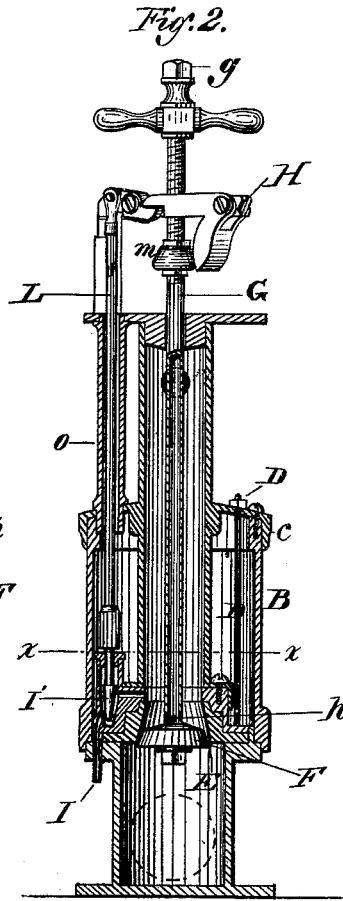
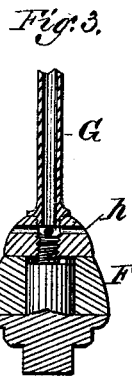
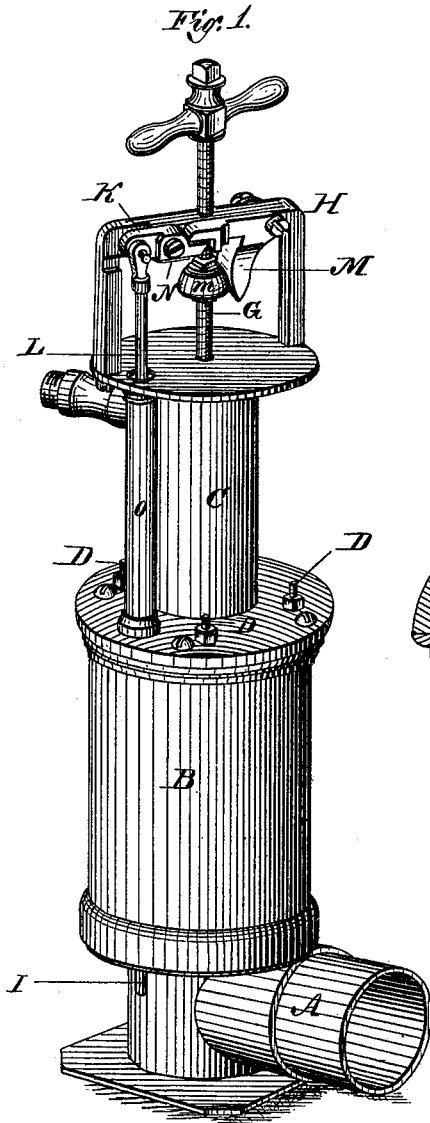


J. RICHARDSON.  
HYDRANT.

No. 188,676.

Patented March 20, 1877.



*Witnesses:*  
 Will H. Dodge  
 Donald Twitchell

*Inventor:*  
 John Richardson.  
 By his attys.  
 Dodge & Son.

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Fig. 5.

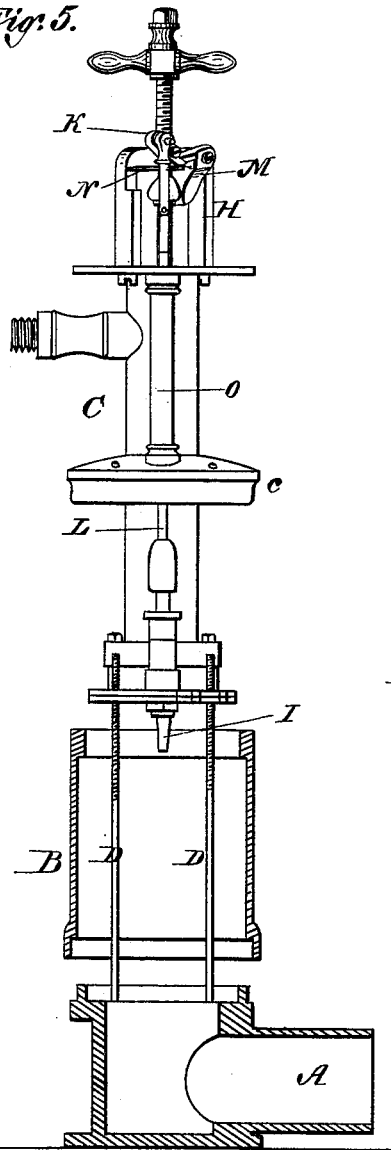
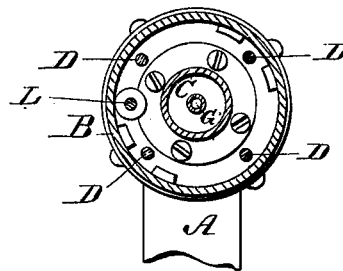


Fig. 4.



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# UNITED STATES PATENT OFFICE.

JOHN RICHARDSON, OF NEW YORK, N. Y.

## IMPROVEMENT IN HYDRANTS.

Specification forming part of Letters Patent No. **188,676**, dated March 20, 1877; application filed September 18, 1876.

*To all whom it may concern:*

Be it known that I, JOHN RICHARDSON, of New York, in the county of New York and State of New York, have invented certain Improvements in Hydrants, of which the following is a specification:

My invention consists in a novel construction and combination of the hydrant, the water-main, and a jacket surrounding the foot of the hydrant; in a novel manner of arranging and operating a waste-valve, to permit the escape of the standing water when the hydrant is closed; in a hollow stem, through which steam may be delivered into the hydrant above the main valve; and in other details, as hereinafter described.

