

J. G. Murdock.

HYDRANT.

PATENTED

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Fig. 1.

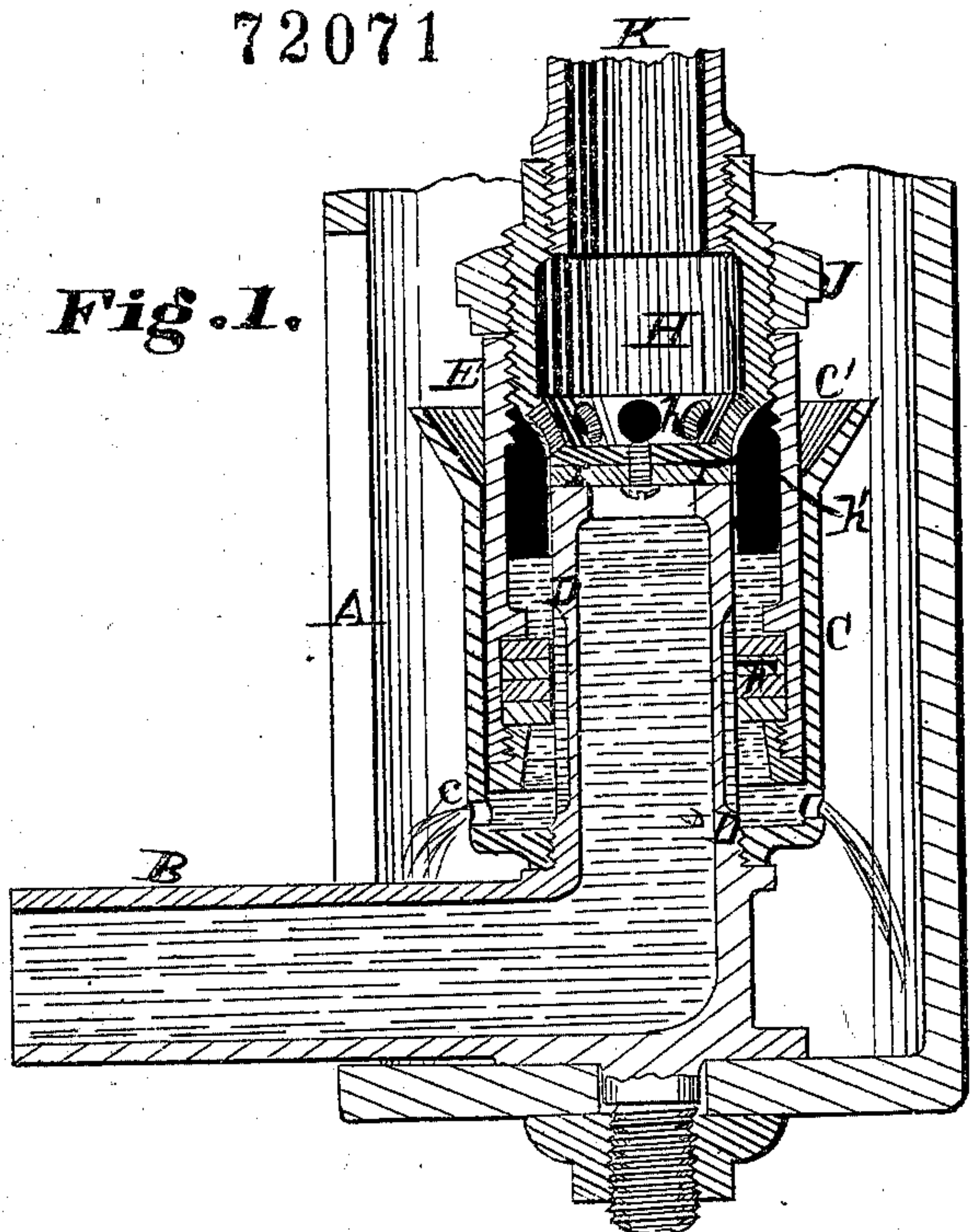


Fig. 2.

