

(No Model.)

L. J. RICE.
SELF CLOSING FAUCET.

No. 412,542.

Patented Oct. 8, 1889.

Fig. 5.

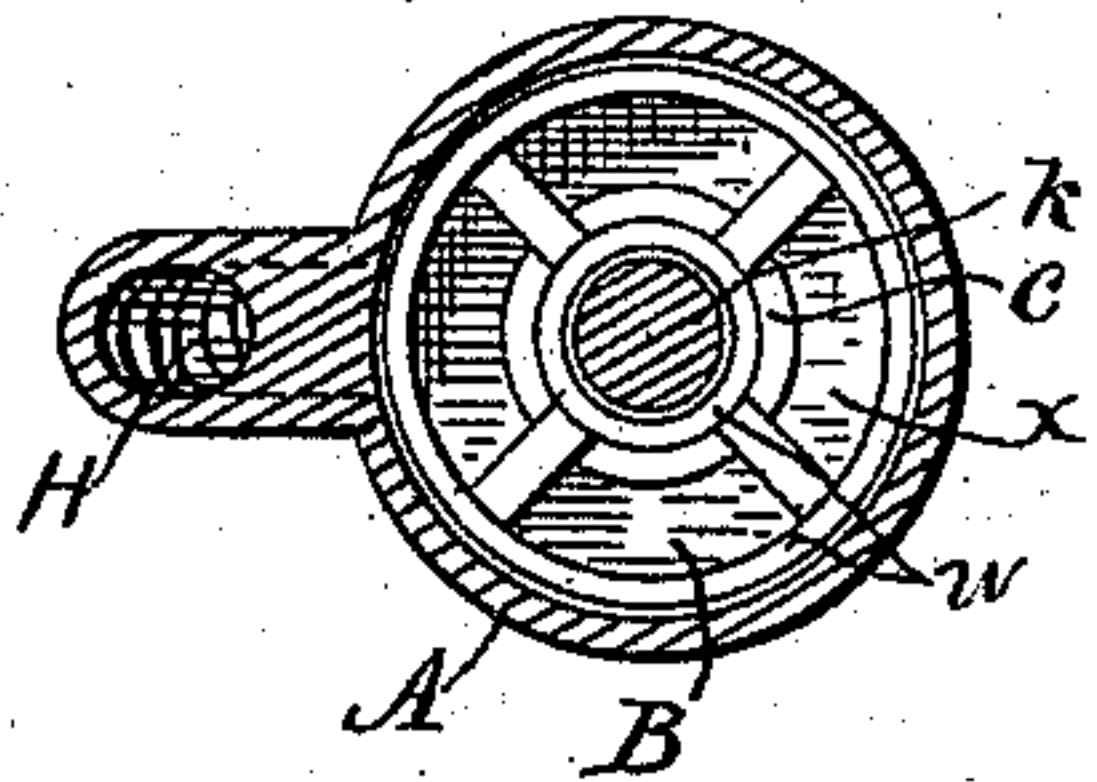


Fig. 4.

