(No Model.)

J. RICHARDSON.

HYDRANT.

No. 303,380. Patented Aug. 12, 1884.

Fig. 1.

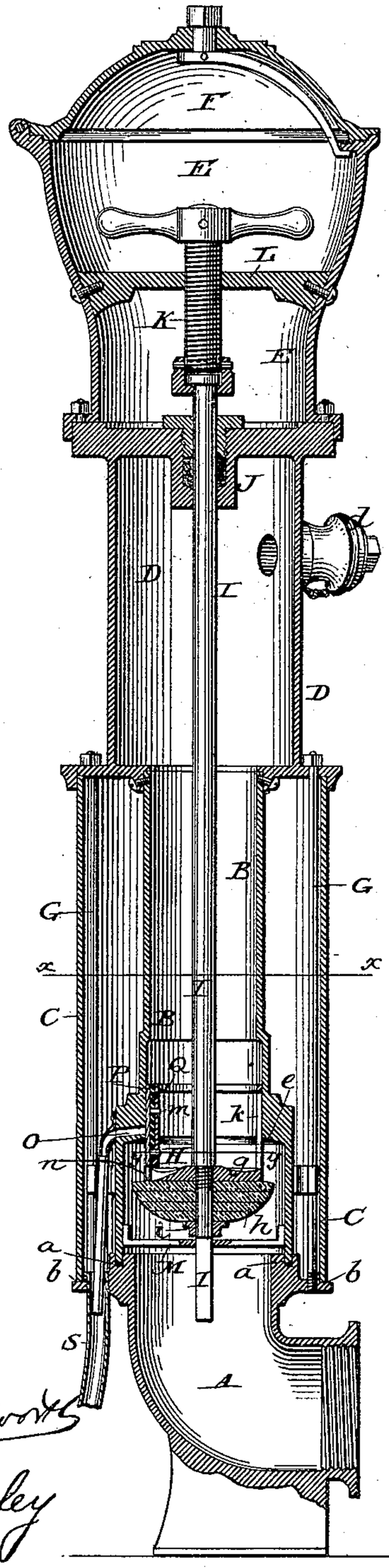


Fig. 4.

