A. R. GILMORE.

BALL COCK.

APPLICATION FILED APR. 14, 1919.

1,320,132. Patented Oct. 28, 1919.

Fig. 1.

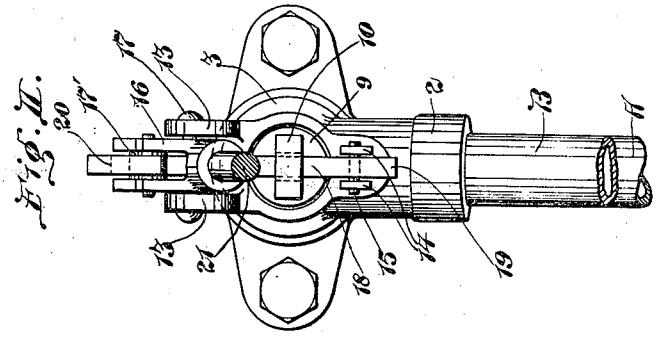
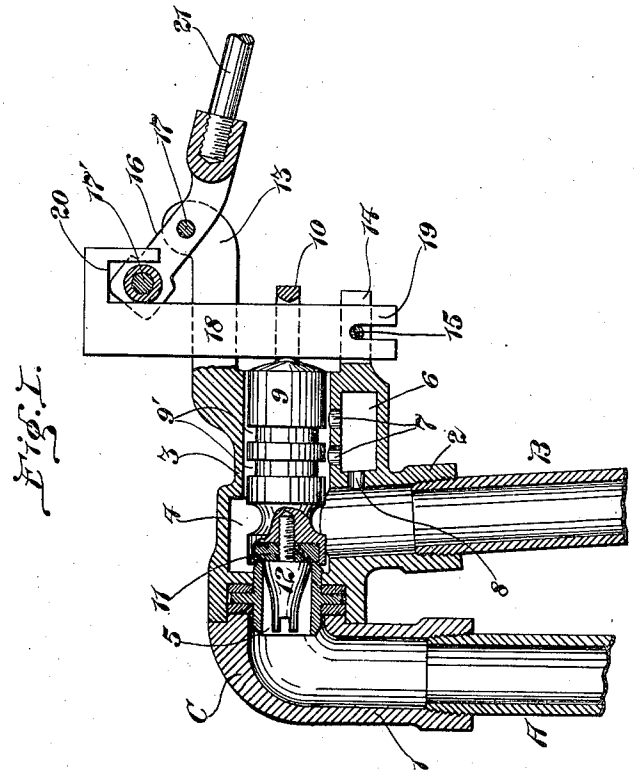


Fig. 2.



INVENTOR.

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BALL-COCK.

1,320,132. Specification of Letters Patent. Patented Oct. 28, 1919.

Application filed April 14, 1919. Serial No. 289,974.

To all whom it may concern:

Be it known that I, ALLEN R. GILMORE, a citizen of the United States of America, a resident of the city of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Ball-Cocks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to a ball cock for use in flushing tanks, the invention having several objects in view, viz., to provide, in a ball cock, a valve plunger operating lever which may be instantly removed and replaced, thereby greatly lessening the time and labor involved in repairing the ball cock; to provide a ball cock valve housing with a sediment chamber and a valve plunger, whereby water flowing along the valve plunger, and sediment carried therewith, may escape into the sediment chamber instead of traversing the length of the plunger and leaking through the end of the plunger chamber; to provide further for the accurate seating of the plunger valve against a tubular seat member against high water pressure, and in a manner which will eliminate vibration of the valve plunger.

Figure I is a vertical section through my ball cock.

Fig. II is an end elevation.

In the drawings, A designates a water inlet pipe, and B a water discharge pipe leading respectively to and from my ball cock.

The ball cock housing C comprises a tubular inlet neck 1 connected to the inlet pipe, a tubular discharge neck 2 to which the discharge pipe B is connected, and a valve plunger chamber 3 communicable with a water receiving chamber 4 adapted to communicate with the water inlet pipe A through the medium of a tubular valve seat member 5 interposed between the housing neck 1 and the chamber 4.

