

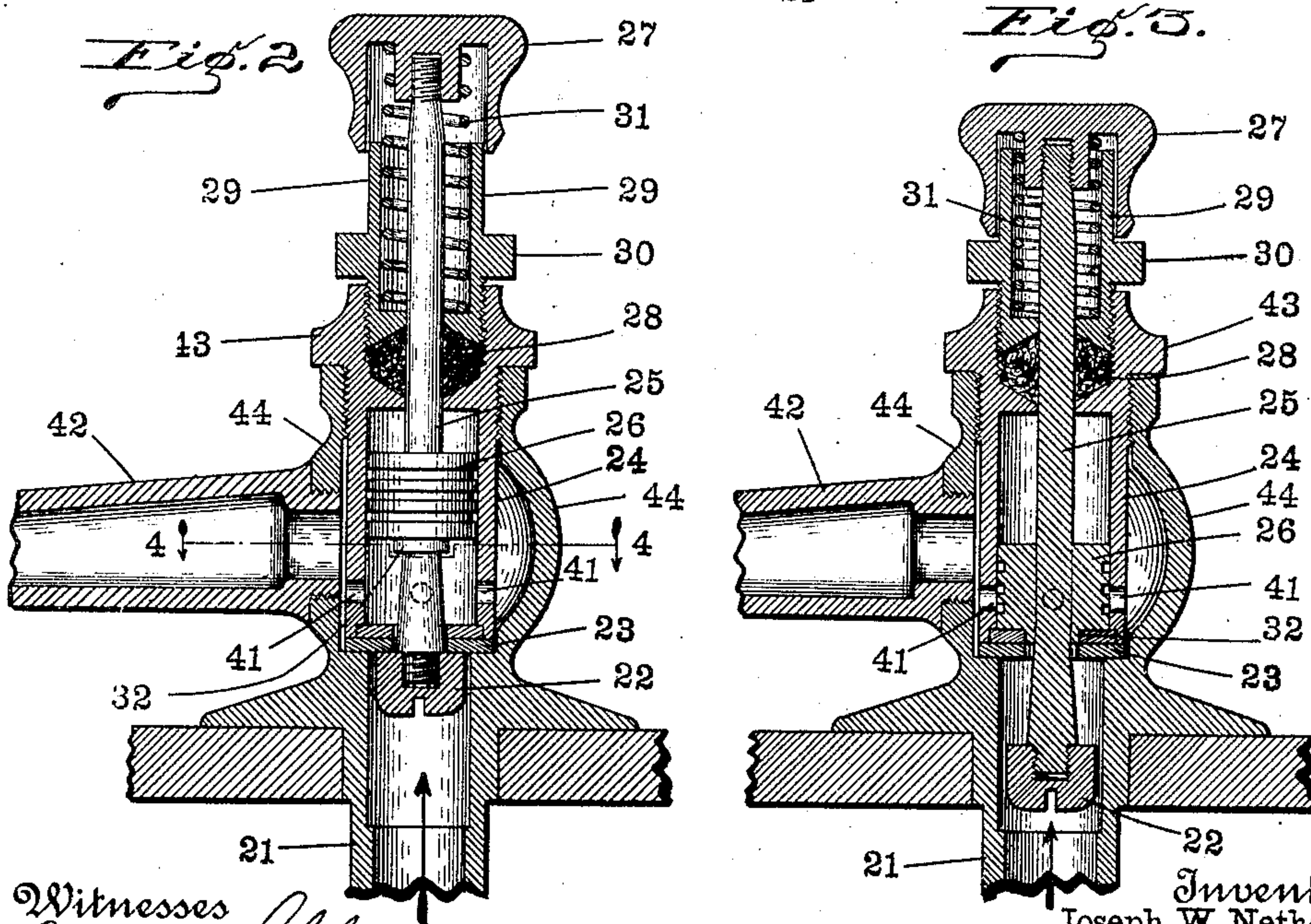
