(No Model.)

J. C. KUPFERLE & E. HERMAN.

HYDRANT.

No. 442,059. Patented Dec. 2, 1890.

Fig. 1.

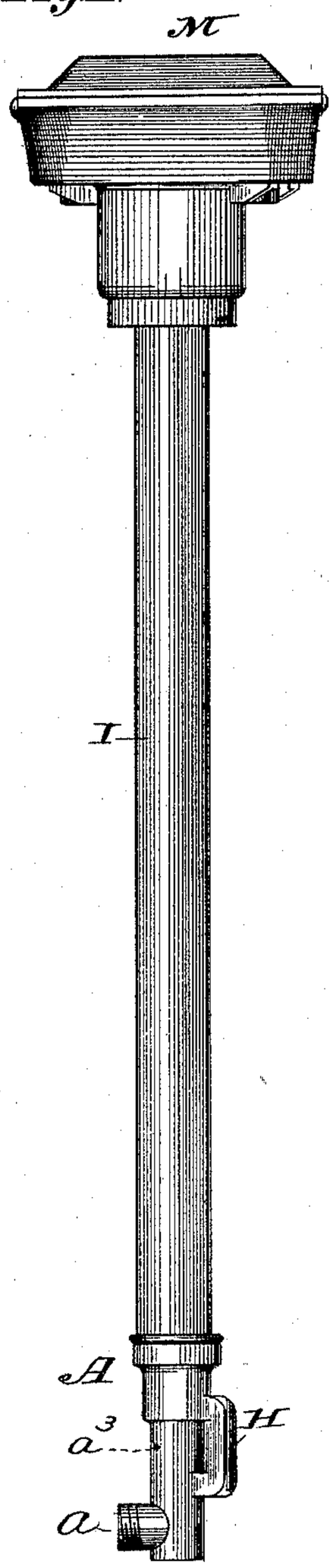


Fig. 2.

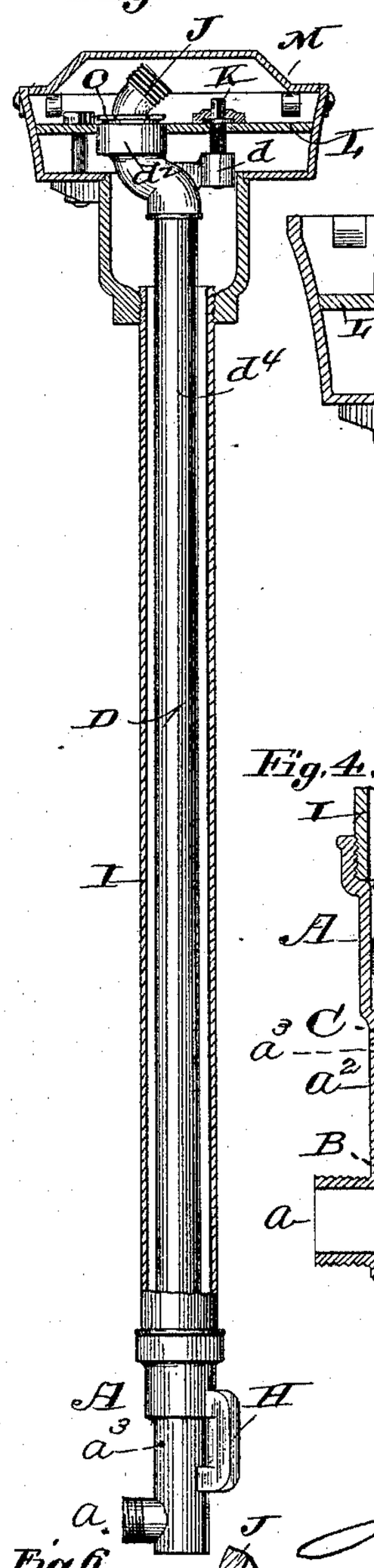


Fig. 3.