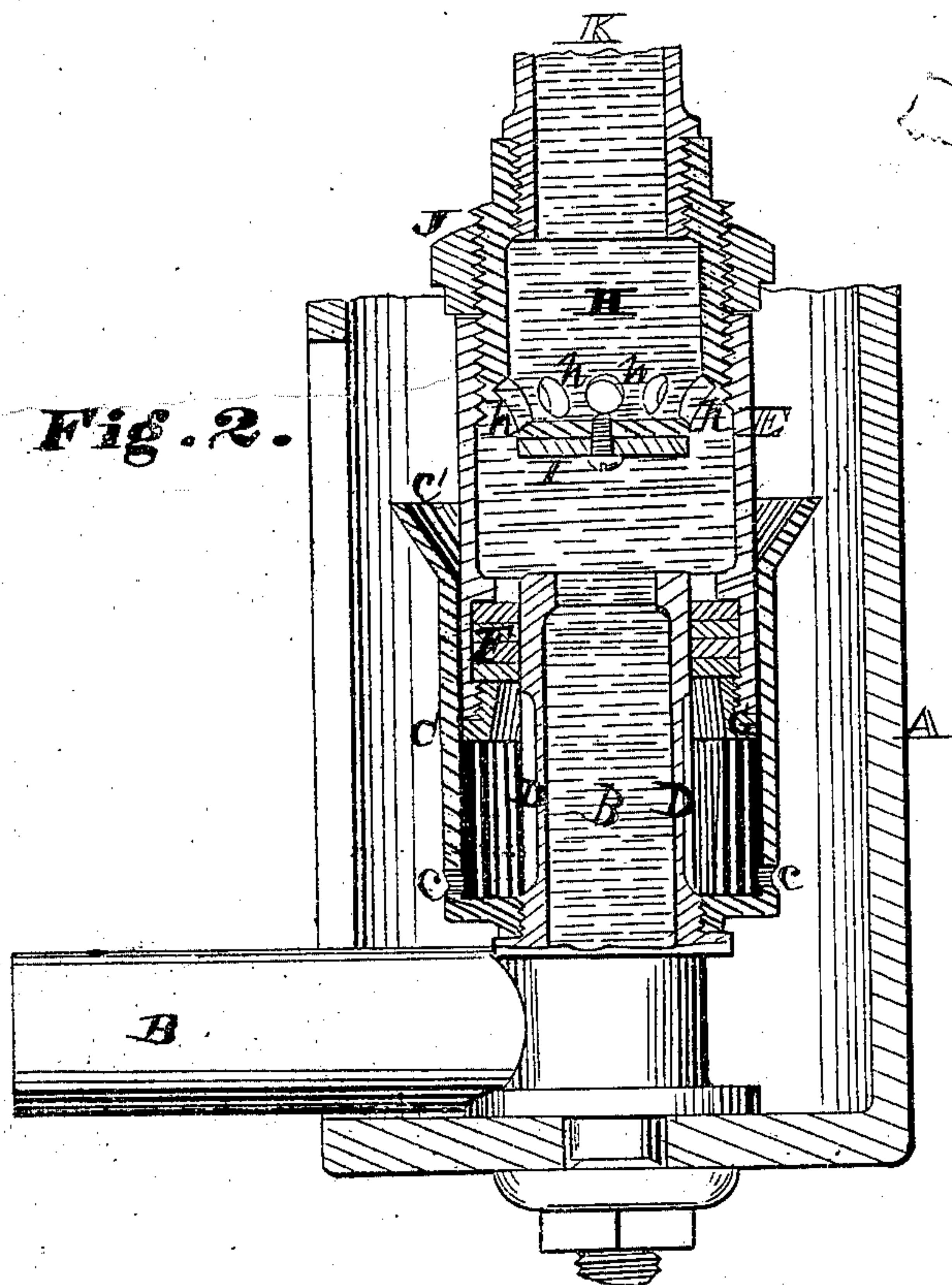
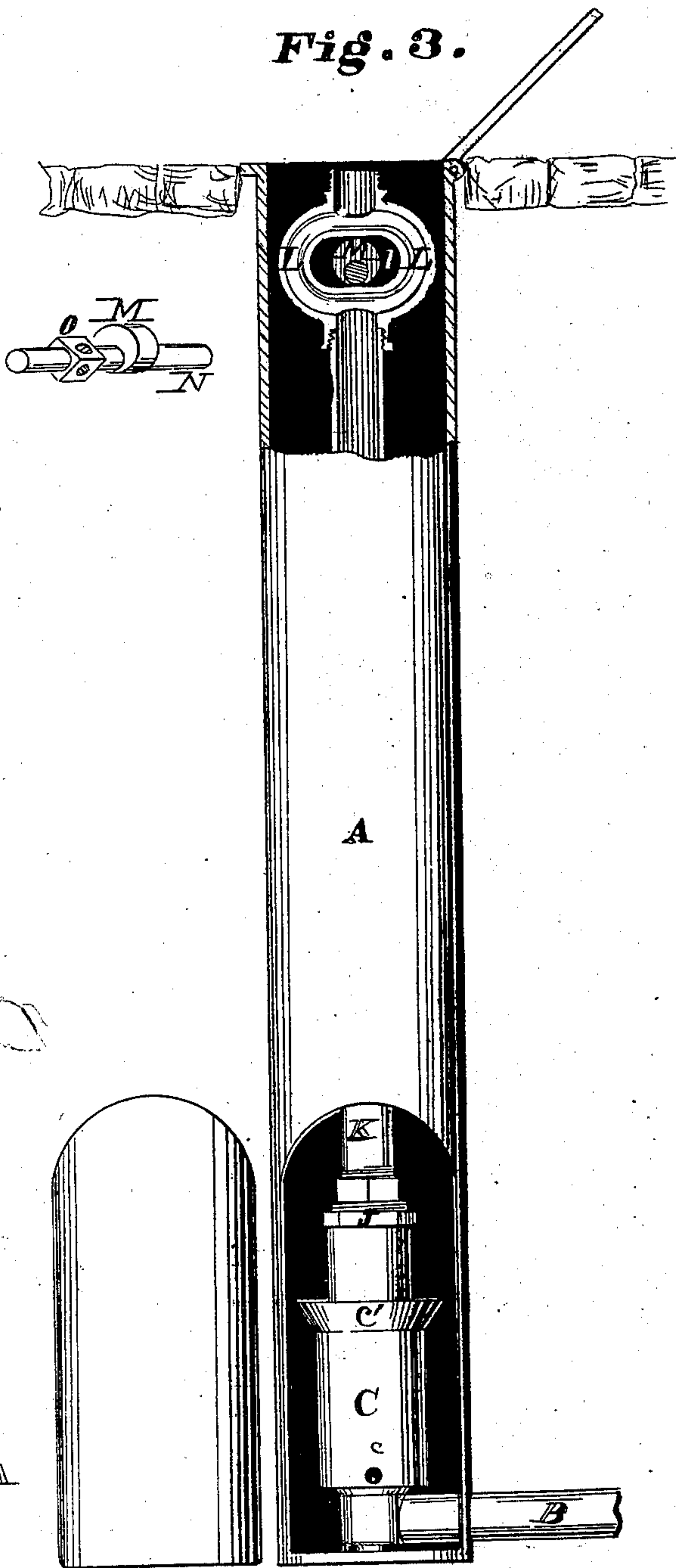


