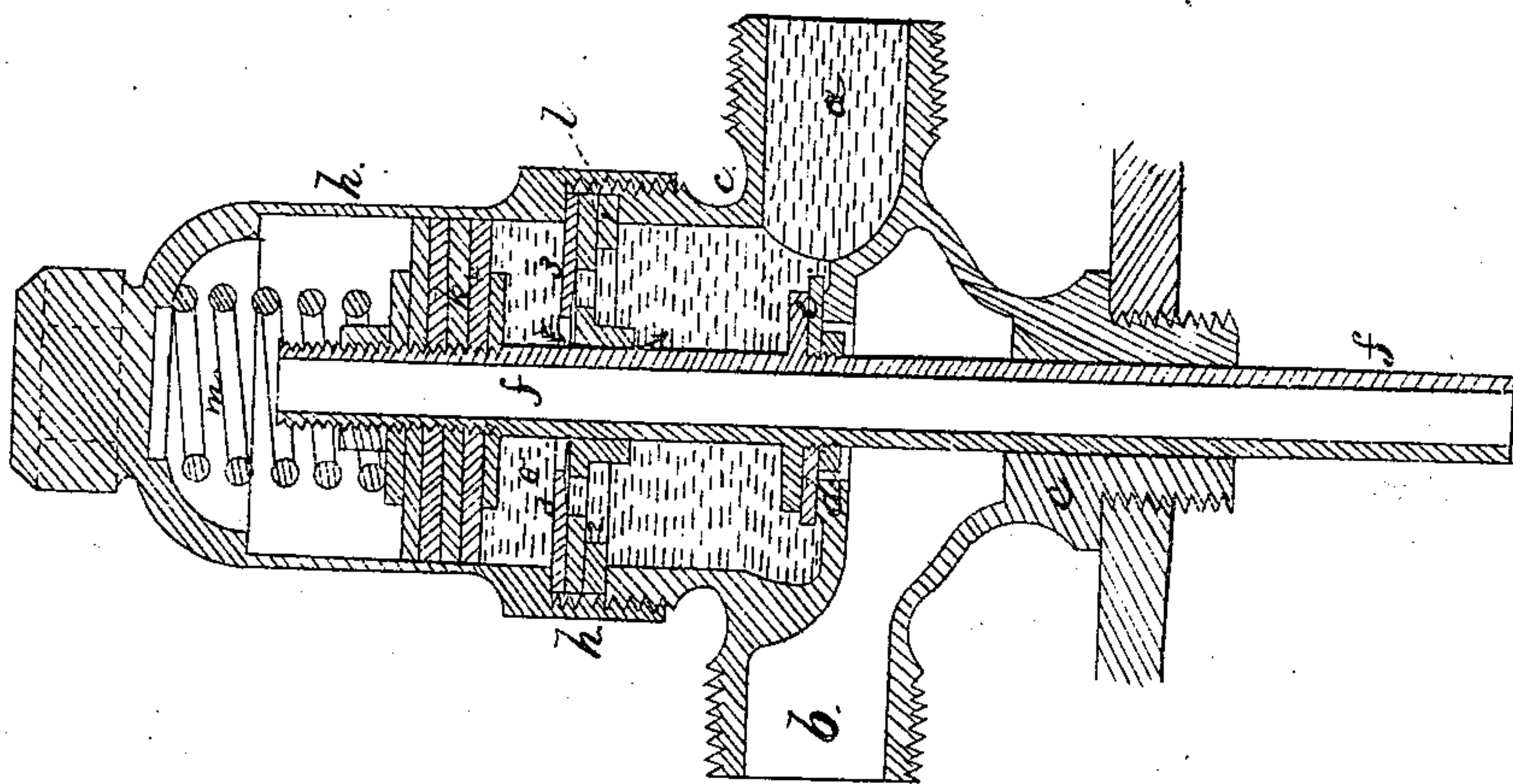
