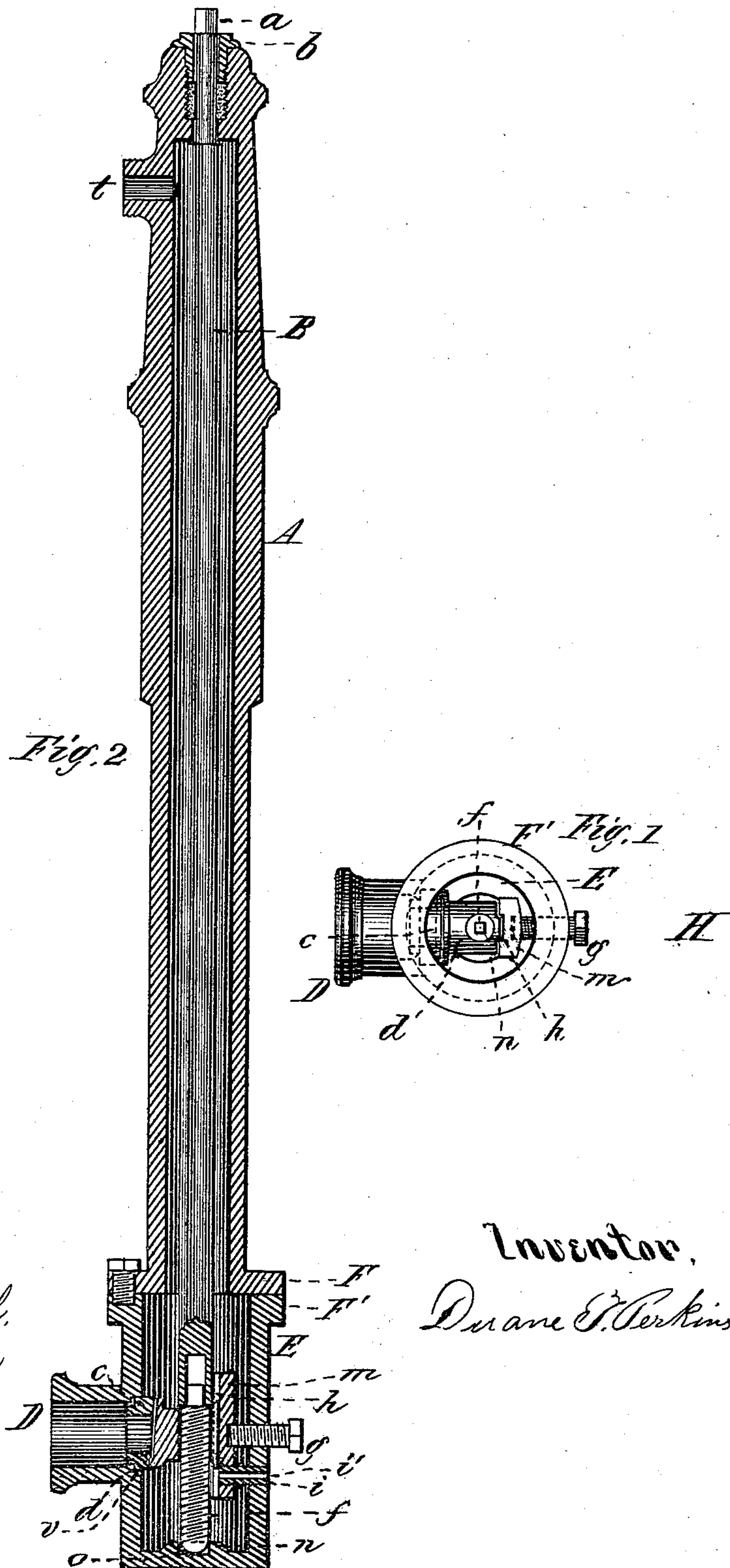


**D. T. PERKINS.**  
**Hydrants.**

No. 148,749.

Patented March 17, 1874.



Witnesses,  
*C. E. Buckland,*  
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Inventor,  
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# UNITED STATES PATENT OFFICE.

DUANE T. PERKINS, OF HOLYOKE, MASSACHUSETTS, ASSIGNOR TO HIMSELF  
AND RICHARD POTTER.

## IMPROVEMENT IN HYDRANTS.

Specification forming part of Letters Patent No. 148,749, dated March 17, 1874; application filed  
January 7, 1874.

*To all whom it may concern:*

Be it known that I, DUANE T. PERKINS, of Holyoke, in the county of Hampden and State of Massachusetts, have invented a new and useful Improvement in Hydrants; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a plan view of the cylindrical chamber at the bottom of the hydrant which contains the valve and its operative mechanism. Fig. 2 is a vertical central section of the hydrant through line H.

