

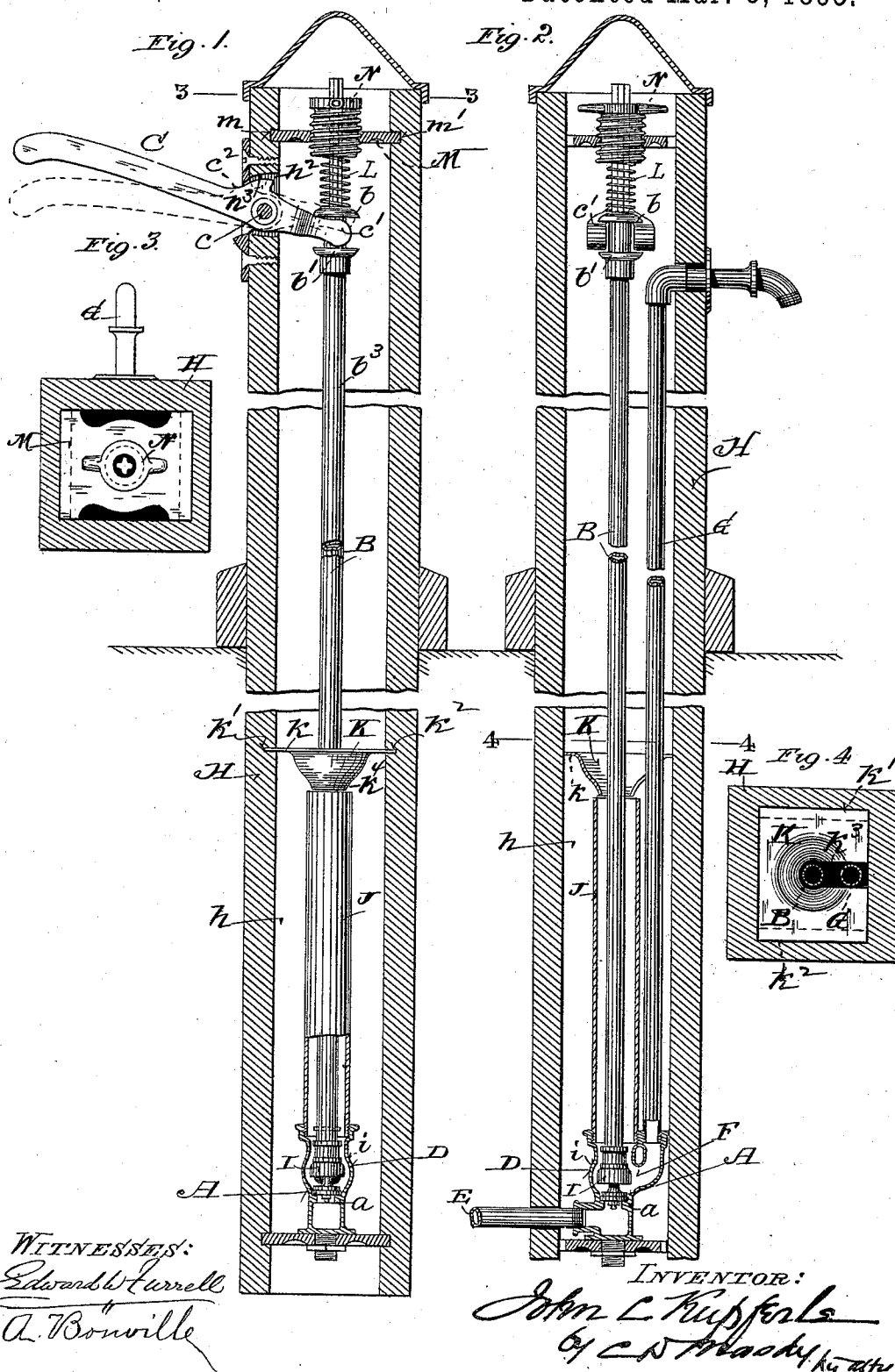
(No Model.)

