G. W LUTZ.

Hydrants and Hose-Plugs.

No. 195,937. Patented Oct. 9, 1877

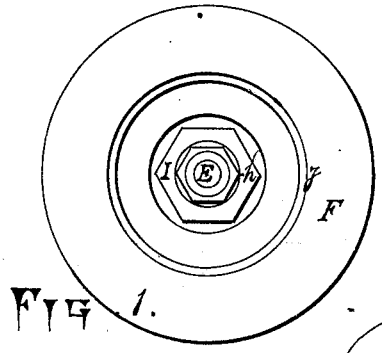

FIG. 1.

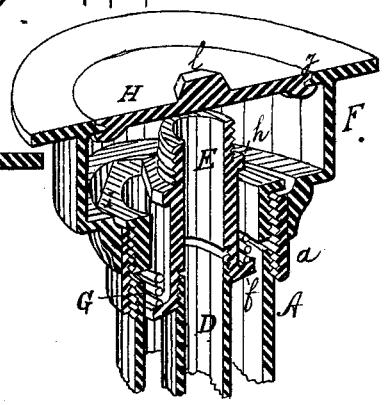

FIG. 3.

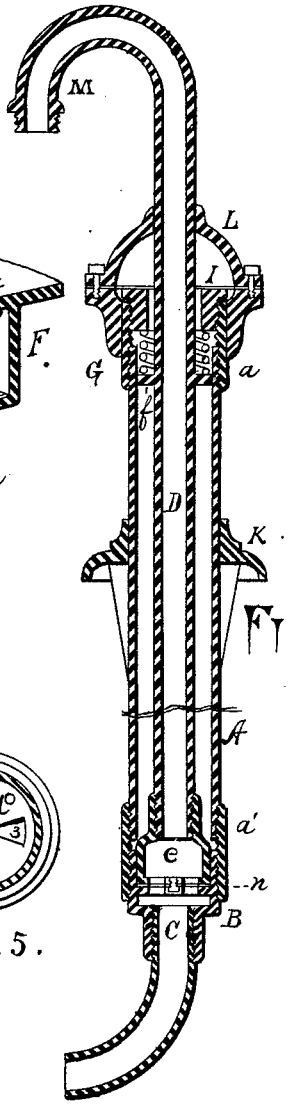

FIG. 6.

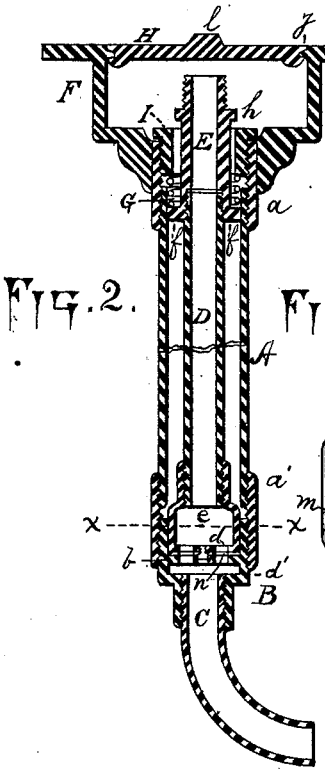

FIG. 2.

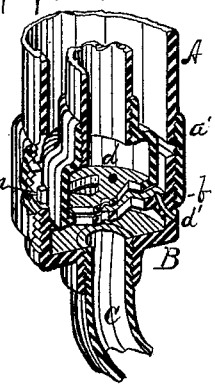

FIG. 4.

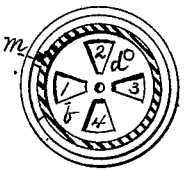

FIG. 5.

Witnesses

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UNITED STATES PATENT OFFICE.

GEORGE W. LUTZ, OF WHEELING, WEST VIRGINIA.

IMPROVEMENT IN HYDRANTS AND HOSE-PLUGS.

Specification forming part of Letters Patent No. **195,937**, dated October 9, 1877; application filed August 15, 1877.

To all whom it may concern:

Be it known that I, GEORGE W. LUTZ, of the city of Wheeling, in the county of Ohio and State of West Virginia, have invented certain new and useful Improvements in Hydrants and Hose-Plugs; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention consists of a simple, economical, and practical method of constructing hydrants and hose-plugs, whereby the flow of water is shut off at the juncture of the street-main with the hydrant, and all the waste-water emptied from the valve-chamber and service-pipe at a point below the freezing-line.

It also consists of the simple and convenient mode of regulating the flow of water, obviating the necessity of valve-rods for hydrant and hose purposes, and also of the entire construction of the apparatus, as will be hereinafter more fully explained.

In order that those who are versed in the art to which my invention appertains may make and use the same, I will now proceed to explain in detail its construction and mode of operation, reference being had to the accompanying drawing, in which—

Figure 1 is a top view of my invention arranged for street-hose purposes; Fig. 2, a vertical central section of the entire plug and its connections; Fig. 3, section of top of plug; Fig. 4, enlarged sectional view of bottoom part of plug; Fig. 5, transverse section through line *x x*; Fig. 6, vertical central section arranged for hydrant purposes.

