Jan. 6. 1925.

1,521,745

M. BECKER.

BALL COCK

Filed July 14, 1923

Fig. 2.

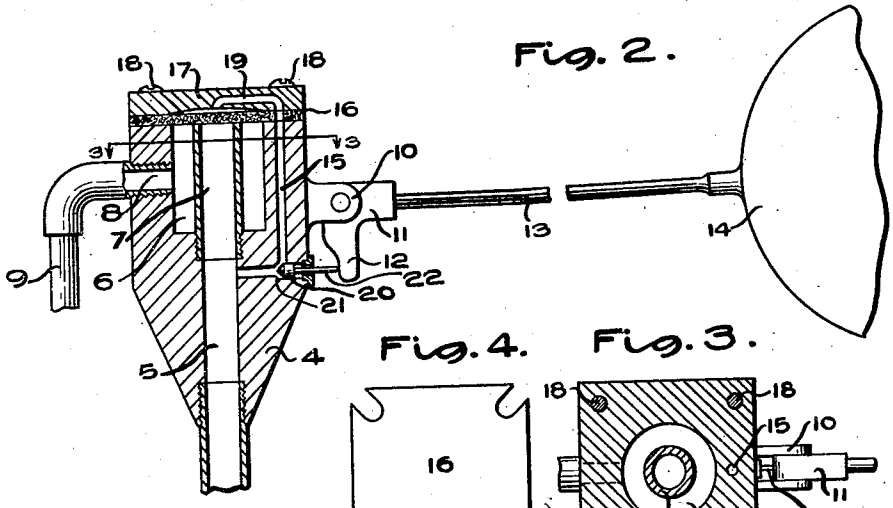


Fig. 4.

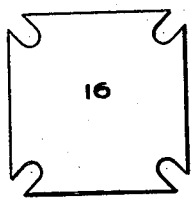


Fig. 3.

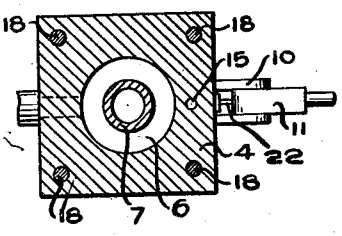
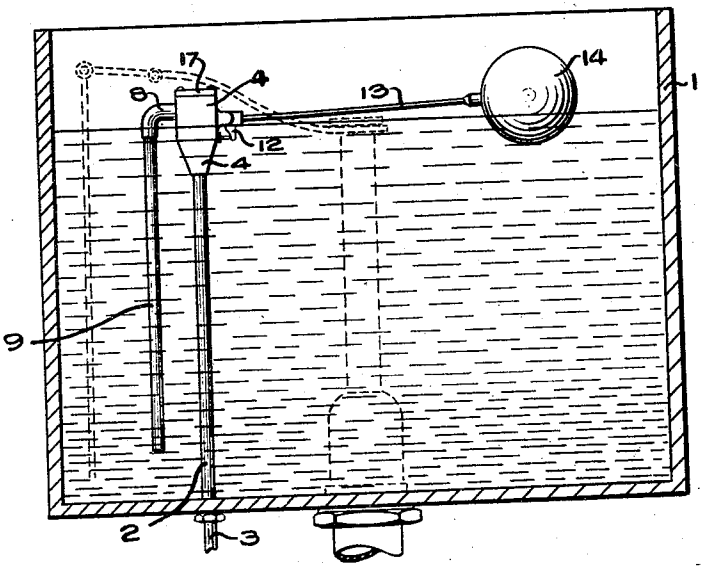


Fig. 1.



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Patented Jan. 6, 1925. 1,521,745

UNITED STATES PATENT OFFICE.

MAXIMILIAN BECKER, OF GUELPH, ONTARIO, CANADA.

BALL COCK.

Application filed July 14, 1923. Serial No. 651,530.

To all whom it may concern:

Be it known that I, MAXIMILIAN BECKER, a subject of the King of Great Britain, and a resident of the city of Guelph, in the county of Wellington, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Ball Cocks, of which the following is the specification.

My invention relates to improvements in ball cocks and the object of the invention is to devise a ball cock which will not be liable to stick or become clogged, when in operation.

A further object is to devise a ball cock which will be exceedingly simple in construction and operation, and a still further object is to devise a ball cock in which the float or ball will when raised, open a needle valve for admitting water to the main valve and close the same for preventing the admission of water into the tank.

