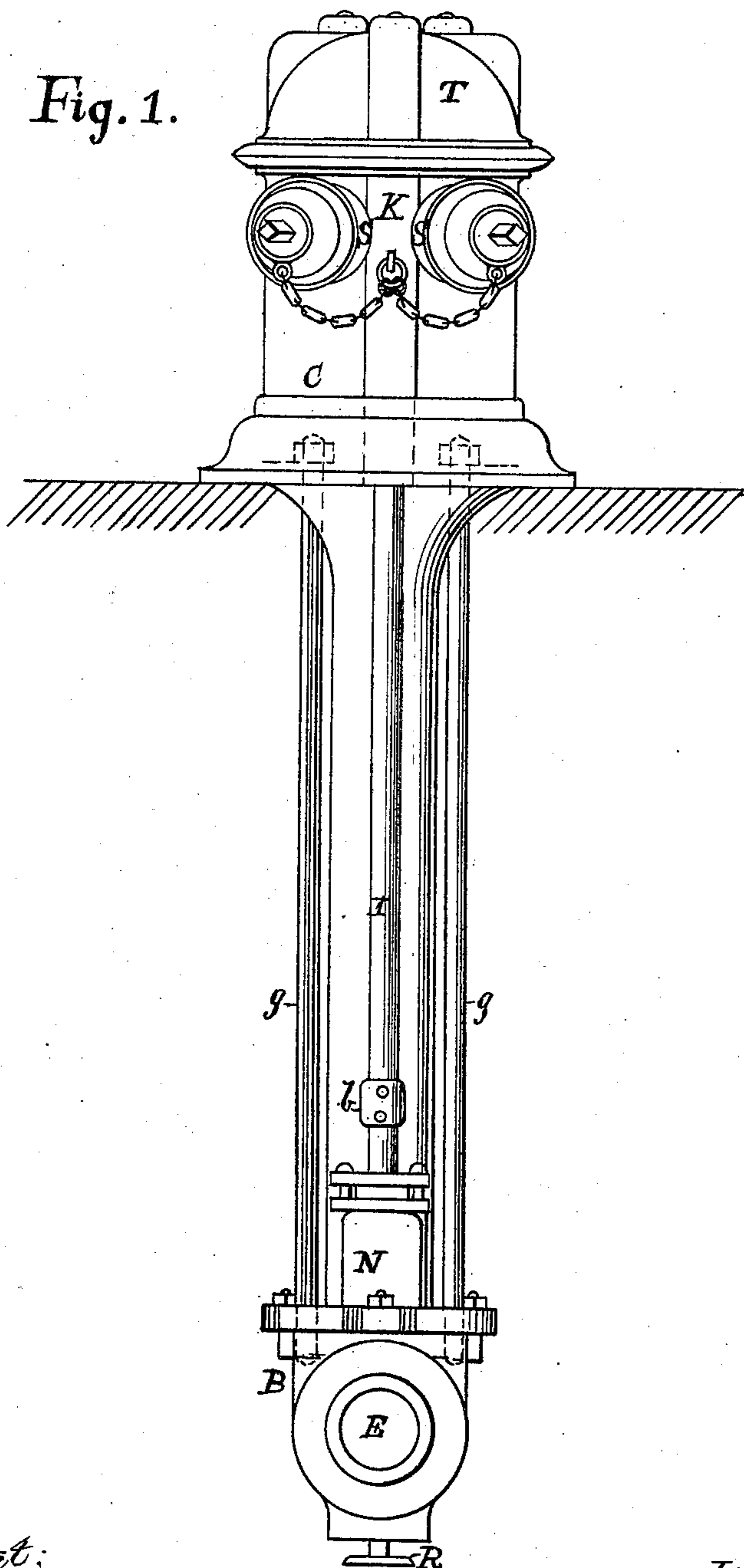


J. PENNYCOOK.
HYDRANTS.

No. 177,550.

Patented May 16, 1876.

Fig. 1.