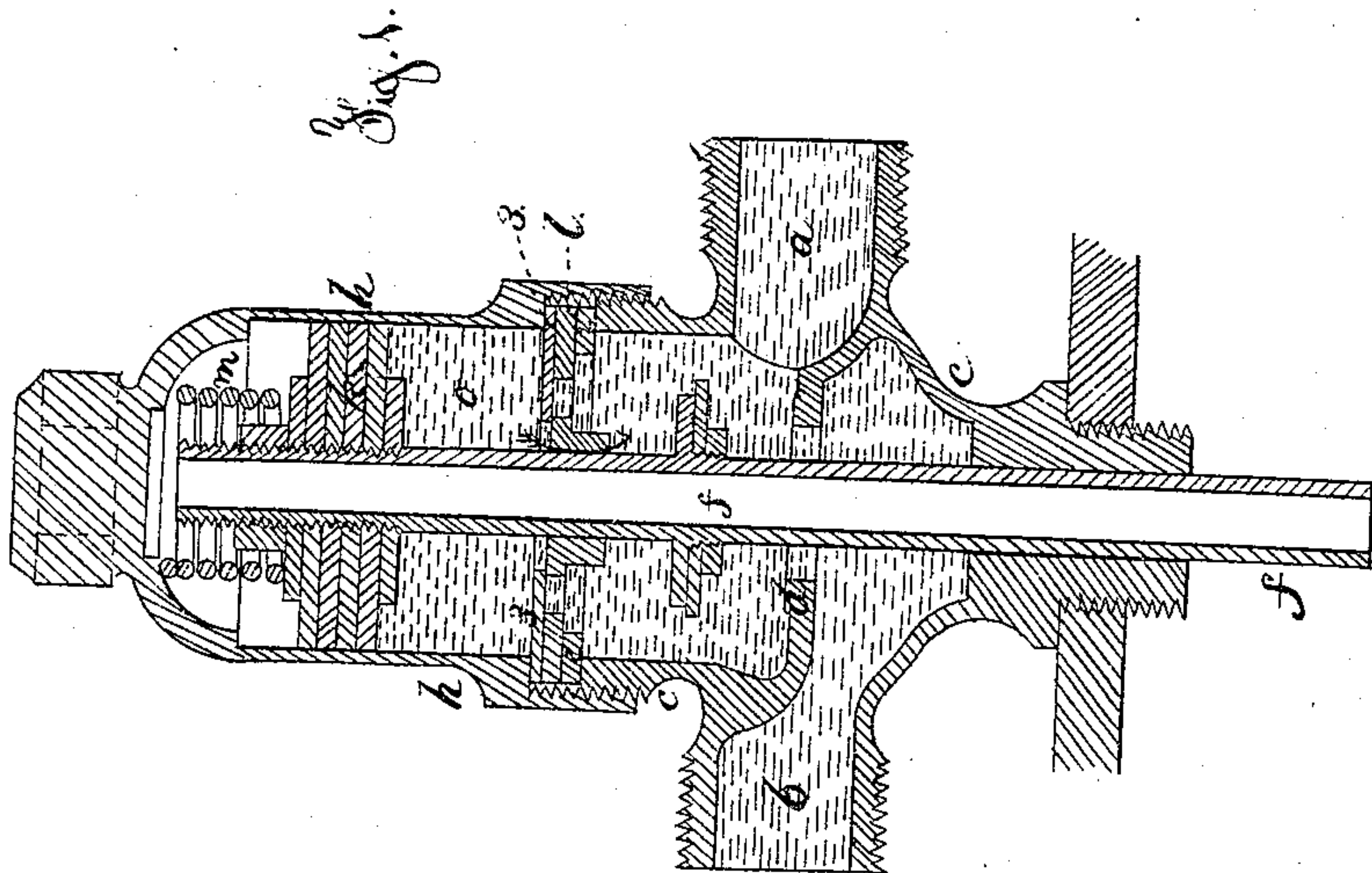