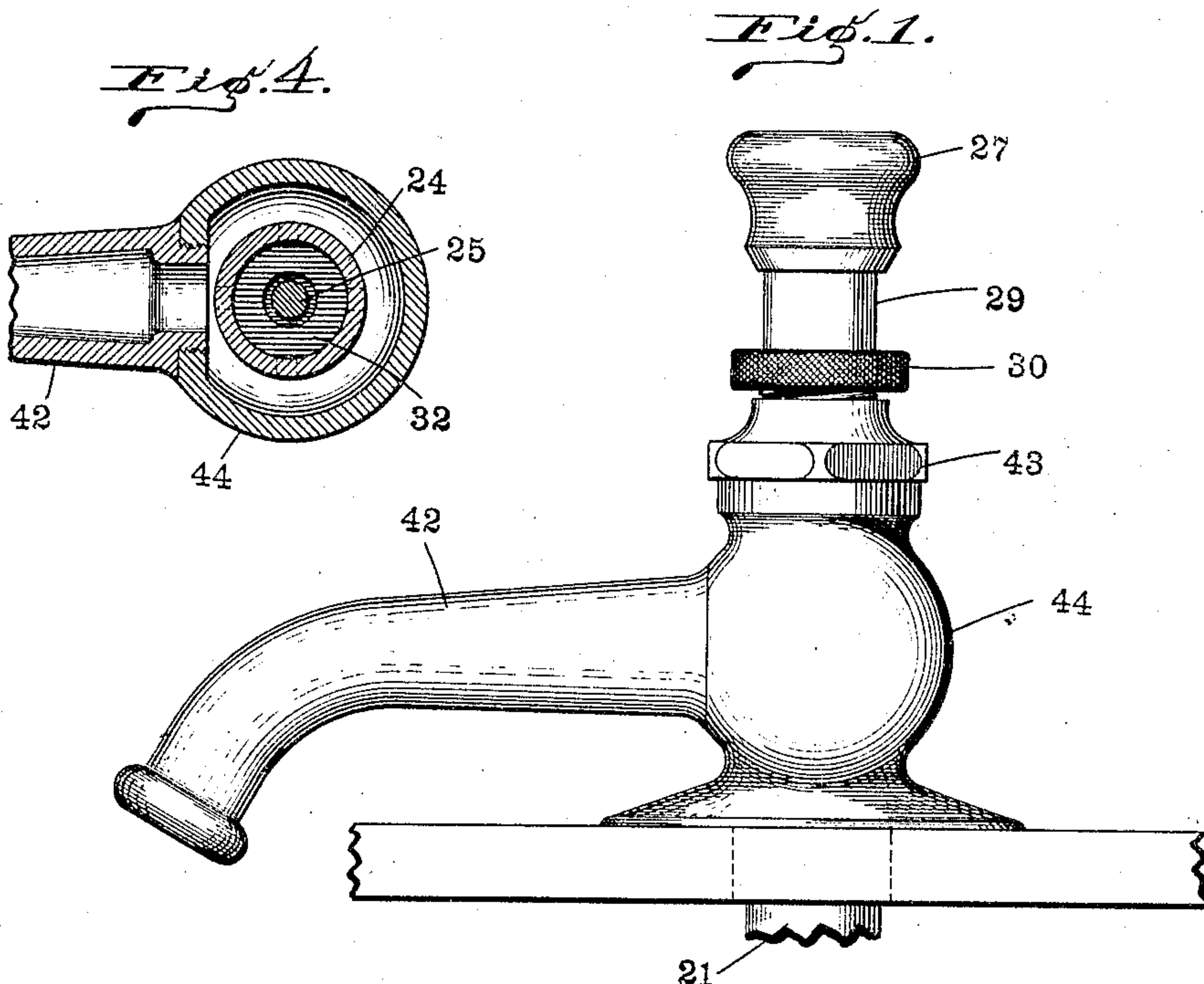
No. 891,284.

