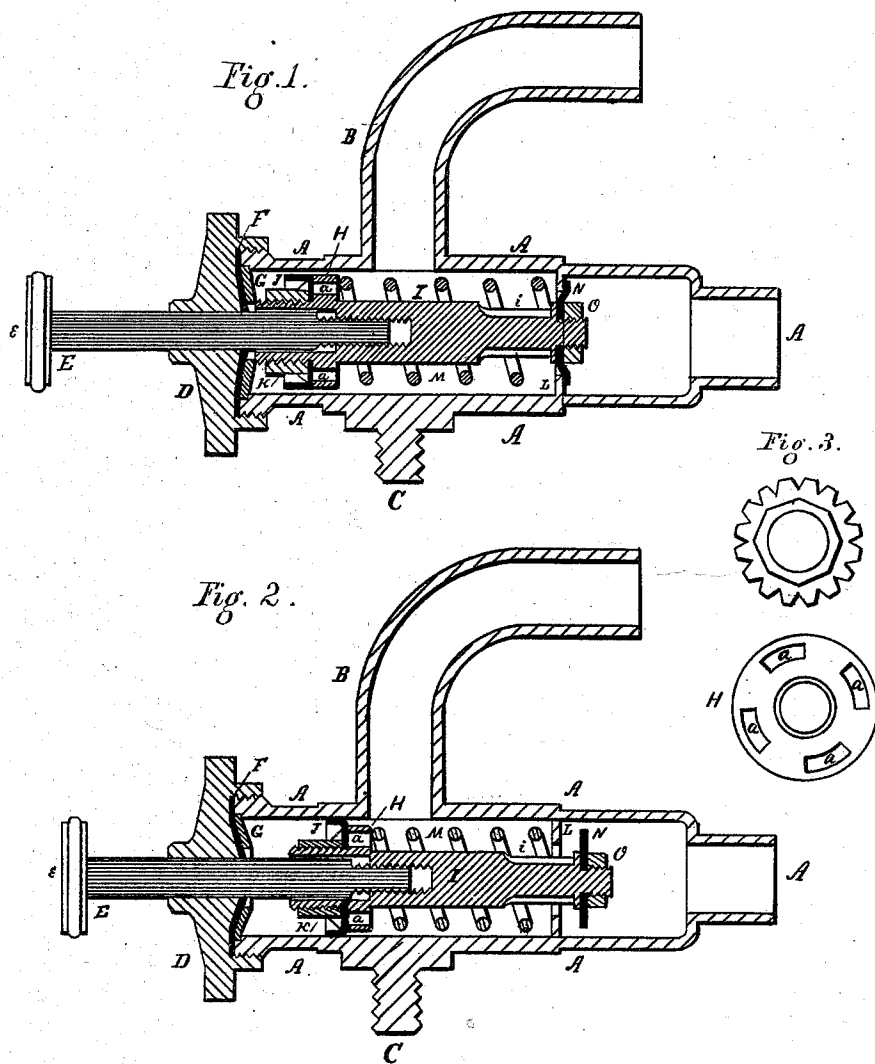


P. HARVEY.
Water-Supply Valves.

No. 140,918.

Patented July 15, 1873.



WITNESSES_

F. F. Warner.

C. J. Shupley

INVENTOR_

Patrick Harvey

UNITED STATES PATENT OFFICE

PATRICK HARVEY, OF CHICAGO, ILLINOIS, ASSIGNOR TO NELSON C. GRIDLEY, OF SAME PLACE.

IMPROVEMENT IN WATER-SUPPLY VALVES.

Specification forming part of Letters Patent No. **140,918**, dated July 15, 1873; application filed March 31, 1873.

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 Water-Supply Valves, of which improvements the following is a full, clear, and exact description, 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 hereof, and in which—

Figure 1 is a vertical, central, longitudinal section of my improved valve device when closed; Fig. 2, a like section when the valve is open; Fig. 3, a top view of the packing-nut; and Fig. 4, a like view of the piston-head.

Like letters of reference indicate like parts.

Heretofore the construction of water-supply valves has been such that they have been rendered unnecessarily expensive and incapable of being readily repaired. This expense and inconvenience has arisen chiefly from the fact that the valves have been made in many parts. The object of my invention is to remove these objections, and to that end it consists in certain novel features hereinafter fully described and set forth, relating to the construction of valves of this class.

