

D. T. PERKINS.

HYDRANT.

No. 183,018.

Patented Oct. 10, 1876.

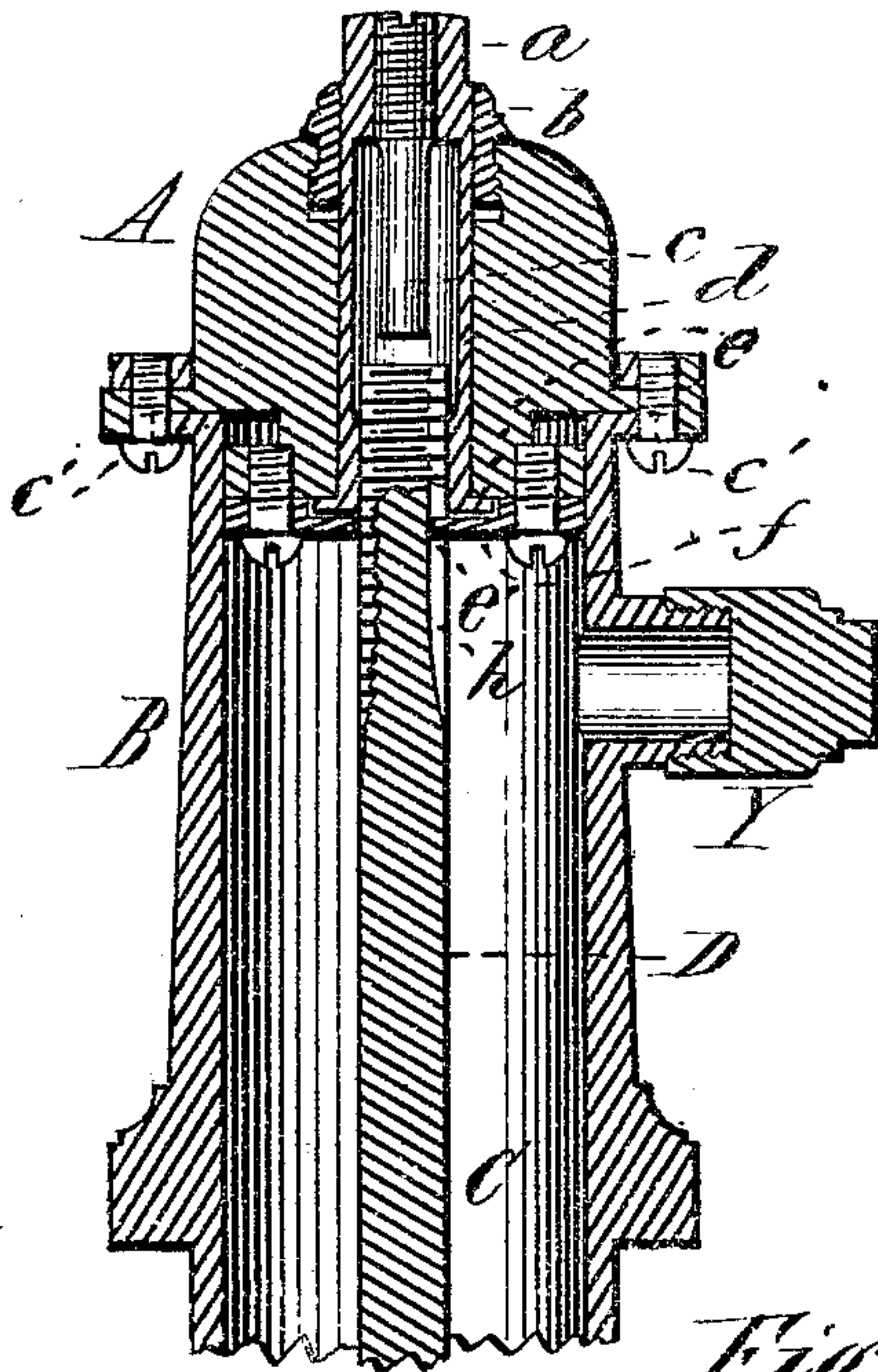


