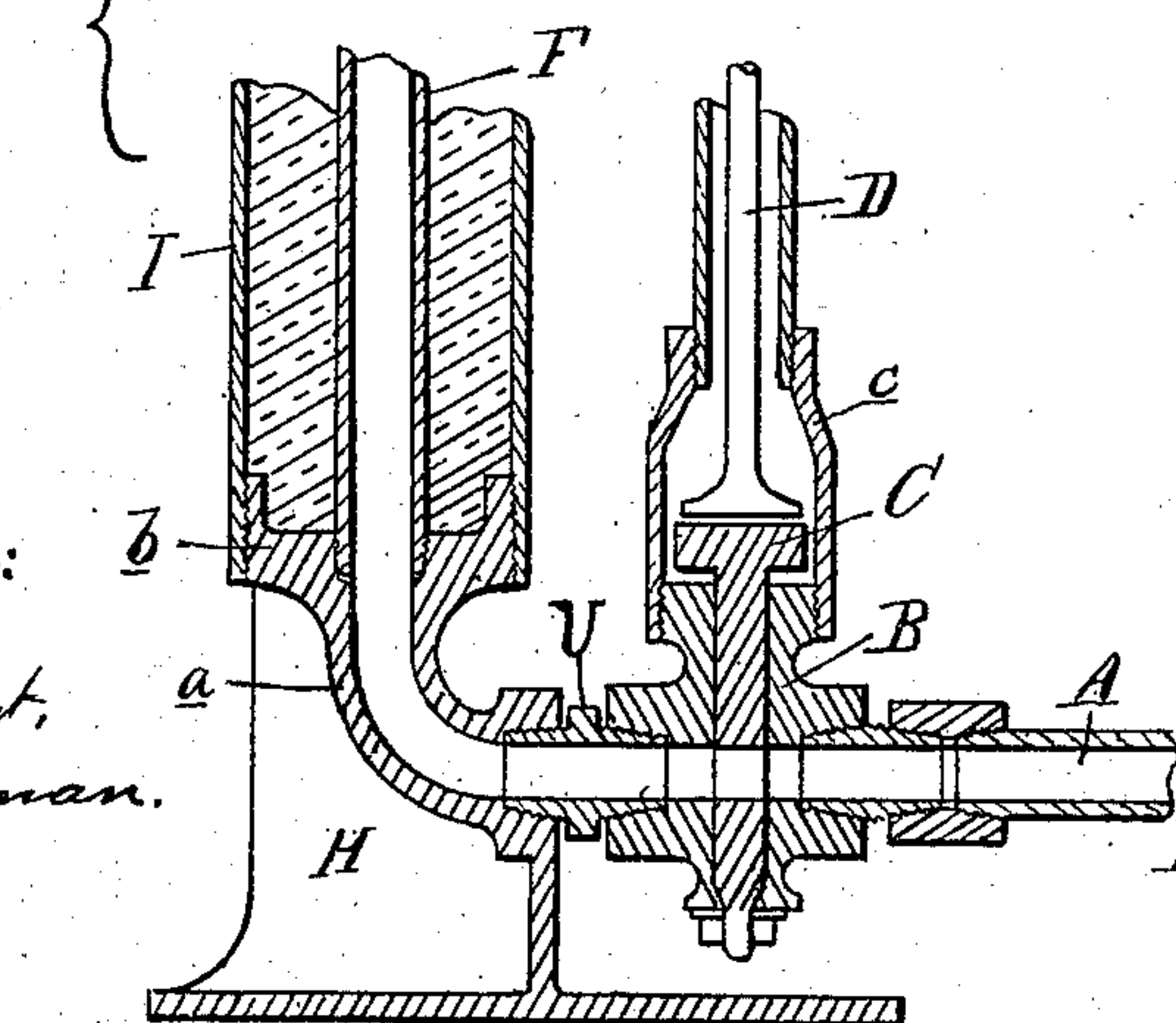
