

M. S. CLARK.

SLOW-CLOSING COMPRESSION COCK.

No. 177,095.

Patented May 9, 1876.

Fig. 1.

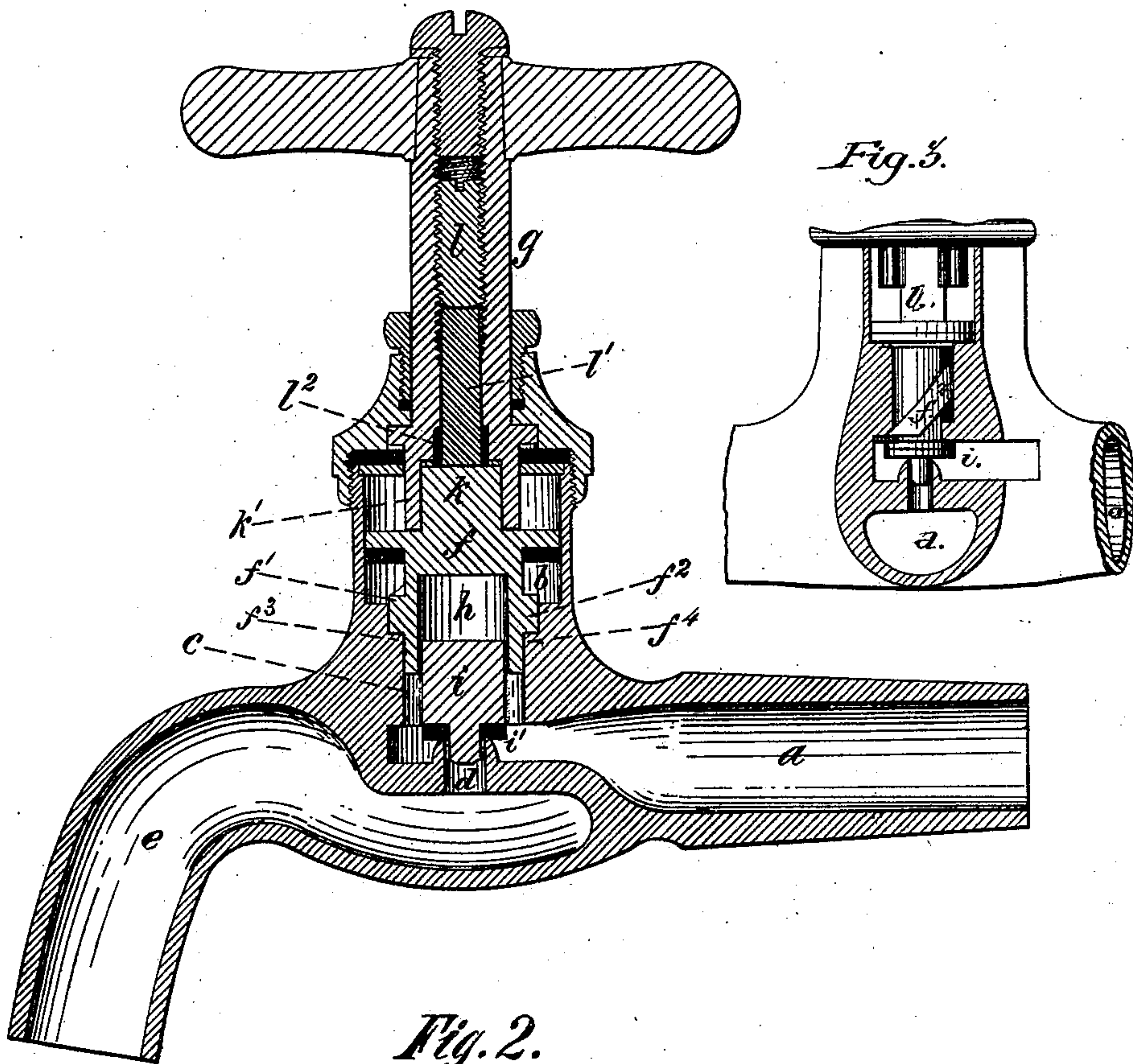


Fig. 3.