In the drawing, A represents the case or cylinder. B is the eduction. C is a screw-pin, by means of which the valve is retained in its position. All the parts above referred to are made in one piece, as shown, and neither the cylinder nor the part B is screw-threaded for the purpose of receiving couplings; but the end of the cylinder or case is constructed to receive the supply-pipe, and the part B constitutes a delivery-nozzle, as represented in the drawing, and couplers are thus rendered unnecessary. D is a cap arranged on the cylinder A, and retained thereon by means of a screw attachment, as shown. E is a post passing through the cap and capable of being turned therein. F is a packing of leather, or other suitable packing material, arranged on the inner face of the cap for the purpose of packing the joint between the latter and the cylinder and to prevent an escape of water through the cap about the post. G is a metal washer arranged on the packing F and resting on a

shoulder of the cylinder A, as shown, for the purpose of hugging the said packing to the cap, and to the post when the cap is arranged on the cylinder. H is a piston and I is its stem. The piston is arranged a little way from one end of the stem, and is perforated, as shown at *a a*. The inner end of the post E is provided with a male screw-thread, and the stem I is provided with a corresponding female screw, so that the post, when turned for that purpose, may be attached to the stem and rendered adjustable therein. J is a packing, preferably of felt, buckskin, or other suitable porous packing material through which water under pressure will percolate more readily than through leather. The packing J is arranged on the piston, and is sufficiently large to cover the upper face of the latter and lap the cylinder toward the cap, as shown. K is a nut run on the stem I so as to retain the packing J on the piston. The lower outer edge of the nut K is extended so as to form an annular flange somewhat smaller in diameter than the piston, and this flange is notched, as shown in Fig. 3; it is also slightly beveled on its lower edge so as to allow the packing J to readily assume the position shown in Figs. 1 and 2. L is a rigid annular shoulder projecting from the cylinder A. M is a spiral spring resting on the shoulder L and against the piston H. The force of the spring M is such as to retain the piston in the position shown in Fig. 1, but yields to a greater opposing force exerted upon the post E. N is a washer, and O is a nut run upon the end of the stem I so as to retain the washer N upon the stem.

It will be observed that the diameter of the nut O does not exceed the diameter of the stem I.

The stem I is cut away, as shown at *i*, and the ribs thus left between the depressions sunken into the stem do not extend to the shoulder L, but a sufficient space is left between the said shoulder and the said ribs to allow the washer N to be both drawn and pushed through the valve opening when the piston and its attachments are drawn from and replaced in the case or cylinder. By this means the washer N, when once attached to the stem, need not be removed from it for the

purpose of making repairs to the other parts of the device. The position of the washer N upon the stem I is such that the valve will be closed when the piston is in the position shown in Fig. 1—that is, when it is between the cap and the eduction. When the valve is open the packing J should not leave that part of the cylinder which is between the cap and the eduction. I deem it preferable to make the valve openings large enough to allow the washer N to become partly folded when the valve is closed, as shown in Fig. 1. By this means the valve is not only tightly closed at the proper time, but the washer may be drawn or pushed through the valve opening in the manner described.

It will be observed that the contact of either the stem I or the nut K against the cap will prevent the washer N from passing through the valve opening, but the force of the spring M is such, preferably, as not to move the washer N from the valve opening when the parts above referred to are not in contact. It will also be observed the washer N acts in direct contact with a fixed valve-seat which limits the automatic movement of the piston, and a removable valve-seat and stop are thus rendered unnecessary.

e is a head upon the post E. The valve is opened by exerting a pressure for that purpose upon the head *e*. The water then flows through the valve opening and passes out through the eduction; it also fills the chamber between the cap and the piston. As soon as the pressure upon the head *e* is released the force of the spring M tends to close the

valve; but the washer N approaches the valve opening slowly, for the reason that the water in the chamber between the piston and the cap must have sufficient time to escape through the packing J and the perforations *a a*, and as soon as a sufficient quantity of this water has escaped, the valve will be closed.

The duration of the flow of water through the valve may be regulated either by inserting the post E a greater or less distance into the stem I, or by the character of the packing J.

In order to repair the valve the cap D is removed; the contents of the case or cylinder may then be readily removed, repaired, and replaced.

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

1. In a water-supply valve, the perforated piston H in combination with the washer J, constructed of the material specified, and arranged and operating substantially as and for the purposes set forth.

2. In a water-supply valve, the grooved stem I, provided with the washer N, attached to its end by means of the nut K, in combination with the fixed valve-seat L, the said stem and seat being constructed and arranged substantially as shown and described to allow the said washer to be drawn and pushed through the valve opening, for the purposes set forth.

PATRICK HARVEY.

Witnesses:

F. F. WARNER,
C. J. SHIPLEY.