Fig. 3.



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Attest.

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JOHN G. MURDOCK, OF CINCINNATI, OHIO.

*Letters Patent No. 72,071, dated December 10, 1867.*

## IMPROVEMENT IN HYDRANTS.

*The Schedule referred to in these Letters Patent and making part of the same.*

### TO WHOM IT MAY CONCERN:

Be it known that I, JOHN G. MURDOCK, of Cincinnati, Hamilton county, Ohio, have invented a new and useful Improvement in Hydrants; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

The first and principal subject of my invention is an efficient form of hydrant-valve, in which the plunger is so constructed that it may be readily withdrawn for inspection or repairs, and again replaced without any nicety of adjustment or care in so doing. The object is also to so arrange the various parts as to facilitate their manufacture and reduce their cost. My invention is especially designed for a self-wasting hydrant, whose discharge-pipe constitutes the valve-rod, and shuts against the pressure of the main. In those forms of the ordinary hydrant-valve in which the plunger and valve are adapted to be withdrawn for repairs without digging up the case or stock, and in which the packing is so adjusted that it will cover or uncover the waste aperture in the act of opening or closing the valve, it has been customary to provide the valve with a cylindrical chamber, polished interiorly, to enable the packed periphery of the plunger to work smoothly and yet tightly within it, so as to permit no leakage of water around it while the valve is open and the water flowing. In actual practice with this form of hydrant, it has been found difficult to construct the plunger so as to have it move freely in the cup or chamber, and at the same time to insure its being perfectly water-tight, besides which, the packing being on the outside of the plunger, there is no protection from injury in the act of replacing in the hydrant; whereas, in my valve the plunger is at once readily presented to the guide or shell, which need be only roughly finished, all the packing being confined to the interior of the plunger, and there thoroughly protected. The plunger may be thrust into the hydrant, and will immediately find its proper position without any possible injury to the packing.