PATENTED JUNE 23, 1908.

J. W. NETHERY.

FAUCET.

APPLICATION FILED JULY 21, 1905.



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UNITED STATES PATENT OFFICE.

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FAUCET.

No. 891,284.

Specification of Letters Patent.

Patented June 23, 1908.

Application filed July 21, 1905. Serial No. 270,689.

To all whom it may concern:

Be it known that I, JOSEPH W. NETHERY, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Faucets, of which the following is a specification.

My present invention relates especially to that class of valves or faucets which are employed in drawing limited quantities of water, as for domestic use, and in which it is desired to limit the quantity of the discharge automatically.

The accompanying drawings illustrate a faucet (such as is commonly used in connection with a wash basin) embodying my said invention.

Figure 1 is a side elevation; Fig. 2 a central vertical section of the same when the valve is closed or seated; Fig. 3 a view similar to Fig. 2, except that the valve is pushed downwardly to the limit of its movement, and Fig. 4 a detail horizontal sectional view at the point indicated by the dotted line 4 4 in Fig. 2.

In operation, the water comes in from a suitable pipe through the lower tubular portion 21 of my improved faucet, and its tendency is to hold the valve 22 against its seat 23. Said seat is preferably a disk of leather or other suitable material 23, and is secured to the lower end of the shell 24 of a suitable cylindrical retarding chamber. Said valve 22 is mounted on a valve stem 25, and said valve stem carries a piston head 26 which is positioned within the retarding chamber. The valve stem extends up through the faucet to the outside, and bears on its upper end a push button 27 by means of which the valve is opened. A stuffing-box 28 is provided in the structure (just above the retarding chamber) and serves the usual purpose of a stuffing-box to prevent leakage, etc. The stuffing-box cap is embodied in a structure 29 which is provided with a grip 30 by which it is manipulated. Within the upper portion of this structure 29 and within the lower side of the push button 27 I prefer to form a cylindrical chamber, as shown, and in this chamber I preferably place a compression spring 31. In cases where the water pressure is strong, this spring is unnecessary; as the pressure of the water on the valve 22 will itself force said valve back toward its seat at the proper speed, but where the pressure is

low this spring is desirable as an auxiliary to said water pressure in closing the valve.

The compression chamber before referred to serves to retard the movement of the valve as it closes. The piston head 26 fits closely within the wall 24 of said chamber, although it is not perfectly water tight. As the valve is opened (by pressing down on the button or cap 27) water will enter this chamber, which, at the termination of the stroke, is of the size indicated in Fig. 3. When pressure on the cap 27 is released the entire structure will begin to ascend, and the passage of water out around the piston head being necessarily slow the ascent of the valve is correspondingly slow. This may be adjusted, if desired, but ordinarily the proper result is attained by simply making a slightly loose fit and filling the annular grooves around the periphery of the piston head with wax or some similar substance. I have found by actual test that this gives a sufficiently exact result for all ordinary practical purposes. The travel downwardly is limited by the piston head 26 coming in contact with the bottom of the chamber in which it travels. I prefer to cushion the blow occasioned by this contact, and for that reason provide a collar 32 on the valve stem 25 just below the piston head 26 of a diameter which will substantially fill the valve orifice, as is best shown in Fig. 3. As this collar enters said orifice it confines a small quantity of water between the lower side of the piston head and the upper surface of the lower end of the chamber, which water forms the cushion in question, and prevents actual forcible contact of the metal.

Perforations 41 are formed in the wall 24 of the chamber, and these are a part of the passageway for the water on its way from the inlet 21 to the nozzle 42. These orifices are shut when the piston head is in extreme lower position, as shown in Fig. 3, but open shortly after said piston and the valve begin their ascent, after which there is an unobstructed passageway—past the valve 22, through the valve orifice around the valve stem, and through these orifices—into the chamber out from which the nozzle 42 leads through which the water will freely pass until the valve 22 has seated itself against the valve seat 23. The valve stem below the piston head is preferably of a tapered form, being larger at the point where the valve 22

is attached than it is where it leads the piston head 26. The result is that the flow through the valve orifice through which said stem passes is gradually reduced as the valve ascends until it is nearly closed at the time the valve reaches its seat. This prevents "hammering", as it is termed, and is a very desirable feature.

It will be observed that in this faucet the valve and valve seat are both embodied in a removable structure. A nut 43 is formed on the part which embodies the retarding chamber and the stuffing-box, and said part just below said nut is screw-threaded into the body 44 of the faucet, so that by unscrewing the same by means of said nut all the operative parts may be taken out for repairing, cleansing, or renewal, without disturbing the faucet body at all. These removable structures can be kept in stock and sold separately, so that the owner of one of these faucets, in case it gets out of order, may purchase the same and thus be able to renew his valve (so far as its working parts are concerned) at small expense, and without calling upon a plumber.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is,—

30 1. The combination of a valve stem, a valve on the lower end of said stem, a push on the upper end of said stem, a retarding chamber through which the valve stem passes, a piston head on said valve stem within said re-

tarding chamber, and a valve seat at the lower end of said retarding chamber to receive either the valve or the piston.

2. The combination of a body, a removable structure mounted in said body and embodying the valve seat at its lower end, and a retarding chamber above said valve seat having orifices in the walls of said chamber somewhat above the valve seat, and a piston carried by the valve stem and operating in said chamber to a point below said orifices.

3. The combination of a body, a structure carried thereby embodying the valve seat and also a retarding chamber, a valve stem mounted in said structure, a valve on one end of said stem, a push button on the other end of said stem, said chamber being provided with orifices in its sides near the lower end, and a piston also carried by the valve stem and adapted to travel in said chamber to a point below said orifices, whereby when the valve is first operated the discharge orifices are first shut off and then gradually opened as the piston head ascends thereby causing a gradual flow at the beginning and a more rapid flow thereafter.

In witness whereof, I, have hereunto set my hand and seal at Indianapolis, Indiana, this nineteenth day of July, A. D. one thousand nine hundred and five.

JOSEPH W. NETHERY. [l. s.]

Witnesses:

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