a resident of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Water-Closets, of which the following is a specification.

The present invention relates to water closets and has particular application to an improved valve and manner of mounting the same.

I have further in view the provision of flushing mechanism which will embody the desired features of simplicity and durability.

The invention consists in the construction, combination and arrangement of parts set forth in and falling within the scope of the appended claims.

In the accompanying drawings Figure 1 is a view in side elevation of a portion of a closet bowl or hopper embodying my improvements; Fig. 2 is a vertical longitudinal sectional view taken through the valve chamber and showing the location of the valve therein, a portion of the valve casing being broken away to illustrate the manner of anchoring the valve; Fig. 3 is a view similar to Fig. 2 taken through the valve chamber on approximately the line 3—3 of Fig. 1; Fig. 4 is a longitudinal sectional view taken through the valve casing and showing the interior construction of the valve; Fig. 5 is a detail view in elevation of the valve piston and guide cylinders therefor.

Referring now to the accompanying drawings in detail, the numeral 1 indicates the hopper or bowl of the closet and having arranged at the rear portion thereof and preferably slightly to one side, the chamber 2 having the open end portion 3. This chamber is preferably formed integral with the body of the bowl and of the same material. Within this chamber or pocket 2 is designed to be located the valve of the closet, the pocket or chamber being open at its upper end, as at 4, to admit of the projection of part of the valve casing therethrough.

At 5 I have shown a port leading from the pocket or chamber leading into the water channel of the closet, and 6 designates an opening in the side of the chamber 2, as shown in Fig. 1 to receive the metal inlet spud that connects the supply pipe S to the valve. An aperture, as at 7, is formed in the side of a portion of the closet opposite the port 5 and is adapted to receive the bolt that supports the flush valve.

The numeral 8 indicates the top of the discharge branch of the closet. In the front of the chamber or pocket is formed an aperture 9 to receive a bolt or other means for supporting the flush valve. Through the upper portion of the rear of the closet is formed a bore or channel 10 through which passes the rod 12 carrying the hinged pintles 11 and 11 used in connection with the seat, the hinges of such seat being shown at 13.

The improved flush valve of the closet shown more clearly in detail in Fig. 4, is indicated as an entirety by the numeral 14, the flushing inlet to such valve being indicated at 15, while the outlet of such valve is shown at 16. An elastic gasket 17 surrounds the outlet 16 of the valve and 18 is a threaded boss carried by the wall of the valve and designed to receive the bolt 19 so that the valve may be drawn tight up against the elastic gasket and the flat surface of the earthenware of the bowl surrounding the port 5, thus forming a water-tight joint between the metal valve and the body of the closet adjacent thereto. It will be noted that the face or side of the valve casing, which abuts against the gasket 17, is flattened so that a water-tight joint will be formed between the flat surface or wall of the bowl, the gasket and the valve casing.

Through the aperture 9 passes a threaded bolt 20 carrying the nut 21, such bolt being adapted to be turned to force or thrust the valve casing 14 inward against the gasket and the flat surface above referred to, so that it materially assists in maintaining a water-tight joint in the support of the valve.

22 is an ornamental nut at the outer end of the bolt 20.

Within the valve casing 14 is a metal piston 23 provided with a cup washer 24 and a collar 25 threaded into engagement with the upper end of the part 23 and clamping the gasket 24 between its flange and the upper edge of the before-mentioned piston cylinder. The cylindrical portion of the piston is provided with a relatively flat surface 26 having a small opening 27 therein covered

by the pivoted clip 28 which forms a gate for the opening so that the latter may be opened or closed to the desired extent for the purpose of regulating the amount of water that is to pass from the lower part of the valve to the upper part of the latter above the piston.

29 is a cylindrical guide leg threaded into the lower end of the piston and projecting through into the lower part of the valve casing, and 30 represents a washer or seat ring clamped between the guide 29 and the lower part of the piston and adapted, when the valve is closed, to normally seat upon the shoulder 30ª. An adjustable follower 31 is threaded upon the depending guide 29 to regulate the distance the piston is to be raised from its seat, and thus determine to a certain extent the length of time the piston and valve will remain up from the seat, the valve at this time being open and performing the operation of permitting the flushing of the closet bowl.

32 is an outlet port from the compartment directly below the chamber in which the piston operates, and 33 is a small drip-cock that is to be opened only in the event of the water being turned off from the fixture, the purpose of this cock being to permit the outflow of water from the lower portion of the valve, or that part below the inlet and outlet ports.