The second part of my invention relates to a form of delivery-pipe adapted for use as a hose-plug or street-washer. In the common street-washer or hose-box the water passes up from the valve below to the discharge-coupling or hose-connection at top by means of the ordinary pipe, while the valve or cock is operated by a separate rod or key; but in my improved street-washer the conducting-pipe also performs the functions of the operating-rod, and the water finds escape through a passage formed around the yoke of the cam, thus greatly increasing the efficiency of this form of hydrants, and reducing the cost of manufacture. In the accompanying drawings—

Figure 1 is an axial section of the valve and its appurtenances, the valve proper being closed and the waste-way being open.

Figure 2 is a similar section of the same parts, with the valve proper open and the waste-way closed.

Figure 3 is a partially-sectionized side elevation, with my improved water-way for street-washers.

Screwed fast to the bottom of the case or stock A is the supply-pipe B, having its exterior smoothly polished, to enter the internally-packed piston, and its upper end forming an elevated seat for the valve proper, to be presently described. The pipe B has one or more shallow channels, D, forming waste-ways, and is surrounded by a guide-cup, C, having a flaring rim or margin, *c'*, and one or more ventages, *c*. E is the hollow piston or plunger, having secured to its interior an annular packing or sleeve, F, consisting of a number of rings of leather or other suitable material, secured by means of a gland or nut, G. The plunger E is connected to the discharge-pipe K by means of a hollow cylindrical coupling, H, which is screwed fast to said pipe, and has a screw-threaded periphery, to receive the said plunger, and an adjustable collar or back nut, J. The plunger E, being shifted higher or lower upon the coupling H, is secured to any particular adjustment by means of the adjustable shoulder J. The uses of this adjustability will be presently explained.

The waste-ways D are of such length as that, when the plunger is upon its seat, the upper ends of the channel just appear above the sleeve, while the lower ends extend far enough down to permit the escape of the water into the bottom of the guide-cup C, and out through the ventages *c*.

The coupling H has orifices, *h*, around its lower portion, for the ascent of the water when the hydrant is open, and is closed at bottom by a plate, *h'*, having screwed or otherwise attached to its under side a disk of gum or leather, I, which is the valve proper, and which, in the depressed position of the plunger, becomes seated upon the top of the pipe B, and thus closes the hydrant.



The vertical adjustability of the plunger with respect to the valve saves a great amount of labor that would be necessary to nicely adapt these parts and the operating-cam so as to properly co-act. It also enables the provision at will of a larger or smaller waste-way, or so setting of the parts as to enable the hydrant to close without opening the waste-way at all, when desired for summer use, thus saving the water and preventing unnecessary saturation of the ground.

Fig. 3 is a vertical section and elevation of a modification of my invention, designed for a street-washer or hose-plug, in which the usual stock is displaced by a cast-iron case. In this form the discharge-pipe K is made to enter an annular pipe or passage, called by me the hollow cam-yoke L, and which encloses an oblong opening, *t*, within which works the operating-cam M upon a horizontal shaft, N, having a head, O, by which said cam is rotated for opening or closing the valve of the plug.

The operation of opening and closing the valve is effected by applying a wrench to the square of the cam-shaft, or a lever to the openings therein. The acts of opening and closing the valve are the same as those in my patent granted 26th May, 1863, No. 38,694. The instant the plunger is lifted from its seat, the packing F covers the top of the waste-channel, which continues closed as long as the plug remains open. When the valve is closed, the descent of the packing again uncovers the channel, and permits the contents of the discharge-pipe to pass off.

I do not confine myself to the precise shape or style here selected, as the same is susceptible of various modifications; for example, a cheap form of my improvement may be without any guide-cup, the gland G being flared downward so as to lead the plunger into the pipe B, or the office of the guide-cup may be discharged by two or more lugs or standards rising from the bottom of the case.

I claim herein as new, and of my invention—

1. The hollow plunger E, having the interior valve I and sleeve-packing F, which respectively close and encircle the supply and waste-pipe B, as and for the purpose set forth.

2. In combination with the supply and waste-pipe B and valve I, I claim the vertically-adjustable hollow plunger E, for the object stated.

3. The adjustable shoulder or lock-nut J, in combination and arrangement with the elements B, D, I, and E.

4. The arrangement of internally-packed plunger E, which surrounds and packs a vertical supply-pipe, B, having one or more waste-ways, D, and being enclosed within and guided by a cup, C, substantially as described.

In testimony of which invention, I hereunto set my hand.

JOHN G. MURDOCK.

Witnesses:

GEO. H. KNIGHT,  
JAMES H. LAYMAN.