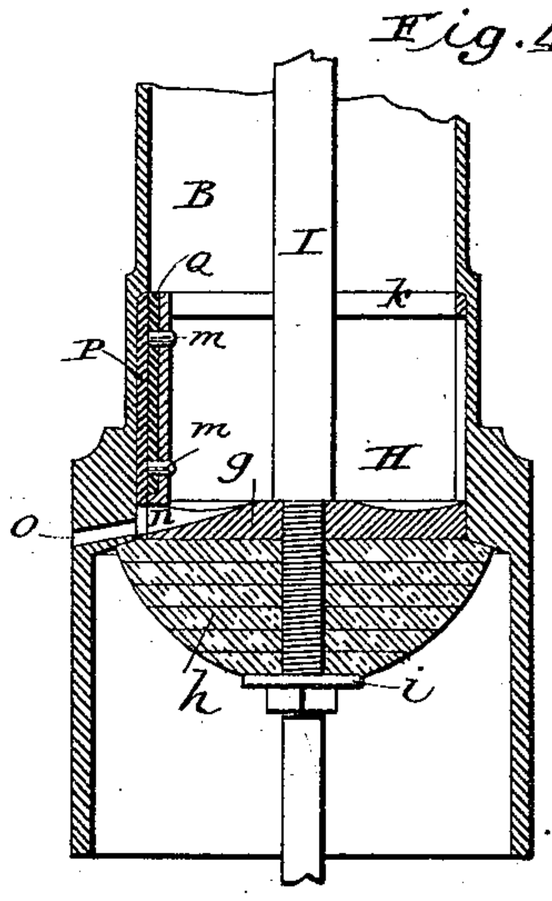


Fig. 2.
on x-x

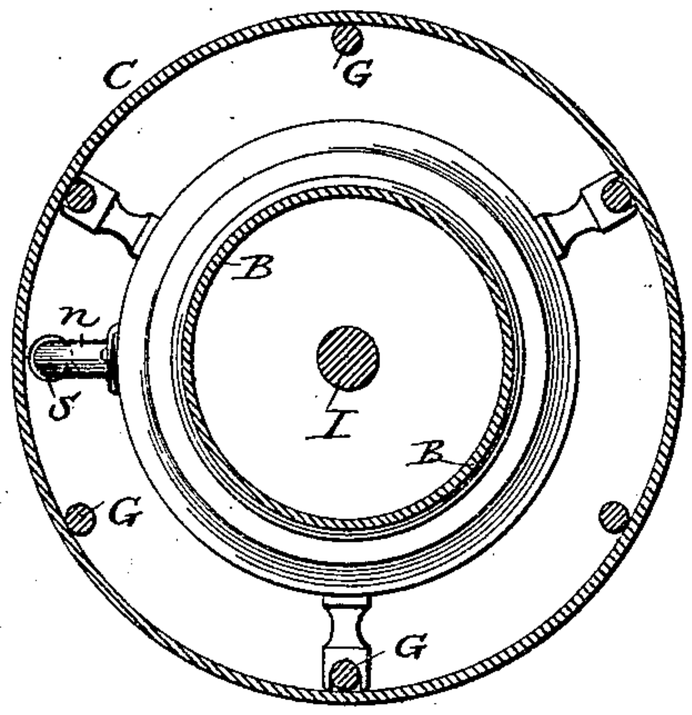
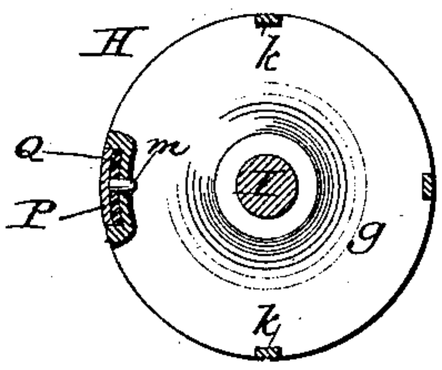


Fig. 3.
on y-y



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HYDRANT.

SPECIFICATION forming part of Letters Patent No. 303,380, dated August 12, 1884.

Application filed March 3, 1884. (No model.)

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.

This invention relates to improvements in that class of hydrants which consist of an upright body provided at or near its base with a rising and falling valve, by which the flow of water through the same is controlled, and which are also provided with overflow-valves to permit the escape of the standing water when the valve is closed, and with jackets to protect the inner portion from the frost.

The invention has reference more particularly to an improved construction and arrangement of the main and waste valves, to the construction and manner of uniting the several sections of the body, and to other details of minor importance, as hereinafter described and claimed.

Referring to the accompanying drawings, Figure 1 represents a vertical central section through a hydrant having my improvements embodied therein. Fig. 2 is a horizontal section of the same on the line *x x*. Fig. 3 is a horizontal section of the valve on the line *y y* of Fig. 1 on an enlarged scale. Fig. 4 is a vertical central section showing the main valve and waste-valve on an enlarged scale.

Referring to the drawings, A represents the foot or base portion of the hydrant, of a curved tubular form, terminating at one extremity in a horizontal inlet-mouth, and at the opposite extremity in a vertical outlet-mouth. The base is ordinarily constructed with an extended foot or support, such as shown in the drawings, in order that it may be firmly held in position. In its upper edge the base is provided with an annular groove, *a*, in which there is seated the lower end of the upright tubular body-section B, the joint between the two parts being sealed by lead, rubber, or other suitable packing material. The base portion is extended radially beyond the groove *a* in the form of an annular flange, the outer edge of which is shouldered or rabbeted, as shown at *b*, to receive and sustain the lower end of the upright tubular jacket C. This tubular jacket, commonly known in the art as a "frost-jacket," and designed to protect the interior parts from being excessively reduced in temperature by confining a body of air around them, is made of a height substantially equal to that of the body portion B, so as to extend therewith to or above the surface of the ground. The upper ends of the body portion B and jacket C are seated in or against flanges formed on the under side of the upper body-section, D, which is made of an upright tubular form, as shown, and provided with any suitable approved outlet mouths or necks, *d*. It is preferred to construct the body-section B of decreasing diameter toward its upper end, and to give the upper section, D, an internal diameter greater than that of the portion B. The joint between the two parts will be luted or sealed by packing of any suitable character to prevent the escape of water between them, it being essential that no water should be permitted to escape into the annular air-space. The upper end of the body-section D is closed by a top plate cast integral therewith, so as to confine the water therein, except as it may be discharged through the necks *d*, or through the waste-valve, hereinafter described.

