(No Model.)

P. H. GUNDERMANN.

VALVE.

No. 456,288. Patented July 21, 1891.

Fig. 1.

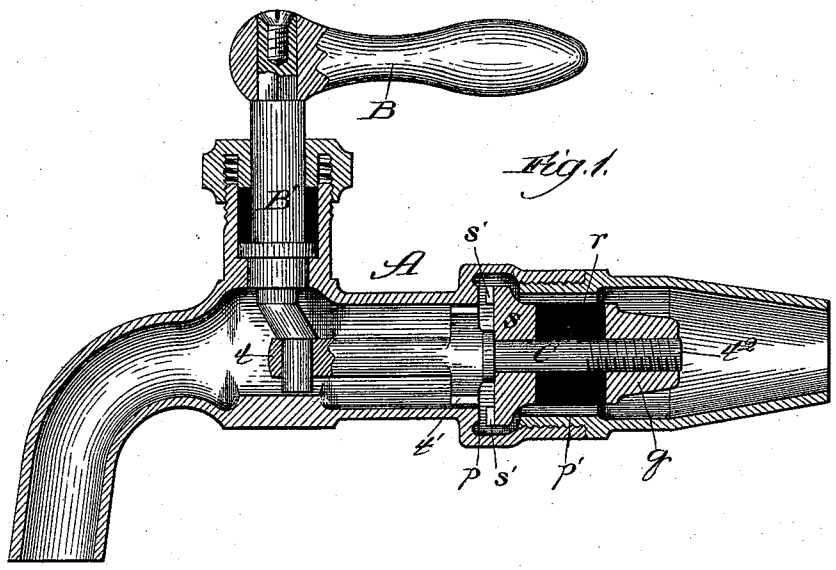


Fig. 2.

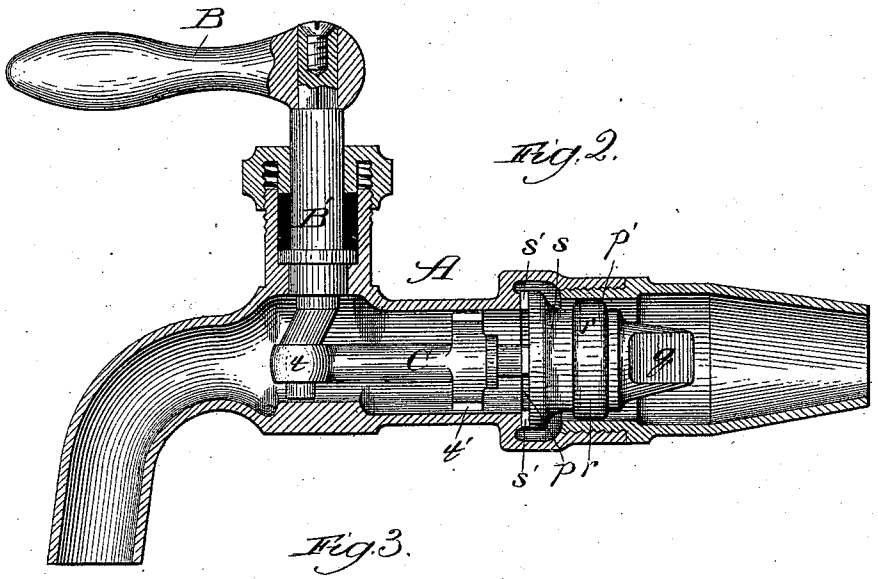
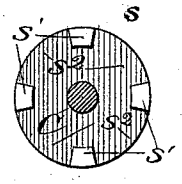


Fig. 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

PHILIP H. GUNDERMANN, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO JOHN C. GUNDERMANN, OF SAME PLACE.

VALVE.

SPECIFICATION forming part of Letters Patent No. 456,288, dated July 21, 1891.

Application filed August 19, 1890. Serial No. 362,398. (No model.)

To all whom it may concern:

Be it known that I, PHILIP H. GUNDERMANN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Valves, of which the following is a specification.

My invention relates to an improvement in valves generally, though it is intended more particularly for use in connection with the stop-cocks or faucets of water-supply pipes.

The valves hitherto generally employed in the particular connections named are constructed to produce as they are closed a sudden shutting off of the water, and in cases where the pressure of the water-supply is high the reaction in the pressure, due to such sudden closing of the valves, produces a sound called "pounding," in the pipes, which it is desirable to obviate. Where the pipes are weak or the pressure of water is unusually high, the reaction in pressure, due to such a sudden closing of the valve, is apt to produce bursting of the pipes.

My object is to overcome the objection to valves hitherto employed by providing a valve of improved construction in which the closing, however quickly performed, is effected in a manner to produce a gradual shutting off of the water, whereby the reaction in the pressure is modified and pounding in the pipes prevented.

In the drawings, Figure 1 shows a longitudinal sectional elevation of a faucet provided with my improvement, the valve being open; Fig. 2, a similar view, the valve being closed; and Fig. 3, a view, partly in section, showing a detail in elevation.

A is the shell of the faucet, and B the handle, mounted upon the upper end of a crank-spindle B′, which at its lower end works in the slotted head t of a valve-stem C. The valve-stem is provided with a guide t', also affording a stop, as hereinafter described, which moves in the bore of the faucet, and adjacent to the guide it carries a collar s, which is loose upon the stem to slide longitudinally thereon. Formed upon the face of the collar at its edge are lugs s', affording passages s^2 between them. Adjacent to the collar s and loosely mounted upon the stem is a rubber ring r, which is confined against the collar to press the latter normally against the guide t' by a stop in the form of a nut q, which fits the screw-threaded end t^2 of the stem. The shell A is formed to afford the stop or valve-seat p and surface p'.

In operation, to close the valve the handle B is turned from the position shown in Fig. 1 to draw the valve-stem forward, and with it the collar s, ring r, and nut q, until the lugs s' strike the valve-seat p. Further turning of the handle draws the stem and nut q forward and compresses the ring r between the latter and the collar s, causing it to swell against the surface p'. Thus in the initial turning of the handle which carries the collar to the seat p the water-supply is not cut off entirely and a sufficient quantity of the water escapes through the passages s^2 to modify the reaction in the pressure and prevent the pounding. The further turning of the handle causes the ring r as it swells against the surface p' to complete the shutting off of the water.

While for practical purposes the construction involving the co-operation of the collar s against its seat with the rubber ring r is considered to be by far the best, it is within the spirit of my invention to effect the gradual closure by means of the rubber ring r alone by actuating the stem C to cause the nut q to compress the ring against a suitable stop, and thereby gradually swell it circumferentially.

What I claim as new, and desire to secure by Letters Patent, is—

The combination, in a faucet, of a stop p in the shell, a valve-stem C, a stop t' on the body of the stem, a stop q on the end of the stem, a collar s, loosely surrounding the stem adjacent to the stop t' and provided with the passages s^2, and a rubber ring r on the stem adjacent to the stop q, the said collar and ring being confined between the said stops, whereby in the forward movement of the stem the collar strikes the stop p and the ring is compressed between the collar and stop q and swelled circumferentially, substantially as described.

PHILIP H. GUNDERMANN.

In presence of—
J. W. DYRENFORTH,
M. J. FROST.