

(No Model.)

H. A. WALKER.  
SELF CLOSING FAUCET.

No. 444,514.

Patented Jan. 13, 1891

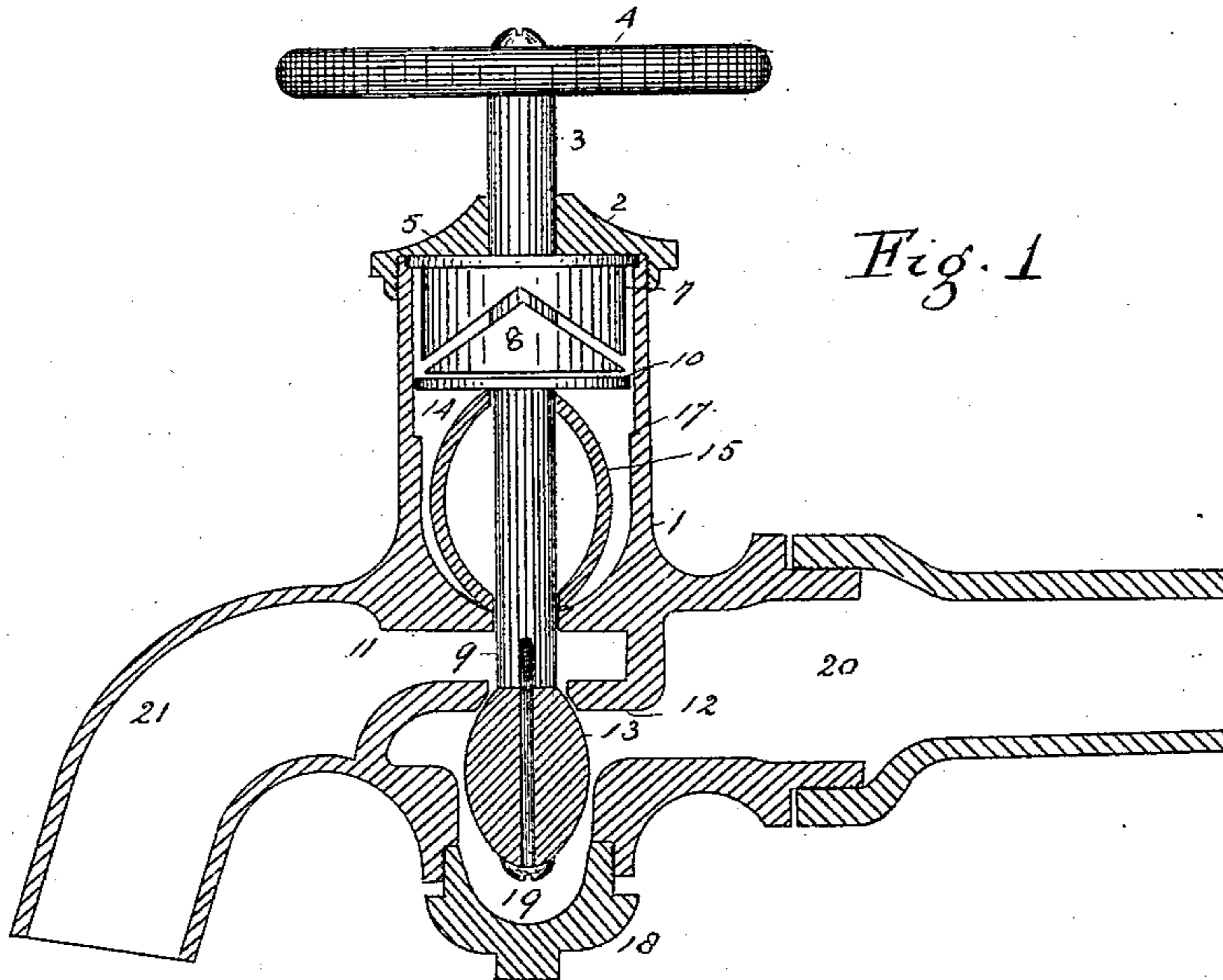


Fig. 1

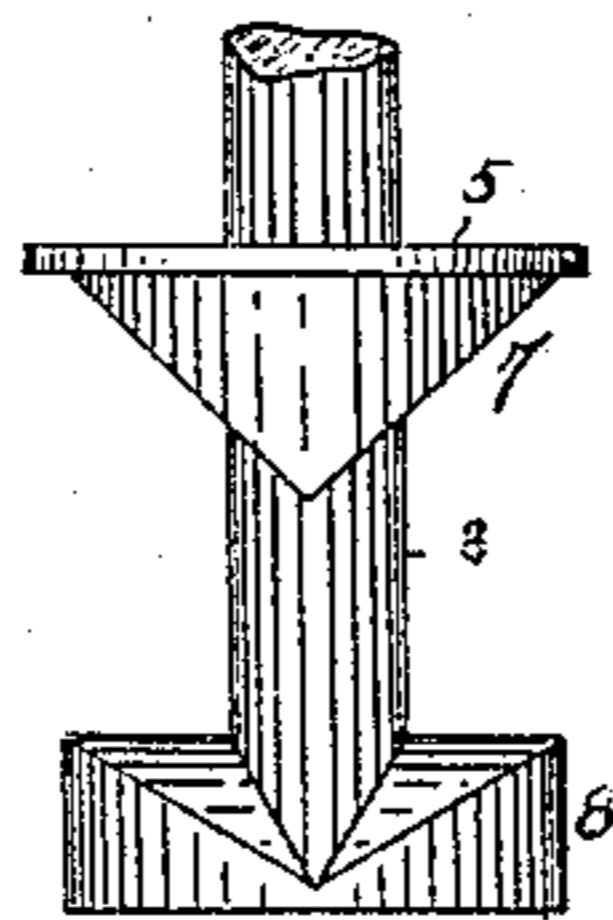


Fig. 2

WITNESSES  
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# UNITED STATES PATENT OFFICE.

HENRY A. WALKER, OF DENVER, COLORADO.

## SELF-CLOSING FAUCET.

SPECIFICATION forming part of Letters Patent No. 444,514, dated January 13, 1891.

Application filed July 22, 1890. Serial No. 359,955. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY A. WALKER, a citizen of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Self-Closing Faucets; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to a novel and improved form and construction of self-closing faucets; and the object of my invention is to provide a faucet of the class stated which shall be so made that it shall be operated with the application of but little force, and which when released shall be returned to its seat with a smooth, steady, and positive movement, thereby obviating all strains on the pipes occasioned by jarring or jerking, which is very detrimental thereto, the faucet being also provided with a novel and improved means of operating the same.

The further object of my invention is to produce a faucet of the class stated which, while being adapted to both cold and hot water, shall be of simple and economical construction, reliable and durable in use, and efficient for the purpose intended.

To these ends my invention consists of the features and arrangements more particularly hereinafter set forth.

In the accompanying drawings is illustrated an embodiment of my invention, wherein—

Figure 1 is a longitudinal vertical section of my improved faucet, showing the parts in their relative positions when the faucet is closed. Fig. 2 is an elevation of the valve-stem by means of which the device is operated, the oppositely-disposed inclined cams, by means of which the rotary motion imparted to the handle is transformed into a direct movement, being especially prominent.

