

S. Tice,

Hydrant.

N^o 84,848.

Patented Dec. 8, 1868.

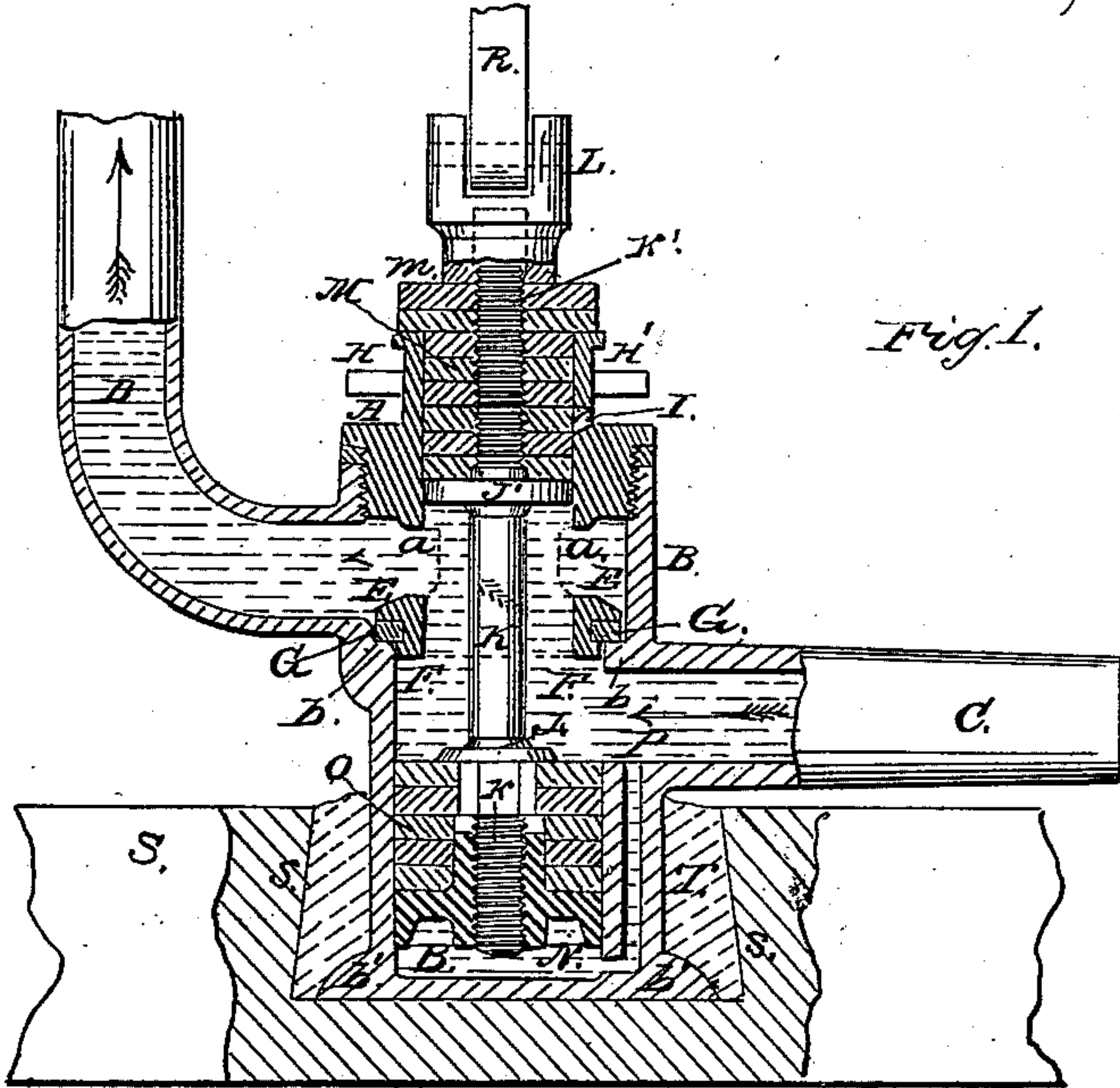


Fig. 1.