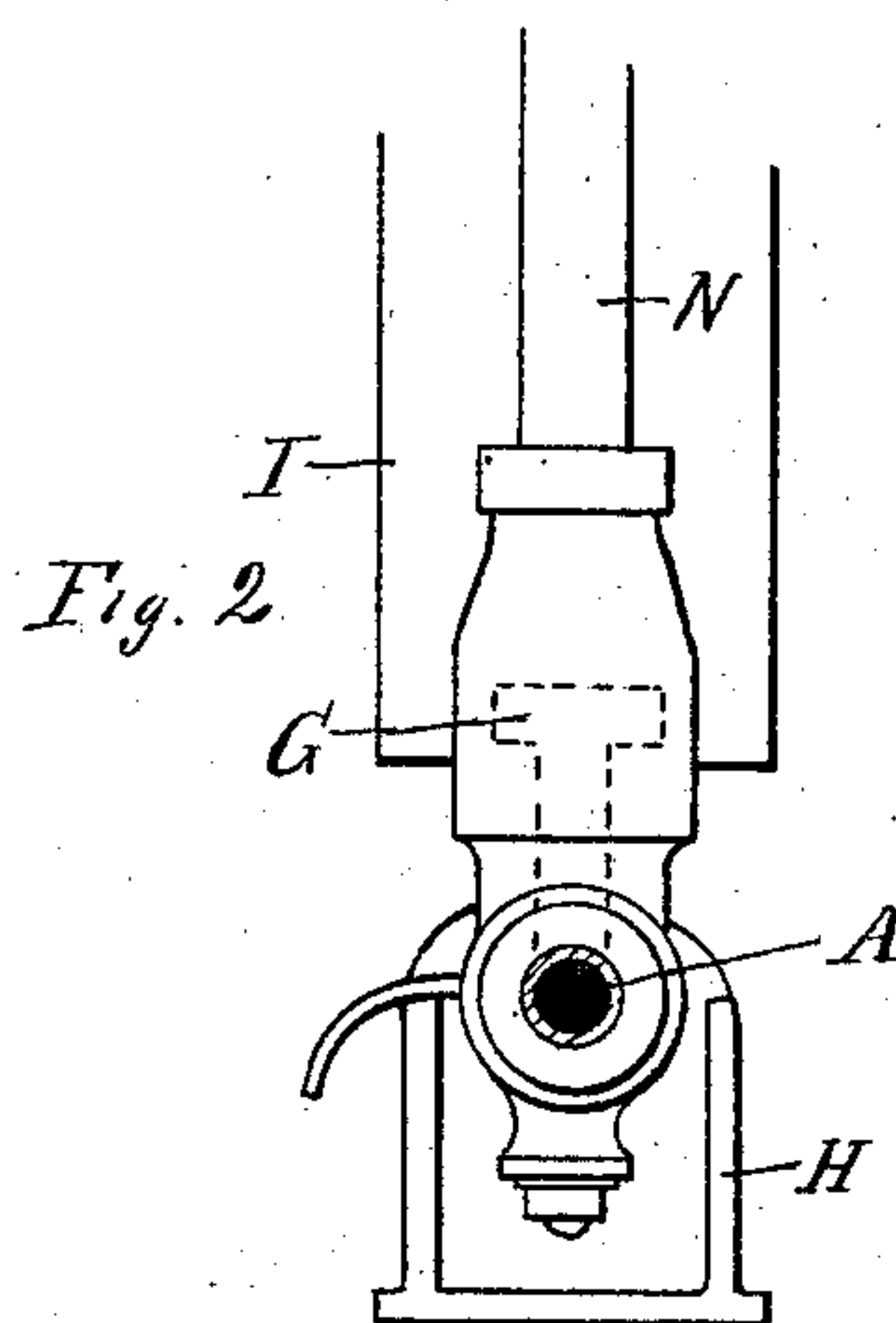
