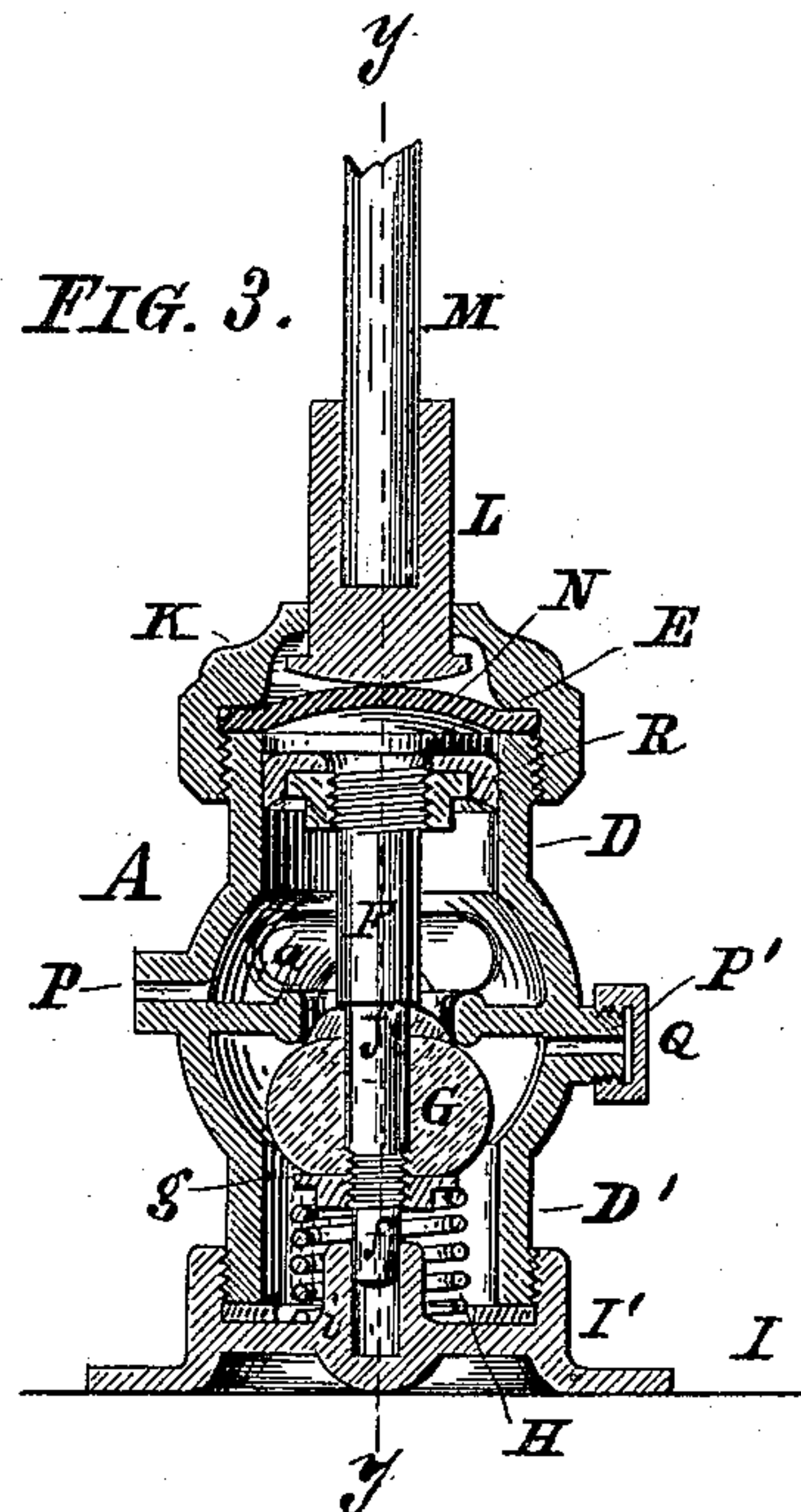
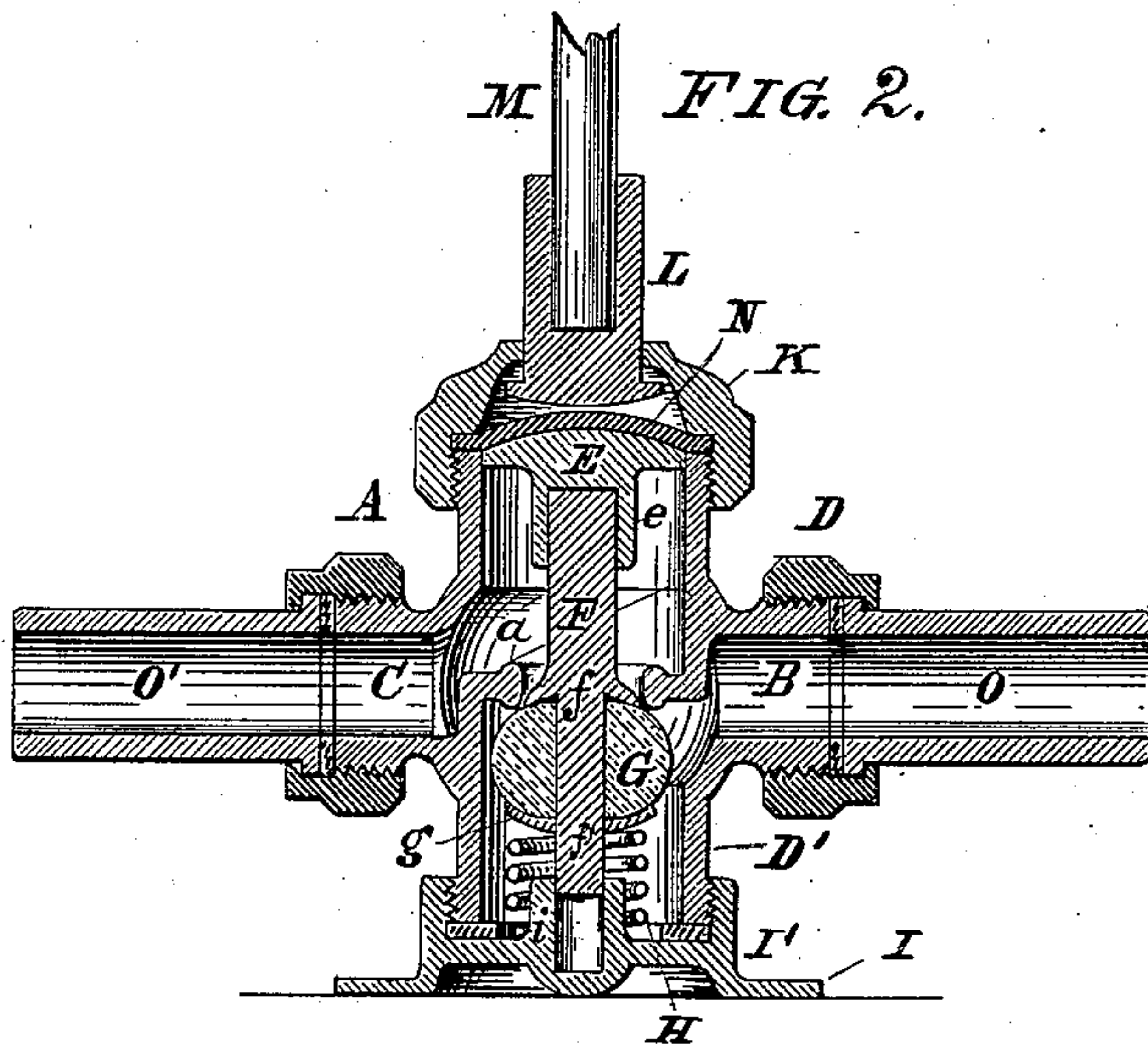