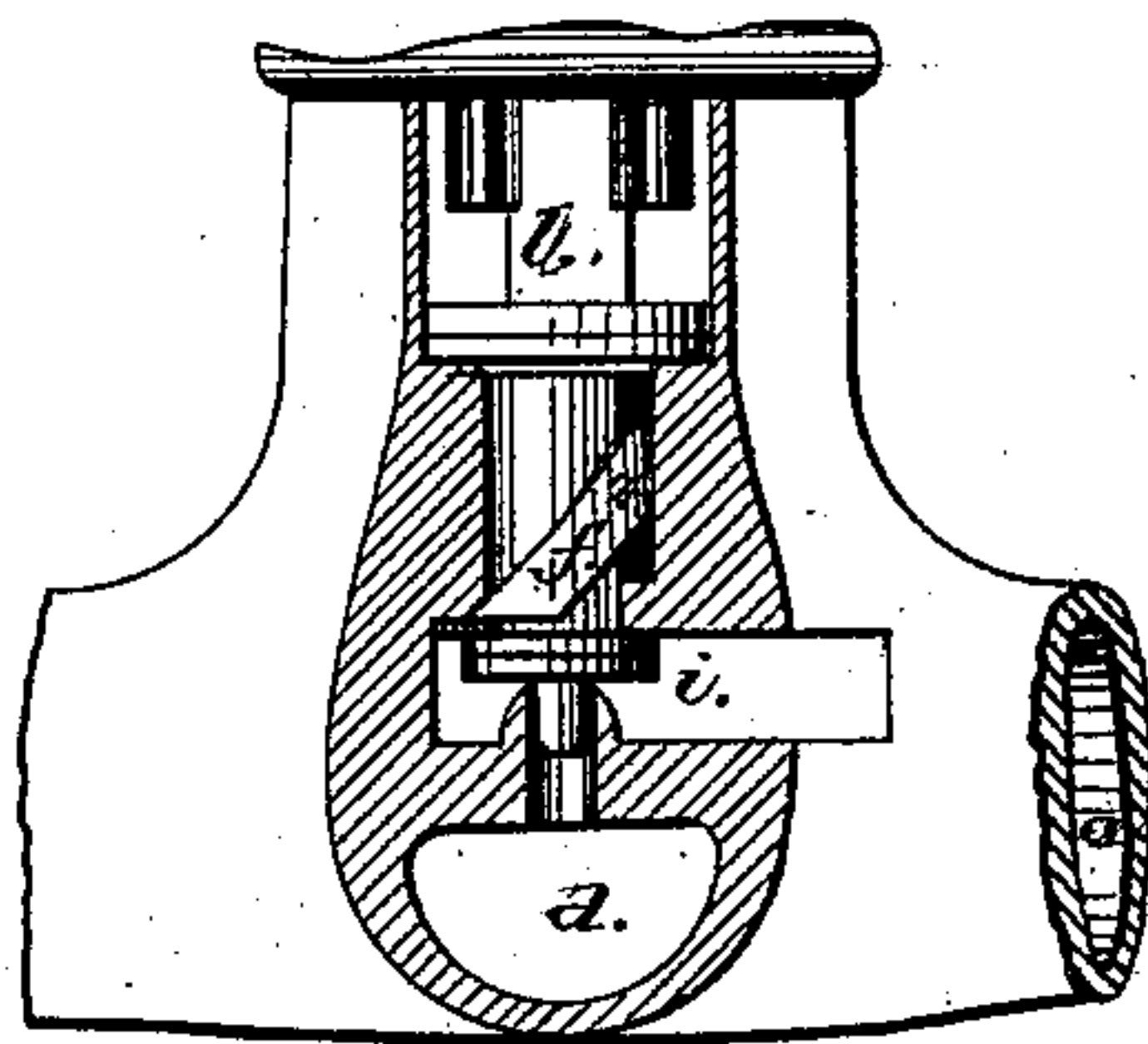
