

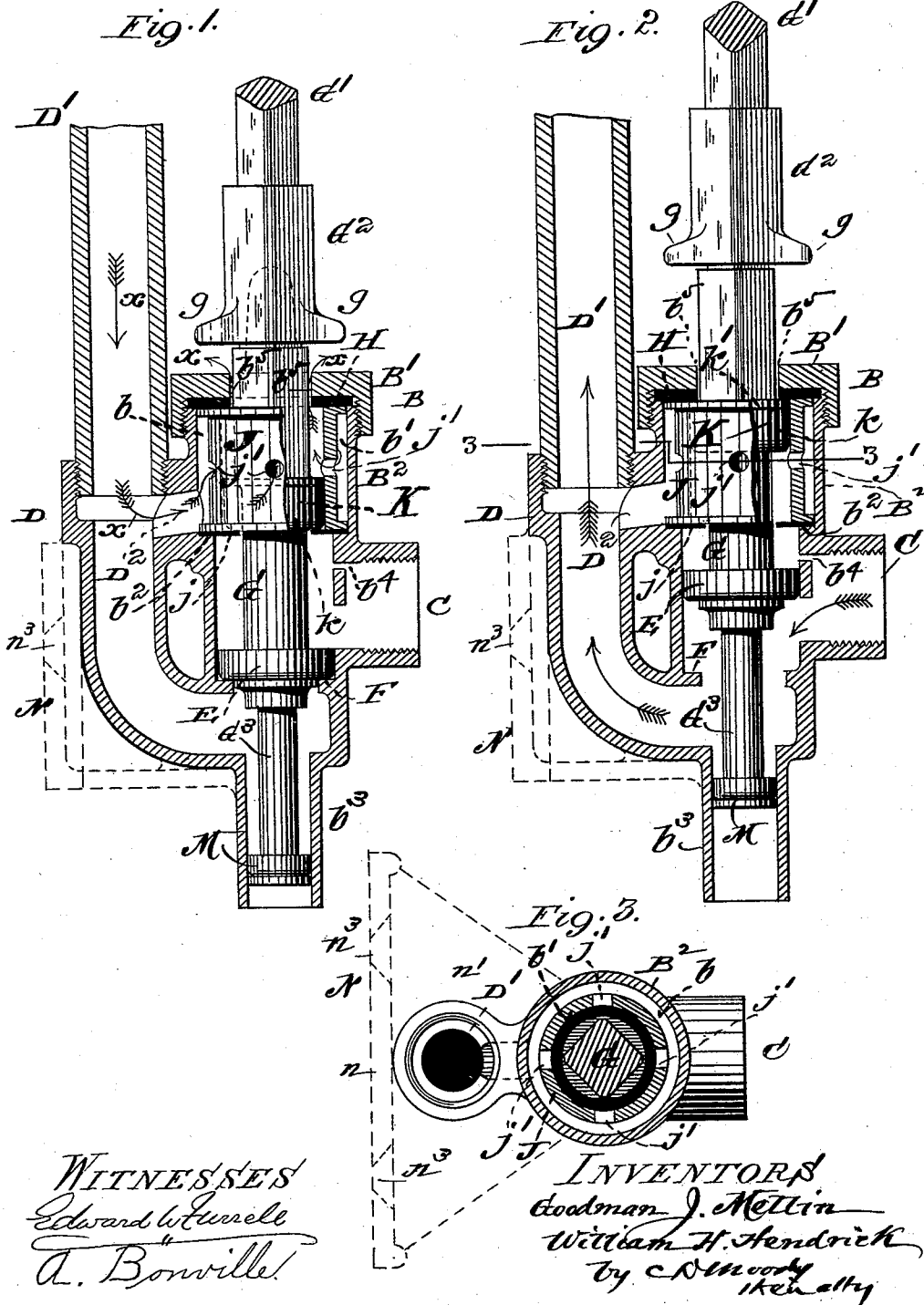
(No Model.)

2 Sheets—Sheet 1.

G. J. MELLIN & W. H. HENDRICK.
HYDRANT.

No. 461,359.

Patented Oct. 13, 1891.



(No Model.)

