(No Model.)

R. M. HUNTER.

HYDRANT.

No. 260,397. Patented July 4, 1882.

Fig. 1.

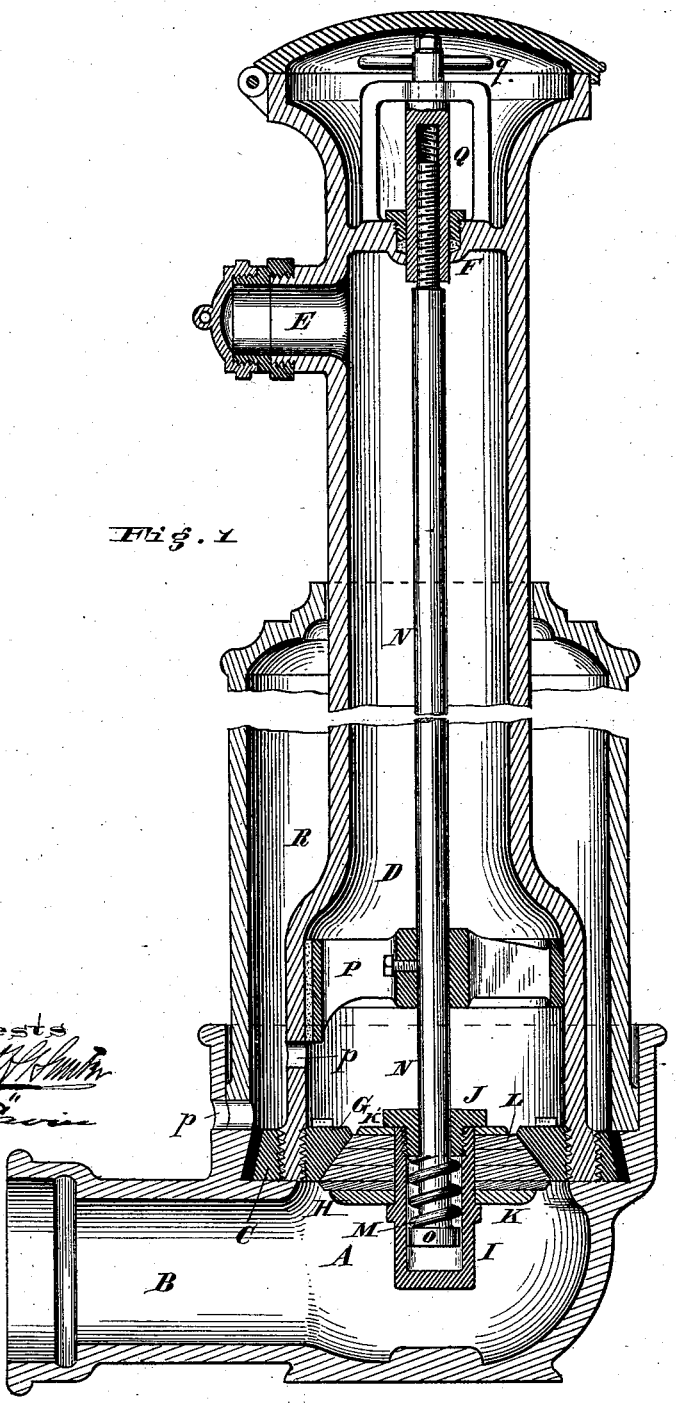
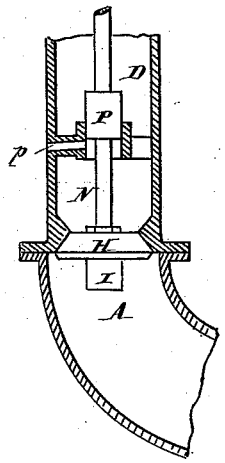


Fig. 2.



Witnesses

Inventor

UNITED STATES PATENT OFFICE.

RUDOLPH M. HUNTER, OF PHILADELPHIA, PENNSYLVANIA.

HYDRANT.

SPECIFICATION forming part of Letters Patent No. 260,397, dated July 4, 1882.

Application filed March 9, 1882. (No model.)

To all whom it may concern:

Be it known that I, RUDOLPH M. HUNTER, of the city and county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Hydrants, of which the following is a specification.

My invention has reference to hydrants in general, but more particularly to what are known as "fire-hydrants;" and it consists in a main or induction valve secured to the valve-rod, but adapted to slide vertically thereon, and a spring to keep said valve, or tend to keep the same, pressed against the end of said valve-rod; further, in providing the main or induction valve with a cylinder in which the head of the valve-rod works, and a spring located in said cylinder and adapted to keep the valve pressed up against the valve-rod; further, in combining a main or induction valve secured to and carried upon the valve-rod with a waste-valve, said valves always moving in the same direction, but so arranged that the waste is always closed before the main valve opens to any degree, and the main valve is always closed before the waste is opened; and in minor details of construction, all of which are fully set forth in the following specification and shown in the accompanying drawings, which form a part thereof.

The object of my invention is to provide a proper arrangement of valves by which no unnecessary waste of water is allowed, either at the opening and closing of the main valve or when the said valve is partly open and when the hydrant is flushing gutters or filling street-watering carts.

In all hydrants provided with two valves—a main valve and waste-valve—that have heretofore been used there was a constant waste of water, as the waste-valve was never closed before the main valve opened, and vice versa; nor was the waste closed when the main valve was but partly open, and this unnecessary waste is particularly noticeable in such cities as New York and Philadelphia, where water is scarce in the summer time.

