M. J. ROSENSTEIN.

VALVE.

APPLICATION FILED JUNE 12, 1912.

**1,069,648.** Patented Aug. 5, 1913.

FIG. 1.

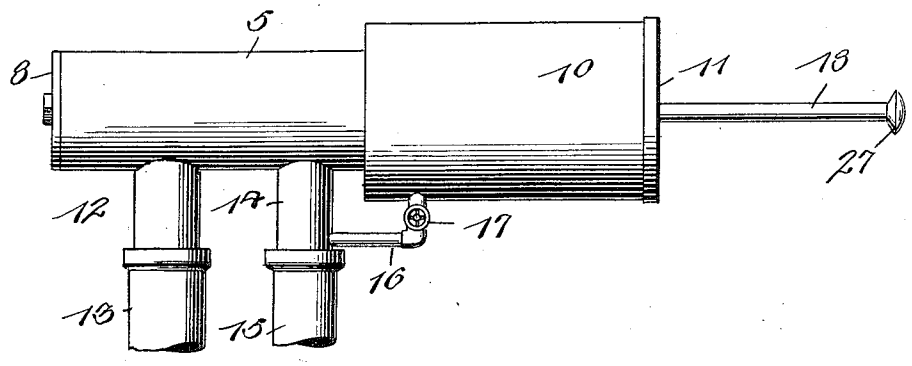



FIG. 2.

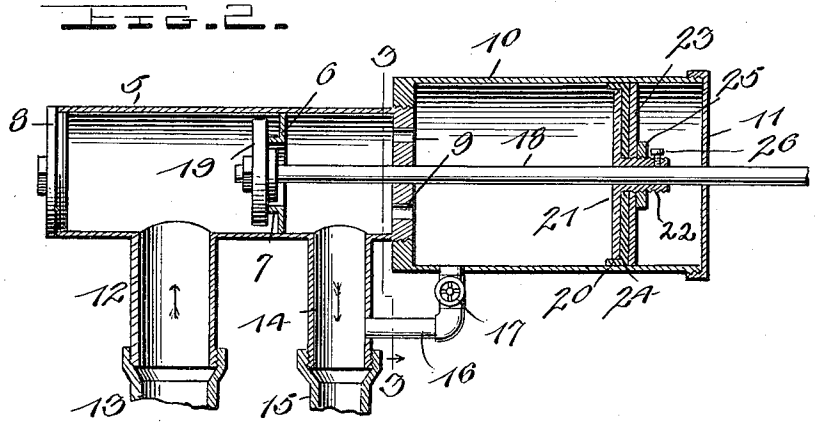
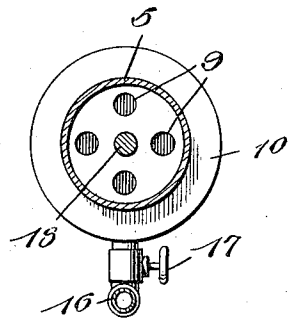



FIG. 3.




Witnesses

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# UNITED STATES PATENT OFFICE.

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## VALVE.

1,069,648. Specification of Letters Patent. Patented Aug. 5, 1913.

Application filed June 12, 1912. Serial No. 703,332.

*To all whom it may concern:*

Be it known that I, MEYER J. ROSENSTEIN, a citizen of the United States, residing at Pensacola, in the county of Escambia and State of Florida, have invented certain new and useful Improvements in Valves, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to valves and more particularly to an improved valve for closets, the primary object of the invention residing in the provision of a device for this purpose whereby the use of the ordinary flush tank may be eliminated, thereby conducing to economy in space as well as labor and expense in the installation of the device.

Another object of the invention is to provide a valve structure including means whereby the valve is automatically closed by the pressure of the water, and means for regulating said closing pressure so that the closing of the valve may be timed as desired.

A still further object of the invention is to provide a valve and regulating means therefor whereby any desired quantity of water may be supplied to the bowl for the purpose of flushing the same, wherein water is directly admitted from the main pipe to the flush pipe.

With the above and other objects in view as will become apparent as the description proceeds, the invention consists in certain construction, combinations and arrangements of the parts that I shall hereinafter fully describe and claim.

For a full understanding of the invention reference is to be had to the following description and accompanying drawing, in which—

Figure 1 is a side elevation of a valve embodying the present invention; Fig. 2 is an enlarged longitudinal section thereof; and Fig. 3 is a section taken on the line 3—3 of Fig. 2.

Corresponding and like parts are referred to in the following description and designated in the accompanying drawing by like reference characters.

Referring in detail to the drawing, 5 designates the valve cylinder having an internal wall or head 6 provided with a central opening which is surrounded by a valve seat flange 7. One end of the cylinder 5 is closed by means of the plug 8, and the other end of the cylinder wall is provided with a plurality of openings 9 for a purpose which will be apparent from the following description. This latter end of the valve cylinder is further provided with exterior screw threads to receive complementary internal threads upon one of the end walls of a piston cylinder 10. The other end of this cylinder is supplied with a cap 11.

An inlet nipple 12 is formed upon the valve cylinder 5 upon one side of the internal head 6 thereof and is adapted to be connected to the main water supply pipe 13 in any approved manner. The outlet nipple 14 which is formed upon the valve cylinder on the other side of the head 6 is connected to the flush pipe 15 which extends downwardly and is connected to the closet bowl in the usual manner. A return pipe 16 connects the outlet nipple 14 with one end of the piston cylinder 10, and in this return pipe a valve cock 17 is arranged whereby the flow of water from the cylinder 10 into the outlet pipe may be controlled.

