M. H. GREESON.

BALL COCK.

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1,271,459.

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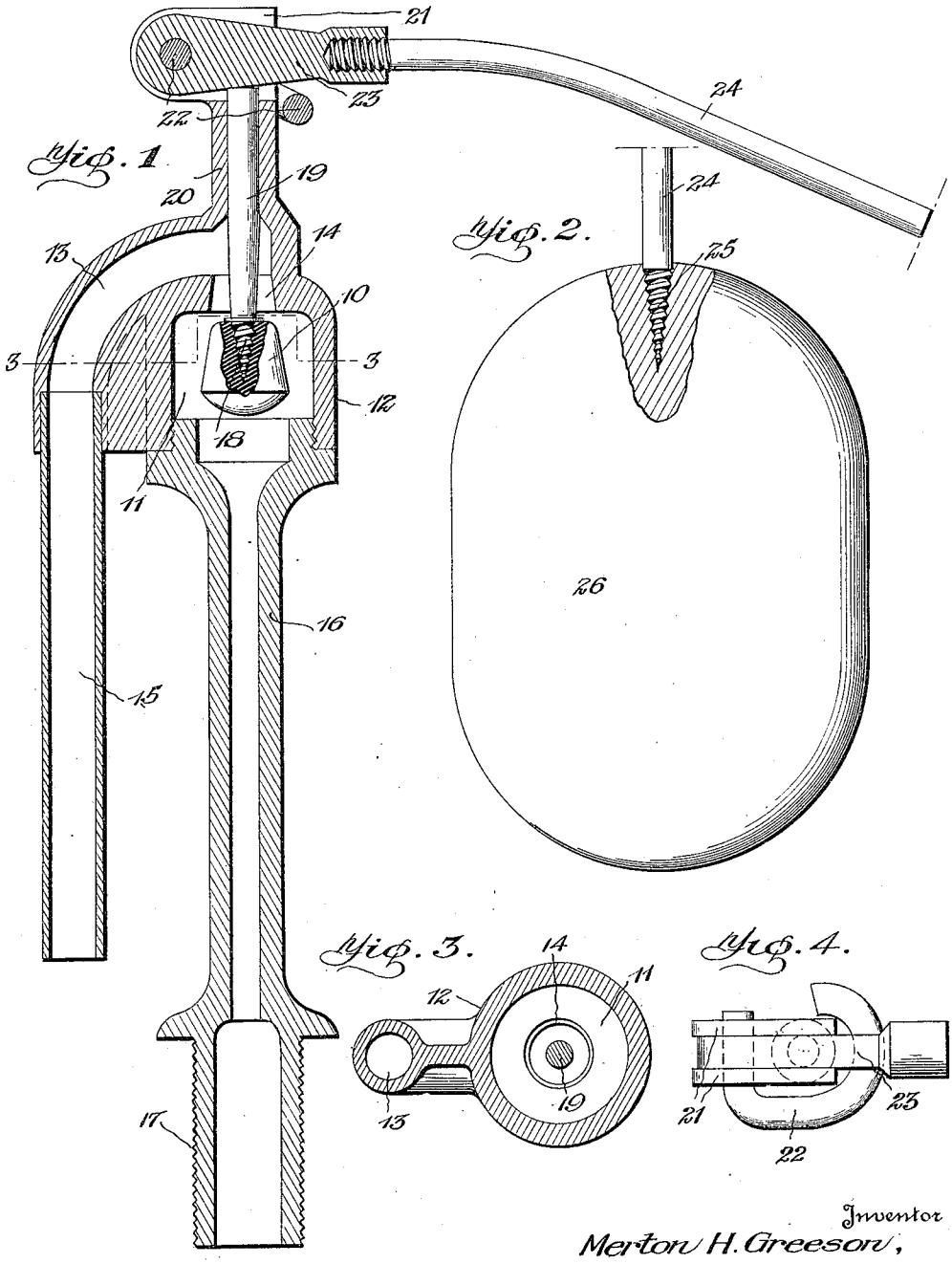

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

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BALL-COCK.

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To all whom it may concern:

Be it known that I, MERTON H. GREESON, a citizen of the United States, and a resident of Tampa, in the county of Hillsborough and State of Florida, have invented a new and useful Improvement in Ball-Cocks, of which the following is a specification.

My present invention relates generally to ball cocks, the ordinary construction and use of which are well known, and more particularly to a novel construction having the advantages in use which will be presently described and made plain.

One object in particular, of the present invention is the provision of a ball cock which is mechanically designed to prevent all noise in its actions and which will obviate the use of other parts, for instance a choke coil for this purpose.

A further object of the present invention is the provision of a ball cock having an automatically closing valve, the movements and operation of which will obviate the usual severe wear, and the sole pressure upon which will result from the fluid flowing through the cock.

A still further object is the provision in an automatically closing ball cock, of a valve opening and controlling float which will be sufficiently heavy to open the valve against the flow of fluid through the cock and still float freely upon the surface of fluid at all times.

These objects and the advantages resulting from my present invention, will be apparent from the following specification, describing the invention in connection with the accompanying drawing, forming a part thereof, and wherein:

Figure 1 is a vertical longitudinal section through my improved ball cock.