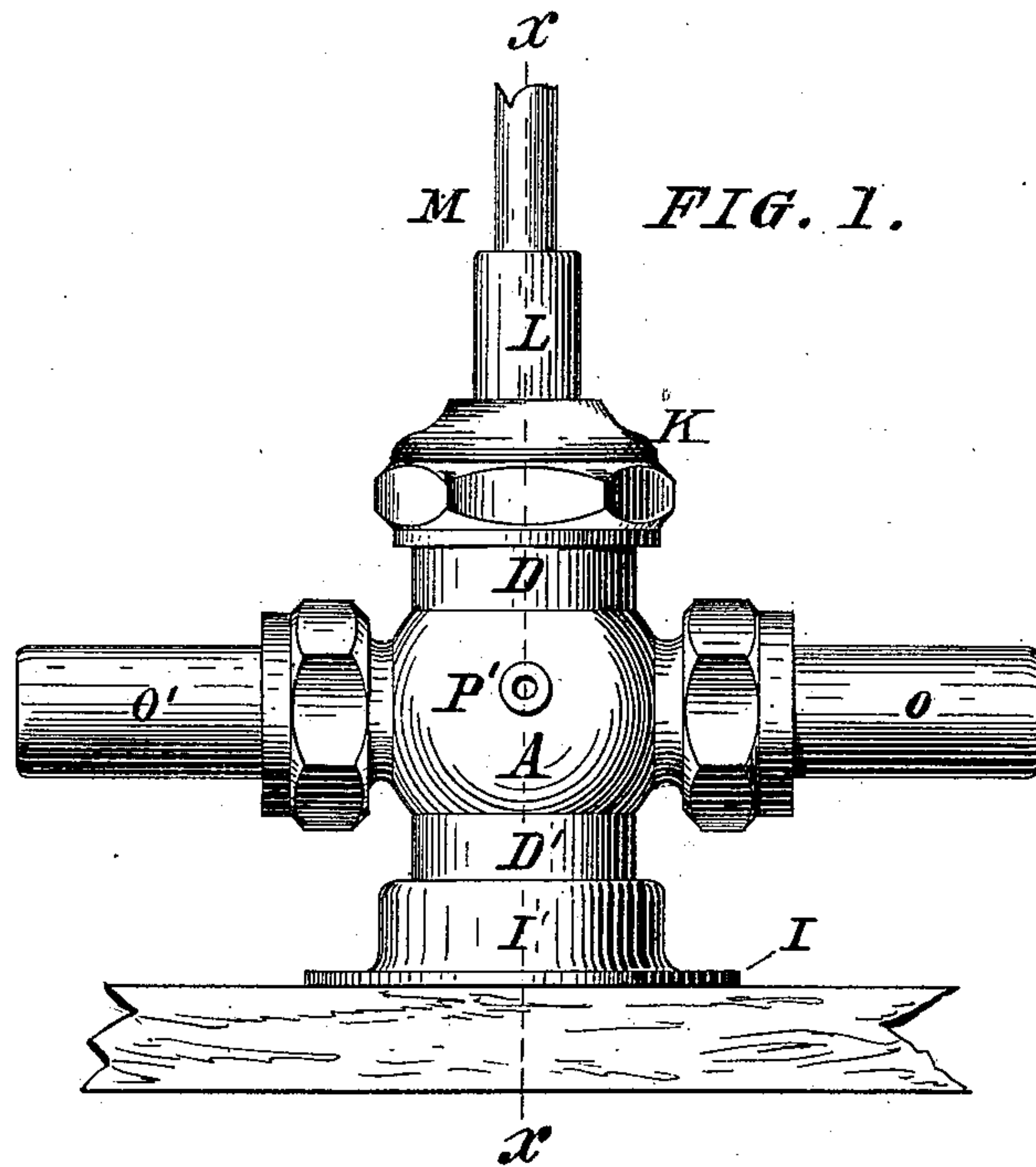