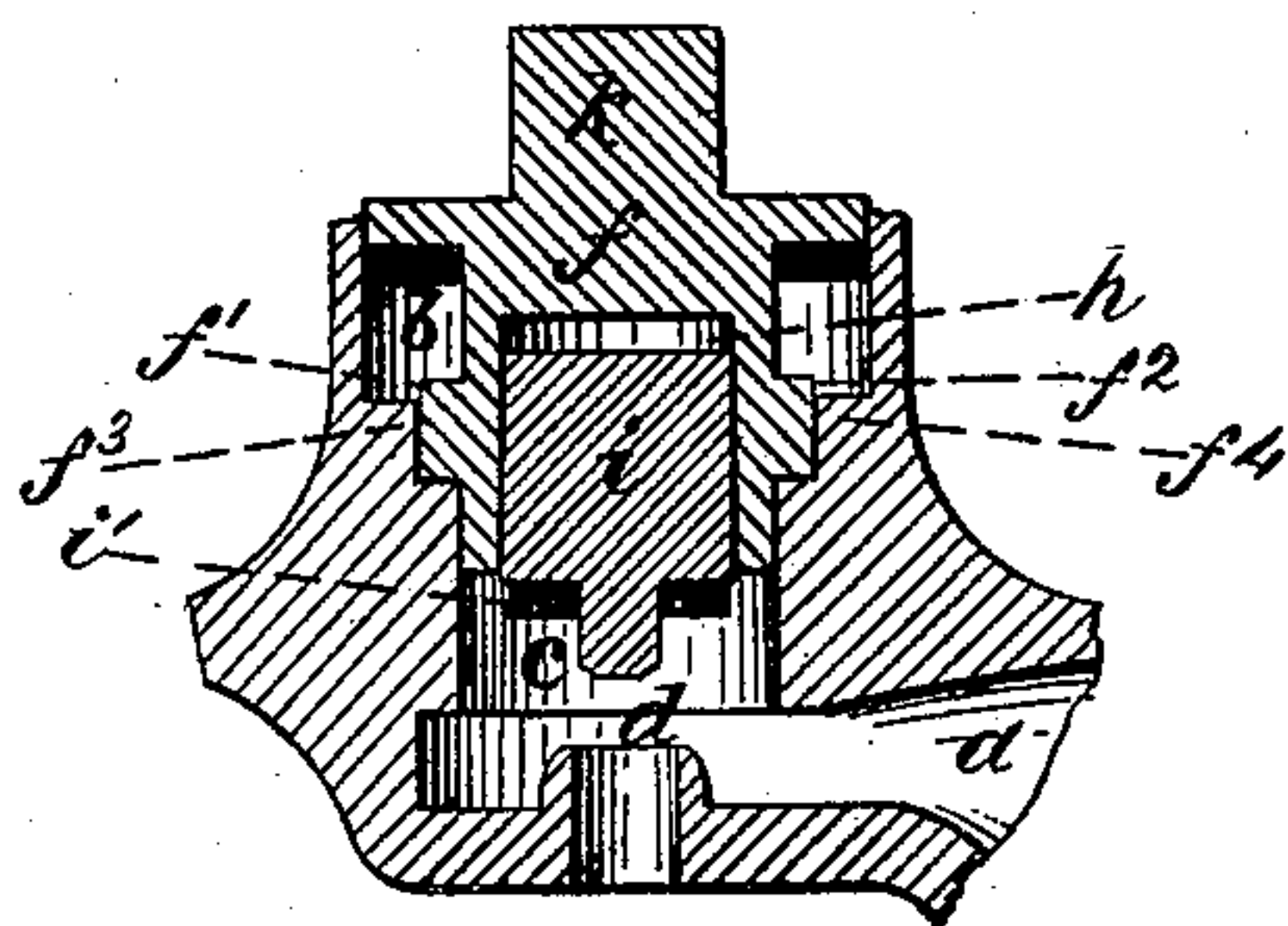


