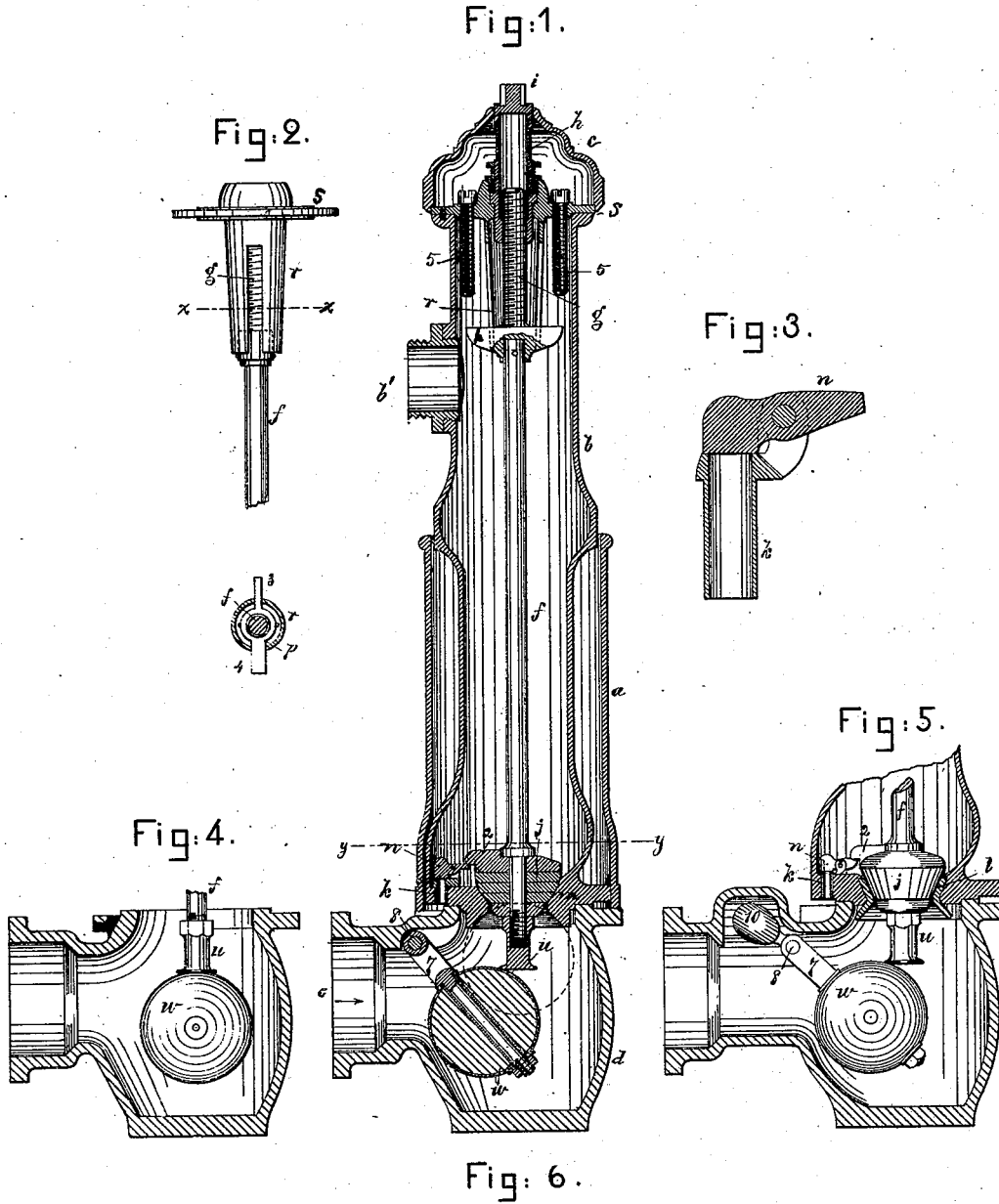


C. CARR.
Hydrants.

No. 208,072.

Patented Sept. 17, 1878.



Witnesses.
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UNITED STATES PATENT OFFICE.

CHARLES CARR, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN HYDRANTS.

Specification forming part of Letters Patent No. **208,072**, dated September 17, 1878; application filed March 29, 1878.

To all whom it may concern:

Be it known that I, CHARLES CARR, of Boston, Suffolk county, State of Massachusetts, have invented an Improvement in Hydrants, of which the following is a specification:

This invention relates to improvements in hydrants; and consists primarily in the combination, in a hydrant, of a main valve operated against the pressure of the water and seated in the base of the stock, a waste-valve operated by the main valve, and a supplemental valve operated in a chamber below the main valve and coactively therewith; also in the combination, with a hydrant-stock, valve-rod, and cross-bar, having ends of different thickness, of a guide independent of the stock, whereby the valve-rod is more accurately centered and held in proper position than is the case when the cross-bar is guided by projections on the stock; also in a pivoted supplemental valve of less specific gravity than water, to operate substantially as hereinafter described. In this, my hydrant, the main valve is made to close against the outflow of water, in order that the valve may come to its seat without shock, which is the case with valves closing with the flow of water, especially when the valve-rod-operating parts or the nut or screw becomes worn in use.