(No Model.)

C. STURM.  
HOPPER VALVE.

No. 401,081.

Patented Apr. 9, 1889.



Witnesses:

Wm O Stark  
Centie S. Stark

Inventor:

Christian Sturm  
by Michael J Stark  
Attorney.



# UNITED STATES PATENT OFFICE.

CHRISTIAN STURM, OF BUFFALO, NEW YORK.

## HOPPER-VALVE.

SPECIFICATION forming part of Letters Patent No. 401,081, dated April 9, 1889.

Application filed December 14, 1888. Serial No. 293,542. (No model.)

*To all whom it may concern:*

Be it known that I, CHRISTIAN STURM, of Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Hopper-Valves; and I do hereby declare that the following description of my said invention, taken in connection with the accompanying sheet of drawings, forms a full, clear, and exact specification, which will enable others skilled in the art to which it appertains to make and use the same.

My present invention has general reference to hopper-valves for water-closets; and it consists, essentially, in the novel combination of parts and details of constructions, as hereinafter first fully set forth and described, and then pointed out in the claim.

In the drawings already referred to, which serve to illustrate my said invention more fully, Figure 1 is a front elevation of my improved hopper-valve. Fig. 2 is a longitudinal sectional elevation in line *yy* of Fig. 3. Fig. 3 is a transverse sectional elevation in line *xx* of Fig. 1.