Referring now to the accompanying drawings, the reference-numeral 1 designates a suitable casing having an inlet-opening 20, a discharge-opening 21, and a chamber 14, said

chamber being closed by a screw-cap 2. Extending through an aperture in cap 2 is a stem 3, having a handle 4, rigidly secured to one extremity and provided with a pair of oppositely-disposed inclined cams 8, rigidly secured to or formed integral therewith at the opposite extremity.

The reference-numeral 5 designates a suitable disk provided with a centrally-located aperture through which stem 3 passes, said disk being large enough to be clamped and secured between the outer extremity of casing 1 and the interior of screw-cap 2 when said cap is screwed on casing 1, the arrangement being such that disk 5 is held or clamped securely in place between said parts.

The lower surface of disk 5 is provided with a pair of oppositely-disposed inclined cams 7, corresponding to cams 8, which are secured to the lower extremity of valve-stem 3 and adapted to fit into cams 7. From the description given with reference to the accompanying drawings it will be seen that when stem 3 is turned in either direction the rotary movement is transformed into a downward or direct movement, the necessity of which will be obvious as this specification proceeds.

It is desired that special attention be given this particular construction of these cams, since in faucets as hitherto constructed when the cams corresponding to cams 7 became worn out or broken it became necessary to exchange the entire cap, while in this case worn-out cams may be replaced by new ones at a trifling expense.

Rigidly secured to or made integral with one extremity of a valve-stem 9 is a disk or flange 10, said disk being in contact with the inner extremity of stem 3 and of such shape and contour as to fit against the inner walls of casing 1, the sides of the casing serving as a guide for this disk as it reciprocates therein, the disk being loose enough to move with little or no friction. Valve-stem 9 passes through suitable apertures in partitions 11 and 12 and is provided with a valve 13, which fits in a seat on the under side of partition 11.