H. H. Craigie.
 Supply-Valve for Water-Closet.
 N^o 72809 Patented Dec. 31, 1867.



Witnesses.
 Chas. H. Smith
 Geo. T. Bricker

Inventor
 Hugh H. Craigie

United States Patent Office.

HUGH H. CRAIGIE, OF NEW YORK, N. Y.

Letters Patent No. 72,809, dated December 31, 1867.

IMPROVEMENT IN SUPPLY-VALVES FOR WATER-CLOSETS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, HUGH H. CRAIGIE, of the city and State of New York, have invented and made a certain new and useful Improvement in Cocks for Water-Closets; and I do hereby declare the following to be a full, clear, and exact description of the said invention, reference being had to the annexed drawing, making part of this specification, wherein—

Figure 1 is a vertical section of said cock as open.

Figure 2 is a similar view with the valve closed.

Similar marks of reference denote the same parts.

Cocks for water-closets have heretofore been made with a chamber into which water passes, and is gradually ejected as the valve closes, so as to make the movement of such valve gradual. These cocks have, however, either forced the water out through a pipe or opening especially provided for the same, or into the water-way leading to the closet, or else have been controlled by the gradual passage of water into a chamber. Where the controlling-chamber has communicated with the pipe that discharges the water, the said chamber does not always fill with water when under a small head or pressure, and where the chamber is filled gradually as the cock closes, the valve sometimes comes down upon its seat by a series of sharp blows, resulting from the forces of the water and the spring, and the vacuum in the controlling-chamber.

The nature of my said invention consists in a controlling water-chamber on the supply side of the valve, so that said chamber is filled with water unfailingly as the valve is opened, and is emptied, or partially emptied, by a gradual leakage, as the valve is closed.

In the drawing, *a* represents the inlet-orifice of the cock, *b* the delivery-orifice; these are arranged to receive the pipes as usual. *c* is the body of the cock, that is to be attached to or supported by the hopper of the water-closet or other suitable device. *d* is the valve-seat, and *e* the valve on the stem *f*, that passes through the bottom of the valve-case or body *c*, and is to be operated by a toe of the rock-shaft on which the pan of the water-closet is swung, or by any other suitable means, so as to open the valve when the water is to be allowed to run to the closet. The cap *h* is screwed upon the body *c*, and confines the diaphragm valve-seat *l*, packing-ring 2, and elastic valve 3, the said diaphragm *l* having a hole or holes beneath the valve 3. The valve-stem *f* passes through the diaphragm *h*, and is formed with a piston, *k*, packed to move water-tight in the cylindrical portion of the cap *h*, and *m* is a spring to close the valve. The valve-rod *f* may be made as a pipe, to allow leakage to pass into the water-closet, should the piston *k* at any time become leaky.

It will now be understood that when the cock is closed, as in fig. 2, the pressure of the water is partially balanced in its action on the valve *e* and piston *k*, the spring *m* keeping the valve closed. When the valve is raised, the piston *k* is also moved, and the water rushes into the controlling-chamber *o*, through the diaphragm *l*, lifting the leather valve 3, and that closing by the pressure of the water as confined in *o*, prevents the spring *m* closing the valve *e* until the water has been forced gradually out of said chamber *o*. I find that the leakage around the stem *f*, through the diaphragm *l*, is generally sufficient to allow the necessary time to be consumed in the valve-closing, but any desired character of opening for the leakage may be provided; and it will be evident that the valve 3 might be attached at its centre to the diaphragm *l*, instead of around the edges, by the cap *h*, and, if desired, the leather 3 may extend to and surround the spindle, and be cut to form a valve or valves, and a small hole for the leakage be provided through both the leather and the valve-seat *l*.

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

The water-chamber *o*, in combination with the valve *e*, when said water-chamber *o* is placed on the supply side of the valve, and arranged substantially as specified, so that the water is ejected from said chamber as the valve closes, for the purposes specified.

I also claim a diaphragm-valve, 3, placed between a moving piston, *k*, and the valve *e*, to be controlled substantially as set forth.

In witness whereof, I have hereunto set my signature, this twenty-sixth day of September, A. D. 1867.

HUGH H. CRAIGIE.

Witnesses:

CHAS. H. SMITH,
GEO. T. PINCKNEY.