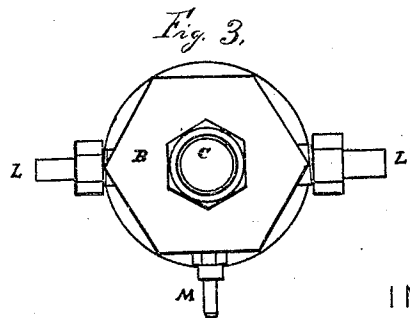
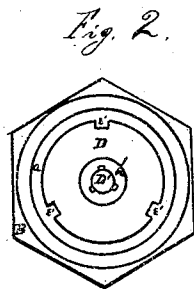
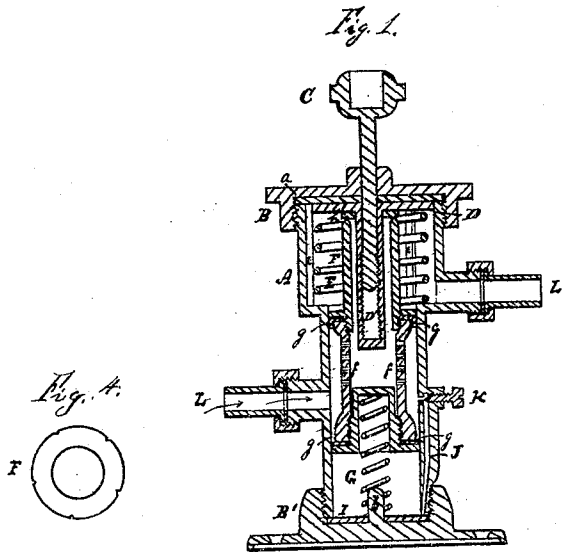


P. HARVEY.

Double-Acting Supply-Valves.

No. 128,484.

Patented July 2, 1872.



WITNESSES

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Preston Brady

INVENTOR

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UNITED STATES PATENT OFFICE.

PATRICK HARVEY, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN DOUBLE-ACTING SUPPLY-VALVES.

Specification forming part of Letters Patent No. 128,484, dated July 2, 1872.

SPECIFICATION.

To all whom it may concern:

Be it known that I, PATRICK HARVEY, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Double-Acting Supply-Valves for Water-Closets and Urinals; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to which my invention appertains to make and use the same, reference being had to the accompanying drawing forming a part of this specification, and in which—

Figure 1 represents a vertical central section through my improved valve device; Fig. 2, a bottom view of certain parts thereof; Fig. 3, a top view of the whole; and Fig. 4, a bottom view of the piston.

Like letters of reference indicate like parts.

The object of my invention is to render valves of this class more perfect in their operation; and my invention consists in more effectually preventing foreign substances from interfering with the proper action of the valve mechanism. This I accomplish by means of a hollow perforated or slotted piston. My invention also consists in certain other novel features hereinafter mentioned.

In the drawing, A represents the case; B, the cover; and C, the operating rod. The cover may be screwed upon the case in the manner shown, and *a* is a washer interposed between these parts to form a water-tight joint. The rod C passes freely through the said cover and washer. D is a valve having a socket, D'. *e e* are guide-ways on the inner face of the case, and *e' e'* are corresponding notches in the head of the valve B, into which notches the said guide-ways project. The inner face of the socket D' is provided with a female screw, and the rod C with a male screw, so that these parts may be attached to each other in the manner shown, and the stroke of the rod regulated by screwing it more or less into the socket, the guide-ways or projections *e e* preventing the socket from turning during this adjustment. E is a spiral spring, supporting the valve D, and resting on a seat in the case A. F is a cylinder having a closed bottom, and its lower portion perforated or slotted, as shown at *f*. This cylinder swells outward above and

below its perforated portion, so as to reach or nearly reach the case A, and form a piston. *g g* are leather strips or other suitable packing, about the heads of the piston so formed, and this packing is capable of spreading outward under a pressure of water within the chamber between the heads of the piston, so as to prevent the water therein escaping, except through the perforations or slots *f*. When the cylinder or piston F is made of separate parts the packing *g g* may be secured between these parts, as shown. G is a spiral spring supporting the cylinder or piston F, and pressing the mouth of the same against the valve D. *h* is a washer interposed between the valve D and the mouth of the cylinder F, to form a water-tight joint, and the said mouth is rounded off, in the manner shown, to more effectually prevent foreign matter from lodging on that part of the cylinder. B' is the bottom of the case, and *b* is a post projecting from the center thereof to retain the spring G in its proper place. I is a washer on the bottom of the case A. J is a water-passage, communicating with the chambers about and below the piston F, and K is a cone-pointed screw entering the said passage, and by turning the said screw or shut-off, the water-passage J is opened or closed so that the quantity of water passing through the said passage is regulated. The bottom of the piston F is notched, in the manner shown in Fig. 4, so that the water in the chamber below the piston may escape into the chamber above as the piston is forced down. L L' is the supply-pipe, the water entering the valve device through the pipe L and leaving it through the pipe L'. M is the waste-pipe for the escape of water from the chamber above the piston-head.

In order to operate, my improved valve the rod C is depressed by the seat of the closet, or in any suitable and convenient manner. The springs E and G yield to this pressure, and the valve D and cylinder or piston F move downward, the valve remaining closed. As soon as the pressure upon the rod C is relieved the spring E forces the valve D upward against the cover, while the cylinder or piston F moves up slowly, according to the amount of water entering the chamber below the lower piston-head through the passage J. The valve thus remains open until the cylinder F strikes the washer *h*. The time during which the valve

shall remain open may also be regulated by regulating the stroke of the rod C, and the valve may be locked by screwing the said rod into the socket D' until the head of the rod rests upon the cover B. The perforations or slots *f* prevent fish or other foreign matter from entering the cylinder or valve F, and keeping the valve open by lodging between the washer *h* and the mouth of the cylinder.

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

In combination, the rod C, valve D, cylinder or piston F, water-passage J, and screw or shut-off K, operating together in connection with the case A and springs E and G, substantially as and for the purposes specified.

The foregoing specification signed by me this 22d day of February, A. D. 1872.

PATRICK HARVEY.

Witnesses:

N. C. GRIDLEY,
F. F. WARNER.