A combined valve and piston rod 18 is longitudinally movable through central openings provided in the cap 11 of the cylinder 10 and in the end wall of the valve cylinder which is provided with the openings 9. A disk valve 19 is secured upon one end of the rod 18 and is adapted to seat against the flange 7 to close communication between the inlet and outlet ports of the cylinder 5. A piston 20 is also arranged upon the rod 18 and is movable within the cylinder 10. This piston consists of a plate or disk 21 having a sleeve 22 integrally formed thereon which closely surrounds the rod 18. This sleeve is adapted to be received in the central opening of a plate 23 and between the plates 21 and 23, the packing disk 24 is adapted to be arranged upon said rod. The edges of this disk extend beyond the edges of the plates and frictionally engage with the cylinder walls. This disk may be formed of leather, rubber or composition material such as is commonly employed in piston constructions. A nut 25 is adapted to be threaded upon the sleeve 22 against the face of the plate 23 and force said plate against the packing disk

thereby securely clamping the disk in position. A set screw 26 is threaded in the sleeve 22 and is adapted to bind against the rod 18 to rigidly hold the piston upon said rod against independent longitudinal movement. The outer end of the rod 18 is provided with a suitable button or head 27 for engagement by the finger whereby the rod may be moved.

The manner of operation of the device is as follows: Assuming that the valve is closed as shown in Fig. 2 when it is desired to flush the closet bowl, the rod 18 is forced inwardly, thus disengaging the valve member 19 from its seat 7 and permitting the water to flow from the main supply pipe into the cylinder 5 and through the internal head 6 thereof and through the outlet 14 into the flushing pipe 15. When the piston 20 is forced into the end of the cylinder, communication between the return pipe 16 and the cylinder 10 will be closed. The pressure of the water which enters through the openings 9 against the piston 20 effects the initial reverse movement of said piston until the valve member 19 is disposed between the inlet 12 and the internal head 6 of the cylinder 5. The pressure in the cylinder 5 acting against the valve member 19 now completes the movement of said member and forces the same into engagement with its seat.

Of course it will be obvious that the rapidity of the reverse movement of the piston 20 will be determined solely by the condition of the valve 17 in the return pipe 16. When this valve is closed, the piston will be very quickly forced outwardly in its cylinder to seat the valve 19, and when open or partially open, the return movement of the valve 19 will be slower. In this manner the quantity of water flowing through the cylinder 5 and into the pipe 15 upon each operation of the valve may be regulated as circumstances may require. It will also be readily seen that if the first supply of water to the bowl is not sufficient to thoroughly flush the same, the valve may be immediately opened to accomplish the desired result.

From the foregoing, it is thought that the construction, manner of operation and advantages accruing to my improved valve will be clearly understood. Owing to the compact arrangement of the parts and the elimination of the usual flush tank, it will be apparent that the device can be inexpensively produced and installed and will occupy but a minimum of space. The device is also positive and reliable in its action and may be very easily and quickly operated.

While I have shown and described the preferred construction and arrangement of the various elements it will be understood that the invention is susceptible of considerable modification without departing from the essential features or sacrificing any of the advantages thereof.

Having thus described the invention what is claimed is:

1. A valve of the character described comprising a valve cylinder provided with an internal seat, a piston cylinder connected to one end of the valve cylinder, and a plurality of openings affording communication between said cylinders, said valve cylinder having inlet and outlet ports arranged respectively at opposite sides of the valve seat, said piston cylinder being provided with a drain port at one end, a longitudinally movable rod, a valve member on said rod to engage upon the valve seat, a piston on said rod for movement in the piston cylinder and adapted to close the drain port thereof at the limit of its inward movement, the pressure of fluid upon said piston effecting the initial return movement of the valve member, said member being finally returned to and held upon its seat by the fluid pressure in said valve cylinder.

2. A valve of the character described comprising a cylinder having an internal seat and inlet and outlet pipes, respectively upon opposite sides of the seat, a piston cylinder connected to one end of said valve cylinder, the end wall of the valve cylinder having openings therein affording communication between the same and the piston cylinder, a rod movable through said cylinders, a valve on one end of the rod for engagement upon said seat, said valve in its full open position being disposed on the opposite side of the inlet with relation to its seat, a piston on the rod for movement in said piston cylinder, a fluid return pipe connecting the piston cylinder at one end with the outlet of the valve cylinder, said piston being adapted to close communication between the return pipe and the piston cylinder at the limit of the inward movement of the piston, the reverse movement of said piston and valve being initially effected by the pressure of fluid which passes into the piston cylinder from the valve cylinder.

3. A valve of the character described, comprising a cylinder having an internal valve seat and inlet and outlet pipes connected to the cylinder on opposite sides of the seat, a piston cylinder connected to one end of the valve cylinder and communicating therewith, a return pipe connecting said piston cylinder at one end to the outlet pipe, a regulating valve in the return pipe, a rod longitudinally movable through said cylinders, a valve on one end of said rod for engagement upon the valve seat, said valve in its full open position being disposed on the opposite side of the inlet with relation to its seat, and a piston on said rod longitudinally

movable in the piston cylinder and adapted to close communication between the same and said return pipe at the end of its inward movement, the reverse movement of said piston and valve being initially effected by pressure of the fluid entering the piston cylinder from the valve cylinder.

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

MEYER J. ROSENSTEIN.

Witnesses:
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S. T. PEAKE.