Figure 1 represents a perspective view of my hydrant complete; Fig. 2, a vertical central section of the same; Fig. 3, a vertical central section of the valve; Fig. 4, a horizontal cross-section on the line *x x* of Fig. 2; Fig. 5, a view illustrating the construction and manner of uniting the hydrant, jacket, and main.

A represents the water-main, having its discharge end turned upward and flanged to receive the jacket B and hydrant C. The jacket is made of a cylindrical form, and has its lower end enlarged or shouldered to fit down over and around the flanged mouth of the main, as shown in Figs. 1, 2, and 5. The foot of the hydrant proper, C, is enlarged or flanged, and seated in a step or recess made in the mouth of the main to receive it, as shown in Fig. 2. Around its middle the hydrant is provided with a flange or cap, *c*, fitting down over and around the upper end of the jacket B, serving both to close the same and to retain it in position. To the end of the main A there are firmly secured two or more vertical rods, D, extending up within the jacket B, through the flanged foot of the hydrant C, and through the flange or cap *c*, and provided on their upper ends with nuts *d*, as shown in Figs. 1 and 2, so that they serve to hold the hydrant and the jacket firmly to each other and to the main. When placing the hydrant in position on the main, the rods D, passing through its foot, as shown in Fig. 5, serve as guides, and carry the foot directly and accurately into its seat in the mouth of

the main, thus permitting a ready removal and replacement of the hydrant without removing the earth or the jacket to reach the main. Under ordinary circumstances the rods D are considered sufficient to hold the parts together; but, when desired, the jacket may be bolted directly to the main, and the cap or flange *c* of the hydrant bolted to the jacket. In order to render the joints water-tight, without the expense of fitting them closely, a packing of rubber, lead, or other material may be inserted in them before they are tightened up by drawing the parts together. The packing also serves to prevent the parts from rusting fast to each other, and thus insures their ready separation when required. The hydrant is provided at its foot with a valve-seat, E, and a tapering valve, F, the latter attached to the lower end of a vertical stem or rod, G, the upper end of which is extended through the top of the hydrant, threaded, mounted in a bar, H, and provided with a handle, by which to turn it, as shown in Fig. 2. As the handle is turned, the thread, moving the stem up or down, opens or closes the valve. The valve-seat E may be made of rubber, and secured in place by clamping its outer edge between the foot of the hydrant and the main, as shown in Fig. 2; or a metal seat may be used with a rubber valve, such as shown in Fig. 3, consisting of a rubber body, held by two plates united by a screw, so that they may be drawn together and the body thereby expanded, to compensate for wear and insure a tight joint. The valve-rod or stem G, which, as before stated, is made hollow or tubular, has its upper end closed by a screw-cap, *g*, and its lower end provided with holes *h*, opening into the hydrant-body above the valve, as clearly shown in Figs. 2 and 3.

When the hydrant is in use, the cap prevents the escape of water through the rod or stem; but in the event of the valve being frozen fast when closed, the cap may be removed, and steam or hot water introduced through the rod into the valve-seat, directly upon the valve, which will be quickly loosened and rendered operative thereby.

In order to permit the escape of the water standing in the hydrant when the valve is

closed, I provide a pipe, I, communicating with the interior of the hydrant above the valve, as shown in Fig. 2. A check-valve, I', is mounted in the pipe I, to prevent the escape of water when the main valve is open. The valve I' is attached to the lower end of a vertical rod, L, which has its upper end provided with an eye, and mounted on a stud on one end of a lever, K, which latter is mounted on the bar H, at the top of the hydrant, and acted upon by a spring, N, which tends to close the valve, as shown. The lever K is acted upon by one end of an elbow-lever, M, also mounted upon the bar H, and operated by a collar, m, on the main-valve stem G, as shown in Figs. 1 and 2, the lever and the collar being so arranged that, as the stem or rod G rises in closing the main valve, it moves the lever M, and, through the intermediate parts, opens the valve I', to permit the escape of the standing water, and thus in the winter season prevent the danger of the hydrant being burst by the water freezing therein. In order that the valve I' may be thrown out of action, and permitted to remain shut during the summer season, and at other times when it may be desirable, the upper end of the valve-stem L is hinged or jointed to the body, so that it can be detached from the operating-lever K.

In order to prevent the water from escaping into the jacket around the hydrant, the valve is inclosed, and its stem or rod passed out through a stuffing-box, as clearly represented in Fig. 2. For the purpose of protecting the stem or rod of the waste-valve, it is surrounded by a tube, o, extending from the cap or cover of the jacket to the flange at the top of the hydrant, as shown.

It is obvious that the rods D will serve their purpose as guides in cases where the jacket is not used, and also that, instead of using the two levers K M, a single elbow-lever may be arranged to operate the waste-valve.

Having thus described my invention, what I claim is—

1. In combination with the hydrant C, the main A, provided with the rods D, to guide the foot of the hydrant to its seat, as described and shown.
2. The combination of the main A, provided with rods D, the jacket B, and the hydrant C, provided with the flange or cap c, as shown.
3. In combination with the hydrant C and jacket B, the waste-pipe I and valve I', arranged as shown, so as to prevent the escape of water into the space between the jacket and the hydrant.
4. In combination with the hydrant C and jacket B, the waste-pipe I, passing down through the foot of the hydrant, within the jacket, as shown, allowing the jacket to be removed without disconnecting said pipe, as described.
5. The combination of the valve rod or stem G, having collar m, elbow lever M, lever K, rod L, and valve I'.
6. The hollow valve-rod G, provided with openings h above the valve F, as shown and described.
7. The valve-rod L, having its upper end hinged or jointed, substantially as shown.

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