

(No Model.)

H. C. WEEDEN.

BALL COCK.

No. 348,364

Patented Aug. 31, 1886.

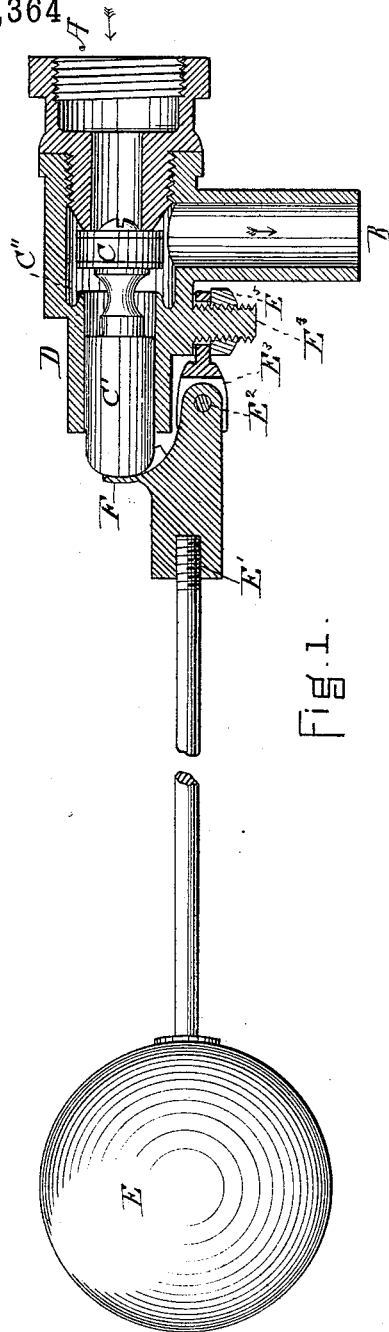


Fig. 1.

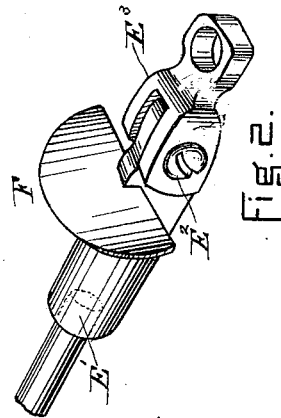


Fig. 2.

WITNESSES.

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BALL-COCK.

SPECIFICATION forming part of Letters Patent No. 348,364, dated August 31, 1886.

Application filed April 7, 1886. Serial No. 198,103. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. WEEDEN, of Boston, in the county of Suffolk and State of Massachusetts, a citizen of the United States, have invented certain new and useful Improvements in Ball-Cocks, of which the following is a specification.

My invention relates to the contrivances variously known as "ball-cocks," "ball-valves," or "float-valves," primarily intended for use in connection with water-cisterns, to regulate or govern the flow of water into the cistern, and to stop this flow when the cistern is filled to the height desired.

Its object is to produce an improved ball-cock which shall be more effective and advantageous than those now in use.

The ball-cocks heretofore used, while varying widely in the details of their construction, have been principally structures embodying the following essential elements, viz: a valve for opening and closing a water-supply passage, a float mounted upon the end of a pivoted lever and rising and falling with the water in the cistern, and interposed mechanism whereby the motion of this float-lever thus obtained has been utilized to open and close the valve. In some forms of the apparatus a sliding valve has been used to open and close the water-passage, while in others a turning valve, like that of an ordinary faucet, has been employed; but in each case the turning or sliding of the valve to open or close the passage has been brought about by the rising or falling of the float-lever, this latter motion being transmitted to the valve by suitable interposed mechanism.

When ball-cocks of the character above described are set up in cisterns, it frequently happens that some fixed part of the cistern—as, for example, the overflow-pipe—stands in the way of the float or its lever. To obviate this difficulty, it has heretofore been the custom to make the lever of a somewhat flexible material—as, for example, a brass rod—which the plumber bends, when the ball-cock is set up, sufficiently to carry the float or lever clear of the obstruction. This method of obviating the difficulty is, however, undesirable, because the offsetting of the lever and ball-cock in this way frequently tends to produce a cramp or bind at the pivot of the lever, which interferes

with the perfect working of the apparatus. It has also been attempted to remedy this defect by pivoting and guiding the lever in an open cup surrounding the mouth of the water-supply pipe; but this construction is objectionable, because it brings the lever and connected parts across the face of the outlet-pipe, thereby interfering with the discharge of water.