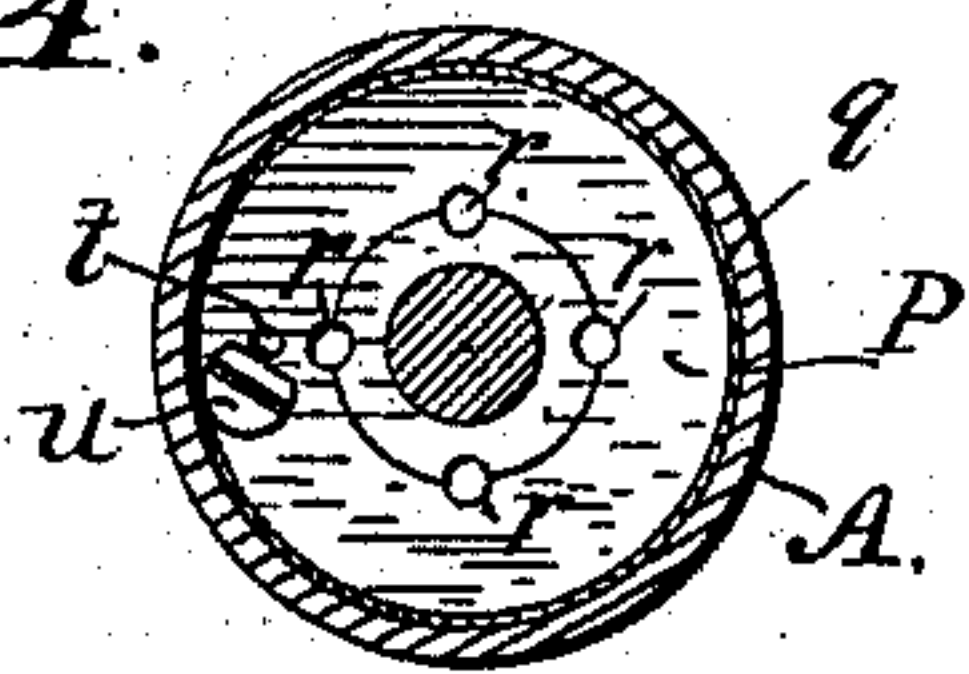


Fig. 1.