2 Sheets—Sheet 1.

J. C. KUPFERLE.
HYDRANT.

No. 535,063.

Patented Mar. 5, 1895.



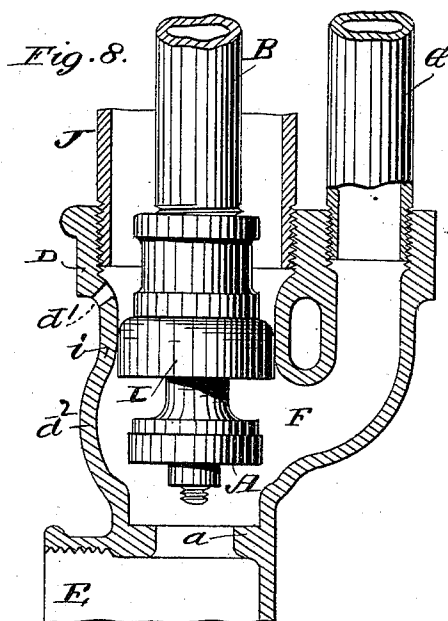
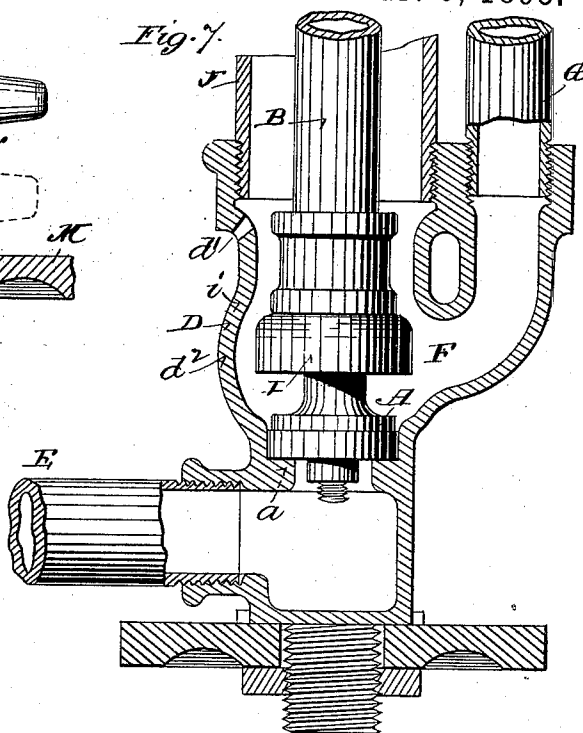
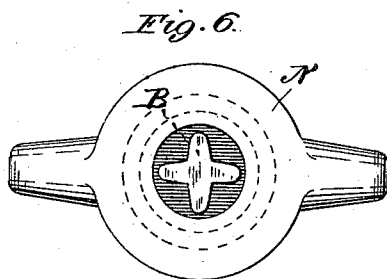
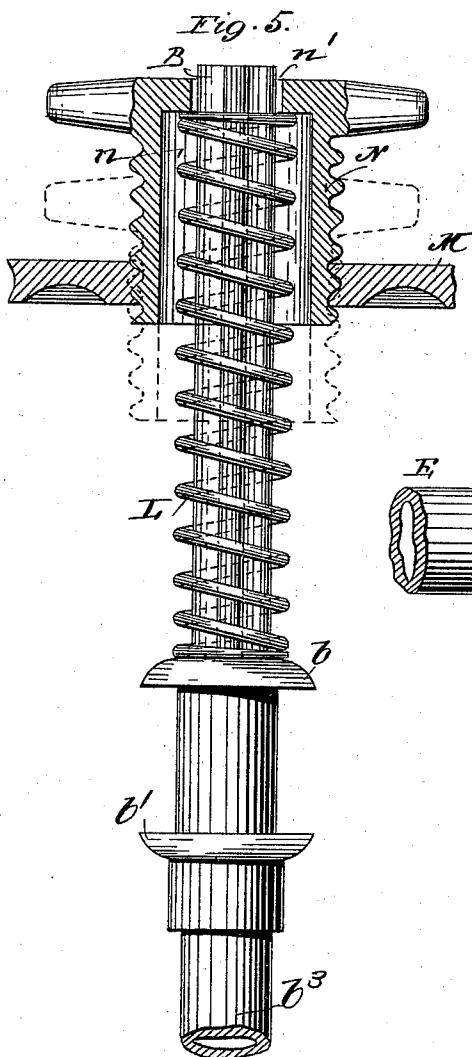
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J. C. KUPFERLE.
HYDRANT.