Fig. 1

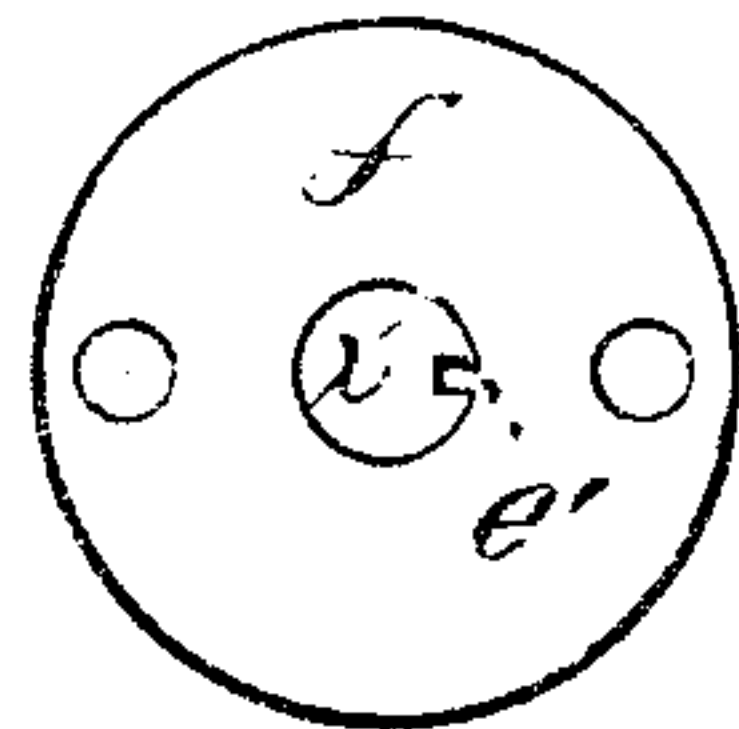
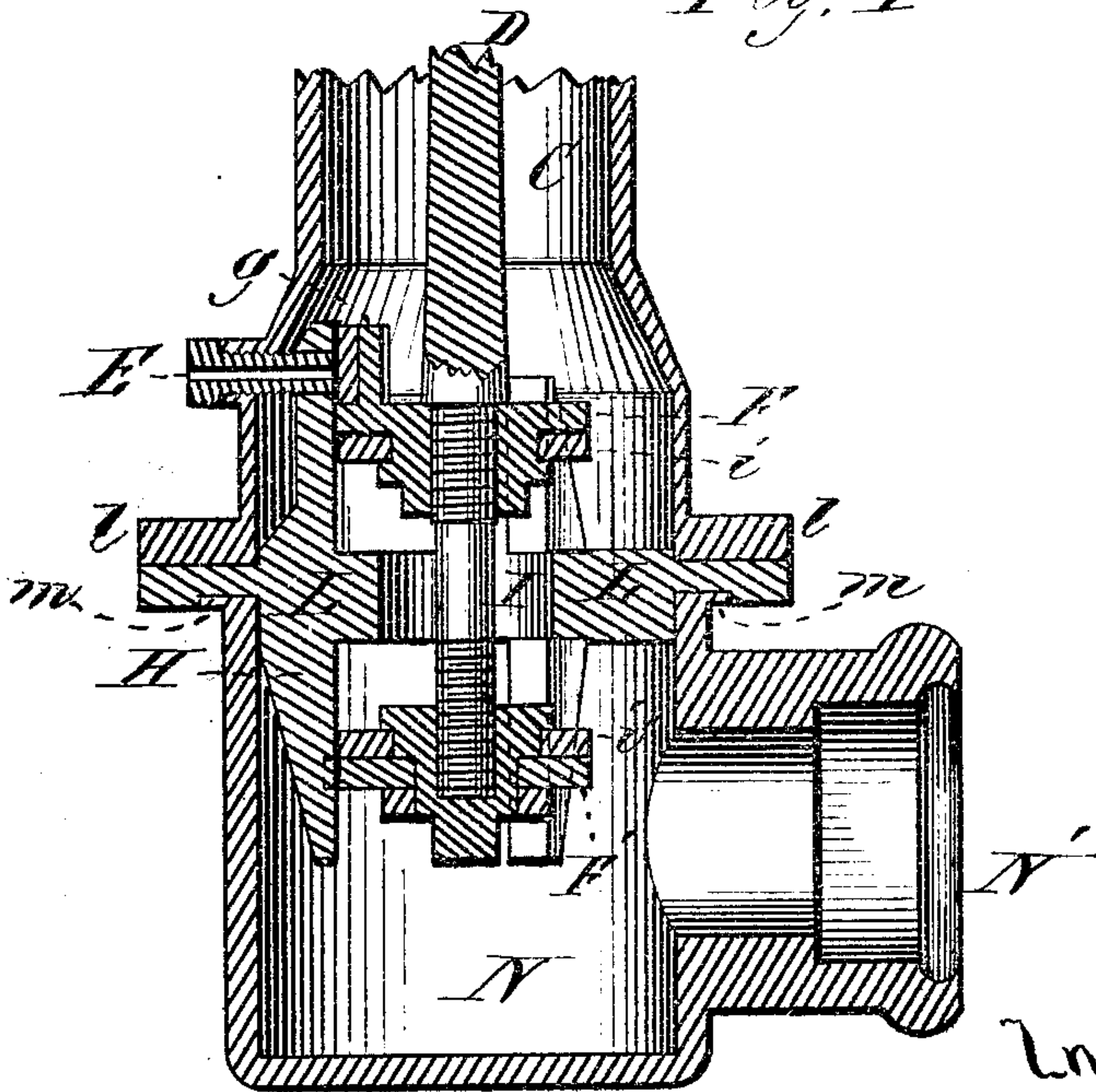


