(No Model.)

# J. ZANE.

## BALL COCK.

No. 279,685. Patented June 19, 1883.

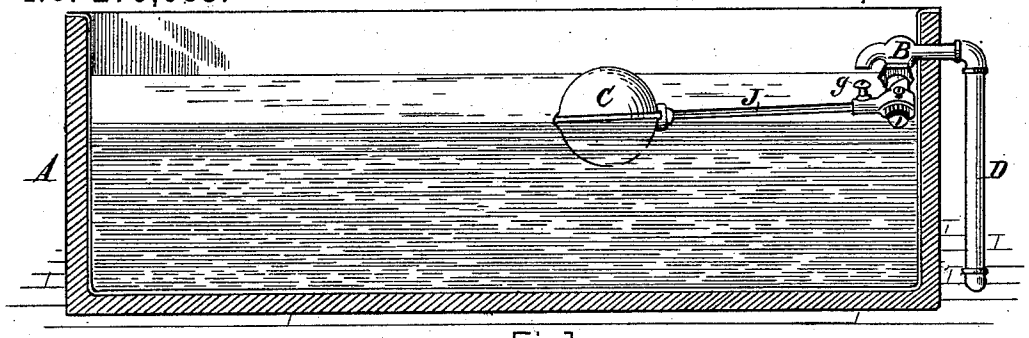



Fig. 1.

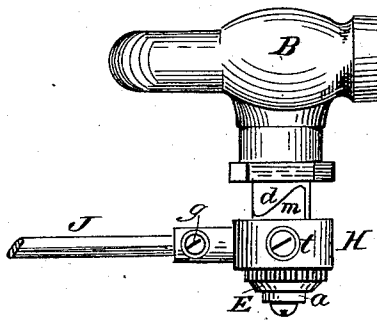



Fig. 2.

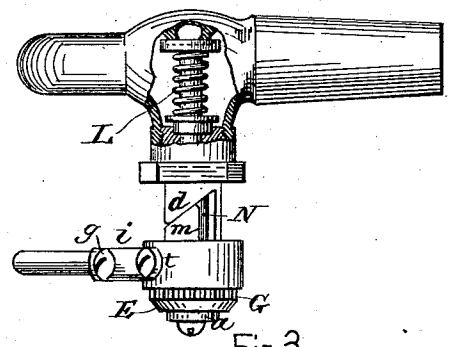



Fig. 3.

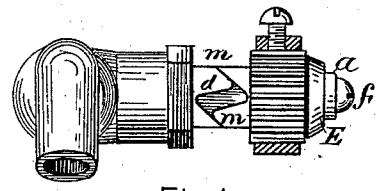



Fig. 4.

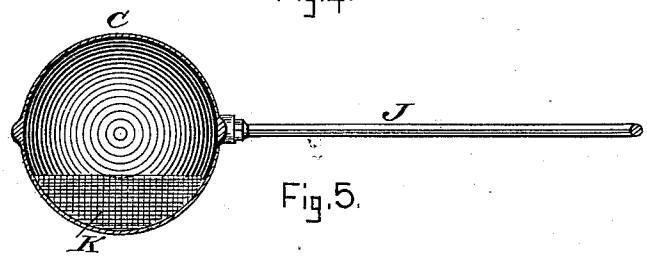



Fig. 5.

Witnesses.
H. E. Metcalf,
C. H. Appleton

Inventor.
Joseph Zane,
Per C. C. Shaw.
Atty.

N. PETERS. Photo-Lithographer, Washington, D. C.

# UNITED STATES PATENT OFFICE.

JOSEPH ZANE, OF BOSTON, MASSACHUSETTS.

## BALL-COCK.

SPECIFICATION forming part of Letters Patent No. 279,685, dated June 19, 1883.

Application filed January 2, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH ZANE, of Boston, in the county of Suffolk, State of Massachusetts, have invented a certain new and useful Improvement in Ball-Cocks, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a sectional isometrical perspective view, representing the improvement as used in connection with a tank; Fig. 2, a top plan view, representing the cock closed; Fig. 3, a like view, representing it open; Fig. 4, a side elevation, representing it open; and Fig. 5, a vertical section of the float.