My invention relates to an improvement in hydrants designed to be used in connection with street water-pipes; and it consists of a valve having an inclined face operating in a vertical direction within a cylindrical chamber, said valve being moved to and from its seat, which is correspondingly inclined, by means of a screw passing through said valve and resting in a recess at the bottom of the chamber, in connection with a shoe located at the rear of the valve. The screw is turned by means of a rod extending up through the hydrant, and projecting through a stuffing-box at the top, the lower end of said rod being provided with a socket fitted to the top of the screw which operates the valve, and the cylindrical chamber is provided with an orifice made through the screw which secures the shoe in its position at the rear of the valve, and to the inside of the cylinder, so that when the valve is moved down away from its seat, its rear part covers said orifice and closes it.

In the drawings, E represents the cylindrical chamber, provided with the inlet-pipe D, into which is fitted, at its inner end, the valve-seat *c*, having an inclined face, as shown clearly in Fig. 2. *d* represents the valve, the face of which is correspondingly inclined to fit the seat *c*, and through the valve is made a threaded hole, through which passes the screw *f*, the lower end of which rests in the recess *o*, made in the lower end of the cylindrical chamber, and an annular boss or projection extends up around said recess *o* a little distance, upon

which the valve may strike when moved to its lower limit. The shoe *m*, having a longitudinal groove made therein, is secured to the cylinder, at the rear of the valve *d*, by a screw, *i*, through which is made an aperture, *i'*, its entire length, and the rear part of the valve *d* has a projection thereon, which moves in the groove *h* of the shoe. An adjusting-screw, *g*, may be turned into a threaded hole in the cylinder and against the back side of the shoe, which, when the valve *d* is up, and covering the inlet-valve seat *c*, may be turned in against the shoe to force the valve against or adjust it properly to its seat. The screw *f* is provided with a prismatic head, and the rod B, which extends through the hydrant-tube A, is provided, at its lower end, with a socket, fitting upon the prismatic top of the screw *f*. Said rod B extends up through the top of the hydrant, and through an ordinary stuffing-box at the top, terminating in a prismatic head, *a*. The cylindrical valve-chamber E is secured to the hydrant post or tube A by bolts inserted through the holes in the flange F at the bottom of the hydrant-tube, into the flange F' at the top of the cylinder.

The operation of my invention is as follows: When the valve is against its seat, closing the inlet-orifice, as shown in Fig. 2, it is opened by turning the rod B and screw *f* by means of a wrench applied to the prismatic end *a* of the rod, and, as the screw *f* is thus turned in one direction, the valve *d* passes down in a vertical direction, its rear part passing over or against the orifice *i*, and closing said orifice and opening the inlet D. The water is then free to pass in at the inlet D, and up the hydrant-tube A, and out at the outlet-orifice *t*.

When it is desired to close the valve, the rod B is turned in the opposite direction, and the valve *d* is moved up by the screw *f* into a position against the valve-seat *c*, as shown in Fig. 2. When the valve is in this position properly against its seat, the screw *g* may be turned in against the shoe *m*, which forces the valve *d* firmly against its seat, and prevents any leakage whatever, and when once so adjusted it will remain for years without requiring any readjustment. When the valve is thus closed, as above described, any water which



may remain in the hydrant-tube and cylindrical chamber will pass out through the orifice *i'*, which is opened by the valve passing up above it to close the inlet, and an effectual drip or removal of the water is accomplished. The annular boss or projection *n* at the bottom of the cylindrical chamber prevents the edge of the face of the valve from striking the lower end of the chamber and injuring it. The valve-seat *c* may be secured in place in any desirable manner, but may be effectually secured by making the same cylindrical, and fitting it into an annular recess, *v*, at the inner end of the inlet *D*, and securing with lead tamped in around the outer end of the valve-seat *c*. The valve and its seat having thus an inclined face, a perfect and tight fit is the result, and, in either operation of opening or of shutting the valve, the latter moves across the inlet-orifice at the valve-seat with a sliding or shearing movement, being actuated by the screw *f*, and any necessary amount of power to cut off the most powerful stream flowing in at the inlet *D* is produced, sufficient even to cut off sticks and other foreign substances which might be passing in at the time, so that the valve is not liable to be clogged in its operation, nor be rendered at all difficult to operate by reason of a powerful stream of water, or even foreign substances, but is sure and effective in all its operations. The screw *f* might

have its bearing at any point above the valve instead of below it, and the valve and its seat be inclined in the other direction, so that the valve might be opened or closed by a vertical movement above the seat instead of below it, without departing from the principle of its operation; but, if the screw has its bearing at the lower end of the valve-cylinder, the whole cylinder then takes the strain of the screw in opening and closing the valve, and the latter with its operative mechanism is out of the way.

By this construction, the hydrant-post may be removed from the valve-cylinder and access had to the latter without shutting off the water from the section of water-pipes when the hydrant is located, and thereby rendering other hydrants in the vicinity useless, which would be a serious matter should a fire occur in the same vicinity at the time.

Having thus described my invention, what I claim as new is—

The inclined valve-seat *c*, in combination with the valve *d*, having a correspondingly-inclined face, and the screw *f* and shoe *m*, whereby the valve is moved to and from its seat, and is adjusted thereto in a vertical direction, substantially as described.

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Witnesses:

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