No. 842,922. PATENTED FEB. 5, 1907.

C. C. TOZIER.

BALL COCK VALVE.

APPLICATION FILED JULY 17, 1906.

Fig. 1.

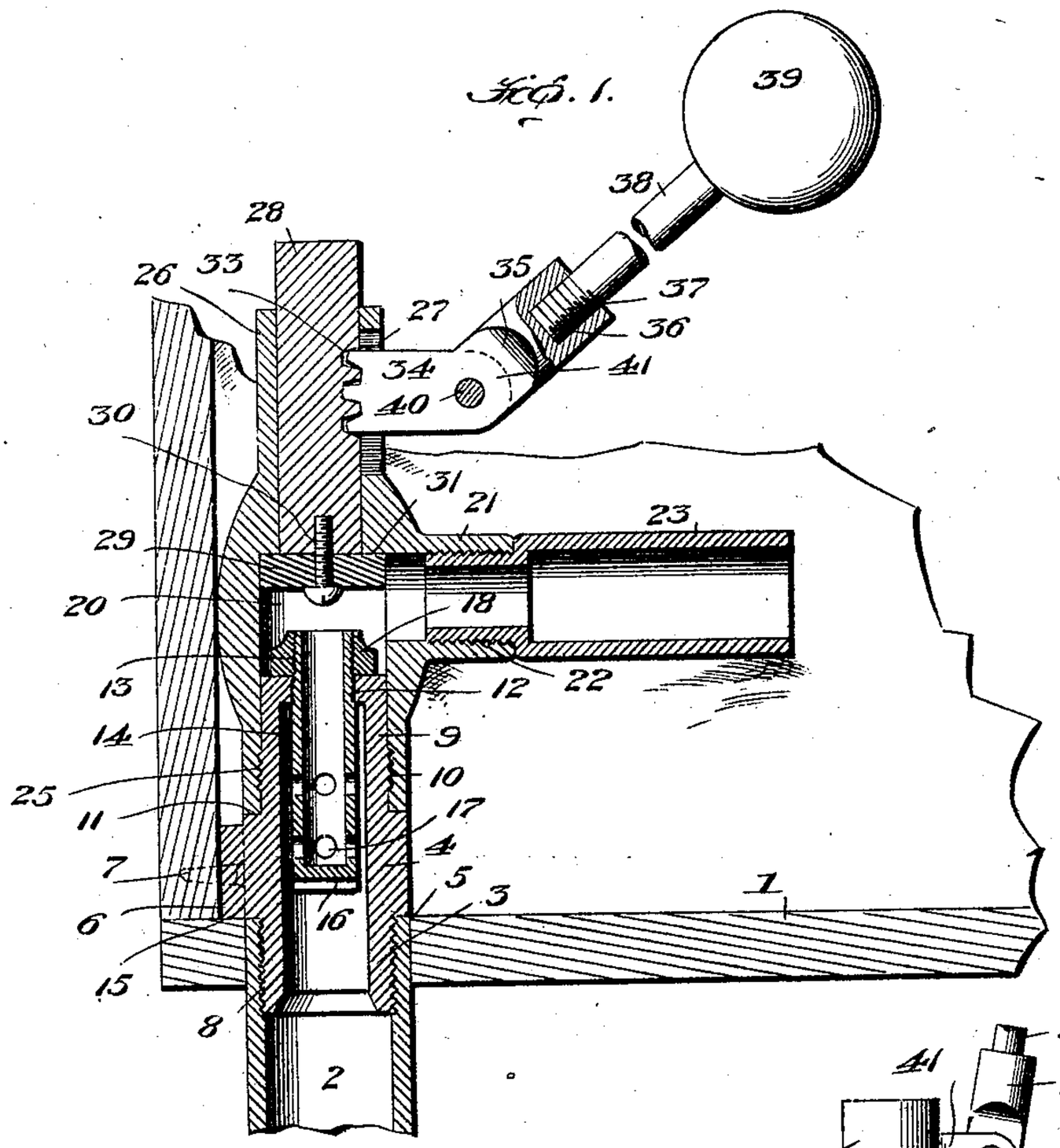


Fig. 2.

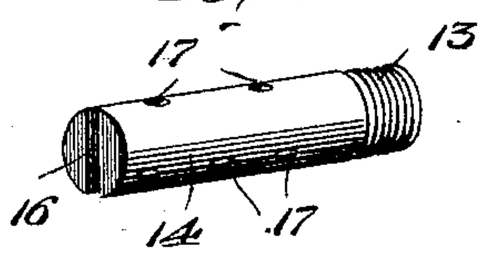


Fig. 3.