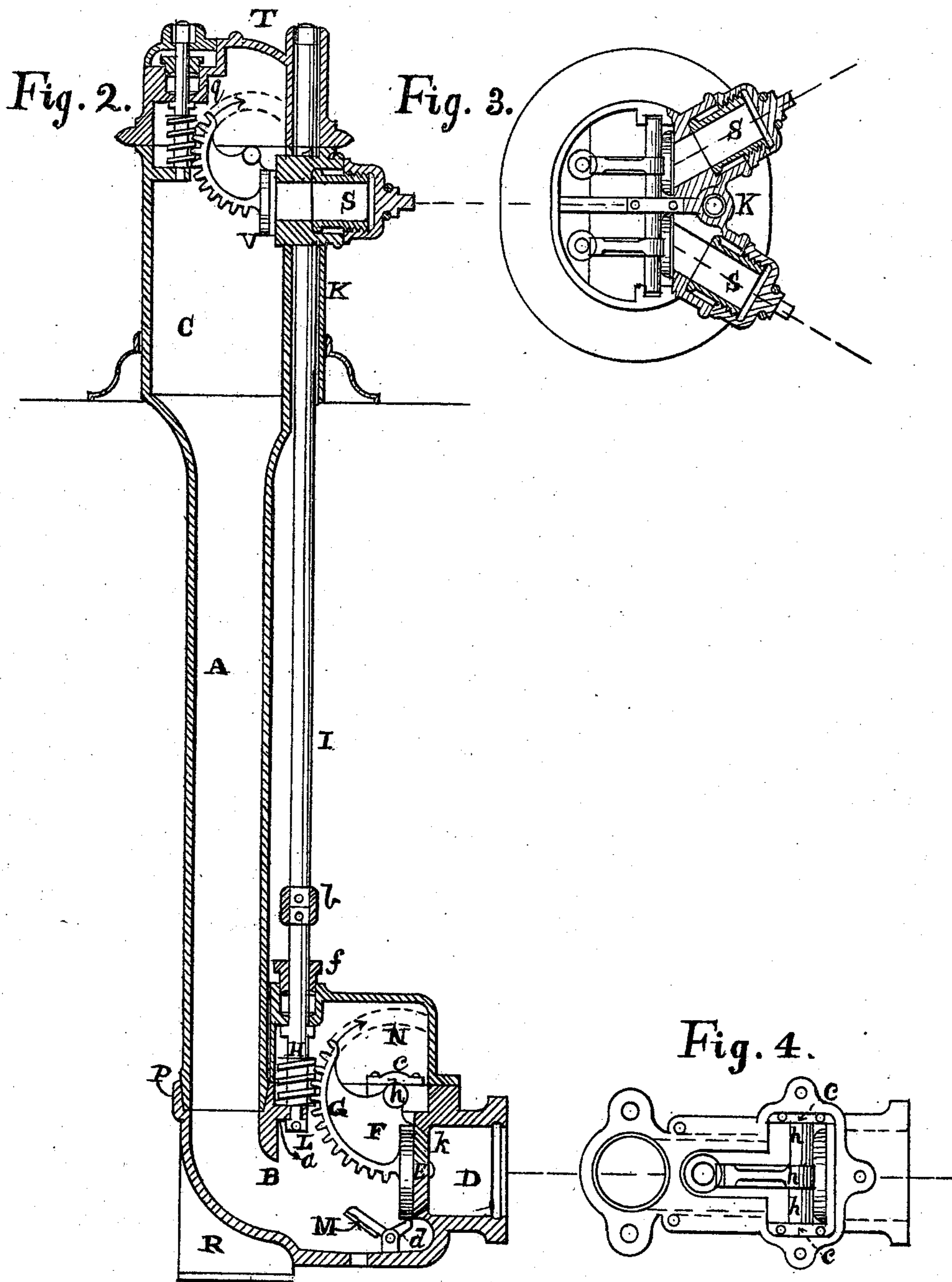
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IMPROVEMENT IN HYDRANTS.

Specification forming part of Letters Patent No. **177,550**, dated May 16, 1876; application filed March 18, 1876.

To all whom it may concern:

Be it known that I, JOHN PENNYCOOK, of Chicago, county of Cook, State of Illinois, have invented certain Improvements in Hydrants, of which the following is a specification:

In the drawings, Figure 1 represents a full view of the hydrant. Fig. 2 is a longitudinal section of it; Fig. 3, a transverse section of top part through the outlets; and Fig. 4, a top view of the base part, cover removed.

