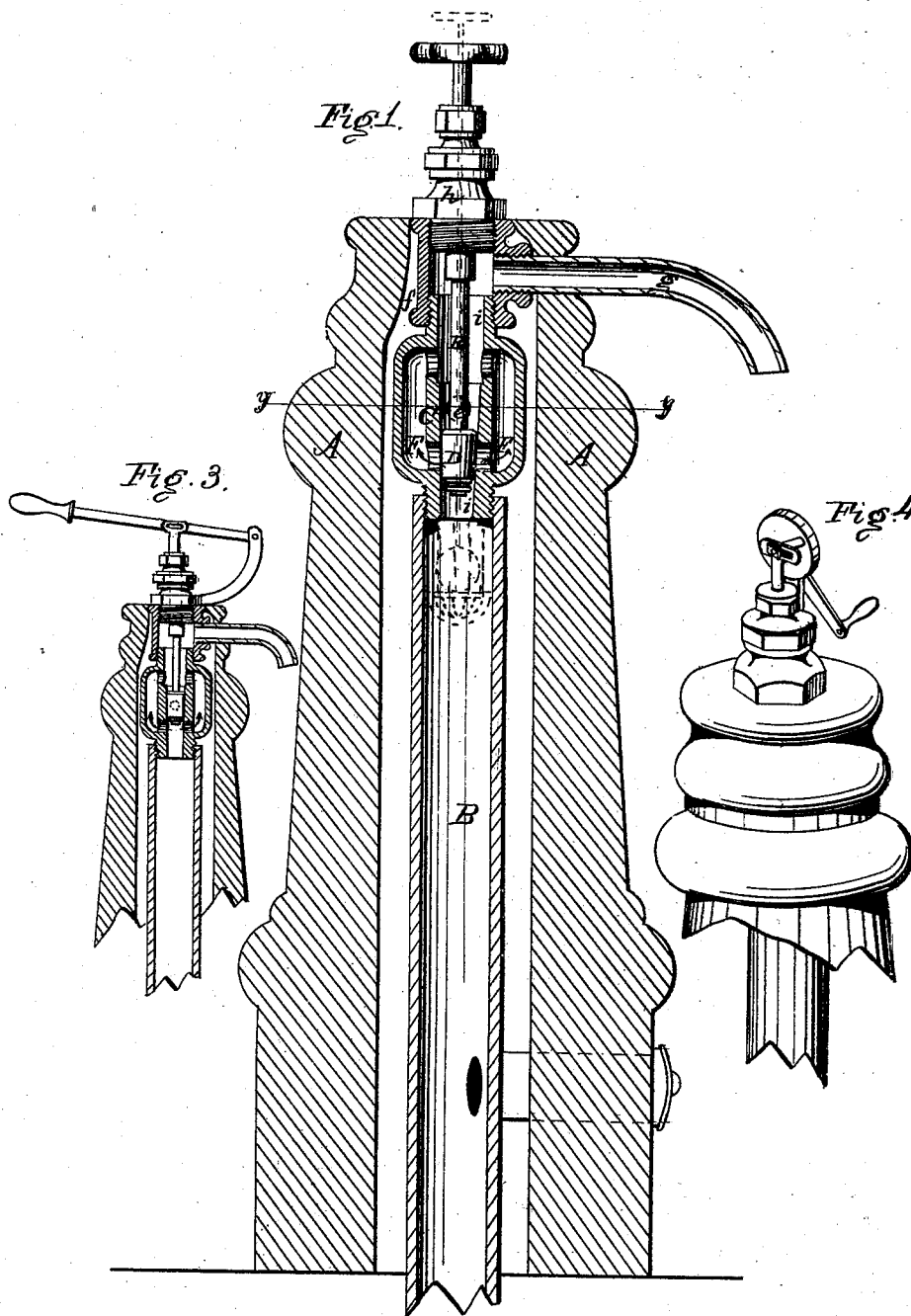


H. E. EARLE.

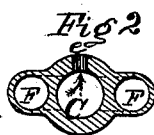
HYDRANT AND HYDRANT-VALVE.

No. 172,002.

Patented Jan. 11, 1876.



Witnesses:  
F. B. Townsend.  
R. A. Gallan



Inventor:  
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# UNITED STATES PATENT OFFICE.

HENRY E. EARLE, OF DANBURY, CONNECTICUT.

## IMPROVEMENT IN HYDRANTS AND HYDRANT-VALVES.

Specification forming part of Letters Patent No. **172,002**, dated January 11, 1876; application filed December 30, 1875.

### *To all whom it may concern:*

Be it known that I, HENRY E. EARLE, of Danbury, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Hydrants and Hydrant-Valves; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to hydrants and hydrant-valves.