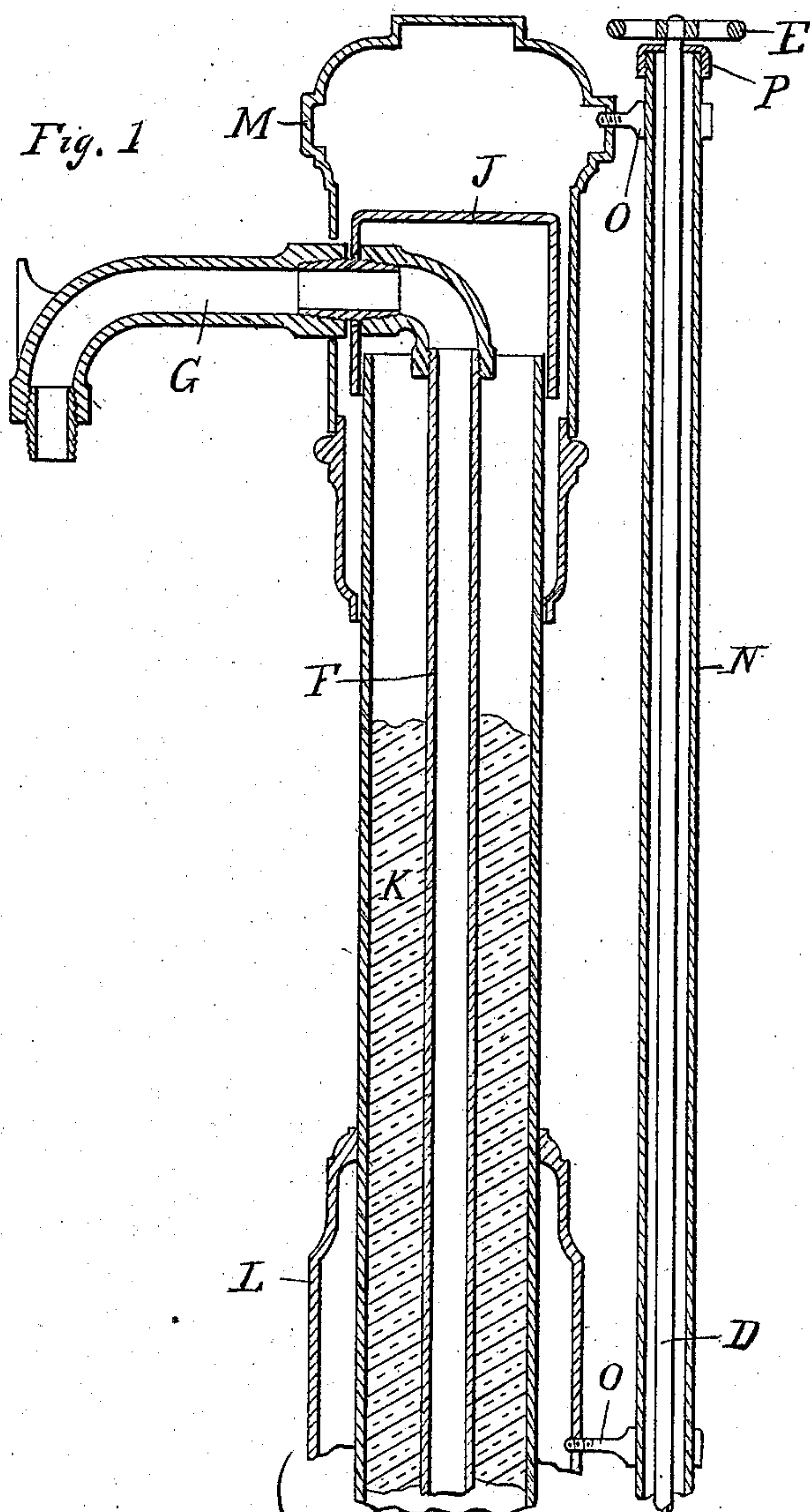


