

No. 647,116.

A. J. ROBINSON.
BALL COCK.

Patented Apr. 10, 1900.

(Application filed Oct. 25, 1899.)

(No Model.)

2 Sheets—Sheet 1.

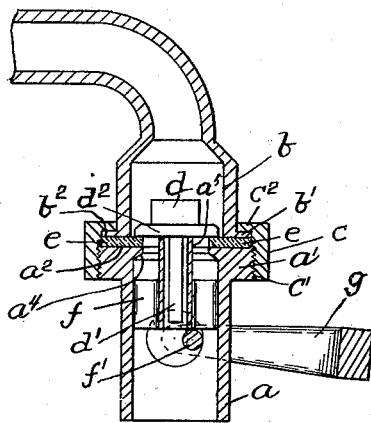


Fig. 1-

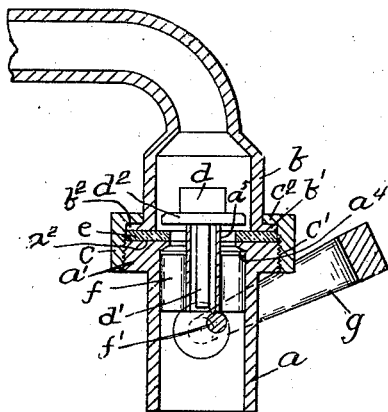


Fig. 2-

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Inventor:

Andrew J. Robinson
By B. J. Hayes
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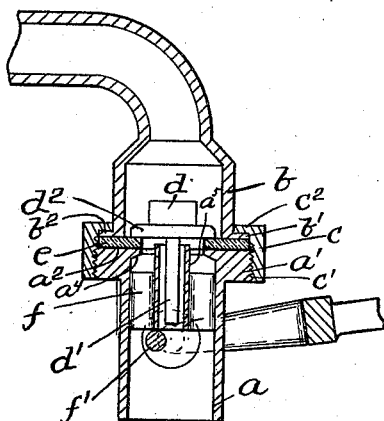


Fig. 3.

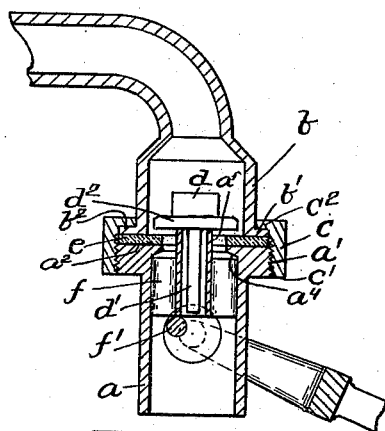


Fig. 4.

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UNITED STATES PATENT OFFICE.

ANDREW J. ROBINSON, OF BOSTON, MASSACHUSETTS.

BALL-COCK.

SPECIFICATION forming part of Letters Patent No. 647,116, dated April 10, 1900.

Application filed October 25, 1899. Serial No. 734,760. (No model.)

To all whom it may concern:

Be it known that I, ANDREW J. ROBINSON, of 36 Columbus avenue, Boston, county of Suffolk, and State of Massachusetts, have invented an Improvement in Ball-Cocks, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to valves especially adapted for use either as a faucet or as a ball-cock; and the invention is intended as an improvement upon the ball-cock shown and described in my United States Patent No. 609,629, dated August 23, 1898. In the ball-cock shown in said patent the valve was adapted to close upon a metallic seat, which was ground to insure a perfect fit; but in practice I find that a valve-seat thus produced is expensive, and if for any reason it becomes injured or worn the valve will leak and cannot readily be repaired, and also in said patent the valve was moved away from its seat to open the waterway by a loosely-supported member bearing upon and supported by an eccentrically-journaled rock-shaft, and the waterway was made large enough to provide for the ready removal of said loosely-supported member. In practice I find many objections to making the loosely-supported member removable, for the reason that when said member is removed there is liability of its not being replaced properly.

This invention has for its object to improve the construction of the valve shown in said patent to the end that these objections are overcome; and the invention consists in connecting the two parts of the valve-case together by a union-joint and providing the removable part with an inwardly-projecting flange adjoining the fixed part and interposing a washer between said parts, which not only serves as a packing for the joint, but by overlying said flange also serves as a valve-seat, disposing the valve upon one side of said valve-seat, with its stem or spindle projecting down through the contracted opening formed by said flange, and disposing the loosely-supported and independently-movable member at the opposite side of said flange, so that when raised it will engage and lift the valve, and providing means for operating said

loosely-supported and independently-movable member, which in conjunction with said flange serves as a means of confining the loosely-supported member within the removable part of the valve-case, so that when said part is removed the valve will be accessible and also its seat, yet its operating mechanism will not be accessible, and consequently will at all times remain in proper assembled position.

Figure 1 shows in vertical section a device embodying this invention made as a self-closing faucet, the valve being represented as closed. Fig. 2 shows a similar vertical section of the device shown in Fig. 1, the valve being represented as open. Fig. 3 shows in vertical section a device embodying this invention made as a ball-cock, the valve being closed; and Fig. 4 shows a similar vertical section of the device shown in Fig. 3, the valve being open.