Figure 1 represents, in vertical section, a hydrant embodying my invention; Fig. 2, a detail and section on lines *xx* of the valve-rod and guide; Fig. 3, an enlarged detail of the waste-valves. Figs. 4 and 5 are modifications, showing different arrangements of supplementary valves; and Fig. 6 is a section of Fig. 1 on the lines *yy*.

The frost-jacket *a*, hydrant-stock *b*, outlet *b'*, top *c*, and base or pot *d*, with its inlet *e*, may be of any usual construction. The valve-rod *f* is provided at its upper end with a screw-thread, *g*, which enters a tubular nut, *h*, having a wrench-receiving portion, *i*, of usual construction, so that by turning the nut the valve-rod may be raised or lowered to lift the disk-valve *j* from or force it down into its seat *m*, such seat being formed as an integral portion of the hydrant-stock *b*. Generally this seat is formed in an independent plate, placed between the stock and base, where it is

confined by bolts, thereby making two joints to be packed, whereas in my construction there is but one joint between the base and stock. This seat, in practice, will have a composition lining, *l*, firmly secured therein water-tight, (see Fig. 5,) either by expansion or otherwise.

In the same casting forming the seat for the main valve, I make an opening for the waste-water to flow from the stock, and place preferably therein a composition tube, *k*, having at its top a tilting waste-valve, *n*, suitably weighted to close the tube when not positively lifted by the projection 2 on the main valve as it is forced down to its seat, such waste-valve permitting the water in the stock to flow out of it above the main valve to obviate freezing.

It will be noticed by this construction that I am enabled to place the waste-valve very low down, which is a matter of great moment to prevent freezing.

The valve-rod has attached to it in any suitable manner a cross-bar, *p*, having its opposite ends 3 4 unlike, or of different width, said ends entering slots in a guide, *r*, projected downward from the cover-plate *s*, held to the stock *b* by suitable screws. The ends of the cross-bar being of different widths insures that the valve-rod and its attached valve be always placed within the stock in such a position as to operate the waste-valve, and the valve-rod being steadied by this centrally-located guide insures the more accurate centering and guiding of the valve-rod than would be the case if the guides were fixed to the stock. The projecting guides *t* (see Fig. 6) direct the disk-valve in a right line to the seat.

The lower end of the valve-rod has attached to it a long nut, it being of such length as to keep the supplemental valve *w* at such proper distance from the main valve *j* as will permit the passage of the water upward through the main-valve opening when the main valve is lifted, the adjustable screws 5 5 determining the distance which the main valve may be lifted from its seat when water is being drawn from the outlet *b'*.

The supplemental valve *w* (see Figs. 1 and 5) is shown as placed upon an arm, 7, pivoted at 8 to the base. Such valve is preferably made of light wood, or cork, or thin metal, or

glass, preferably covered with india-rubber, vulcanized or otherwise, the valve being in all instances constructed of such material as to make it of less specific gravity than water, so that the supplemental valve will always come up into and close the passage to the under side of the main-valve seat when the main valve is withdrawn for repairs, notwithstanding the pressure of water may be slight or the flow slow, which would not be the case if the valve *w* was heavier than water.

By pivoting the valve *w* as shown, it is made to swing on a center, and move in the midst of the strongest and most direct portion of the current of water, and is consequently directed to its seat.

If desired, the valve *w* may be made more buoyant by the use of a counterbalancing-weight, 10. This valve *w* might be left loose in the water in the base, as shown in Fig. 4; but the construction shown in Fig. 1 is preferred.

When it is desired to remove the main valve or valve-rod from the stock *b* the screws 5 5 are withdrawn, so that the main valve can be raised far enough to permit the supplemental valve *w* to close the opening at the under side of the main-valve seat, and then the cover-plate *s* is detached and removed, and with it the valve-rod, valve, and guide.

I claim—

1. The combination, in a hydrant, of the main valve seated at the base of the stock, a waste-valve operated thereby, and a supplemental valve of less specific gravity than water located below the main valve and coacting therewith, and the chamber *d*, in which said supplemental valve is arranged, substantially as described.

2. In a hydrant, the combination, with the base, of a pivoted supplemental valve of less specific gravity than water, to close the main-valve opening when the main valve is raised, substantially as described.

3. The combination, with the valve-rod and guide, of a cross-bar having ends 3 4 of different thicknesses, substantially as and for the purposes described.

4. The valve-rod and cross-bar, in combination with the screws 5 5, to operate substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES CARR.

Witnesses:

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