2 Sheets—Sheet 2.

No. 535,063.

Patented Mar. 5, 1895.



WITNESSES:
Edward W. Currie
A. Bonville

INVENTOR:
John C. Kupferle
by C. P. Moody
Att'y

UNITED STATES PATENT OFFICE.

JOHN C. KUPFERLE, OF ST. LOUIS, MISSOURI.

HYDRANT.

SPECIFICATION forming part of Letters Patent No. 535,063, dated March 5, 1895.

Application filed March 15, 1894. Serial No. 503,765. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. KUPFERLE, of St. Louis, Missouri, have made a new and useful Improvement in Hydrants, of which the following is a full, clear, and exact description.

The improvement relates partly to the means for adjusting the tension upon the valve rod; to the means for closing the joint in the housing around the valve-rod handle; to the means for preventing dirt from being carried by the waste water into the valve chamber; to the valve chamber and valve; and to other minor features of the construction, all substantially as is hereinafter set forth and claimed, aided by the annexed drawings, making part of this specification, in which—

Figure 1 is a sectional elevation of the improved hydrant, the hydrant-housing being in vertical section and the mechanism within the housing mainly in elevation; Fig. 2, a view analogous to that of Fig. 1, but being at right angles thereto, and showing a larger portion of the mechanism in section; Fig. 3, a horizontal section on the line 3—3 of Fig. 1; Fig. 4, a horizontal section on the line 4—4 of Fig. 2; Fig. 5, a view showing the upper portion of the valve-rod and including the tension device, the rod being in elevation and the tension device mainly in sectional elevation; Fig. 6, a top view of the valve rod and tension device; Fig. 7, a view of the valve and valve-chamber, the valve being in side elevation and the valve chamber in vertical section, and the valve being seated; and Fig. 8 a view similar to that of Fig. 7 but showing the valve unseated. The last four named views are upon an enlarged scale.

The same letters of reference denote the same parts.

A represents the valve; B, the valve rod; C, the handle or lever for lifting the valve-rod and valve; D, the valve chamber; E, the inlet to the valve chamber; F, the outlet therefrom; G, the discharge pipe, and H the housing or casing.

The valve is similar to one described in a pending application of mine for Letters Patent for an improvement in hydrant and other valves, filed January 15, 1894, and numbered serially 496,960; but in place of the valve-rod being tubular in form, and adapting it to serve also as a discharge pipe, the water is

delivered through the outlet F sidewise from the valve-chamber, and into a separate discharge pipe G, substantially as shown. The valve seats at *a*, and the valve rod is provided with a downwardly extending cup leather I, that, when the valve A, is unseated, seats at *i* and thereby prevents the upward flow of the water to above the cup leather, and there is a waste opening *d'* or openings in the shell of the valve chamber above the point therein at which the cup leather seats, and between the seats *a* and *i* the valve chamber is enlarged, substantially as shown at *d*², all in a manner similar to that shown in the construction referred to—that is, the chief difference between the two constructions, in the respect under consideration, is that the water is delivered laterally from the valve chamber and through an outlet that is distinct from the valve-rod.