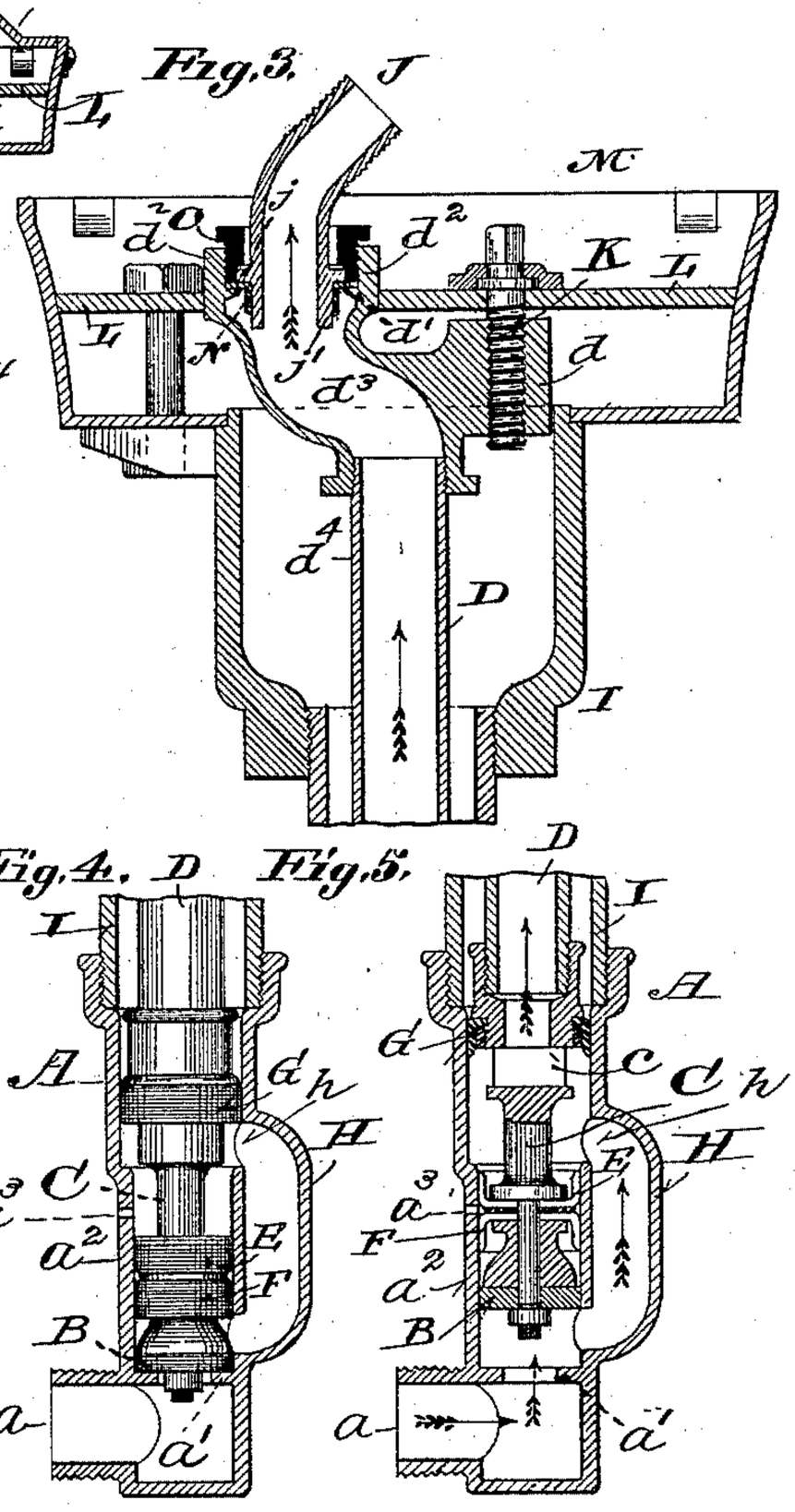
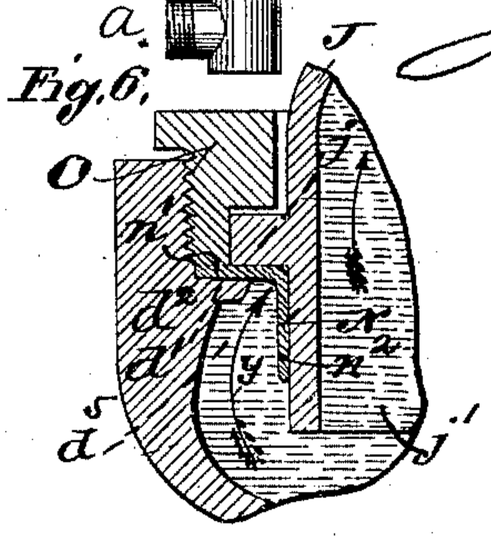


Fig. 4.

Fig. 5.

Fig. 6.



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UNITED STATES PATENT OFFICE.

JOHN C. KUPFERLE AND ERNEST HERMAN, OF ST. LOUIS, MISSOURI; SAID HERMAN ASSIGNOR TO SAID KUPFERLE.

HYDRANT.

SPECIFICATION forming part of Letters Patent No. 442,059, dated December 2, 1890.

Application filed February 25, 1889. Serial No. 301,113. (No model.)

To all whom it may concern:

Be it known that we, JOHN C. KUPFERLE and ERNEST HERMAN, both 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 partly to the special construction of the lower part of the hydrant and partly to the special construction at the upper part thereof.

The improvement is illustrated in connection with that form of hydrant known as a "street-washer."

The improvement consists substantially as is hereinafter set forth and claimed, aided by the annexed drawings, making part of this specification, in which—

Figure 1 is a side elevation of the improved hydrant; Fig. 2, a view showing the valve-chamber and valve-rod and nozzle in side elevation and the casing mainly in vertical section; Fig. 3, a vertical section of the upper part of the hydrant, the movable parts being as when the valve is unseated; Fig. 4, a view showing the valve-chamber in vertical section and the valve and lower end of the valve-rod in side elevation and the valve being shown seated; Fig. 5, a vertical section of the valve-chamber, valve, and lower end of the valve-rod, and Fig. 6 a detail upon an enlarged scale. The last three views are upon an enlarged scale.

The same letters of reference denote the same parts.

The construction exhibited is a familiar one, saving as it is modified or supplemented by the improvement under consideration.