Fig. 2 is an elevation, partly broken away and in section, of the float utilized in connection therewith.

Fig. 3 is a horizontal section taken substantially on line 3—3 of Fig. 1, and

Fig. 4 is a top plan view of the upper portion of the ball cock.

Referring now to these figures, my present improvement contemplates the provision of an automatically closing ball or valve 10 freely movable in the lower enlarged valve chamber 11 of the valve casing 12, the upper central portion of which chamber communicates with the upper inner end of the outwardly and downwardly curved outlet channel 13 of said casing by means of a beveled opening 14, the wall of which forms a seat for the valve 10.

At its lower outer end, the outlet channel 13 of the valve casing 12 is in communication with a downwardly extending outlet stem 15, and at its lower portion, the valve chamber 11 is in communication with the upper end of the intake stem 16, the lower end of which is externally threaded at 17 for connection with a suitable support, as for instance the base of a tank in which the ball cock is to operate, it being noted that the cross sectional area of the bore of the stem 16 is substantially less than that of the outlet channel 13 and the outlet stem 15, and greatly reduced with respect to the cross sectional area of the valve chamber 11.

The valve 10, which may be the usual Fuller ball valve, is securely held upon the lower tapering threaded end 18 of the valve pin 19, the latter of which slidably interfits an upper vertical extension 20 of the valve casing 12, the upper end of which extension is provided with laterally spaced vertically projecting ears 21, upwardly between which the upper free end of the valve pin 19 extends when the valve is in closed position.

The ears 21 just above mentioned are apertured at one side of the vertical plane of the valve pin 19, as seen by reference to Figs. 1 and 4, above the upper end of the bearing extension 20, to receive one end 22 of the pivot of the valve opening and controlling lever 23, the latter being shiftable vertically upon its pivot immediately above the upper free end of the said valve pin to engage the latter and open the valve 10 by thrusting the valve pin downwardly.

The pivot of this lever 23 is in the nature of a rod 22, as seen in Fig. 4, one end of which is projected through the alined openings of the ears 21 and the lever 23, the said pivot forming rod being constructed of malleable metal so as to adapt the same to be bent around a portion of the ears 21 below the lever 23, and thus constitute a self-locking pivot pin, the bending of which as described, prevents withdrawal or accidental displacement of that portion extended through the lever 23 and the ears 21, as previously described.

To the outer end of the lever 23 a stem 24 is connected, the outer end of which stem is tapered and threaded as seen at 25 in Fig. 2, so as to adapt the same to screw

within and securely support the float 26, the latter of which is in accordance with my present invention, formed of wood saturated with paraffin, the wood float being sufficiently light in weight to rest upon the surface of the fluid in the tank and being prevented from water-logging by the paraffin.

It is obvious that a wooden float of the nature just above described is sufficiently heavy to force the valve 10 downwardly, through engagement of lever 23 with the upper end of the valve pin 19, against the pressure of the fluid upwardly through the intake stem 16 which normally holds the valve 10 closed, so that I am enabled to provide positive valve opening means and controlling means which will at the proper times allow the valve to move freely on to its seat under pressure of the fluid.

It is furthermore, obvious that by virtue of the increase in the cross sectional area of the outlet with respect to that of the inlet, I am enabled to provide a ball cock capable of operation without noise and without the necessity of using other parts, for instance, a choke coil, to produce this result. In my construction the water flows from the valve chamber with so much less resistance than it enters it through the stem 16, that all noise is obviated through the use of a construction which still allows a full sized stream to flow into the tank and fill it as rapidly as is desirable.

Furthermore, it is obvious that in view of the particular disposition and movement of the self-closing valve, the water in flowing from the valve chamber through the valve seat, flows away from the ball and is therefore unlikely to tear or wear away the valve as it does in a compression cock where the water flows at high pressure against the valve. It is also to be observed that the valve in seating is under pressure of the fluid only, which is insufficient to mash or squeeze it out of shape or otherwise deform the same, and it may be seen that by virtue of the self-closing valve, the cock will be shut off automatically and will remain so until it has been repaired, in the event the float should become detached or the valve opening lever become broken.

A self-closing valve of the present character in connection with a controlling float the only function of which is to open the valve, constitutes a construction wherein the float member acts as a balance or governor on the valve pin so as to insure gradual uniform seating of the valve upon its seat and the shutting off of the water without water hammer or, in fact, any noise whatsoever.

I wish it to be understood furthermore, that by utilizing a float of wood saturated with paraffin as previously described, I not only avoid the well known disadvantages of hollow metal floats, but I provide a particularly effective float in connection with a self-closing valve of the present type of sufficient weight for the purposes before mentioned.

I claim:

A ball cock including an automatically closing valve having a projecting pin, a casing in which the valve works, having upstanding apertured ears adjacent the free end of the said valve pin, a float controlled lever extending between the said ears and arranged to bear upon the free end of the valve pin, said lever and said ears having alined openings, and a pivot rod one end of which is extended through the said openings, said pivot rod being bent around a portion of the said ears to lock the same in position and prevent displacement of its first mentioned end.

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