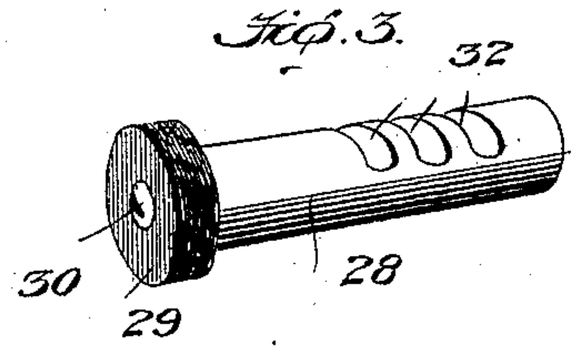
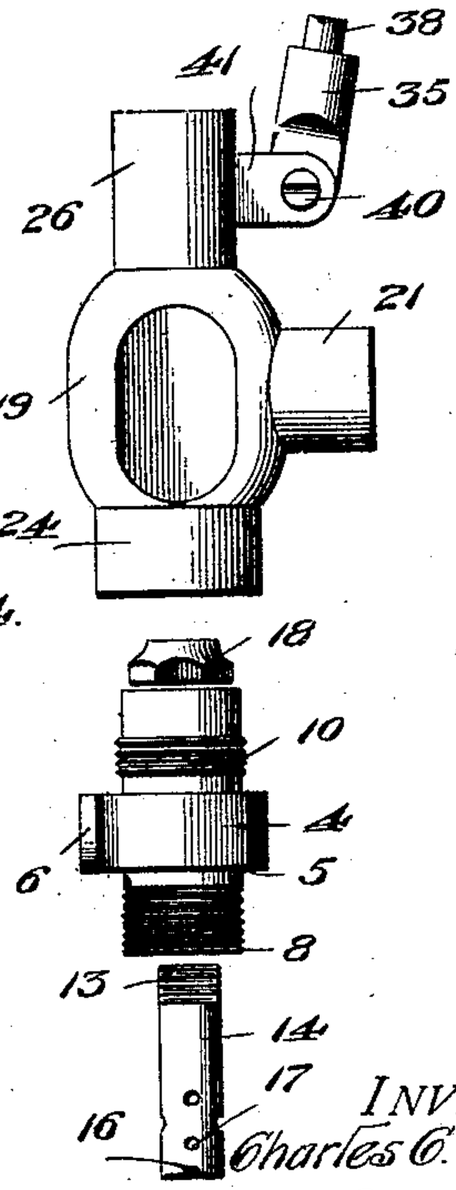


Fig. 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

CHARLES CULLEN TOZIER, OF SKOWHEGAN, MAINE, ASSIGNOR TO MAINE VALVE COMPANY, OF SKOWHEGAN, MAINE, A CORPORATION OF MAINE.

BALL-COCK VALVE.

No. 842,922. Specification of Letters Patent. Patented Feb. 5, 1907.

Application filed July 17, 1906. Serial No. 326,554.

To all whom it may concern:

Be it known that I, CHARLES CULLEN TOZIER, a citizen of the United States of America, and a resident of Skowhegan, in the county of Somerset, State of Maine, have invented certain new and useful Improvements in Ball-Cock Valves, of which the following is a specification.

This invention relates to certain new and useful improvements in ball-cocks; and it has for its objects, among others, to provide a simple and cheap yet durable and efficient construction of ball-cock or valve wherein the parts are separably united, the casing being separable, and the reducing-pipe, forming the hush-chamber, is constructed to act as a nipple for the seat, to be firmly secured, the inlet-openings being made so as to reduce the pressure, so that the disk and valve-seat will wear longer, and the parts made renewable to permit of ready replacement of worn parts when occasion may require.

Other objects and advantages of the invention will hereinafter appear, and the novel features thereof will be particularly pointed out in the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the numerals of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a substantially central vertical section through the bottom of a tank, showing my present invention applied thereon. Fig. 2 is a perspective view of the hush-chamber removed, with its cap detached. Fig. 3 is a perspective view of the plunger and its replaceable disk removed. Fig. 4 is a detail showing the two parts of the casing separated and the reducing-pipe and its seat removed from the section carrying the same, but in their relative positions.

Like numerals of reference indicate like parts throughout the several views.

Referring now to the details of the drawings, 1 designates a portion of a tank, as of a water-closet, to which my improvement is applied in any of the well-known ways, either at the side or at the top, or, as in the present instance, at the bottom, it being understood, however, that the invention is not restricted to the position or location of application of the device relatively to the tank.

2 designates the supply-pipe, designed for connection with any suitable source of supply, this pipe being shown as having its upper end received in an opening in the bottom of the tank and internally threaded, as at 3, to receive the lower threaded end of the lower portion 4 of the casing, which has a shoulder 5 to engage the upper end of the pipe 2 or the inner face of the bottom of the tank, the said portion 4 of the casing being provided with a lug 6, adapted to receive suitable securing means 7 for additional fastening of the casing to the vertical wall of the tank, as shown in Fig. 1. The threads 8 of the lower portion of the casing 4 may extend for any desired distance, so as to form a secure connection with the supply-pipe, it being evident that the connection between the pipe 2 and the portion 4 of the casing may be of any of the well-known forms embodying a lock-nut and union-joint, the means of connection of these parts forming no portion of the present invention.