Fig. 2



Witnesses,

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UNITED STATES PATENT OFFICE.

DUANE T. PERKINS, OF HOLYOKE, MASSACHUSETTS.

IMPROVEMENT IN HYDRANTS.

Specification forming part of Letters Patent No. **183,018**, dated October 10, 1876; application filed August 17, 1876.

To all whom it may concern:

Be it known that I, DUANE T. PERKINS, of Holyoke, in the State of Massachusetts, have invented a new and useful Improvement in Hydrants; and that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, making a part of this specification, and to the letters of reference marked thereon.

My invention relates to street-hydrants, and has for its objects the placing of the main tube of the hydrant into any desired position relatively to its base, after the latter has been connected to the water-pipe; and also the removal of the main valve from the hydrant without turning off the water from the pipe to which the hydrant is connected. To this end my invention consists, first, of a base or elbow, to which the water-pipe is connected, provided with a flanged top, which is fitted into, and, by loosening the bolts which secure it, may be made to rotate in, an annular groove made in the plate which forms the valve-seat; and it consists, second, of a rod, having a valve screwed upon the lower end, and also another secured some distance above, the latter being the main valve ordinarily used, and both arranged to be closed against a seat made for each, one on each side of a plate having a central water-way through it, and secured in the lower end of the hydrant-tube, between the flanges of the latter and the base. The valve-rod is raised, by a nut in the hydrant-cap, until it strikes a stop, when the valves are open; but when it is desired to remove the main valve from the hydrant, the stop is either raised or removed, and the valve-rod raised to bring the lower valve up against its seat, and the hydrant-cap being then loosened, the rod is turned out of the lower valve by turning the cap, and a plate, attached thereto, provided with a feather operating in a groove in the rod, the lower valve being held up to its seat, after the rod is withdrawn or detached from the valve, by the pressure of the water beneath.

Figure I is a longitudinal section through the center of the hydrant, and Fig. II is a plan view of the plate, secured to the lower end of the cap.

In the drawings, B represents the hydrant-

tube, below which is the base N, which is attached to the water-pipe. This base is provided at its upper end with an annular flange, *m*, fitted into a corresponding groove made in the lower side of the plate L, which is placed between the base N and the flange *l* on the lower end of the tube B, so that, holes being made through the rim of the plate L and the flange *l*, the heads of the bolts inserted up into these holes bear up against the flange *m*, and secure the base N, plate L, and tube B firmly together, when the nuts are turned upon the bolts to a firm bearing.

The plate L has a central orifice, I, and the lower valve F' is forced up against its seat on the lower side of the said plate to close said orifice from below. This valve F' is screwed upon the lower end of the rod D, and, to keep it in its proper central position with reference to the orifice I, moves up and down between the guides H.