The top of the portion D is flanged to receive the top or cap portion, E, of the hydrant, which is flanged in like manner and bolted firmly thereon, as shown. This cap is provided with a hinged or removable cover, F, in the ordinary manner, in order to give access to the valve-operating rod. The body-section D is held downward firmly on the upper ends of the parts B and C, and the latter confined upon the base portion by means of vertical rods G, which are screwed at their lower ends into the base portion and extended upward within the frost-jacket and through the flange on the base of the portion D, with nuts applied to their upper ends, as shown.

Passing now to the valve mechanism, it will be seen that the body B is provided with an annular valve-seat, *e*, to receive a vertically-movable valve, H, which is lifted against the same to stop the flow of water through the hydrant. This valve consists, essentially, of a circular body or valve proper (the details of which will be hereinafter explained) attached

to the lower end of a vertically-moving or non-rotating rod or spindle, I, the upper end of which is extended through a stuffing-box, J, in the top of the body portion D, and swiveled to the lower end of a vertical screw, K, which is mounted in a bar, L, which is bolted fast in the cap or top portion of the hydrant, as plainly represented in Fig. 1, the arrangement being such that by rotating the screw, which is provided with a handle for the purpose, the rod is caused to rise or fall and thus raise or lower the valve. The rotation of the valve-spindle is prevented by giving its lower end an angular form in cross-section, and arranging the same to slide through a corresponding hole in a bar, M, bolted transversely in the lower end of the body portion B.

Referring to the valve proper, it will be seen that it consists of an upper disk, *g*, a rubber, leather, or other elastic body, *h*, seated against the under side and projected beyond said disk and a bottom plate, *i*, applied below the rubber or leather to confine the same in place and subject it to the proper degree of compression. As shown in the drawings, both plates are screwed into position on the lower end of the upper rod or spindle, which is threaded for the purpose. It will be observed that the body is of enlarged diameter below the valve-seat, so that when the valve is lowered from the seat the water may flow freely upward around its periphery. For the purpose of assisting and guiding the valve in its rising-and-falling motion, it is provided with an upwardly-extending cage or skeleton, *k*, which bears against the inner surface of the body portion B.

In order to prevent the bursting of the hydrant by the formation of ice therein above the valve, it is necessary to provide means by which the water standing in the hydrant above the valve when the latter is closed may escape. For this purpose a waste port or passage, O, is formed through one side of the body B at a point immediately above the valve. In order to close this port when the main valve is opened that the water may not be discharged through the same under pressure, I attach to the cage *k* of the main valve an upright plate, P, which is in effect a secondary valve to open and close the valve-port. This plate is seated in a vertical recess in the outer side of the cage, and is forced outward snugly against the side of the body by means of a rubber or other elastic sheet, Q, which is placed behind it. The secondary valve-plate is prevented from sliding vertically with respect to the main valve by means of dowel-pins *m*. It is provided near the lower end with a port, *n*, as shown in the drawings. When the main valve is closed, this port *n* registers with the waste-port O, so that the water above the main valve may escape through the secondary valve and waste-port. When, however, the main valve is opened by lowering it from its seat, the port *n* is carried downward below the waste-port and the solid portion of the plate P brought over the mouth of the waste-port, so as to close the same and keep it closed until the main valve is again lifted to the closed position. The waste-port is continued through a pipe or tube secured on the outside of the body portion Q, this tube being arranged to extend downward into the upper end of the corresponding tube, S, formed on the base of the hydrant, and adapted to be connected with a sewer or other drain by which the waste water may be carried away.

I claim—

1. The hydrant-body having the main valve-seat and the waste-port above the seat, in combination with the downwardly-opening main valve provided with the cage having the port *n*, and the vertical recess in its outer side, the metal plate P, and the intermediate elastic packing, Q, both seated in the vertical recess, as described and shown, whereby a close contact is maintained between the metal surfaces.

2. In combination with the body having the valve-seat and waste-port, the main valve having the waste-valve rigidly attached, the valve-spindle having an angular lower end, and a guide-bar, M, fixed in position, substantially as described, to prevent the rotation of the valve.

3. The body for a hydrant, consisting of a tubular base, A, the body portion B and jacket C, both seated tightly on the base, the tubular top D, seated tightly upon the body and the jacket, and the rods G, extending through the jacket and secured to the base and top sections, respectively, as described and shown, whereby the rods are caused to unite the body-sections and hold the jacket firmly in place, at the same time permitting their disconnection without excavating around the hydrant.

4. In a hydrant, the combination of a base portion, A, having a waste-pipe, S, attached, in combination with the body portion B, having a tubular waste-pipe arranged to enter the pipe S, as described and shown.

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Witnesses:
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