In the drawings, Figure 1 is a sectional elevation of my improved fire-hydrant, and Fig. 2 is a modified form of waste-valve.

A is the induction-chamber, which connects with the main by pipe B. Secured in this chamber-casting A, at the top, is a brass ring, C, which is internally screw-threaded. The stock or barrel D is screwed into said ring C, and into the bottom of the barrel is screwed the seat G for the main or induction valve H. The seat G and ring C are made of brass, to prevent them rusting fast to the iron stock D and chamber-casting A. The upper end of the stock is provided with one or more nozzles, E, and is closed, as shown. Through a stuffing-box, F, in the closed top of the stock, a cylinder, Q, internally screw-threaded, is arranged to rotate, but without vertical movement. Working in this cylinder Q is the threaded end of the valve-rod N, carrying at the bottom the main valve H and near the bottom the waste-valve P. The waste-valve P may be made of any of the well-known shapes and constructions, but that preferred is shown in Fig. 1.

The main or induction valve is constructed as follows: A cylinder, I, preferably of brass, supports a ring-plate, K, upon which the leather or rubber valve L rests, and to which it is clamped by an upper plate, K′, held down by a perforated cap, J. The valve-rod N is provided on the bottom with a head or nut, O, which works in the cylinder I of the valve, and between this head O and cap J, and surrounding the valve-rod, is a spring, M. By this construction the valve H may be moved vertically upon the rod N; but the waste-valve P is always secured to said rod and worked positively by it, so that with a given movement of the valve-rod it either opens or closes.

R is the usual frost-jacket, and *p* is the waste-orifice.

The operation is as follows: The valves being in the positions shown in Fig. 1, if the handle *q* be turned, the valve-rod N will be lowered. As the valve-rod descends the waste-valve P closes its orifice *p*; and when this is accomplished the head O of said rod strikes the bottom of the cylinder I, the spring M having during said operation been gradually expanded, but keeping the valve H firmly against its seat G until the said head of the valve-rod presses the valve down by a positive and direct contact. All movement of the valve-rod after the waste-orifice is closed tends to open the main or induction valve. In closing the

hydrant the reverse operation is the result. As the valve-rod ascends the valve H reaches its seat G before the waste-valve P uncovers the waste-orifice *p*. After the main valve H is closed the upward movement of the valve-rod N compresses the spring M, and also uncovers the waste-orifice *p*. By this construction the induction-valve is lowered by a positive movement transmitted directly through the valve-rod to the valve, but is raised by a springing or elastic movement, thereby closing the hydrant without jarring effect. The spring M is practically under compression at all times.

An important use of this hydrant lies in the fact that without any change of parts it may be used as a non-wasting hydrant in summer and a wasting hydrant in winter. To make it a non-wasting hydrant the operator simply closes the main valve, since the waste-valve never opens until after the main valve is closed. This is self-evident upon examining the drawings. Therefore by the construction set forth a hydrant provided with only two valves may be made perfectly non-freezing or non-wasting, as desired, will prevent all unnecessary loss of water, can be easily repaired, and is not liable to get out of repair.

I do not limit myself to the exact construction set forth, as it may be modified in various ways.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a hydrant, a main or induction valve at all times supported and carried by the valve-rod, but free to slide vertically thereon.

2. In a hydrant, a main or induction valve supported and carried by the valve-rod, but free to slide thereon, in combination with a valve-seat and a spring to press said valve upward upon the valve-rod, said spring being inclosed and excluded from the action of the flowing water.

3. In a hydrant, a main or induction valve supported and carried by the valve-rod, but free to slide thereon, in combination with the valve-rod and a waste-valve uniformly and positively actuated thereby.

4. In a hydrant, a main or induction valve supported and carried by the valve-rod, but free to slide thereon, in combination with a valve-rod, a valve-seat, spring adapted to press said valve upward upon said valve-rod, and a waste-valve secured firmly upon said valve-rod.

5. In a hydrant, a waste-valve and a main or induction valve, both supported and carried by the same valve-rod, but so constructed that the waste-valve shall have a greater movement than the main or induction valve.

6. In a hydrant, a valve-rod in combination with a waste-valve and an induction-valve, both of which are carried by said valve-rod, said valves operating so that the waste-orifice is always closed before the main or induction valve leaves its seat, and vice versa.

7. In a hydrant, a main or induction valve supported upon the valve-rod and adapted to leave its seat only after the said valve-rod has been partly lowered, and always reach its seat before the valve-rod is fully raised.

8. In a hydrant, a main valve and a waste-valve, both supported by a single valve-rod, in combination with means by which said main valve is pressed upward upon said valve-rod, whereby the said hydrant may be made either wasting or non-wasting, as desired, and without changing any of its parts.

9. In a hydrant, the combination of valve-rod N, valve-cylinder I, carrying valve-packing L, cap J, or its equivalent, and spring M, as set forth.

10. In a hydrant, the combination of valve-rod N, waste-valve P, main-valve cylinder I, carrying packing L, cap J, and spring M, as set forth.

11. In a hydrant, the valve-rod N, having head or nut O on its end, in combination with valve-cylinder I, carrying packing L, cap J, or its equivalent, and spring M, as shown.

In testimony of which invention I hereunto set my hand.

RUDOLPH M. HUNTER.

Witnesses:
ERNEST H. HUNTER,
R. S. CHILD, Jr.