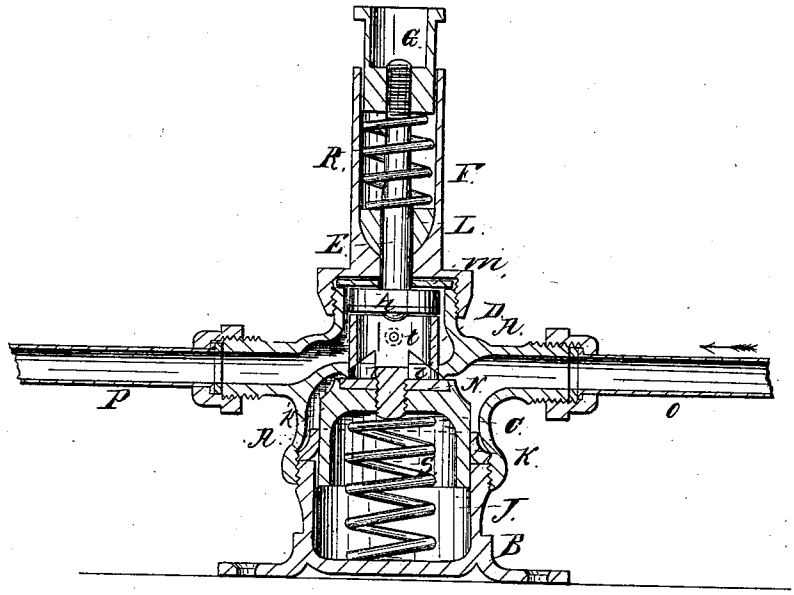
W. Smith,

Water Closet Valve.

No. 81,024. Patented Aug. 11, 1868.



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W. SMITH, OF SAN FRANCISCO, CALIFORNIA.

Letters Patent No. 81,024, *dated August* 11, 1868.

IMPROVEMENT IN 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 improved Valve for Water-Closets; 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 improved construction for valves for water-closets, and more particularly designed for the kind known as the hopper-water-closets; and it consists in the arrangement of a plunger, in combination with a spindle and tubular receiver, the action of which is controlled by springs, which are actuated by the weight of the person on the seat of the closet, and so arranged that the wash-water is not allowed to flow until the weight is removed, as will be hereinafter more fully described.

The drawing represents a vertical central section of the arrangement, showing the parts of which it is composed in their proper position.

A represents the shell of the valve, which is attached to the base, B, by a screw-connection, as seen in the drawing.

C is a hollow plunger.

D is the tubular receiver.

E is the spindle, which passes up through the tube F.

G is a socket on the spindle.

In the description of closets to which this valve is applied, it is necessary that the water should not run when the closet is sat upon, but should run for a stated period after the closet has been used, the said period to be regulated according to the pressure of water, and other requirements.

The valve is placed on the floor, to which it is fastened.

A rod extends from the socket G upward to the closet-seat.

The weight of a person sitting on the seat depresses the spindle E, the cap of which, *h*, closes the orifice in the top of the tube D, and at the same time drives the plunger C into the chamber J.

The valve remains in this position until the seat is relieved of weight, when the upper spring lifts the spindle, and allows the water to flow through the side opening *i* in the base of the tube D, and out of the top to the outlet-pipe.

k represents an annular packing-washer around the plunger C.

The length of time that the valve is allowed to remain open, depends upon the distance that the plunger is depressed, and this distance is regulated by raising or lowering the socket G on the spindle E.

L is a packing-ring or stuffing-gland around the spindle E.

The tube F is attached to the shell by a screw-connection, with packing in the joint, as seen at *m*.

The main valve N is prevented from leaking by elastic packing secured in a recess, as seen in the drawing.

O is the receiving or water-supply pipe, and P is the discharge-pipe.

R is a spiral spring, which, by its recoil, throws up the spindle for the discharge of the water when the weight is removed from the seat.

S is a spiral spring in the chamber J, which, at the same time, throws up the plunger C, and closes the valve N.

t is a waste-pipe in the valve-shell, to allow water to run off to prevent freezing, and it is so placed that the water does not pass or waste until the valve is closed.

When the weight is removed from the plunger, the spring S will not throw up the same instantly, for the reason that, as the plunger descends, it displaces the water in the chamber J. The spring S is not sufficiently strong to lift the plunger instantly and create vacuum behind it, and the plunger therefore cannot rise again to close the valve until water returns again to the chamber J, which is prevented by the elastic washer *k*, except through a small channel, *k'*, cut vertically in the side of the plunger, which permits the water to return gradually, thereby suspending the valve a sufficient length of time to give the required wash to the basin.

Having thus described my invention, I claim as new, and desire to secure by Letters Patent—

1. The tube D, applied to the face of a self-suspending water-closet valve, with water-way at its base, substantially as shown and described, for the purposes specified.

2. In combination with the tube D, the spindle E, with the disk and packing *h*, and the packing L, compressed by the spring R, substantially as shown, and for the purposes set forth.

W. SMITH.

Witnesses:

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