2 Sheets—Sheet 2

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No. 461,359.

Patented Oct. 13, 1891.

UNITED STATES PATENT OFFICE.

GOODMAN J. MELLIN AND WILLIAM H. HENDRICK, OF ST. LOUIS, MISSOURI,
ASSIGNORS TO THE N. O. NELSON MANUFACTURING COMPANY, OF SAME
PLACE.

HYDRANT.

SPECIFICATION forming part of Letters Patent No. 461,359, dated October 13, 1891.

Application filed July 9, 1891. Serial No. 398,956. (No model.)

To all whom it may concern:

Be it known that we, GOODMAN J. MELLIN and WILLIAM H. HENDRICK, residents of St. Louis, Missouri, have jointly made a new and useful Improvement in Hydrants, of which the following is a full, clear, and exact description.

The improvement relates to the waste mechanism and other parts of the construction, whereby the water from the discharge-pipe is enabled to waste upward from the valve-chamber rather than downward through an extension at the lower end of the valve-chamber, as heretofore has been a frequent practice in hydrant-valves, and at the same time a desirable provision made for the easy unseating and seating of the valve, and all in such a manner as shall permit of the valve-stem and parts thereto attached being removed from the valve-chamber, which may remain fixed in the hydrant-box, all substantially as is hereinafter described and claimed, aided by the annexed drawings, making part of this specification, and exhibiting the most desirable mode of carrying out the improvement, and in which—

Figure 1 is a vertical sectional elevation of the valve-chamber and parts therein contained, the valve being seated and the water wasting from the discharge-pipe; Fig. 2, a view similar to that of Fig. 1, but showing the valve unseated and the water flowing through the valve-chamber and into the discharge-pipe; Fig. 3, a horizontal section on the line 3 3 of Fig. 2; Fig. 4, a side elevation of the valve, the view showing the valve-chamber secured to the side wall of the hydrant-box, which is shown in section; and Fig. 5, a sectional plan on the line 5 5 of Fig. 4.

The same letters of reference denote the same parts.

A represents the hydrant-box; B, the valve-chamber; C, the inlet thereto; D, the outlet therefrom; E, the main valve; F, the valve-seat; G, the valve-stem; G', the valve-rod; G², a thimble for connecting the stem and rod; D', the discharge-pipe leading upward from the outlet D, and H a flat leather washer interposed between the cap B' and the upper end of the body B² of the valve-chamber.

J represents a spool, which encircles the valve-stem within the upper portion of the valve-chamber. Said upper portion is larger in diameter than the lower portion of the valve-chamber in which the main valve immediately works, and said spool serves not only to form an annular space *b* between the outer surface of said spool and the inner surface of said chamber, and also another annular space *b'* within said spool and around said valve-stem, but also to render said space *b'* smaller in diameter than is said lower portion of the valve-chamber in which the main valve works. Said spool is stationary within the valve-chamber, and, at its lower end and by means of the interposed washer *j*, is packed against a ledge *b²* upon the valve-chamber, and at its upper end and by means of said washer H is packed against the cap of the valve-chamber.

K represents a cup-leather attached to the valve-stem G and working within said spool, and, owing to the described size of said spool being smaller in diameter somewhat than the main valve, the flange *k* of said cup-leather is turned downward. At its upper end the cup-leather is held against a shoulder *k'* upon the valve-stem, and said cup-leathers serve partly to facilitate, by reason of the upward action of the main pressure against it, the unseating of the main valve and partly to prevent the water, when the main valve is unseated, from escaping to the waste-outlet, for, owing to the packing described, the water cannot escape past the outer side of said spool to above the upper end thereof and thence to the waste-outlet, and the flange *k* of the cup-leather K at that time being expanded outwardly against the inner surface of said spool at the upper end thereof, cuts off the escape of water through the spool. When the main valve is seated, the cup-leather K acts in an analogous manner at the lower end of the spool to prevent the escape of water through the spool from the inlet C.