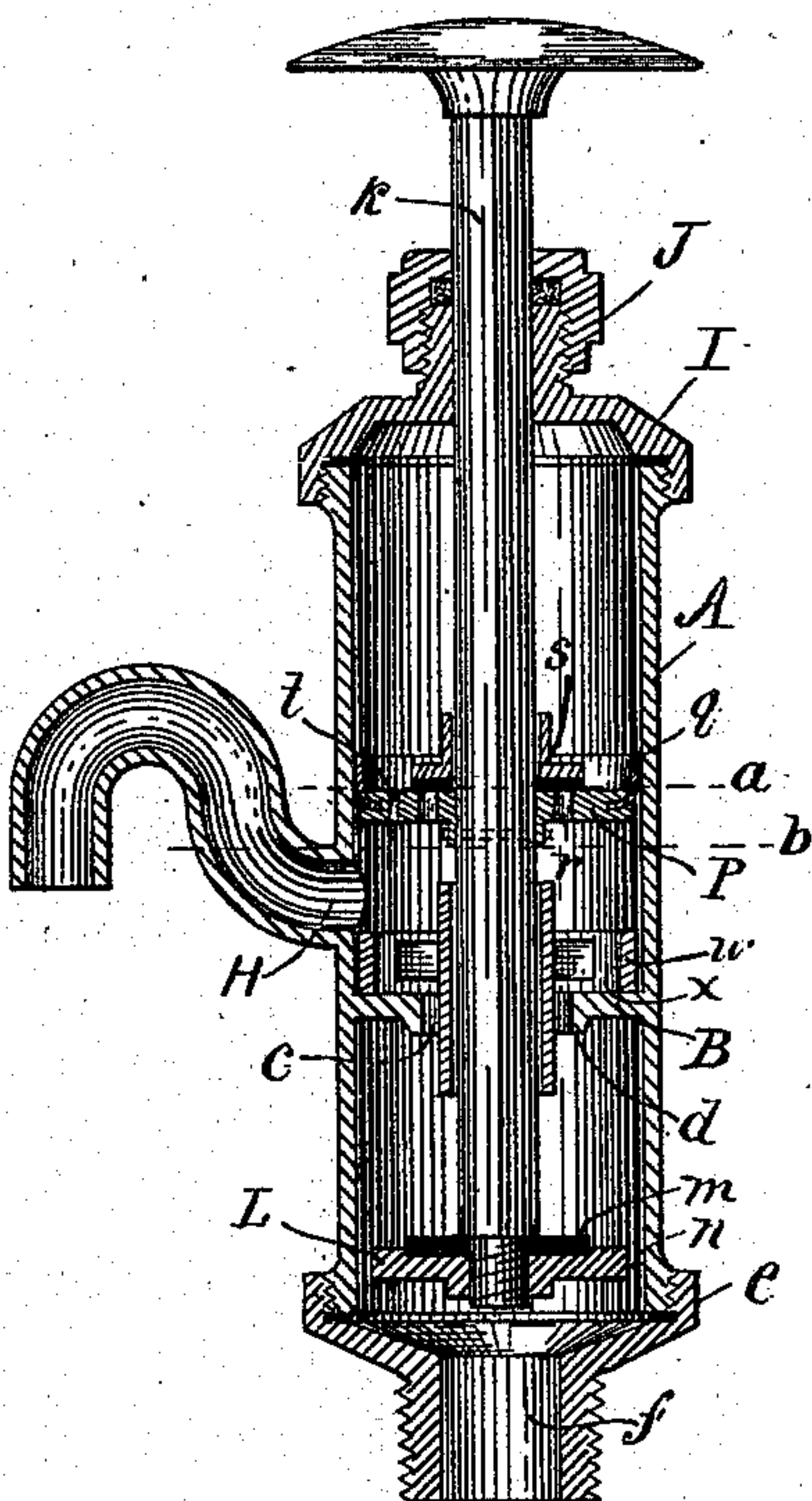


Fig. 2.

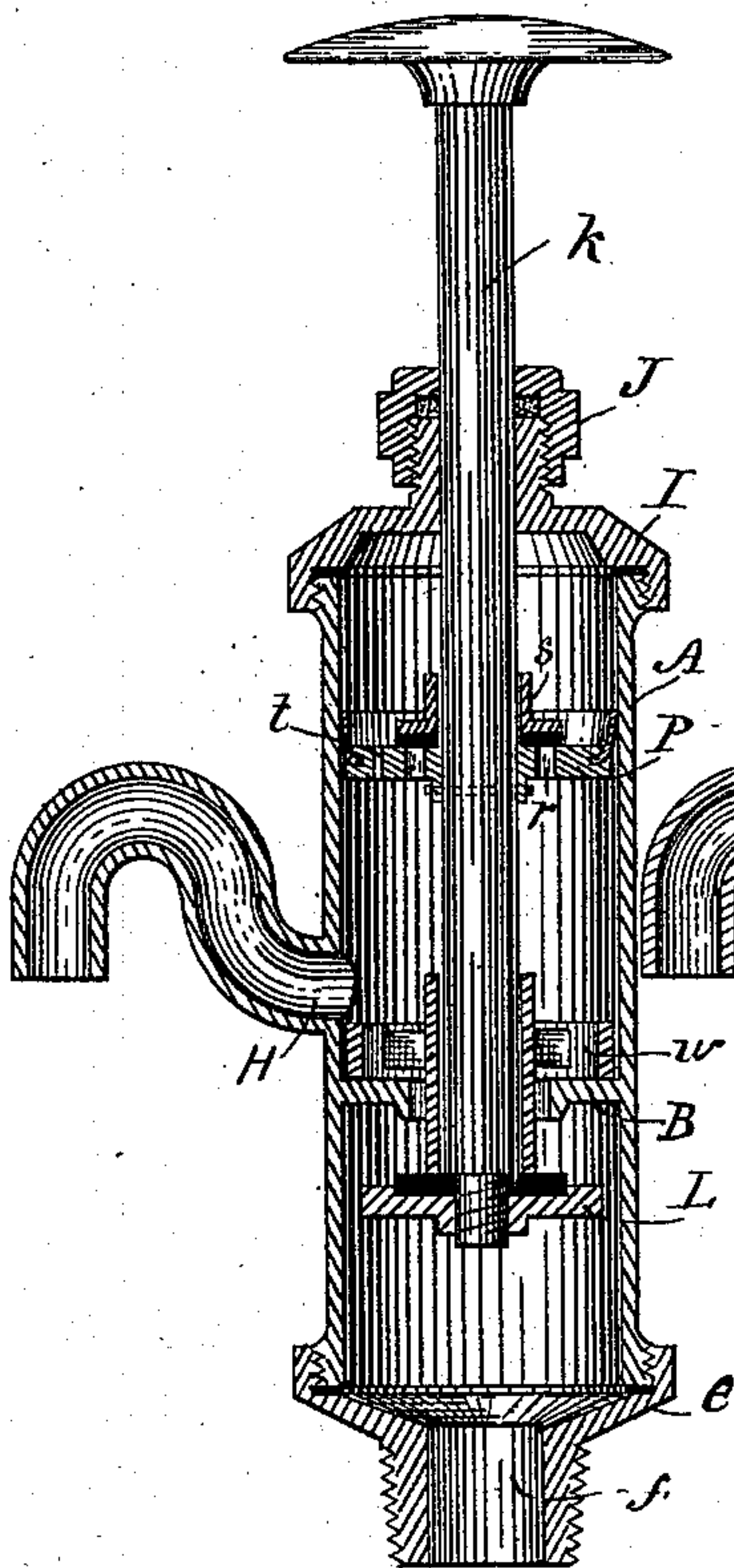
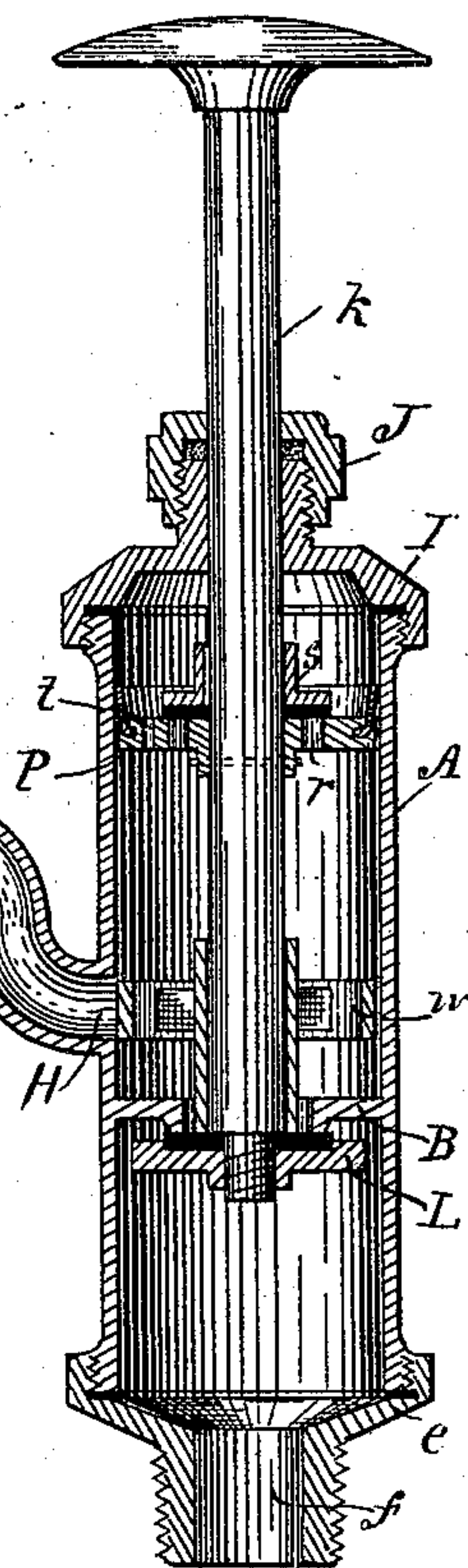