It is well known that a great difficulty exists in the hydrants now in general use, even where piston-valves are used, for the reason that the valve-seat has a projecting lip upon which the valve seats itself. Upon this lip sediment, sand, and other foreign substances settle or are deposited during the passage of the water, and thus prevent the valve from properly seating itself, whereby the hydrant is continually leaking; hence the great waste of water, and inconvenience arising therefrom.

To overcome these difficulties and other objections is the object of my invention; and the nature of my invention consists in constructing the barrel or cylinder of the hydrant in which the valve is contained of a tapering form, or enlarged at one end and contracted at the other; and it further consists in forming a plug or piston-valve to fit said tapering bore, said bore extending below the inlet or water-way, whereby the projecting valve-seat is avoided, and the accumulation of dirt or sediment prevented, the valve or plug being snugly fitted to the sides or barrel of the cylinder; and it further consists in locating the waste-water aperture in such a position that when the valve is open the waste-water way is closed, and when the valve is closed the waste-water way is fully opened, thus preventing the freezing up of the hydrant, the waste water being carried off outside of the barrel of the cylinder, all of which will be hereinafter more fully described.

It will be observed, however, that the water has free, full, and clear admission to and exit outside of the barrel without obstruction

of any kind, and the valve may be securely seated without the liability of sticking or leaking; and it may be here remarked that the plug, or lining of the plug, is made of elastic material, and subject to expansion or contraction, according to the temperature. Hence, if the barrel is of straight or parallel bore when the plug is contracted, it will not fit the bore, and the hydrant will leak, and when expanded it will fit so tight that it will stick, and be drawn out with great difficulty.

In the drawing, Figure 1 represents vertical longitudinal section, the valve being closed or fixed in its seat. Fig. 2 represents a cross-section at the line *yy*, Fig. 1, showing the outside water-way, water-escape aperture, and the bore of the cylinder. Fig. 3 shows a vertical section with the valve open, and the waste-water exit closed by the plug-valve. Fig. 4 represents a perspective view of the hydrant partly broken away.

It will be seen that the valve may be operated by a screw-spindle, lever, or cam, in any well-known manner, the usual stuffing-boxes and detail being provided.

In the drawing, A represents the jacket of the hydrant; B, the water connecting-pipe; C, the tapering barrel of the hydrant. The outside water-ports F, and waste-water exit *e*, and the two outside screw-extensions *i i*, are all cast in one piece. D is the tapering plug-valve, and E the spindle. F is the T-joint or fitting, to which the upper extension *i* is fastened, and the stuffing-box or gland is screwed onto the other end of said T-piece, and the spout *g* is screwed into the middle projection.

The operation of my improved hydrant is as follows: The hydrant being properly located, the valve D is raised, allowing a free and full flow of water through the side water-ways, the valve at the same time closing the waste part or exit, the water passing up outside and above the valve without obstruction, thence to the spout. When the flow of water is desired to be stopped, the valve or plug is shut down, when the flow ceases, and the water remaining above the valve and in the cylinder is carried off through the waste-outlet, thus leaving the barrel or valve-chamber comparatively dry, and thus preventing the freezing of the valve.

A strainer check-valve, or any other suitable device, may be suspended below the lower extension *i*, so that when the valve is removed for replacement or repairs the check-valve will close the lower extension, whereby the flow of water is temporarily stopped, said check-valve being kept open by a small spindle running through the main spindle, and shown in dotted lines in Fig. 1.

Thus it will be readily seen that I have produced a simple, cheap, and reliable cock, made up of few pieces, easily repaired, and removed without taking out the body of the valve, the latter being a great consideration.

A screw-spout may be fastened to the middle projection of the T-piece, to which hose may be attached, whereby the hydrant may be used for a fire-plug; also through the lower part of jacket A. Various modifications of the minor details may be made without departing from the spirit of my invention.

Having thus fully set forth my invention, and the operation of the same, what I claim

as new, and desire to secure by Letters Patent, is—

1. The combination, in hydrants, of the casting C, having a tapering barrel or cylinder, provided with outside water-ports F, and tapering valve D, substantially as described, and for the purpose set forth.

2. The combination, substantially as described, of the valve-chamber C, valve D, ports F, waste exit-port *e*, and extensions *i*, in the manner and for the purpose herein set forth.

3. The combination, substantially as described, of the hollow tapering casting C, provided with extensions *i*, pipe B, T-piece *f*, valve D, spindle E, having stuffing-box *h*, substantially as shown and described.

In testimony that I claim the foregoing as my own invention I affix my signature in presence of two witnesses.

HENRY E. EARLE.

Witnesses:

O. T. EARLE,

D. T. ELLIS.