The valve plunger chamber 3 extends through the end of the housing C opposite to that at which the valve seat member 5 is located, and immediately beneath the valve plunger chamber 3 is a sediment chamber 6, formed in the housing C and having communication with the chamber 3 through the medium of orifices 7 leading from the valve plunger chamber to the sediment chamber. The sediment chamber is also placed in communication with the interior of the discharge neck 2 by an orifice 8.

9 designates a valve plunger slidably arranged in the valve plunger chamber 3, said plunger extending to the outer end of the chamber 3 and terminating in a yoke 10 which projects beyond the outer end of the plunger proper. The valve plunger 9 extends across the water receiving chamber 4 in the housing C, and is provided at its inner end with a valve 11 movable to and from the tubular valve seat member 5 with which the valve is adapted to contact to prevent flow of water from the inlet pipe A to the chamber 4. It is important that the valve 11 should seat accurately and positively against the end of the tubular valve seat member with which it is to contact against high water pressure and it is also desirable to prevent vibration and chatter of the valve plunger. I therefore secure to the inner end of the valve plunger a tapering nosepiece 12 serving to center the plunger in the tubular valve seat upon each movement of the valve to the valve seat member and hold the valve from vibration.

The valve plunger 9 is provided with annular grooves 9′ adapted to register with the orifices 7 leading to the sediment chamber 6. These grooves move into registration with said orifices 6 each time that the valve plunger is retracted to open the valve, and any water passing from the water receiving chamber 4 along the valve plunger enters the annular grooves therein and finds escape to the sediment chamber through the ports 7. Consequently, if there is any sediment or abrasive substance in the water which finds entrance to the valve plunger chamber 3, such substance is quickly discharged into the sediment chamber, instead of remaining in the valve plunger chamber to injure the plunger by abrasion. The annular grooves in the plunger 9 are also of service in that they permit the formation of water packing around the plunger, with the result of preventing the leakage of water through the outer open end of the valve plunger chamber, the water on reaching said annular grooves forming liquid packing rings which are broken only by the passage of the water to the sediment chamber 6 instead of through the open end of the plunger chamber. Furthermore, by draining the water from the grooves in the valve

plunger into the sediment chamber, I obviate the presence of water around the valve plunger when the valve is closed, thereby eliminating corrosion of the valve plunger which would result from the water remaining in contact with the plunger.

At the end of the valve housing C to which the valve plunger 9 extends, is an upper bracket arm 13 and a lower arm 14, the latter being provided with a guide pin 15. The bracket arm 13 serves to support a lift arm 16 pivoted to the bracket arm at 17, and to which a float rod 21 is secured. The lift arm 16 is provided with a roller 17′.

18 designates a valve plunger operating lever extending loosely through the yoke carried by the valve plunger 9, the lower end of said lever being provided with an upwardly extending slot 19 occupied by the guide pin 15. The plunger operating lever 18 is provided at its upper end with an open socket 20. This socket receives the roller 17′ carried by the lift arm 16 to which the float rod 21 is attached.

The herein described plunger operating lever 18 and parts with which it is coöperable are all so constructed as to permit quick removal and replacement of said lever whenever it is necessary to repair the ball cock in any particular, as, for example, the renewing of the valve carried by the valve plunger. This is true for the reason that the plunger operating lever has merely slip connection with the parts it engages and may be slid into and out of engagement therewith.

I claim:

1. A ball cock comprising a housing having a water-receiving chamber, a plunger chamber communicating with said water-receiving chamber, and a sediment chamber in communication with said plunger chamber; and a valve plunger operable in said plunger chamber.

2. A ball cock comprising a housing having a water-receiving chamber, a plunger chamber communicating with said water-receiving chamber, and a sediment chamber in communication with said plunger chamber; and a valve plunger operable in said plunger chamber, said plunger being provided with a groove adapted to register with a point of communication between said plunger chamber and said sediment chamber.

3. A ball cock comprising a housing containing a water-receiving chamber, a plunger chamber communicating with said water-receiving chamber, and a sediment chamber in communication with said plunger chamber and having communication with the outlet from said water-receiving chamber; and a valve plunger operable in said plunger chamber, said plunger being grooved annularly to provide for the formation of a water ring around the plunger from which water entering the plunger chamber may pass to said sediment chamber.

In testimony that I claim the foregoing I hereunto affix my signature.

ALLEN R. GILMORE.