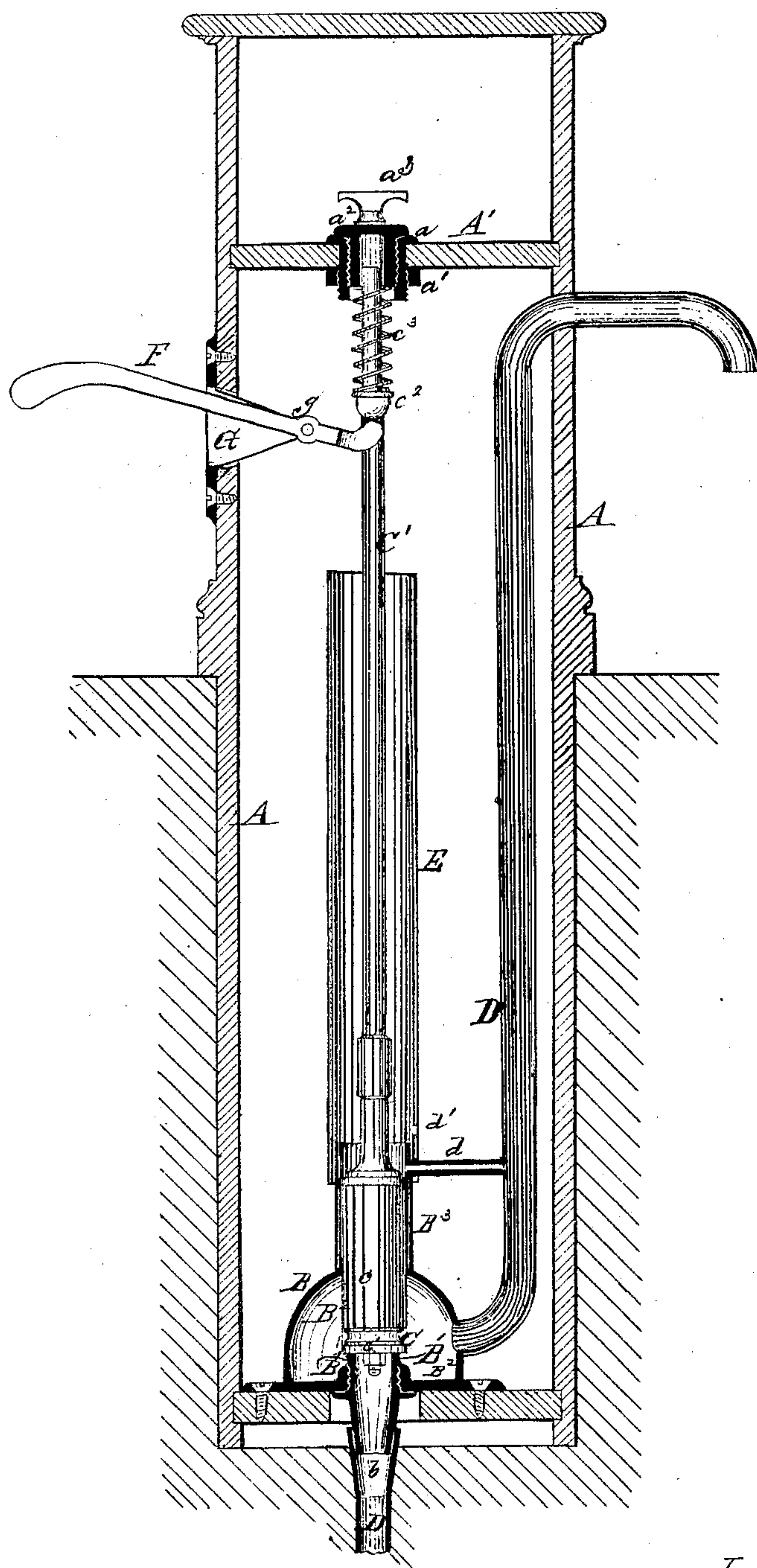


J. P. GALLAGHER.  
Improvement in Hydrants.

No. 114,283.

Patented May 2, 1871.



Witnesses:

William W. Keithel

Robert Burns.

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# UNITED STATES PATENT OFFICE.

JOSEPH P. GALLAGHER, OF ST. LOUIS, MISSOURI.

## IMPROVEMENT IN HYDRANTS.

Specification forming part of Letters Patent No. 114,283, dated May 2, 1871.

*To all whom it may concern:*

Be it known that I, JOSEPH P. GALLAGHER, of St. Louis, in the county of St. Louis and State of Missouri, have made certain new and useful Improvements in Hydrants; and I do hereby declare that the following is a full and clear description thereof so far as completed, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

This invention relates to an improvement in the hydrant secured to me by Letters Patent No. 41,144, and dated the 5th day of January, 1864.

The improvements relate to an improved construction of the valve-chamber, the wastevent, the lever, and the compression-spring for closing the valve.

To enable those skilled in the art to make and use my improved hydrant, I will proceed to describe its construction and operation.

The accompanying drawing represents a sectional elevation of the improved hydrant.