My invention consists of a ball cock constructed and arranged all as hereinafter more particularly described and illustrated in the accompanying drawing in which:

Fig. 1 represents a vertical section through the tank.

Fig. 2 is an enlarged vertical section through the ball cock.

Fig. 3 is a horizontal section through the line 3—3 Figure 2, and

Fig. 4 is a detail in plan of the main valve.

Like characters of reference indicate corresponding parts in the different views.

1 is the flushing tank. 2 is a water inlet pipe extending up therethrough and connected with the water main 3. 4 is the ball cock valve casing secured to the top of the pipe 2 and having the vertically extending orifice 5 extending therethrough, said orifice having an enlarged upper portion 6. 7 is a pipe threaded into the upper end of the orifice 5, said pipe being of less diameter than the enlarged portion 6. 8 is a water outlet from the valve connected to the pipe 9 which extends down into the vicinity of the bottom of the tank.

10 is a bracket formed on the side of the ball cock valve casing 4 to which is journalled the member 11 provided with the downwardly extending lug 12, said member 11 carrying the rod 13 which supports the float 14.

15 is a by-pass communicating at its lower end with the orifice 5 and its upper end extending through the washer 16 interposed between the top of the valve casing 4 and its cap 17, which is suitably secured thereto by the screws 18 or other means. The upper end 19 of the by-pass 15 extends laterally through the cap 17 and has its outlet in the bottom face thereof in the vicinity of its centre.

My device actuates as follows:

When the tank is flushed the water therein, receding from the float 14, allows it to drop with the result that the lug 12 is pressed inwardly, thus seating the needle valve 20 on its seat 21 in the by-pass 5, as such lug comes into engagement with the valve stem 22 of the needle valve, thus the pressure of water from the water main 3 passes through the pipe 2, through the orifice 5 communicating therewith, through the pipe 7, raising the flexible washer 16 which constitutes the main valve of the top of such pipe 7, allowing the water to fill the chamber constituted by the enlarged portion 6 of the orifice 5 and from thence to be discharged through the water outlet 8 into the pipe 9 in the tank.

When the tank is filled to the required extent the float 14 is lifted by it with the result that the lug 12 is disengaged from the valve stem 22. The water pressure now travels through the by-pass, opening the needle valve 20 and flowing up through the upper end of the by-pass 19, exerting a pressure on the top of the flexible main valve or washer 16, thus seating it on the top of the pipe 7 and consequently shutting off the supply of water to the water outlet 8.

When the needle valve 20 is again operated into its closed position, as it is a loose fit in the casing 4, the water in the by-pass will be discharged out of the casing into the tank.

From the above description it will be seen that I have devised a simple ball cock for use with flushing tanks which can be readily constructed and which will have a small number of parts and which will be positive in action. Moreover, I have constructed a ball cock which will not be liable to get out of order and in which the float, instead of having to actuate the main valve directly to shut off the water, merely has to permit the opening of a needle valve, the water pressure thereupon closing the main valve.

What I claim as my invention is:

1. A ball cock comprising a longitudinal orificed casing body having a water inlet and

outlet, a yieldable valve member normally seating on the upper edge of the orifice, a casing cap extending over the yieldable valve member, a single by-pass establishing communication between the orifice in the casing body and the interior of the casing cap, said by-pass constituted partly in the casing body and partly in the casing, a single float controlled valve positioned in the portion of the by-pass in the casing body, and means for permitting the water from the interior of the casing cap and the upper portion of the by-pass to escape around the valve out of the casing body upon the valve being closed.

2. A ball cock comprising a longitudinal orificed casing body having a water inlet and outlet, a yieldable valve member normally seating on the upper edge of the orifice, a casing cap extending over the yieldable valve member, a single by-pass establishing communication between the orifice in the casing body and the interior of the casing cap, said by-pass constituted partly in the casing body and partly in the casing, a single float controlled plunger valve reciprocable in a lateral orifice communicating with the lower portion of the by-pass, the needle end of the plunger valve seating on a seat in such by-pass and upon such valve being seated the water in the interior of the casing cap and in the upper portion of the by-pass being permitted to escape around the valve through the lateral orifice and out of the casing body.

MAXIMILIAN BECKER.