The inlet to the valve-chamber A is at *a*. The valve B seats against the pressure upon the seat *a'*, Figs. 4 and 5, which is above the inlet. The valve is adapted to work upward and downward within the cylindrical portion a^2 of the valve-chamber, and it is attached to the stem C, Figs. 4 and 5, which in turn is attached to the valve rod D, Figs. 2, 3, 4, and 5. The waste-exit from the valve-chamber is shown at a^3, Figs. 1, 2, 4, and 5. The stem C is provided with the cup-leathers E F, which are respectively turned upward and downward and are arranged upon the stem to suitably open and close the passage to the waste-opening, and at its upper end the stem is provided with a third cup-leather G, whose flange is turned downward to prevent the escape of water upward past the outside of the stem. A side passage H, Figs. 1, 2, 4, and 5, leads from above the valve-seat to above the portion a^2 of the valve-chamber.

As thus far described, the construction is of the usual character substantially, saving that the valve-rod is made hollow to enable the water to be delivered upward through the rod instead of between the rod and the surrounding casing I, the operation being as follows: On unseating the valve, as shown in Fig. 5, the water flows past the valve into the side passage H, thence into the valve-chamber and into a passage *c* in the stem C, and thence into the valve-rod, as indicated by the arrows in Fig. 5. To this end the side passage H at its upper end *h* leads into the valve-chamber at a point below the position of the cup-leather G, when the valve is seated, and the stem-passage *c* is also below said cup-leather. The water is delivered through the valve-rod and thence is discharged through the nozzle J, Figs. 2 and 3, as indicated by the arrows in Fig. 3. The nozzle is swiveled to enable it to be pointed to any quarter to which it may be desirable to direct the water. The valve is unseated by lifting the rod D, as shown in Figs. 3 and 5. To effect the movement of the rod and also provide for a swiveled nozzle, as described, the rod is provided with a lug *d*, Figs. 2 and 3, in which engages a screw K, that is journaled but confined vertically in a bearing L, which is stationary in the box M of the hydrant-casing. By rotating the screw the valve-rod, the nozzle, and the valve are raised, Fig. 3, and by rotating the screw in the opposite direction the nozzle and valve-rod are lowered and the valve seated, as in Figs. 2 and 4. The nozzle at its lower end is united to the upper end of the rod D, so that the nozzle can be turned around thereon to point to any quarter, and also so as to form a water-tight joint with the valve-rod, by which leakage is prevented and the formation of ice in cold weather precluded. To this end the valve-rod is provided with a seat *d'*, to receive a

packing in the form of a cup-leather N, and the nozzle is provided with a flange *j*, which comes above the packing, and the nozzle is confined vertically and so as to bear sufficiently upon the packing by means of the thimble O, which is adapted to be screwed into the valve-rod above the nozzle-flange, as shown. The valve-rod is extended and shaped at d^2 to pass and to be worked upward and downward through the bearing L or other bearing in the box M, which thus constitutes a guide to direct the upper end of the valve-rod and the nozzle as they are raised and lowered. The upper end of the valve-rod, including the lug *d*, is usually in practice a special casting d^3, attached to the pipe d^4, which constitutes the main portion of the valve-rod.

The special construction whereby the nozzle is swiveled to the valve-rod and a water-tight connection provided at that point is shown more distinctly in Fig. 6, in which it will be seen that the thimble O when screwed into place in the valve-rod bears upon the flange n' of the cup-leather and binds it upon the seat d', by which means the joint between the valve-rod and the thimble is packed, and by reason of the annular space d^5, which is provided in the valve-rod around the lower end j' of the nozzle, the water acts, as indicated by the arrow *y*, to close the flange n^2 of the cup-leather upon the nozzle end j'. At the same time the nozzle-flange *j*, while confined vertically by the thimble, can be turned around therein to point the nozzle as desired.

We claim—

1. The combination, with the valve chamber or casing A, having just above and at one side of its inlet-opening and valve-seat the lateral water way or passage and in its opposite side intermediately of the ends of said passage the waste opening a^3, of the valve B and its stem C, provided just above the valve with upward and downward turned leather washers, and provided intermediately of these washers and a third downward-turned leather washer with a transverse perforation *c*, and the hollow valve-rod D, said passage H being adapted to open below said valve and to communicate with said transverse perforation, substantially as shown and described, and for the purpose set forth.

2. The combination, with the valve-rod, its valve, and the bearing-plate in the bearing-box, of the coupling and the valve-rod nozzle, said coupling consisting of the casting d^3, shaped as at d^2, to project upward through said bearing-plate, and having the inner flange or seat d', the screw-threaded thimble O, engaging said casting, and the cup-leather N, one flange n' thereof being held between said flange or seat d', and said thimble and said nozzle having a flange *j*, projecting into a recess in said thimble and resting upon the flange n' of said cup-leather, the other flange n^2 of said cup-leather bearing against said nozzle, substantially as set forth.

Witness our hands this 14th day of February, 1889.

JOHN C. KUPFERLE.
ERNEST HERMAN.

Witnesses:
C. D. MOODY,
D. W. C. SANFORD.