The valve-case comprises, essentially, the main body portion or part *a* and an upper end portion or part *b*, adapted to be connected together, both of said parts being made tubular and having a suitably-formed waterway. The part *a* of the valve-case has at its upper end an externally-screw-threaded portion *a'*, and its upper end adjoining the part *b* is formed with a circular flat face *a²*. The part *b* of the valve-case is formed at its lower end with a flange *b'*, having a circular flat face *b²*.

A coupling-ring *c* is provided, which is made as a sleeve having an internally-screw-threaded portion *c'*, adapted to engage the externally-screw-threaded portion *a'* of the part *a*, and also having an inwardly-projecting flange *c²*, which overlies the flange *b'* on the portion *b*. The said coupling-ring *c* serves as a means of connecting the two parts *a* and *b* of the valve-case together and in conjunction with the flange *b'* on the upper part *b* serves as and constitutes a union-joint. By providing a joint of this description or any equivalent form or construction of joint whereby the two parts *a* and *b* of the valve-case are connected together it will be seen that said parts may be turned one with relation to the other, so as to occupy different relative positions, and the lower part *a* may be removed without turning it.

A circular washer or packing-ring is placed on the flat face a^2 of the part a , and the flat face b^2 of the upper end portion b is adapted to bear upon said washer or packing-ring e when the two parts a and b are connected together, thereby insuring at all times and under all conditions a tight joint. The washer or packing-ring e when thus interposed between the two parts of the valve-case will be securely held in place by said parts.

An inwardly-projecting flange a^4 is provided at the upper end of the part a , adjoining the part b , which somewhat reduces the area of the waterway at each point, and the top face of said flange a^4 occupies the same plane with the flat face on which the washer e is placed, and said washer e is made wide enough to overlie the flat face of said projection a^4 to thereby form a valve-seat.

d represents a valve which is contained in the valve-case, and said valve is herein represented as having a spindle or stem d' , which is contained in and loosely fits a vertical hole or socket formed in a member f , which is contained in the part a and which rests loosely upon and is supported by an eccentrically-journalled rock-shaft f' , having its bearings in the part a . A gravitating yoke g is connected with the rock-shaft f' , which serves as and constitutes an operating-lever. The valve d is formed with a circular flange d^2 , which is disposed to rest upon the valve-seat produced by the aforesaid washer e overlying the flange a^4 , and when resting on said valve-seat the waterway will be closed; but when said valve is raised the waterway will be opened. The loosely-supported member f , which is contained within said part a and which is confined therein, as will be described, is constructed with a winged body portion, which substantially fills the waterway, and with a nipple a^3 at its upper end, which projects up through the contracted portion of the waterway a sufficient distance to engage and support the valve d , and said loosely-supported member f is made independent of the valve d and is supported by or upon the rock-shaft f' , which is located beneath it. By forming the flange a^4 at the upper end of the part a and constructing the member f as herein shown and disposing the eccentrically-journalled rock-shaft f' beneath said member f it will be seen that said member f is confined within the valve-case and can only be removed by removing the rock-shaft.

As shown in Figs. 1 and 2, the valve d will be raised by lifting the loosely-supported member f , which may be accomplished by rocking the shaft f' by means of the operating-lever g , which will be raised into the position shown in Fig. 2, and the valve d is thus moved to open the waterway against the pressure of the water, and whenever the operating-lever g is released it immediately falls

by gravity, and at the same time the valve d descends by the pressure of the water upon it, and the combined action of the pressure of the water and the force of gravity thus automatically closes the valve.

Referring to Figs. 3 and 4, the operating-lever g is provided with a ball-carrying arm, and said lever is connected with the eccentrically-journalled rock-shaft f' , so as to move the valve d and open the waterway when descending and permit the valve to close the waterway when ascending, yet the construction of the valve-case and parts contained within it are the same as shown in Figs. 1 and 2.

Whenever either the valve-seat or the valve becomes worn and it is necessary to substitute a new one, the coupling-ring c^2 will be unscrewed and the lower part a of the valve-case, together with the valve d and its operating mechanism, may be readily removed, and when thus removed the valve and valve-seat are readily accessible.

I claim—

1. A valve-case having its component parts a and b connected together by a union-joint, said part a having an inwardly-projecting flange a^4 , a washer a^2 interposed between the parts a and b which serves as a packing for the joint and which overlies said flange a^4 and serves as a valve-seat, a valve disposed at one side of and adapted to coöperate with said valve-seat having a stem which passes down through the opening formed by said flange a^4 , a loosely-supported member at the opposite side of said flange having a hole or socket which loosely receives the stem of the valve, and means for operating said member located beneath it, said means in conjunction with the flange a^4 serving to confine the loosely-supported member in place in the part a , substantially as described.

2. A valve-case having its component parts connected together and having an inwardly-projecting flange which serves as a valve-seat, a valve disposed at one side of and adapted to coöperate with said valve-seat, the member f made independent of but adapted to engage and operate said valve comprising a winged body portion which is disposed at the opposite side of said flange having a nipple which projects up through the contracted opening formed by said flange to engage and operate said valve, and an eccentrically-journalled rock-shaft located beneath said member f which serves as a means of operating it, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ANDREW J. ROBINSON.

Witnesses:

B. J. NOYES,

J. L. HUTCHINSON.