The waste water escaping from a hydrant is sometimes liable to occasion trouble by carrying dirt into the valve chamber. Even when the mechanism of a hydrant is inclosed within a housing such as shown dirt is apt to accumulate in the vicinity of the valve chamber and particles of it are often by reason of the flow of the waste water therethrough carried to the top of the valve chamber and thence by the action of the valve-rod worked into the valve chamber. I overcome this difficulty by means of a casing J that at its lower end connects with the valve chamber and that extends thence part way upward the height of the discharge pipe substantially as shown. The casing is open at its upper end to the interior *h* of the housing, thereby, while serving as a guard to prevent the passage of dirt into the valve chamber as described, providing for the escape of any excess of water that may well upward within the casing. In the present instance the casing J is screwed into the valve chamber, and it is large enough in diameter to admit of the valve being passed upward and downward through it whenever it is desired to insert or withdraw the valve from its chamber. To enable the valve, in replacing it, to be readily directed into the casing, I provide a guide K which is funnel-shaped to fit at its lower end the upper end of the casing as shown, and provided with a flange *k* that serves to sus-

tain the guide in position by being inserted in grooves k' , k^2 , in the housing, substantially as shown. When a separate discharge pipe is employed as in the present instance provision is made for it by slotting the guide at k^3 , substantially as shown. Either by leaving the joint k^4 between the guide and the casing open substantially as shown, or otherwise, provision is made for the escape of any water from the casing. Toward its upper end the valve rod is provided with a shoulder b , and a spring L encircles the rod above the shoulder.

M represents a plate insertible in grooves m , m' , in the housing.

N represents a nut that is vertically adjustable in the plate M substantially as is indicated by the different positions of the nut shown respectively in the full and in the broken lines in Fig. 5. To this end the nut is threaded to be screwed in the plate. The spring at its upper end bears against the nut and by screwing the nut downward in the plate the spring is compressed to a greater degree, and by unscrewing the nut the tension on the valve-rod is slackened. In this manner the valve can be adapted to seat more or less promptly as may be desired, and from time to time as the spring becomes weakened the requisite tension upon the valve rod can be maintained by screwing the nut downward. To provide additional room for the spring the nut is chambered at n , substantially as shown, and to provide for the valve rod the nut is preferably perforated at n' .

The handle C is pivoted in the housing at c and is adapted to engage with the valve-rod by adapting it to bear upward against the shoulder b thereon. The inner end c' , of the handle is forked to admit the valve rod, and the valve-rod is preferably provided with another shoulder b' for the inner end of the handle to bear against in case it is desired to depress the valve rod by means of the handle. The upper portion of the valve rod, including the portion encircled by the spring and the shoulders b , b' , is preferably a single casting

that is adapted to be connected with the main portion b^3 of the rod by screwing it thereonto, and the portion b^3 is preferably a piece of tubing although, as stated, it is not adapted to receive the water passing the valve. To enable the joint around the handle where it passes through the housing to be closed against the insertion of undesirable things the handle is provided with a lug c^2 and the opening h^2 in the housing through which the handle passes is curved or otherwise suitably shaped at h^3 to conform to and fit the handle-lug, substantially as shown, and thus in all of the positions of the handle there is no opportunity substantially for the insertion of undesirable objects into the interior of the housing.

I claim—

1. The combination in a hydrant of the valve chamber D, the valve A, and its seat a , the valve rod B, with the downwardly extending cup leather I which is always unseated when the valve A is seated, the seat i on which said cup leather seats when the valve A is unseated; the discharge pipe G connected with the valve chamber D, and receiving water from the supply pipe when the valve A is unseated and the waste opening d' above the seat i through which water from the discharge pipe and from within the housing can escape when the valve A is seated but is closed by the seating of the cup leather I, the casing J, the funnel K, and the housing H, arranged and operating substantially as described.

2. The combination in a hydrant of the valve-chamber D, the casing J extending upward therefrom and opening into it, the housing H and the funnel shaped guide K, whose lower end fits the casing J, and whose upper end is provided with a flange k connected with the housing H, substantially as described.

Witness my hand this 10th day of March, 1894.

JOHN C. KUPFERLE.

Witnesses:

C. D. MOODY,
A. BONVILLE.