The valve E and the cup-leather K are secured to the valve-stem in their described respective positions by any suitable means. The valve-stem is extended downward, substantially as shown at G³, to work in an ex-

tension b^3 of the valve-chamber, and at its lower end said extension is provided with an upturned cup-shaped valve M, which fits the interior of said extension, serving to cut off the passage of water in that direction, but aiding to balance the main valve and thereby to facilitate the seating thereof, as in other analogous constructions. Said spool J is perforated at j' to provide communication between the spaces b and b' . A passage D^2 leads from the outlet D to the space b . There is a perforation b^4 in the shell of the valve-chamber arranged above the level of the upper terminus of the stroke of the main valve. It enables a small quantity of water to pass from the inlet C to above the main valve and thereby help to balance it. When the main valve is seated, as in Fig. 1, the water in the discharge-pipe, as indicated by the arrows x , flows through D^2 into the space b surrounding the spool J, thence through the perforations j' into the space b' within said spool, and thence through openings b^5 to without the valve-chamber. Said openings b^5 are conveniently formed by squaring the valve-rod and adapting it to work in a round opening in the cap of the valve-chamber, substantially as shown. The washer H is perforated to conform to said opening in the valve-chamber cap, and thus to provide suitably for the passage of the waste water, as described. When the main valve is unseated, the cup-leather K is above said perforations j' , and the water is thereby prevented from passing to said waste-outlet.

Another feature of the construction is the means for holding the valve-chamber in place in the hydrant-box. The valve-chamber at its side is provided with or shaped to form a bracket N, substantially as shown. Said bracket is shown in full lines in Figs. 4 and 5, and is indicated by the broken lines in Figs. 1, 2, and 3. Its preferable form is an upright flange n , connected by means of the web n' with the outlet portion of the valve-chamber, and by means of screws n^2 , passing through perforations n^3 in said flange, the bracket is secured to the side a of the hydrant-box, and all in such a manner as to enable the valve-chamber to be securely fixed in position, and so as to provide no obstruction to the escape of the waste water downward in the hydrant-box.

It will be noted that by unscrewing the cap B' , and which is accomplished by means of the lugs $g g$ engaging with the lugs $b^6 b^6$ when the valve-rod is turned around, all of the parts within the valve-chamber can be removed therefrom, and by reversing the operation be replaced within the valve-chamber.

We claim—

1. The combination of the valve-chamber having the inlet, the outlet, and the main valve-seat, and perforated at D^2 , as described, with the valve-stem, main valve, cup-leather K, and spool, said spool being perforated and at its upper ends packed, as described, said spool being arranged in the upper part of the valve-chamber above the upper limit of the stroke of the main valve and said perforation B^2 leading from said outlet to the space surrounding said spool and said cup-leather K working within said spool, substantially as set forth.

2. The valve-chamber having the outlet, the spaces $b b'$, connected as described and arranged above the upper limit of the stroke of the main valve, and the passage establishing communication between said outlet and said outer space b , in combination with the valve-stem provided with the cup-leather K, which works within said space b' and prevents the water, when the main valve is unseated, from passing to the waste-outlet, substantially as described.

3. The combination of the valve-chamber having the main valve-seat, the inlet, outlet, and passage D^2 , as described, the valve-rod, the main valve, the cup-leather K, the perforated spool, and the washers H j , said spool internally, and said cup-leather being smaller in diameter than the main valve, said spool being arranged in the upper part of the valve-chamber, said passage D^2 leading from said outlet to the space surrounding said spool, said cup-leather working within said spool, said washer H being interposed between the cap and the upper end of the body of the valve-chamber and said washer j being between said spool and the ledge b^2 upon the valve-chamber, substantially as described.

4. The combination of the valve-chamber having the main valve-seat, the inlet, outlet, passage D^2 , and extension b^3 , with the valve-rod, the main valve, the perforated spool, the cup-leather K, and the cup-leather M upon the extension of the valve-stem, said spool being arranged above the upper limit of the stroke of the main valve, said passage D^2 leading from said outlet to the space surrounding said spool, said cup-leather K working within said spool and said cup-leather M working within said extension b^3 , substantially as described.

Witness our hands this 26th day of June, 1891.

GOODMAN J. MELLIN.
WILLIAM H. HENDRICK.

Witnesses:

L. D. MOODY,
D. W. C. SANFORD.