Above the plate L, and upon the rod D, is secured the main valve F, which, when shut, fits down upon its seat on the upper side of the plate L, to close the orifice I from above; and this valve also moves between the guides H, above the plate, to keep it central.

A tubular screw, E, is inserted through the side of the hydrant and into or through one of the guides H, to serve as a "drip;" and the valve F has a vertical projection, *g*, thereon, to close said drip when the valve is raised.

The cap A is provided with the ordinary annular flange, by which it is bolted to the flange at the top of the tube B, and the cap is fitted with a tubular nut, *a*, the inside lower part of which is threaded to fit the screw-thread upon the upper end of the rod D, so that when the nut *a* is rotated and turned on to the rod the latter is raised, and when rotated in the opposite direction, or turned off, the rod is lowered; and the nut is held in place in the cap by a flange, *e*, at the bottom, or by any other suitable means.

The rod D is prevented from rotating when the nut *a* is turned in either direction by a longitudinal groove, *h*, made in the rod, and a feather, *e'*, made at one side of the hole *x* in the plate *f*, through which the rod passes, and which plate is made fast to the lower end of

the cap A, or the plate *f* may be otherwise fitted to the rod to prevent its turning. A stop-screw, *c*, is turned down into the nut *a*, extending down a sufficient distance, so that when the rod D is raised sufficiently to open the valve F properly the upper end of the rod will strike against the lower end of the screw *c*, and prevent any farther upward movement of the rod.

The ordinary outlet to which the hose is usually attached is represented at Y, and the cap A is provided with a packing-nut, *b*, to prevent leakage at the top.

The operation of the invention is as follows: The base N is set in the ground, and connected at N' with the water-pipe, and when so set, if the bolts *v* are loosened somewhat, though not removed from their places, the tube B and plate L, both secured together, may be rotated upon the base N into any desired position, and the bolts being then tightened the hydrant will be firm and secure. The rod D is lowered to close the main valve F, which is provided with suitable packing *i*, and when the valve is so closed down upon its seat the lower valve F' is in a position at the lower end of the lower guides H; but when the main or upper valve is open both it and the lower valve F' are at nearly the same distance from the plate L, one above and the other below, the water then having a free passage up through the orifice I and into the tube B. When the valves are in that position, the upper end of the rod D will be against the lower end of the stop-screw *c* and the projection *g* upon the upper valve, which is provided with suitable packing, covers the hole in the drip E.

If it should be desired to remove the main valve for any purpose, the stop-screw *c* is turned up a sufficient distance, and the nut *a* is turned to raise the rod D until the lower valve F' is brought up against its seat on the lower side of the plate L, the bolts *c'*, which secure the cap A to the tube, are removed, and the rod D unscrewed from the lower valve, turning the rod out by turning the cap and plate *f* attached to the cap.

When the rod is unscrewed from the lower valve F', the former, with the upper valve attached thereto, and also the cap, may all be removed from the tube, and the pressure of the water below and in the pipe will hold the lower valve in place up against its seat, so that any repairs may be made to any part of the hydrant or its mechanism above the plate L without any trouble whatever from the water. With many or most of the hydrants now in use this cannot be done, as whenever any repairs are required to be made upon the hydrant mechanism it is necessary to shut off the water from all that particular section of the city where the hydrant is located. As the repairs oftentimes require a half-day to two or three days for completion, it follows that in such cases many families, and sometimes large manufacturing establishments are subject to great annoyance and loss. This great objection my invention is designed to overcome; and it will be seen that as the lower valve F' is held up to its seat by the pressure of the water in the pipe, it does not become necessary to shut off the water from any part of the city nor from the hydrant itself.

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

1. The combination of the base N, provided with the flange *m*, the plate L, having a groove to receive the upper flanged end of said base, the flange *l* on the lower end of the hydrant-tube B, and the bolts *v*, all substantially as and for the purpose described.

2. The combination of the valve-rod D, the valves F and F', the plate L forming the valve-seats, the nut *a*, to move the valve-rod, a stop, *c*, to determine the upward movement of the rod in opening the valve, the cap A, and the plate *f*, secured thereto and fitted to the upper end of the valve-rod, to prevent said rod from turning, all substantially as set forth.

DUANE T. PERKINS.

Witnesses:

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