In this as well as my former invention I use a metal or wooden box or housing, A, that extends down into the ground and up above the surface thereof far enough to inclose all the operative parts of the hydrant.

To the bottom floor of this box is securely fixed a semi-globe-valve chamber, B, to which is secured by means of screw-threads the annular valve-seat piece B<sup>1</sup>, the latter piece having a convex top edge, on which the valve C shuts tightly, and which also extends some distance (say an inch, more or less) above the floor of the said chamber B, thereby leaving an annular water-way, B<sup>2</sup>, between the said seat-piece B<sup>1</sup> and the surrounding chamber B.

The top end or side of the semi-globe chamber B terminates in a cylindrical projection, B<sup>3</sup>, which forms a housing and guide for the valve C. The said valve has a suitable packing, c, which prevents the water from rising above the chamber B<sup>2</sup> in the tubing B<sup>3</sup>, and it is also provided with a packing, c<sup>1</sup>, which, when the valve is closed, shuts down tightly on the seat B<sup>1</sup> and effectually closes the entrance-aperture.

The supply-pipe D is attached to the tubing b, depending from the bottom side of the seat-piece B<sup>1</sup>, and the distributing-pipe D' has its

lower end attached to the side of the semi-globe B and in open communication with the annular water-way B<sup>2</sup>.

A small tube, d, connects the pipe D' with the housing-tube B<sup>3</sup>, the said tube being located just above the top end of the valve C when it is closed down tight on its seat. This arrangement permits the water that may be standing in the pipe D' at the time of the closing of the valve C to escape through the tube d and run out at the aperture d', just above it, and escape into the bottom of the box A, and so out into the ground, thereby avoiding the freezing of the water in the pipe D', and also wasting the water during the time the valve is open, as most hydrants and stop and waste cocks do. This wastage is avoided by the valve C closing the outlet-aperture of the pipe d as soon as it is raised to uncover the seat B<sup>1</sup>. In my former patent above alluded to the valve was made to close both the tube d and the waste-aperture d'; but it is found to be more convenient to have it close only the pipe d; hence this improvement.

A cylindrical casing, E, is attached to the upper end of the housing B<sup>3</sup>, and surrounds and closes in the valve-rod C' to a point above the surface of the ground. This casing or tube will at all times exclude mud and refuse matter from accumulating in the top part of the valve-chamber, and thereby render it easy to remove the valve when necessary for repairs.

A diaphragm, A', is placed in the upper end of the box A, and to this diaphragm is secured a screw-bushing, a, by means of a flange above the said piece A' and a screw-nut, a<sup>1</sup>, below it. The outside of the said bushing has screw-threads for the accommodation of the nut a<sup>1</sup>, and also interior threads for the reception of the hollow nut a<sup>2</sup>. This nut has a head-piece or handle, a<sup>3</sup>, by means of which it may readily be turned up or down at any time, for the purpose hereinafter described.

The bushing a and the nut a<sup>2</sup> are placed in a line coaxial with the valve-rod C', the said rod passing up into the cavity of the nut a<sup>2</sup>.

A short distance below the diaphragm A' a tappet, a<sup>2</sup>, is secured to the valve-rod C'. The bottom end of this tappet is convex, and the lever F, acting against this convex surface, raises the said rod C' without pulling or push-



ing it out of its proper perpendicular position. The inner end of the said lever is forked, one prong of it passing on each side of the rod  $C'$ , thereby securing a square and easy lift on the rod.

The lever  $F$  is pivoted at  $g$  to the fulcrum-arms  $G$ , there being one of these arms on each side of the lever and projecting from the face-plate  $g'$ , which is secured to the inner or outer side of the box  $A$ .

It being necessary to have the interior dimensions of the box  $A$  several inches square, in order to accommodate the valve and pipe, the arms  $G$  are made quite long, say three or four inches, (more or less,) so as to place the fulcrum-point  $g$  as near the valve-rod as possible, in order to secure an easy leverage.

A spring,  $c^3$ , either of spiral form, or of india-rubber or equivalent material, is attached to the upper end of the valve-rod, so as to rest on the top end of the tappet  $c^2$  and under the bottom side of the nut  $a^2$ . This spring will habitually force the valve down upon its seat

$B^1$ , except when raised by the lever  $F$ . It is to readjust this spring and keep it tight that is the office of the nut  $a^2$ .

Having described my invention, what I claim is—

1. The hollow nut  $a^2$  and its bushing  $a$ , the spring  $c^3$ , tappet  $c^2$ , and rod  $C'$ , when arranged and operated substantially as set forth.

2. In combination with the parts mentioned in the first clause, the lever  $F$  and fulcrum-plate  $G$ , all constructed, arranged, and operating substantially as described.

3. The hemispherical valve-chamber  $B$ , constructed with an annular water-way,  $B^2$ , tubular portion  $B^3$ , and provided with the adjustable valve-seat, substantially as described.

In testimony of said invention I have hereunto set my hand.

JOSEPH P. GALLAGHER.

Witnesses:

WILLIAM W. HERTHEL,  
GEO. P. HERTHEL, Jr.