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

LEWIS J. RICE, OF INDIANAPOLIS, INDIANA.

SELF-CLOSING FAUCET.

SPECIFICATION forming part of Letters Patent No. 412,542, dated October 8, 1889.

Application filed May 20, 1889. Serial No. 311,466. (No model.)

To all whom it may concern:

Be it known that I, LEWIS J. RICE, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented a new and useful Self-Closing Faucet, of which the following is a specification.

My invention relates to that class of faucets in which the valve opens against and is closed by the water-pressure.

The object of my improvement is to cause the valve to close gradually and easily without shock or jar.

The accompanying drawings illustrate my invention.

Figure 1 represents a central longitudinal section showing the valve wide open. Fig. 2 is a like section showing the valve partly closed. Fig. 3 is a like section showing the valve closed. Fig. 4 represents a transverse section at *a*, Fig. 1, and Fig. 5 a similar section at *b*.

A is a cylinder, which is divided into two compartments by a horizontal partition B, having a central opening *c*, which is surrounded on the under side by an annular valve-seat *d*. The lower end of cylinder A is partly closed by a reducing-coupling *e*, having a central opening *f*, which forms the inlet-port.

H is the outlet-port, which is preferably curved upward and then downward, as shown. The top of the cylinder is closed by a cap I, having an ordinary stuffing-box J, through which the valve-stem *k* passes. The valve L is secured to the lower end of the valve-stem. Said valve consists of a flat disk having a packing-rim *m*, of leather or similar material, on its upper surface, which engages the valve-seat *d*. The diameter of valve L is such as to leave a narrow annular space *n* between the edge of the disk and the walls of the cylinder, said space being less in area than the outlet H.