The first part of my present invention has for its object to provide the float-lever not only with a pivot enabling it to have its necessary vertical motion with the rise and fall of the water, but also to so attach it that it shall be capable of being shifted radially in the plane of the surface of the water in the tank, so that it may operate clear of the outlet-pipe or other obstruction to be avoided.

Furthermore, in that type of apparatus above described in which a sliding valve has been used it has been customary to connect that valve with the lever by means of a constant connection, so that the motion of the float-lever at all times controls the motion of the valve. This construction is undesirable, because it frequently happens that the lever moves slowly, and thus retards the opening of the valve, which, if not so held back by the float-lever, would open promptly to its fullest capacity. By my present invention I have so connected the lever and slide-valve that the motion of the latter in opening shall not be controlled by the rate of fall of the float-lever, but that a comparatively slight fall of the float-lever shall leave the valve free to open to its full capacity under the pressure of the water. By my present invention I have furthermore introduced certain minor structural advantages, as will be hereinafter more fully explained.

In the accompanying drawings I have represented a ball-cock embodying my present invention in the form now best known to me.

Figure 1 represents a sectional view of an apparatus embodying my present invention; and Fig. 2, an enlarged view, in perspective, of a detail thereof, as will be hereinafter explained.

In the drawings, A represents the water-supply inlet, and B the outlet to the tank. C is the valve by which the water-supply is opened or closed, the stem C' of this valve working in a suitable guide, D, as shown. The stem may be packed within this guide, if de-

sired; but as this produces unnecessary friction I prefer to make the valve C double-faced, and to provide a second seat, C², around the entrance to the guide, whereby this will be
 5 closed by the back side of the valve C being pressed against this seat C² by the pressure of the water when flowing into the tank.

E represents the float, and E' the float-lever, which is of ordinary construction, but preferably not of flexible material. This lever is
 10 pivoted, as shown at E², to allow for the necessary vertical movement of the float with the rise and fall of the water in the tank. It is furthermore, by means of the strap E³, turning loosely around the post E⁴, adapted to be
 15 adjusted radially in the plane of the water of the tank, so as thereby to avoid interference with the outlet-pipe or other obstacle. When adjusted to the desired position, it may be
 20 clamped in place by the nut E⁵, if desired.

Connected with the float-lever E' is an abutment, F, which, when the water has risen to the maximum desired height in the tank, is pressed against the end of the valve-stem,
 25 thereby forcing the valve against and closing the mouth of the inlet A, to shut off the water-supply from the tank. When, however, the float-lever falls by reason of the subsidence of the water in the tank, this abutment F is drawn
 30 out of the way of the valve-stem, so that the valve is left free to be opened under the pressure of the water-supply.

Inasmuch as considerable radial adjustment

of the float-lever may be required, as above explained, it is desirable to make this abut- 35 ment F of considerable width, so as always to be capable of having a good bearing against the valve-stem.

It is obvious the mechanical details of structures embodying my invention may be consid- 40 erably modified to meet the requirements of different specific forms of construction, while at the same time the benefits and advantages of my improvements, as hereinabove set forth, may be preserved. 45

I claim—

In a ball-cock, the combination of the water-inlet A, water-outlet B, sliding double-faced valve C C', the circular guide D, provided with a packing, C², at its inner face, the ball 50 E, lever E', strap E³, said lever being pivoted to the said strap, the post E⁴, around which said strap is free to turn, the said post extending from the said guide D, the nut E⁵, for clamping the strap upon the post, and the abut- 55 ment F, carried upon the said lever and abutting against the said valve to close the same, all substantially as herein set forth, and for the purposes herein specified.

In testimony whereof I have hereunto sub- 60 scribed my name this 3d day of April, A. D. 1886.

HENRY C. WEEDEN.

Witnesses:

E. B. TOMLINSON,
 J. HENRY TAYLOR.