Fig. 2.



Witnesses:

Edw. Payson

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UNITED STATES PATENT OFFICE.

MINFORD S. CLARK, OF NEW YORK, N. Y., ASSIGNOR TO CHARLES HARRISON, OF SAME PLACE.

IMPROVEMENT IN SLOW-CLOSING COMPRESSION-COCKS.

Specification forming part of Letters Patent No. **177,095**, dated May 9, 1876; application filed December 2, 1875.

To all whom it may concern:

Be it known that I, MINFORD S. CLARK, of New York, N. Y., have invented an Improvement in Slow-Closing Compression-Cocks, of which the following is a specification:

My invention relates to that class of compression-cocks in which the plunger has a hollow face, forming a cylindrical recess, which contains a loosely-fitting plug, provided with an external elastic washer for engaging an annular valve-seat.

In this class of compression-cocks the loose plug is raised by atmospheric pressure when the plunger is raised by its operating-screw, and as the fluid makes its way into the recess of the plunger, the loose plug falls by its own weight until it engages the valve-seat, whereon it is held by the water pressure.

In operating this class of compression-cocks the stem is first turned in one direction to force the main plunger down, so as to completely envelop the loose plug, and is then turned the other way, to elevate the plunger and loose plug together.

My invention consists in the combination of the plunger with an adjusting-screw, for regulating the operation of the plunger by stopping it at prescribed points. My improvement makes the structure an adjustable self-closing valve. The higher the plunger is elevated the longer it takes for the loose plug to move down to the valve-seat, and of course the longer the water continues to flow through the valve.

In the accompanying drawings, Figure 1 represents a vertical section of my improved compression-cock, through the center of the valve-chamber, and the induction and education passages. Fig. 2 is a similar vertical section of the valve-chamber, showing the plunger and loose plug elevated. Fig. 3 is an elevation, partly in section, showing the screw-thread on the plunger.

The induction-passage *a* communicates with the bottom of the valve-chamber *b*, which has the central outlet *c* provided with the raised annular valve-seat *d*, through which liquid is discharged into the nozzle *e* of the cock. The plunger *f* is elevated and depressed by the

action of the valve-stem *g*, in either of the usual ways.

In the drawing the plunger is represented as having two male screw-threads, *f*¹ and *f*², upon its periphery, which engage corresponding female threads *f*³ and *f*⁴, formed in the walls of the valve-chamber. The plunger is provided with a cylindrical recess, *h*, which contains the loose-fitting cylindrical plug, *i*, provided at its outer or lower end with the elastic washer *j*. The upper end of the plunger is provided with the square stem *K*, which is engaged by the correspondingly-shaped recess *K'*, in the lower end of the valve-stem. The valve-stem is hollow, for the purpose of containing the adjusting-screw *l*, the lower end of which engages the upper end of a loose pin, *l'*, contained in the lower part of the opening in the valve-stem. The lower end of the pin *l'* is provided with the annular washer *l*², which engages the interior wall of the hollow valve-stem, and makes a tight joint, for the purpose of preventing the escape of fluid from the valve-chamber into and through the hollow valve-stem. The lower end of the pin *l'* engages the upper end of the plunger-stem *K*, and acts as a stop, which determines the distance to which the plunger can be elevated.

The operation of my compression-cock is as follows: The parts being in the position shown in Fig. 1, the stem is turned from right to left, which depresses the plunger, so that it completely incloses the loose plug. The stem is then turned back from left to right, which elevates the plunger, and at the same time elevates the loose plug by atmospheric pressure, the parts then assuming the position indicated in Fig. 2. In this position the fluid gradually makes its way around the periphery of the loose plug into the recess in the face of the plunger, and the pressure being thus equalized in all directions, the loose plug gradually falls by its own weight until the elastic washer engages the annular valve-seat. The pressure of the fluid then acts upon the top of the loose plug, forces it down, and presses the washer firmly upon the valve-seat, so as to completely close the valve.

By means of the adjusting-screw *l* and pin *l'*

the amount of upward movement of the plunger, and consequently of the loose plug, is perfectly controlled, and therefore the time required for the dropping of the loose plug is accurately regulated. By this means the quantity of fluid discharged through the cock by one movement of the stem may be varied at pleasure.

I claim as my invention—

In a self-closing compression-cock, a plunger recessed to contain a loose plug, substan-

tially as described, in combination with an adjustable stop for the purpose of regulating the height to which the plunger and loose plug can be elevated, and thus determining the time taken for the closing of the valve, and governing the quantity of water discharged by the valve.

MINFORD S. CLARK.

Witnesses:

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GEO. E. POOLE.