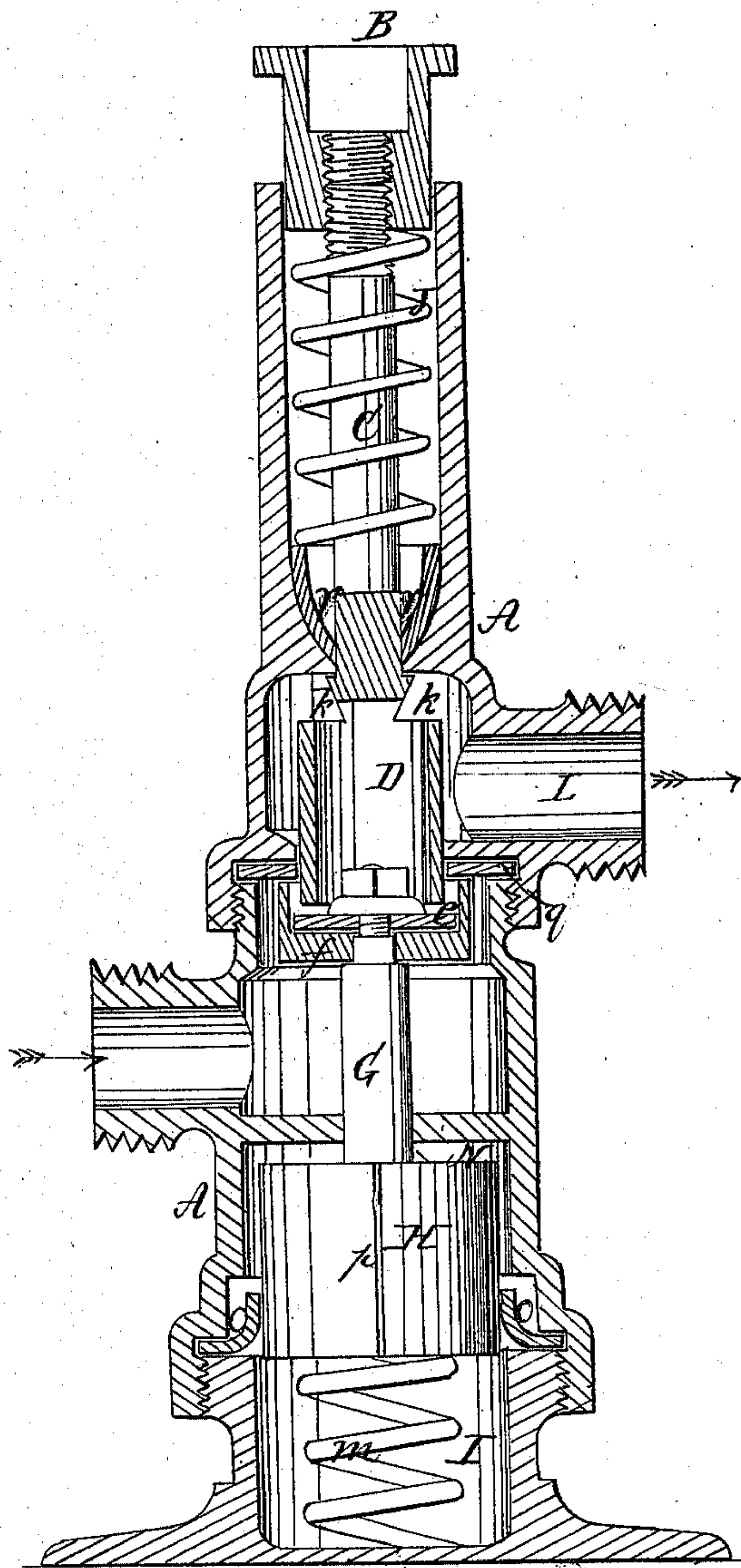


W. Smith,

Close Valve.

No. 95,054.

Patented Sept. 21. 1869.



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# United States Patent Office.

W. SMITH, OF SAN FRANCISCO, CALIFORNIA.

Letters Patent No. 95,054, dated September 21, 1869.

## IMPROVEMENT IN SLOW-CLOSING 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, W. SMITH, of San Francisco, in the county of San Francisco, and State of California, have invented a new and useful Improvement in Water-Closet Valves; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to a new and useful improvement in valves for water-closets, whereby they are rendered more useful and durable than they have hitherto been; and

It consists in the construction and arrangement of parts as hereinafter described.

The drawing represents a vertical longitudinal section of the valve.

A represents the valve-shell, or tube, formed of different sections, which are screwed together with packing secured in the joints, as seen in the drawing.

B is the socket, from which a rod extends to the seat of the closet, which seat is hinged, so that it yields to the weight of a person sitting on it.

In this manner the socket B is depressed, and with it the spindle C, with the tube D, which bears on the inner packing *e* of the valve *f*, and drives the spindle G, with the plunger H, into the chamber I. While the valve is in this position, no water can pass through it.

When the seat is relieved of the weight of the person, the spring J lifts the spindle C and tube D from the packing *e*, when the water flows through the tube C and water-ways *k k*, (at its upper end,) and through the outlet-pipe L to the basin.

The plunger H, having been depressed, (or forced into the chamber I,) would be forced upward by the spring *m*, but for the following reason:

The chambers N and I, being filled with water or oil, or other more elastic fluid, the descent of the plunger H causes the water or other fluid to escape past the elastic washer *o* to the upper chamber N.

Now, before the valve and plunger can ascend again to close the valve, the displaced fluid, now occupying the chamber N, must return to the lower chamber I, but this is prevented by the elastic washer *o*, and it is

retained in the chamber, except as it escapes through a vertical channel in the plunger, marked *p*, which permits the fluid to return gradually, thereby suspending the valve a sufficient length of time to give the requisite wash to the basin, &c.

The spindle G is fitted accurately to the orifice in the partition, and works through it almost water-tight.

The valve *f*, when closed, bears against the packing *q*. This packing *q* is fitted tightly around the tube D, and prevents any leakage around the tube while the valve is depressed.

To prevent leakage around the spindle C, that portion of the shell through which it passes (nearly in contact,) is turned out dishing and provided with a cupped leather gland, *r*, which is fitted thereto, and compressed and kept to its seat by the spring J. By this method of packing the spindle, the wear of the gland is compensated by the pressure of the spring.

It will be seen that the principal improvement in this valve consists in separating the suspending-chambers N and I from the water-passage. By this method, I am enabled to make a self-suspending valve, that will be reliable under all circumstances.

Grit, sand, and other impurities contained in the supply-water cannot affect the operation of the valve.

The primary fluid, as water, oil, spirits, or any other non-elastic fluid, is retained in the suspending-chambers at all times, thereby insuring the perfect working of the valve under all circumstances.

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

1. A valve for water-closets, having its suspending-chambers partitioned off from, and having no communication with the water-passages; substantially as shown and described and for the purposes specified.

2. In combination with the plunger H, the chamber N, gland *r*, and tube D, the spindles C and G, valve *f*, packing or valve-face *q*, and packing *e*, arranged substantially as shown and described, for the purposes set forth.

W. SMITH.

Witnesses:

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