(No Model.)

J. F. DURHAM.
HYDRANT.

No. 402,421.

Patented Apr. 30, 1889.



Witnesses:

P. M. Hulbert,
John Schuman.

Inventor:

John F. Durham

By *Thos. S. Paquet*
Att'y.

UNITED STATES PATENT OFFICE.

JOHN F. DURHAM, OF DETROIT, MICHIGAN, ASSIGNOR OF ONE-HALF TO
GEORGE EDENS, OF SAME PLACE.

HYDRANT.

SPECIFICATION forming part of Letters Patent No. 402,421, dated April 30, 1889.

Application filed July 5, 1888. Serial No. 279,130. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. DURHAM, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Hydrants, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in hydrants, street-washers, and ground shut-offs for water-pipes.

The object of the invention is to so construct such hydrants, &c., that danger from freezing is avoided; and to this end my invention consists in the peculiar construction, combination, and arrangement of the parts, all as more fully hereinafter described, and shown in the drawings accompanying this specification, in which—

Figure 1 is a vertical central section through a hydrant embodying my construction. Fig. 2 is a side elevation of the lower end of the hydrant.

A represents the water-main or supply-pipe; B, the shut-off cock; C, the plug of the cock; D, the valve-rod; E, the handle of the valve-rod. F is the delivery-pipe, and G is the goose-neck or nozzle of the delivery-pipe, all the parts being of known construction and operation, except as more fully hereinafter described,

H is a suitable base, preferably of cast-iron, to support the device below the frost-line in the ground. I is a casing inclosing the delivery-pipe from a point below the frost-level to the top of the delivery-pipe, in the usual manner, except that this casing is connected at the lower end to form a tight joint with the delivery-pipe in any suitable manner, such as shown in the drawings, where the delivery-pipe is connected to a flanged elbow, *a*, one end of which is secured to the discharge end of the cock, preferably by means of the right and left union U, while the other end is provided with the screw-threaded flange *b*, to which the lower end of the casing I is screwed on, and into which the delivery-pipe is similarly secured. The upper end of this casing is provided with the cap J, so as to form an inclosed annular chamber, K, between the delivery-pipe and the casing, and this chamber

I preferably fill, either its entire length or the lower portion thereof, with a suitable cement, impervious to water, for the purpose of excluding all moisture, ground water, or the drainage from the cock from within the casing. The casing may be provided on the outside with the usual frost-casing L and an ornamental cap, M. The valve-rod I also inclose in a casing or pipe, N, which is also connected with a tight joint to the upper end of the casing of the body of the cock in any suitable manner, such as shown in the drawings, where *c* is a coupling secured to the upper end of the cock by a screw-thread engagement, and into the upper end of which coupling the pipe N is secured. Several suitable bearings, O, are secured to the hydrant to hold the tube N in position. The upper end of this tube N is then closed by a suitable cap, P, which guides the upper end of the valve-rod.

In practice it will be seen that by this manner of constructing a hydrant the delivery-pipe is absolutely protected against all contact above the frost-line with ground water, moist earth, or the water from the drainage-tube of the cock, and therefore all possibility of freezing is avoided, which in the present constructions is not sufficiently guarded against, and thereby is produced the frequent bursting or freezing up of the ground-connections of all kinds of service-pipes.

The filling in with the impervious material of the annular chamber K acts in a twofold manner: first, to exclude all dampness or moisture, and, second, to inclose the delivery-pipe with a non-conducting material which affords better protection for the delivery-pipe from frost. The protection of the valve-rod is for the purpose of preventing its becoming inoperative by freezing fast.

The value of my invention for use in cold climates will be readily recognized by those familiar with the great damage done to hydrants and other ground-connections during severe winters by frequent freezing. At the same time my invention is designed to obviate all necessity of repairs, as the whole construction may be carried out in cast-iron and with very little additional expense over the ordinary constructions.

It is preferable to fill the whole of the chamber K with the non-conducting material, as thereby all condensation or leakage is prevented from becoming a source of danger 5 above the ground or exposed portion of the delivery-pipe.

I attach importance to my construction whereby I have an unobstructed discharge to the nozzle with the discharge end of the cock 10 below the union of the delivery-pipe with the elbow.

What I claim as my invention is—

1. The combination, with the elbow *a*, having a flange, *b*, of the delivery-pipe E, set into 15 the orifice of the elbow *a* and extending with an unobstructed discharge to the nozzle, the casing I, screwed water-tight to the outside of the flange, the non-conducting impervious material set between them, and the connection 20 with the shut-off cock below the union of the elbow and delivery-pipe, substantially as described.

2. The combination, with the elbow *a*, having a flange, *b*, and both ends of its passage screw-threaded, the delivery-pipe screwed into 25 one end thereof, the casing I, screwed water-tight to the same, the impervious non-conducting filling between the two, the shut-off cock B, the union U, connecting the shut-off 30 cock to the elbow, the coupling *c*, secured water-tight to the shut-off cock, the casing N, screwed water-tight into the coupling *c*, and the valve-rod D, passing through the casing N and operating the shut-off cock, substantially as described and shown. 35

In testimony whereof I affix my signature, in presence of two witnesses, this 1st day of June, 1888.

JOHN F. DURHAM.

Witnesses:

JAS. WHITTEMORE,
JOHN SCHUMAN.