In the drawings, like letters of reference refer to like parts.

A represents the outer casing of the hydrant, which is screw-threaded at each end for the reception of threaded sleeves *a a'*.

B is a detachable extension of the casing A, and contains the valve-seat *b*, constructed a short distance above the end to which is attached the inlet-pipe C. This valve-seat *b* is stationary, and is perforated with radial openings 1 2 3 4, as shown at Fig. 5, for the entrance of water, and also a waste-outlet, *d'*, extending through the casing of section B.

D is a hollow valve-rod, enlarged at lower end to the inner diameter of the hydrant-casing, forming a chamber, *e*, having an end plate or head, with radial-cut openings 1 2 3 4, corresponding with those in the valve-seat *b*, and acting in conjunction with them. (Shown fully at Fig. 5.) It also has a small opening, *d*, for waste-outlet, the waste-outlets being operative when the opening *d* in the bottom of the valve *e* is turned over the opening *d'* in the valve-seat *b*.

The hollow valve-rod D is screwed into a section of pipe, E, having a ring or collar, *f*, of same diameter of casing-pipe A at its lower end, and at its upper end a collar, *h*, of a hexagon or other form suitable for the reception of a wrench or key, the upper end of the pipe being screw-threaded for the purpose of attaching hose. Around this section of pipe E, and resting on the projecting collar *f*, is a spiral spring, G, and bearing upon this spring is an exterior-threaded bush-nut, I, also formed with a projecting collar of suitable shape to receive a wrench or key.

The spring G acts to hold the valve down tight in its seat.

A water-tight joint is made at the juncture of the valve *e* with the valve-seat *b* by means of an elastic or other packing, *u*, in sheet form, secured to the valve-head *e*, with a central screw or other equivalent, and having ports similar to those in the valve head and seat.

F is a circular box, permanently secured to the sleeve *a*, and when in position the projecting flange is flush with the top of pavement.

The opening *j* is grooved around its edge to receive the lid H, which is constructed with a raised center to permit the lid being removed with a suitable key.

m is a pin on the side of valve-chamber *e*, operating in a slot in the side of the end section B, which permits the valve to turn a quarter-turn, or whatever distance may be necessary, so the openings in the valve-head will be opposite those in the valve-seat when it is desired to turn on the water from the main C, and the reverse motion when desired to stop the flow.

In making use of the plug a suitable handle-

wrench is first placed over the top of the valve-stem, fitting over the collar *h*. The hose is then attached, after which operation the water is turned on by simply turning the valve-stem, by means of the wrench, a sufficient distance to bring the ports in the valves over each other, it being so arranged that a quarter-turn of the valve-stem will bring the ports entirely opposite each other, thus permitting a full flow of water. The reverse motion or turn of the valve-stem shuts off the flow, and brings the waste-outlets *d d'* opposite each other, thereby completely emptying the valve-stem or service-pipe D of water at a point below freezing-line, and thus rendering the freezing of water in the pipe above the valve an impossibility.

For the purposes of repair the hose-plug can readily be taken apart without the necessity of taking up out of the ground the box or casing A. The bush-nut I is removed with the aid of a tube-wrench, which permits the removal of the valve-stem D for repacking, if necessary. The circular spring G, encircling the valve-stem, holds the valves *e* and *b* together, thus producing a close automatic water-tight joint, the degree of pressure being regulated by the power of the spring actuated by the pressure of the bush-nut.

With slight modifications, as shown in Fig. 6, my invention can readily be adapted to hydrant purposes. The valve-stem D is simply extended upward and outward into a goose-neck, M, and thus forms the spout or nozzle. By simply turning the nozzle with the hand the ports in the valves turn opposite each other, and the water flows into the service-pipe or valve-stem D, and the reverse empties the pipe by the wasteways *d d'*, in the same manner as heretofore described.

In the construction for hydrant purposes, the box F is omitted and the removable conical cap L substituted, which is bolted to the top section of the casing A. At the ground-line a flange, K, is formed on the casing A, to steady and secure the plug in position.

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

1. In a hydrant or hose-plug, the hollow valve-stem D, provided with valve-head *e*, containing openings or ports 1 2 3 4, and waste-outlet *d*, arranged to operate in conjunction with a stationary valve-seat, *b*, having similar openings 1 2 3 4, and waste-outlet *d'*, constructed in the bottom section B of the plug or box A, substantially as herein shown, and for the purpose set forth.

2. The hollow valve-stem D, section E, having wrench-ring *h*, collar *f*, spiral spring G, bush-nut I, sleeve *a*, and casing A, in combination with the valve E, seat *b*, sleeve *a'*, and section B, substantially as herein shown, and for the purpose set forth.

3. In a hose-plug, the combination, with the stock or casing A, of the box F, having the inner screw-threaded sleeve *a*, permanently attached or cast in one piece, and provided with the lid H, having raised projection *l*, substantially as herein shown.

In testimony that I claim the foregoing as my own I hereby affix my signature in presence of two witnesses.

GEORGE W. LUTZ.

Witnesses:
J. J. WOODS,
S. M. HOWARD.