Jan. 9, 1923. 1,441,772.

G. A. WILSON, JR.

VALVE.

FILED MAR. 30, 1920.

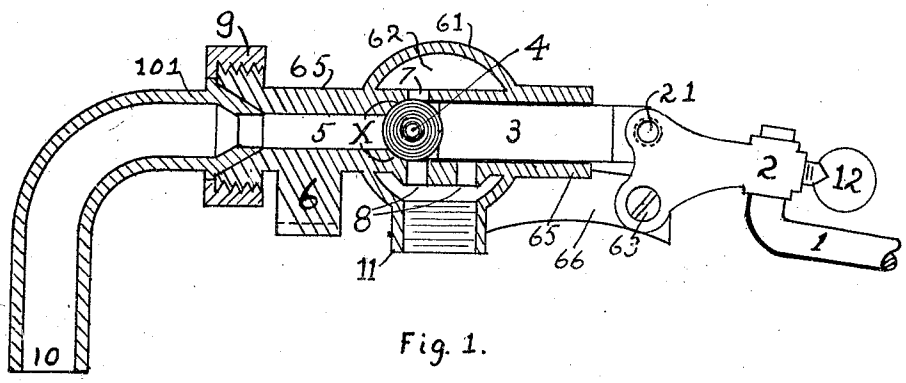


Fig. 1.

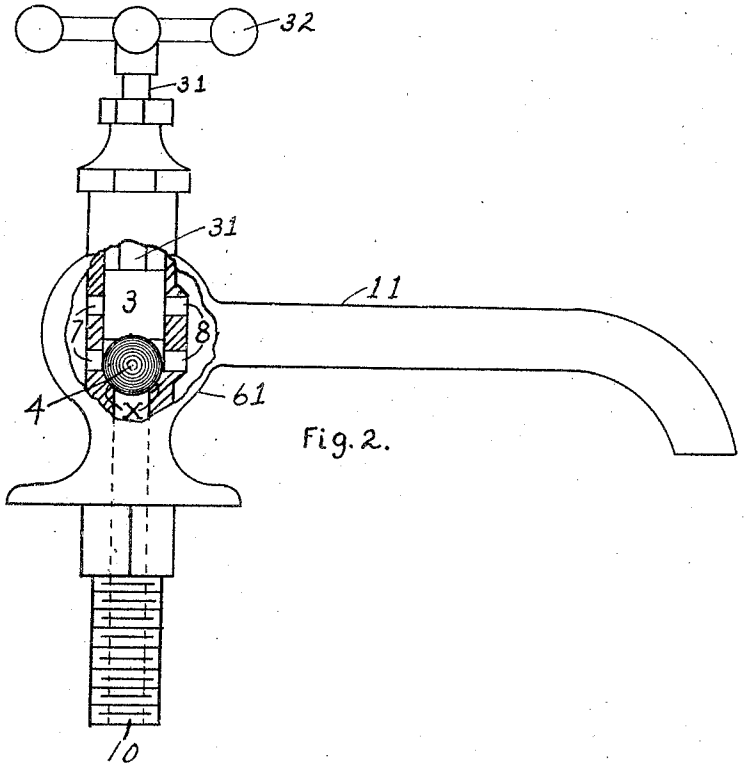


Fig. 2.

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UNITED STATES PATENT OFFICE.

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VALVE.

Application filed March 30, 1920. Serial No. 369,959.

To all whom it may concern:

Be it known that I, GEORGE A. WILSON, Jr., of Boston, in the county of Suffolk and State of Massachusetts, a citizen of the United States, have invented a new and useful Improvement in Valves, of which the following is a specification.

While my invention relates more particularly to a valve for use in water-closet tanks with a float, it may be applied to any kind of valve structure, and it consists in a particular construction comprising a ball valve which is free to move in the valve chamber except as it may be held against the valve seat by suitable means when a passage of liquid through the valve seat is not desired. The advantage of a ball and especially a freely-movable ball is that the portion of its surface which engages the valve seat is constantly changing so that while in time it may wear the valve seat somewhat, the wear will be spherical in character though the same parts of the valve surface will not necessarily contact with the valve seat at all times. Thus it will always grind its own seat.

My invention will be understood by reference to the drawings in which it is shown in its preferred form.

Figure 1 is a longitudinal section showing the application of my valve to an ordinary float such as is used in a water-closet tank and elsewhere.

Fig. 2 is a side view partly in section showing the valve as applied to a faucet.

Referring especially to Fig. 1, 65 is a casting having a passage therethrough connected at one end to a pipe 10 which forms a water inlet, and having a valve seat X, the walls of the passage beyond said valve seat serving as a guide passage for the valve 4 and the plunger 3. A portion of the passage is shown at 5. The casting 65 has a hollow spherical or enlarged portion 61 within which is a chamber 62 through which passes the walls of the passage, said chamber being connected with the passage by openings 7 and 8 through its walls. 11 is the outlet from the chamber 62 which as shown is threaded on its interior in order to be connected with a suitable discharge pipe (not shown). 10 is the inlet pipe which has at its connecting end a conical enlargement 101 by means of which and a cap nut 9 it is connected to the end of the casting 65 to form a watertight joint.

4 is the valve which is spherical and which is normally held against its seat by a plunger 3 sliding in the enlarged portion of the passage 5, and this plunger is connected to a trigger or lever 2 by a loose pivoted joint 21 which trigger is pivoted as at 63 to a bracket 66 on the casting 65. The loose joint between parts 2 and 3 is provided so that the plunger 3 may be given a movement in line with the axis of the passage 5 in which it runs. To the trigger 2 is attached a lever 1 at the outer end of which is the ordinary float, (not shown) this lever being attached to the trigger by a thumb screw 12. 7 and 8 are openings connecting the passage 5 with the chamber 62 and outlet 11. The casting 65 carries a bracket or support 6 of ordinary construction by which it may be attached to the tank.

It will be seen that in the operation of this device when the tank empties, the float drops and turns the trigger 2 around its pivot 63, thus withdrawing the plunger 3 from the ball 4 so that the ball yielding to the water pressure entering the passage 5 from pipe 10 will move away from the valve seat allowing the free entry of water through passages 7 and 8 to the chamber 62 from which it will flow out through the outlet 11.

The construction shown in Fig. 2 is to all intents the same, 10 being the inlet and 11 being the outlet, 7 and 8 being openings connecting the passage in the inlet 10 with the chamber 62, 3 being the plunger, 4 the valve and X the valve seat. In this case however, the plunger 3 is held in place by the plunger rod 31. The means for operating the plunger rod 31 to restrain and release the valve 4 is not shown except by the handle 32 as it may be operated against the force of a spring or by a screw or in any of the ways well known such as are common in valve cocks.

What I claim as my invention is:—

1. A valve comprising a casting having a passage therethrough, said casting having a hollow spherical enlargement, the walls of said passage having openings through which said passage communicates with the chamber of said enlargement, an outlet passage with which said chamber communicates, an inlet valve seat located in

said passage, a ball valve adapted to fit said seat, and means for holding said ball valve to its seat and releasing it therefrom.

2. A valve comprising a casting having a passage therethrough, said casting having a hollow spherical enlargement, the walls of said passage having openings through which said passage communicates with the chamber of said enlargement, an outlet passage with which said chamber communicates, an inlet valve seat located in said passage, a ball valve adapted to fit said seat, a plunger fitting said passage and engaging said ball valve, and means for operating said plunger to hold said valve to its seat or release it therefrom.

GEORGE A. WILSON, JR.