

UNITED STATES PATENT OFFICE.

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SELF-CLOSING FAUCET.

SPECIFICATION forming part of Letters Patent No. 789,872, dated May 16, 1905.

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To all whom it may concern:

Be it known that I, ARTHUR O'BRIEN, a citizen of the United States, and a resident of Chicago, Cook county, Illinois, have invented certain new and useful Improvements in Self-Closing Faucets; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in faucets, and more particularly to a self-closing faucet designed to operate with the fluid-pressure in closing and without jar or hammering.

As shown the invention is embodied in a basin-faucet, though, obviously, it may be embodied in any other preferred form.

The object of this invention is to provide a self-closing faucet at low cost and of simple and durable construction adapted to open with a minimum amount of resistance and to close automatically and gently and silently with the fluid-pressure.

The invention consists in the matters hereinafter described, and more clearly defined and pointed out in the appended claims.

In the drawings, Figure 1 is a central longitudinal section of a device embodying my invention, showing the faucet closed. Fig. 2 is a section taken on line 2 2 of Fig. 1, showing parts in elevation. Fig. 3 is a section taken on line 3 3 of Fig. 1.

As shown in said drawings, the faucet-body comprises a lower casing or base A, internally threaded at its upper end, and an upper casing A', provided with an externally-threaded boss *a* on its lower side, which engages in said base. Said boss *a* forms a partition which divides the valve-body into independent upper and lower chambers. An axial aperture or bore is provided through said boss or partition, and a reduced central extension *a'* of said boss and through which the bore extends projects downwardly and at its lower end affords a seat for the valve-closure B'. A tubular valve-stem B fits closely in said bore and is provided at its upper end with a head or push-button *b*, which fits closely within a complementary seat or aperture in the top of the casing A'.

Said stem at its lower end is provided with apertures opening laterally thereinto which when the stem is elevated are wholly within the bore, but when the stem is pressed inwardly open below the same and afford inlets to the stem. A threaded axial extension or pin *b'* is provided on the lower end of said stem, and a cylindric axially-apertured head B' is threaded thereon and recessed in its top to receive a packing-washer *b''*, adapted to engage against the valve-seat *a'* on the partition *a*. The casing A or base is provided with a central upwardly-opening cup or chamber C, adapted to receive the valve-closure B' and in which the same fits closely. An aperture is provided in the bottom of said cup, and a regulating-screw *c* extends through the base therein and acts to restrict said aperture. A passage-way *b''* leads upwardly and laterally through said pin *b'* and the valve-closure and opens at one end into the chamber in the casing A above the cup and at its lower end opens into a valve *b'''*, which is threaded into the closure, centrally thereof, and contains a ball-valve closure *b''''*, adapted to close the restricted downwardly-opening passage therein. Said valve *b'''* is enlarged at its outer end and serves as a nut to hold a packing-washer *b''''* and follower *b'''''* in place, thus packing the closure in the cup C.

The valve-stem B is provided within the chamber in the casing A' with a peripheral flange *b''''*, between which and the partition *a* is a coiled spring *b'''''*, adapted to normally hold said stem in an elevated position with the valve-closure B' firmly engaged against the valve-seat *a'*. Threaded into said stem within the casing A' is an outlet-pipe B'', which extends within the delivery-spout B' and being of less diameter permits of sufficient vertical movement of the stem to fully open and to close the faucet.

The operation is as follows: The cup C is normally filled with fluid at maximum pressure, which enters therein through the passage in the bottom of the cup. The valve-closure B' is thus normally held against the valve-seat *a'* by the difference between the pressure at the bottom of the closure and the exposed top end when closed. This is of course aided by the

action of the spring b^9 . When inwardly-directed pressure is exerted upon the push-button b , the spring b^9 is compressed and the valve-closure B' retracted from the valve-seat 5 into said cup, thereby permitting the fluid to pass upwardly through the valve-stem B and through the outlet B^3 and spout B^4 . The force of said fluid passing from the spout causes a partial vacuum in the casing A' and tends to 10 draw out any fluid which may have entered therein between the partition and valve-stem. The ball-controlled passage-way through the valve-closure, which opens into said cup C at its lower end, permits the fluid contained in 15 said cup to pass outwardly into the casing A , thereby relieving the pressure upon said fluid and allowing the valve to open easily. When pressure is removed from said push-button b , the spring b^9 , should pressure be slight, acts to 20 close the valve. Should heavy pressures be carried, the spring and the ball-valve in the valve-closure B' may be omitted, as the flow of fluid into the cup C will be sufficient to close the valve. With slight pressures, how- 25 ever, the spring forces the closure upwardly, creating a partial vacuum in the cup C , inasmuch as the ball-closure prevents flow through the closure B' into the cup. As the inlet to the cup C is only through the regulated bot- 30 tom aperture, the closing of the valve can be timed perfectly by adjustment of the regulating-screw c to open or to restrict said inlet.

While the device as herein shown is embodied in a basin-faucet, it is obvious that it 35 can be embodied in any style or design of faucet or in valves for many other purposes, and the valve-closure may be of any desired form and material other than as herein shown and obviously many details of construction 40 may be varied without departing from the principle of my invention.

I claim as my invention—

1. In a faucet, the combination with an upper and lower chamber, of an axially-bored 45 partition separating said chambers, a tubular extension on the lower side of said partition registering with said bore, a tube extending through said partition and provided with a closed head in the lower end thereof, a tubu- 50 lar threaded stem on said tube below said head, a valve-closure thereon having a passage opening into said stem and a valve controlling the passage through said stem.

2. In a faucet, the combination with a fau-

cet-body having upper and lower chambers 55 therein, of a centrally-apertured partition separating said chambers, a tubular extension on the lower face thereof, a tube extending axially through the upper chamber and 60 fitting closely in the aperture in said partition, a threaded hollow stem on the lower end thereof, a valve-closure on said stem adapted to seat on said tubular extension and provided with a passage-way opening into said stem, 65 a packing-washer on said valve-closure, a nut adapted to hold said packing in place, a valve in said nut and a cup adapted to receive said valve-closure and retard the closing thereof.

3. In a faucet, the combination with a faucet-body, of a centrally-bored partition there- 70 in dividing the body into upper and lower chambers, a cup in the lower chamber having a central valve-controlled outlet therein, a close-fitting tube slidingly engaged in said partition and projecting upwardly through 75 the valve-body, a valve-seat on the lower side of said partition, a downwardly-extending stem on the lower end of said tube provided with a passage-way opening through the lower 80 end thereof, a valve-closure thereon adapted to seat in said cup having a passage-way therein opening from the passage-way in said stem into said lower chamber, a nut engaging said 85 closure on said stem and a valve in said nut controlling said passage-way.

4. The combination with a valve-body having a lower valve-chamber and an upper outlet-chamber in threaded engagement there- 90 with an axially-bored partition separating said chambers, an upwardly-opening cup in the lower chamber concentric with the bore in said partition, a valve-seat on the lower 95 side of said partition, a tube extending axially through said upper chamber and opening into the lower chamber, a valve-closure on the lower end thereof adapted to engage said valve-seat 100 and slidingly engage in said cup and a valve-controlled passage-way therein opening at one end below the valve-closure in said cup and at the upper end, through the side of said valve-closure into the lower chamber.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

ARTHUR O'BRIEN.

Witnesses:

C. W. HILLS,

W. W. WITENBURY.