The portion 4 of the casing is provided with the tubular extension 9, having exterior threads, as at 10, and a shoulder, as at 11. The outer end of the tubular extension is formed with the opening 12, which is interiorly threaded and which receives the threaded end 13 of the reducing-pipe and hush-chamber 14, which, as shown in Fig. 1, is of less diameter than the bore of the portion 4 of the casing, so as to leave an annular space 15 around said hush-chamber, said reducing-pipe or hush-chamber being of less length than the lower portion 4 of the casing in which it is confined. This reducing-pipe is formed at the end opposite its threads with means, as a notch 16, for the reception of a screw-driver or other tool, by which the pipe may be secured in place within or removed from the lower casing 4 when desired. It is provided with a plurality of lateral outlet-passages 17, as shown. Its inner end extends through the opening 12 in the end of the member 4 and receives the threaded valve-seat 18, which is in the form of a nut, as shown.

19 is the upper portion or member of the casing. It comprises a chamber 20, from which extends the lateral nipple 21, interiorly threaded, as at 22, to receive the threaded end of the short pipe 23, extending horizontally into the tank to deliver the water into the latter. This upper member 19 has the depending nipple 24 interiorly

threaded as at 25, to engage the exterior threads 10 of the member 4, as shown in Fig. 1, the power end of this nipple engaging the shoulder 11, as shown. This upper member 19 is provided with the extension 26, having a vertical opening 27 upon the side farthest from the tank to which the member 4 is secured. This extension 26 receives the plunger or valve-stem 28, mounted to slide freely therein, and the lower end of this plunger or valve-stem has detachably secured thereto a disk 29, of leather or other suitable material, the securing means in this instance being shown as a screw 30. This disk or valve is of greater diameter than the stem or plunger and finds a bearing when in its uppermost or open position against a shoulder 31, formed within the chamber 20, as seen clearly in Fig. 1.

The plunger or valve-stem is designed to be operated in any suitable manner from the float. In this instance the stem is shown as provided with a plurality of notches 32, in which engage the projections or teeth 33 on the end of the one arm 34 of an angular member 35, the other arm of which has a screw-threaded socket 36, into which is screwed the threaded end 37 of the float-arm 38, carrying the float 39 in the usual manner. The angular member 35 is fulcrumed on a pivot 40, as a removable screw held in ears 41 on the tubular extension 26 of the upper member 19 of the casing, it being understood that the member 34 of this angular member is disposed between the said ears, as will be apparent from the drawings.

With the parts constructed and arranged substantially as above described the operation will be apparent and briefly described is as follows: The parts are shown in Fig. 1 with the valve open. The water entering the pipe 2 flows into the annular space or chamber 15 around the reducing-pipe 14 and passing through the passages 17 into the interior of the reducing-pipe and into the chamber 20, from which it flows through the nipple 21 (and the pipe 23 when the latter is employed) into the tank. As the water in the tank rises the float is thereby moved upward, and through its connection with the valve-stem or plunger the latter is moved downward until the valve or disk 29 is forced against the seat 18, when the water is shut off. As the water in the tank is withdrawn in the usual way the float falls and the valve and its stem are moved away from the seat, so that the water will again flow through the reducing-pipe or hush-chamber, as before. The reducing-pipe, with its lateral passages, serves to break up the force of the streams, and thus wear on the parts is greatly prevented. The valve-disk can be easily removed to replace it by a new one when desired, as may also the valve-seat, and the separability of the valve-casing permits of ready removal of the reducing-pipe when necessary and also provides easy access to the valve.

Modifications in detail may be restored to without departing from the spirit of the invention or sacrificing any of its advantages.

What is claimed as new is—

1. In a valve of the class described, a separable valve-casing, a removable reduction-pipe in one portion of the casing, a removable seat carried thereby, and a valve in the other portion of said casing with a removable acting face.

2. In a valve of the class described, a separable casing, a removable reducing-pipe and hush-chamber in one portion of said casing and extended through the same into the other portion, and a valve-seat removably secured to the extended end of said pipe.

3. In a valve of the class described, a separable casing, a removable reducing-pipe and hush-chamber in one portion of said casing and extended into the other, a removable valve-seat, and a valve having a removable acting disk.

4. In a valve of the class described, a casing, a removable reducing-pipe therein with lateral openings with a space surrounding said pipe, a valve-seat removably secured on the extended end of said pipe, a removable plunger, and a removable valve-disk on the end of said plunger and adapted to be seated on said seat.

5. In a valve of the class described, a separable casing, one portion of which has a chamber with lateral outlet, and valve-seat, a plunger with a valve adapted to said seat, a removable reducing-pipe in the other portion of said casing and having one end extended therethrough into said chamber, and a removable valve-seat on the extended end of said pipe in said chamber.

6. In a valve of the class described, a separable casing, a removable reducing-pipe and hush-chamber in one portion of said casing and extended into the other, a removable valve-seat, and a valve having a removable acting disk, said reducing-pipe being adjustably mounted.

7. In a valve of the class described, a valve-casing, a reducing-pipe adjustable therein with one end extended, said pipe having lateral openings and a space surrounding the same, and a removable valve-seat on the threaded end of the pipe beyond the end of said valve-casing.

Signed by me at Skowhegan, Maine, this 6th day of July, 1906.

CHARLES CULLEN TOZIER.

Witnesses:
A. B. LAMB,
R. E. JACKSON.