The cap or bonnet of the valve casing is shown at 34 and at that portion projecting into the casing it is provided with openings 35 leading from the hollow portion of the bonnet into the compartment 38 of the valve casing. The bottom portion of this bonnet is in the nature of a plate 34ª having an opening 34ᵇ therethrough, the walls of said opening forming a seat for the valve 36, carried by the stem 36ª, which stem is in turn connected to the pusher rod 36ᵇ projecting through the bonnet and having the hand knob 36ᶜ at the top portion thereof. The valve 36 is normally held closed through means of the tension spring 36ᵈ surrounding the stem and holding the pusher rod elevated.

In the operation of the device, when the relief valve 36 is forced downward and open by pressure upon the handle and against the tension of the spring, the pressure of water upon the top of the piston is relieved and at this time the pressure is greatest under and around the lower part of the said piston below the cup washer. This tends to force the valve piston and cylinder from its seat, the piston moving toward the top of the chamber in which it operates and forces the water above the piston into the hollow portion of the bonnet 34 from whence it flows through the ports 35 into the compartment 38 and from thence to the closet or other fixture with which the device is connected. As soon as pressure is removed from the push rod the relief valve 36 is closed by the action of the spring, and water flows into the chamber above the piston through the small aperture 27 in the side of the latter. The piston then gradually descends by the accumulation and pressure of the water on the top, so that when the valve is seated there is sufficient pressure to hold it in position. While I have herein shown and described by way of illustration one embodiment of my invention, I wish it to be understood that I do not confine myself to the precise details of construction herein enumerated as modification and variation may be made without departing from the spirit of the invention or the scope of the claims.

Having thus described my invention, what I claim as new by Letters Patent, is:—

1. The combination with a bowl or the like of a valve chamber or pocket formed integral therewith having openings at both ends and provided with a port communicating with the flushing channel of the bowl, a valve casing adapted to be inserted within said chamber and having a port leading from the interior of the valve to supply water to the bowl, a cylindrical chamber in said casing, a valve seat therein, a piston provided with a hollow piston head open at the top, said piston head being adapted to rest on the valve seat and to fit closely with the inner surface of the piston chamber adjacent the top of the head, means for admitting fluid to a point below the piston head and means for admitting fluid to a point above the piston head to flush the bowl and to regulate the duration of the flushing period, said last-mentioned means comprising a passage formed in the side of the piston head leading to the interior thereof above the bottom and a valve member adapted to be adjusted to regulate the supply of fluid passing through said passage.

2. The combination with a bowl or the like of a valve chamber or pocket formed integral therewith having openings at both ends and provided with a port communicating with the flushing channel of the bowl, a valve casing adapted to be inserted within said chamber and having a port leading from the interior of the valve to supply water to the bowl, a cylindrical chamber in said casing, a valve seat therein, a piston provided with a hollow piston head open at the top, said piston head being adapted to rest on the valve seat and to fit closely with the inner surface of the piston chamber adjacent the top of the head, means for admitting fluid to a point below the piston head and means for admitting fluid to a point above the piston head to flush the bowl and to regulate the duration of the

flushing period, said last-mentioned means comprising a passage formed in the side of the piston head leading to the interior thereof above the bottom, a valve member adapted to be adjusted to regulate the supply of fluid passing through said passage, and an adjustable member mounted within the hollow piston head adapted to regulate the distance to which the head may be raised during the flushing of the bowl.

3. The combination with a bowl or the like of a chamber or pocket formed integral therewith and having openings at both ends, said chamber also having a port communicating with the flushing channel of the bowl, a flush valve adapted to be inserted within said chamber and secured to the top thereof and having a port leading from the interior of the valve to supply water to the bowl, the walls of the valve at its outlet being shaped to form a water-tight joint with the wall surrounding the port of the valve chamber, a piston for said valve and an opening in said piston for admitting a fluid to a point above the piston at predetermined times.

4. The combination with a bowl or the like of a chamber or pocket formed in and integral therewith, a port leading from the chamber or pocket to the water channel of the bowl, a valve in said chamber or pocket provided with an outlet adapted to abut the surface of the bowl around said port, and means for holding the valve in position, said means comprising a bolt extending from the side of the water channel opposite said port through the port and engaging with the valve within said chamber or pocket.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES H. MOORE.

Witnesses:
RICHARD B. CAVANAGH,
W. C. PAULING.