P is a piston, which is secured to the valve-stem in such a position that when the valve L is closed the piston will be near the top of the cylinder, the piston having a cupped leather packing *q*, which fits the cylinder nicely. Piston P is provided with several perforations *r r*, which pass vertically through it and are covered on the top side by a light

clack-valve *s*, which slides freely on the valve-stem. There is also another perforation *t*, which passes vertically through the piston, outside of the clack-valve *s*, which is covered more or less by the head of a screw *u*, which is screwed into the piston and has one edge of its head cut away so as to expose the opening *t*, the purpose being to adjust the effective area of the opening by turning the screw so that its head shall cover more or less of the opening. A disk *w* is mounted between piston P and valve L, so as to slide freely on the valve-stem above the partition B. The rim of said disk is of such a width as to cover the interior opening of outlet H, when placed opposite it, and of such diameter as to neatly fit the cylinder diametrically and slide freely therein without friction. The disk *w* is provided with large openings, as at *x*, between the rim and the hub, through which the water may flow freely. The relation of the hub *y* of disk *w* and the valve L is such that when the valve is closed the disk *w* is supported by the valve at such a height as to nearly cover the outlet H; but when the valve is open the disk rests on the partition B, leaving the outlet open and the water flowing freely around the hub and through the openings *x* in the disk.

The operation of my device is as follows: The valve is opened by the operator pushing the valve-stem downward until the parts are in position shown in Fig. 1. The water passes upward, around the edges of the valve, through the annular space *n*, the opening *c* in partition B, and the openings *x* in disk *w*, to the outlet H, a portion also passing easily through the openings in piston P to the upper part of the cylinder, until the space above the piston is filled. When the valve-stem is released, the water-pressure forces the valve quickly upward until the reaction of the water contained in upper part of the cylinder operates to close the clack-valve *s* and stop the return of water through the perforations *r* in the plunger, thus checking the movement of the valve and only allowing it to move so fast as the water can escape from the upper part of the cylinder through the single perforation *t* in the plunger. As the valve L nears its seat

and reaches the position shown in Fig. 2, it engage the hub of disk w , and in its further upward movement raises the disk also, thus gradually closing the outlet, until the pressure below the valve is nearly equalized by the pressure above, and the valve comes gently to its seat without shock or jar. By turning screw u the effective area of the perforation t in piston P may be adjusted so as to cause the valve to close in a greater or less length of time, and to thus control the amount of water delivered by the faucet while closing.

I claim as my invention—

1. In a faucet, the combination of the cylinder having two interior compartments divided by an open transverse partition having a valve-seat thereon, an inlet-port leading to one of said compartments and an outlet-port leading from the other compartment, the valve-stem mounted in the cylinder, the disk-valve secured to the valve-stem and arranged to close the opening in the partition and to open toward the inlet-port, the piston secured to the valve-stem above the outlet-port, said piston being provided with perforations r and t , and the valve arranged to slide on the valve-stem and to close the perforations r , all arranged to co-operate substantially as and for the purpose specified.

2. In a faucet, the combination of the cylinder having two interior compartments divided by an open partition having a valve-seat thereon, an inlet-port leading to one of said compartments and an outlet-port leading from the other compartment, the valve-stem

mounted in the cylinder, the disk-valve secured to the valve-stem and arranged to close the opening in the partition and to open toward the inlet-port, and the open disk mounted on the valve-stem, adapted to cover the outlet-port with its edge, and arranged relatively to the valve so that the disk is slid over the outlet by the closing of the valve, all substantially as set forth.

3. In a faucet, the cylinder having two interior compartments divided by an open transverse partition having a valve-seat thereon, an inlet-port leading to one compartment and an outlet-port leading from the other compartment, the valve-stem mounted in the cylinder, the valve secured to the valve-stem and arranged to close the opening in the partition and to open toward the inlet-port, the piston secured to the valve-stem above the outlet-port, said piston having perforations through which water may pass from one side to the other, and the open disk mounted loosely on the valve-stem, between the piston and the valve, so as to permit the stem to slide through the disk, all combined and arranged to co-operate substantially as specified, whereby the first movement of the valve in closing is checked by the piston, and the continued movement of the valve is further checked by the closing of the outlet-port by the disk, as set forth.

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Witnesses:

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