Like parts are designated by corresponding letters of reference in all the figures.

The object of this invention is the production of an efficient hopper-valve capable of being readily repaired when worn. To attain this result, I construct my hopper-valve substantially of a body, A, similar to that of an ordinary globe-valve, as far as the location of the seat for the valve is concerned, as well as the inlet B and outlet C, but differing from such globe-valve in having two branches, D D', at right angles to the inlet and outlet branches, said branch D forming a cylinder for a sliding piston, E, having a convex upper surface and a socket, *e*, for the reception of a valve-stem, F, the latter having centrally a collar, *f*, against which a rubber spherical valve, G, bears, said valve G being held in position by a washer, nut, or similar contrivance, *g*, and a spring, H, interposed between the bottom piece, I, and said washer *g*, and holding said valve against said collar *f* and the valve-seat *a*. In the bottom piece, I, there is provided a hollow protuberance, *i*, acting as a guide for the lower end, *f'*, of the valve-stem F, said bottom piece having an internally-screw-threaded socket, I', fitting

the externally-screw-threaded branch D' of said body A. The branch D is also externally screw-threaded to match the branch D', so that the body A may fit the bottom piece with either branch D or D', thereby making said body reversible for the object hereinafter mentioned. This branch D is fitted with a cap, K, having centrally an opening for the passage of the shank of a push-button, L, which shank is of tubular form to receive the end of the usual push-rod, M, which rod connects the usual water-closet seat (not shown) with the hopper-valve, so as to open the latter whenever a person occupies the said seat, and thereby depresses the same.

Between the cap K and the upper end of the branch D is interposed a diaphragm, N, consisting of a rubber disk, possessing sufficient flexibility to enable its being pressed into a concavo-convex shape, as shown in Figs. 2 and 3, said diaphragm preventing escape of liquid through the cap without the interposition of a stuffing-box.

To the branches B C are screwed couplings O O', to which, in turn, the usual supply and hopper pipes (not shown) are connected. The body A has oppositely-located nipples P P', one of which is always to be closed by a cap, Q, Fig. 3, so as to prevent a discharge of water on the supply side of the valve, while the one on the discharge side is to be continually open to drain the water-connection between the valve and hopper whenever the closet-seat is unoccupied to prevent freezing. In its normal condition the valve is closed, the spiral spring H keeping the valve proper, G, against the bottom side of the seat *a*, and the water-supply being connected with coupling O and entering the body through B. If the valve G is depressed, so as to establish communication between the lower and upper halves of the body A, the water will pass to and through the branch C and coupling O' to the water-closet in a manner readily comprehended. It will now be observed that by constructing the body A with the branches D D' one of them will always be a cylinder for the piston E, so that should the lower portion of the valve-seat *a* or said cylinder be worn the body can be readily disconnected and reversed, thereby presenting a new seat and cylinder, and thereby, furthermore, mak-



ing immediate repairs—an advantage not to be attained by any other construction.

The valve proper, G, consists of a rubber sphere, which may also be reversed when worn on one side, and can be replaced by a new one at but a trifling expense. In some cases I prefer to construct the valve proper, G, as shown in Fig. 3, by providing the piston E with a leather cup-shaped packing, R, which packing will make the piston practically water-tight, so that should the rubber diaphragm N give out there will be no escape of water on the upper side of the hopper-valve or cap K. This construction renders the cost of manufacturing of this valve a trifle higher, but not enough so as to prevent its use whenever a very efficient closet-valve is a desideratum and cost of but secondary importance.

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

As an improved article of manufacture, a hopper-valve consisting, essentially, of a body having cylinders D D', a valve-seat located centrally in said body, a cap and a bottom piece to close said cylinders, the former having a passage for the push-button L, and a valve consisting of a stem having a curved top, E, a cup-shaped piston secured underneath said head by a nut, and an elastic valve proper located in the egress side of the cylinders, whereby the initial pressure of the liquid passing through the valve acting upon said piston will close the valve proper, as and for the purpose set forth.

In testimony that I claim the foregoing as my invention I have hereto set my hand in the presence of two subscribing witnesses.

CHRISTIAN STURM.

Attest:

MICHAEL J. STARK,  
WM. O. STARK.