In Fig. 1, as above stated, the hydrant is represented in full view, the stem A embracing the base part B for the induction, and the top part C for eduction of the water-circuit. The base part B is a casing, with a circular opening in the front, projecting out in a bell-shaped form, D, for the insertion of the communicating water-supply pipes. On the inner side of said opening is a seat, the disk E of the main or induction valve F lodging in it air and water tight. Said valve is peculiarly constructed, and so fastened as to get opened or closed simultaneously, to resist firmly the pressure of the water-column. This main valve carries, on the rear of the disk, behind the seat, a segmental cogged prolongation or cam, G, which turns in a radial direction around its axle *h*. The cam G gears to the convolutions of an endless screw or worm, H, on the lower part of a rod, I, projecting from the top part to the outside of the hydrant-stem, straight down into the base part, terminating in a shoulder, L, beneath the lug *a*, as shown in Fig. 2. The upper end of said rod I, which is coupled to the lower part at *b*, is guided through an incasing, K, down the side of the top part of the hydrant, and is thereby protected from exposure, said casing acting as a non-conductor against changing temperature. The bearings of the valve-axle are playing in journal-boxes *c c*, located and fastened on both sides of the surface of the base part below the level line of the gears G and H, purposely so arranged and constructed, in combination with the shoulder L beneath the lug *a*, as to prevent the valve from throwing off and out its resting-seat. At the center of the inclined bottom of the base part is located a hinged drain-valve, M, bearing a balance-arm, *d*, on one side, in an obtuse upright position, placed in the traveling way

of the main valve, and coming so in tangible contact opens its port, relieving the stem from the contents out to exit. A cover, N, incases the whole surface, and fastened hermetically on the top of base part, carrying a stuffing-box, *f*, inside, on the proper place, through which the lower end of the rod I passes to its termination. The other end of the base part is provided with a neck, P, in which the stem A of the hydrant is properly inserted, and secured by fastening-rods *g g* from the top part, keeping the whole body together in a firm position, supported underneath the neck by a bow, R, which rests conveniently level to the ground. In the top part C of the hydrant are located the two-way angular outlets, provided on their nozzles with projecting brass fittings S S and suitable iron caps, for the passage of the water-column, which finds an unbroken circuit from the base up through the stem, and pours out a constant powerful stream, regulated by two eduction-valves, V V, independently situated and worked each from the other. These valves are similar in construction, and worked by endless screws, as stated by the description of the main valve. The shell T covers the top part, in which suitable stuffing-boxes, *q q*, for the valve-rods are applied.

The operation of the hydrant will be fully understood in the illustration at Fig. 2, which represents a sectional view of my invention, showing all the interior arrangements, as before explained. Turning the rod I, the endless screw H at the lower end of said rod, geared to the segmental cam G of the main valve F, turns the valve around the bearings *h*, out from its seat *k*, to its full extent, uninterrupted in a radial direction, into the casing N, released simultaneously from the pressure of the main. The water-column passes now by a clear way into the receiving-chamber B, closing at the same time by its force the drain or waste valve M down in its seat, to prevent the water from escape, and through the stem A up to the top, lodging against the valves V V of the two-way outlets. Drawing these valves open from their respective seats, the compressed column of water flows out through the angular discharge-nozzles. To shut off the supply from the main, the rod I has to be worked in opposite direction. The valve F, turned then with

same radial motion simultaneously down in its seat, opens hereby gradually the drain-valve M, to relieve the stem from its contents.

Having thus described my invention fully in the foregoing specification, I claim as new and desire to secure by Letters Patent of the United States—

1. The disk-valve E, segmental cam G, and relative center bearings *h h*, in one piece, said bearings fastened on the surface of the base part, as shown and described, for the purpose set forth.

2. The coupled rod I, guided in its upper part at K, passing down and fastened in the base part, having an endless screw, H, on the lower part, and so arranged that the convolutions gear with the segmental cam G at a point above the center of the valve-journals, as shown and described, for the purpose set forth.

3. The shoulder L on the termination of the rod I, located beneath a lug, *a*, to keep the rod, with the endless screw H, in firm position in gear with the valve-cam G, substantially as described, for the purpose set forth.

4. The drain-valve M, in combination with the main valve E, constructed, located; and operated as and for the purpose shown and described.

5. The two-way angular outlets, in combination with the independent valves V V, worked by endless screws, as and for the purpose shown and described.

JOHN PENNYCOOK.

Witnesses:

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