Like letters of reference indicate corresponding parts in the different figures of the drawings.

My invention relates more especially to that class of ball-cocks which are self-closing; and it consists in a novel construction and arrangement of the parts, as hereinafter more fully set forth and claimed, by which a more durable and effective device of this character is produced than is now in ordinary use.

In attaching floats to cocks of this description, when used as shown in Fig. 1, for filling the tanks of water-closets, &c., the float-rod is generally connected to the valve-stem of the cock by means of a fixed arm, or arm so connected with said stem as not to be adjustable thereon, rendering it necessary, in order to properly adjust the float, to bend the rod of the same either up or down, and thereby cause it to work imperfectly. It is also sometimes impossible, where the float is rigidly connected to the valve-stem, to bend the rod in such a manner as to regulate the cock, on account of the peculiar construction of the tank, or the nature of the surroundings. My improvement is designed to obviate these objections, and to that end I make use of means which will be readily understood by all conversant with such matters from the following description, its extreme simplicity rendering an elaborate explanation unnecessary.

In the drawings, A represents an ordinary tank; B, the cock; C, the float, and D the induction or supply pipe.

Within the body of the cock, and connected therewith and with the valve-stem, or to fittings attached to the same, is a stout coiled spring, L, adapted to force the valve down firmly onto its seat and close the cock; and fitted onto that part of the cock in which the valve-stem works there is a loose sleeve, E, provided with a series of cam-shaped serrations, *m*, at its inner end, which work in contact with a corresponding series of serrations, *d*, on the body of the cock, the outer end of the sleeve abutting against the washer *a*, which is held in position by the screw *f* in the outer end of the stem. The sleeve is also provided with a serrated boss, G, which is preferably cast integral therewith, but may, if preferred, be secured thereto in any convenient and proper manner, the boss being considerably larger in diameter than the body of the sleeve, but the boss may be omitted, if desired, and the collar attached directly to the sleeve; though I deem it preferable to use it. Disposed on the boss there is a collar, H, provided with the hollow arm *i* and set-screw *g*, the collar being secured to the boss and rendered adjustable thereon by the set-screw *t*.

The float C is a hollow globe of sheet metal, constructed in such a manner as to be water and air tight, and provided with the rod J, which, when the float is in use, is secured in the arm *i* by means of the set-screw *g*. The float is also partially filled with lead or solder K, which is preferably melted and run into the same in such a manner as to adhere to the bottom of the float and retain its position permanently, thereby acting as ballast to keep the float in a proper position, and obviating the tendency to revolve and become loose in the arm *i*, which it would have if the ballast was evenly distributed throughout its interior, or if the walls of the float were made thick enough to give it sufficient weight without the aid of ballast.

In the use of my improvement, in connection with a tank, as shown in Fig. 1, the water is first let into the tank until it attains a mean depth. The rod J is then secured in the arm *i* by means of the set-screw *g*, and the float C placed in the water with its ballasted side down, after which the collar H is slipped onto the boss G and firmly secured by the set-screw *t*.

From the foregoing it will be seen that as the water is used from the tank and the float falls, the rod J acting through the arm *i* and collar H upon the boss G, will turn the sleeve E on the stem N, thereby causing the cams *m d* to force the stem outwardly, open the cock, and permit the water to flow into and replenish the tank, in a manner which will be readily obvious without a more explicit description.

Having thus explained my invention, what I claim is—

1. The self-closing cock B, having the stem N and cams *d*, and provided with the sleeve E, having the cams *m* and boss G, in combination with the rod J, float C, and means for rendering said rod adjustable with reference to the sleeve, substantially as set forth.

2. In a self-closing ball-cock, substantially such as described, the sleeve E, provided with the boss G, in combination with the collar H, provided with the set-screw *g* for adjustably connecting the float-rod J to said sleeve, substantially as and for the purpose specified.

3. In a self-closing ball-cock, substantially such as described, the sleeve E, provided with a collar adapted to receive and hold a float-rod, and with means for attaching said collar to said sleeve, and render the same adjustable thereon, substantially as and for the purpose set forth.

JOSEPH ZANE.

Witnesses:
C. A. SHAW,
H. E. METCALF.