Between disk 10 and partition 11 and surrounding stem 9 is an oval or egg-shaped hollow bulb 15, made preferably of vulcanite, and so constructed that when pressure is

brought to bear on disk 10 the bulb is compressed, the longitudinal diameter shortened, and the lower extremity forced tightly around stem 9, where it passes through partition 11, thereby effectually closing the chamber 14, in which said bulb is located, from entrance of water thereinto. It will be observed that chamber 14 is somewhat larger than bulb 15, thereby giving ample room for the transverse diameter to be lengthened when said bulb is compressed and its longitudinal diameter shortened. In order that the air in bulb 15 may escape therefrom whenever the same is compressed and re-enter the same when the pressure is released, the aperture in the upper extremity of said bulb, through which stem 9 passes, is of sufficient size to allow the air to pass therethrough around said stem slowly, so that as said bulb is compressed the air is forced out, and when the pressure is released the bulb is returned slowly to its original shape as the air gradually re-enters, thereby preventing the valve from closing with a jar.

In order that disk 10 may not at any time be compressed so much as to injure oval-shaped bulb 15, an interiorly-projecting circumferential shoulder or ledge 17 is provided, against which said disk contacts whenever it is forced that far down, thereby preventing injury to the bulb as aforesaid.

It will be observed that an important advantage is gained by having disk 10 the size of the entire chamber—namely, that it may not sink into the material of oval bulb 15 and so not cut the same and thus presenting a broad, smooth, and even surface to the bulb.

The reference-numeral 18 designates a suitable cap adapted to screw on casing 1 and close an aperture made in the lower portion thereof and below the mechanism just described, the office of the chamber 19, formed by said cap, and the projecting part of the casing on which it is screwed being to afford a suitable receptacle, into which valve 13 is pressed when it is forced downward for the purpose of opening the faucet. This chamber is so contracted at its top that when said valve 13 is depressed the chamber is nearly filled at that point, the advantage being that when the pressure is removed the valve is compelled to close against instead of with the water, as in the case of ordinary faucets, thereby avoiding that force which would tend to cause it to close with a jar.

It will be observed that cap 18 affords a ready and easy means of access to valve 13 whenever the same may be necessary or desirable.

Having thus described my invention, what I claim is—

1. In a self-closing faucet, the combination, with a suitable casing having a chamber 14

in its upper portion, of an oval or egg-shaped hollow bulb 15, located within this chamber, said bulb being normally free from contact with the walls of the chamber, except at the top and bottom or immediately around the stem at either extremity of the chamber, a valve-stem 9, passing through the hollow bulb and through an aperture in the bottom of chamber 14, within which the stem fits nicely, the top of the stem being provided with a disk 10, engaging the walls of the chamber which form a guide for the disk while compressing the bulb, and suitable means for depressing the valve-stem, substantially as described.

2. In a self-closing faucet, the combination, with a suitable casing having a chamber 14 formed in its upper portion, a circumferential ledge or shoulder 17, formed on the inner wall of the chamber, of a hollow oval or egg-shaped bulb located within said chamber, a valve-stem passing through the bulb and through an aperture formed in the bottom of the chamber, and a disk 10, rigidly secured to the top of stem 9 and adapted to compress bulb 15 when stem 9 is depressed in opening the valve, ledge 17 marking the limit of the downward movement of disk 10, substantially as described.

3. In a self-closing faucet, a shell or casing 1, having a supply-opening 20 on one side, a suitable discharge-opening 21 on the opposite side, and a chamber 14, located in its upper portion, a partition 12, provided with an aperture leading from the supply to the discharge opening, a partition 11, forming the bottom of chamber 14, a hollow egg-shaped bulb located in chamber 14, a valve-stem 9, passing through apertures formed in the top and bottom of the bulb, the opening in the top permitting the entrance and exit of air slowly around the stem to and from the interior of the bulb, stem 9 also passing through apertures formed in partitions 11 and 12, said stem being provided at its lower extremity with an elongated valve 13, adapted when seated to close the aperture in partition 12, a chamber 19 in the bottom of the casing for the reception of the valve when open, said chamber being sufficiently contracted at the top that it is nearly closed when the valve is depressed, the top of the valve-stem 9 being provided with a disk 10 of a diameter slightly less than that of chamber 14, and suitable means of depressing the valve-stem and opening the valve, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY A. WALKER.

Witnesses:

ISHAM R. HOWZE,  
WM. MCCONNELL.