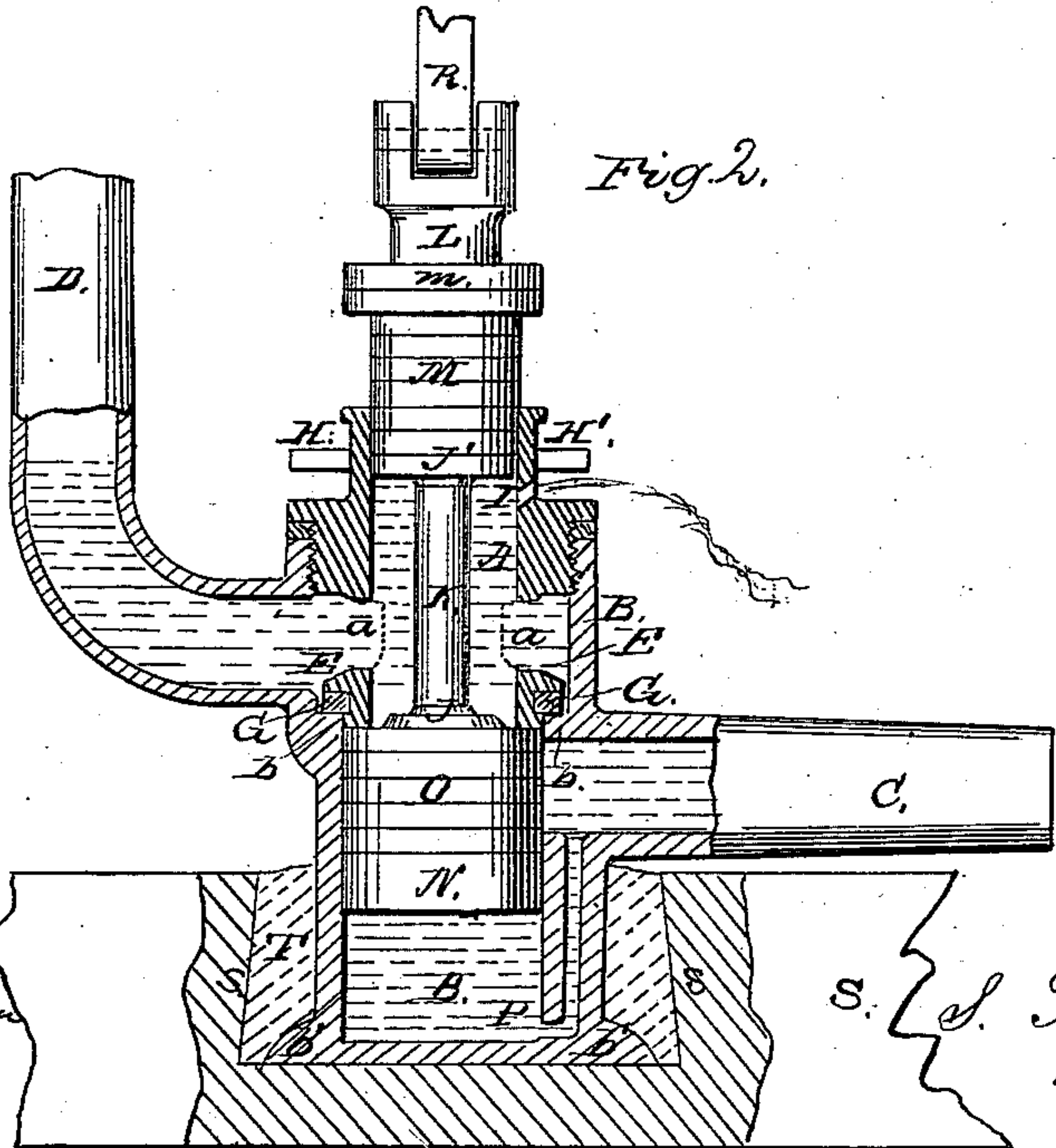


Fig. 2.

Witnesses.

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SOLOMON TICE, OF CINCINNATI, OHIO.

Letters Patent No. 84,848, dated December 8, 1868.

IMPROVEMENT IN HYDRANTS.

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

To all whom it may concern :

Be it known that I, SOLOMON TICE, of Cincinnati, Hamilton county, Ohio, have invented a new and useful Improvement in Hydrants; and 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.

This invention relates to that class of hydrants or fire-plugs in which the valve is maintained in its closed position by the pressure of water in the main; and

My improvement consists in arranging the operating-parts in such a manner that said valve shall close very gradually when the hydrant is shut off, thereby increasing the durability of the apparatus, without adding to the cost of the same.

In the accompanying drawings—

Figure 1 is an axial section of my improved hydrant, with the valve in its depressed or open position.

Figure 2 is a similar section, with the valve closed, and the waste-way opened.

A represents a cylinder, that is open at both ends, and which is pierced, near its bottom, with a series of apertures, *a*, and said cylinder is screwed into the upper end of a chamber, B, the latter having attached to it the customary inlet and discharge-pipes C D.

The lower end of the cylinder A is provided with a collar, E, and a flange, F, the latter serving as the valve-seat, while the former acts to compress a packing, G, between it and the shoulder *b* of the cylinder, thereby forming a water-tight joint between said chamber and cylinder.

Projecting outwardly from the upper part of the cylinder A are two lugs, H H', which permit said cylinder to be unscrewed from the chamber B, by simply inserting a suitable key or wrench down the stock of the hydrant, and engaging it with said lugs.

The upper portion of cylinder A is also provided with a waste-way, I. Situated centrally within the cylinder and chamber is a stem, K, having a lower screw-threaded portion, *k*, and an upper screw-threaded one, *K*, and also two collars, J J'.

Secured between the upper collar J' and the connection L is a plunger, M, which consists of a number of disks, of leather or other suitable material, which are adapted to fit snugly within the cylinder A. One or more of the upper disks are somewhat increased in diameter, as shown at *m*, so as to completely close the upper end of the cylinder A, when the plunger is depressed and the valve opened.

Secured between the lower collar J and the nut N is another series of leather disks, O, which constitute the valve proper, and this valve is somewhat larger than the plunger M, so as to permit of its traversing the chamber B.

Communication between the inlet-pipe C and the bottom of the chamber B, is effected by a small passage, P, which permits of the water flowing into and out of said chamber.

R is the rod, by which the stem K, and its accompanying plunger M, and valve O are elevated or depressed, and said rod may be operated by a cam, screw, lever, or any other suitable mechanical appliance.

The valve-chamber is attached to the base, S, of the hydrant-stock, in the following manner:

Projecting from the chamber B is a flange, *b'*, which is seated within a suitable recess in the base, S, and the sides of said recess are under-cut, as shown at *s*, and when lead or cement, T, is poured into said recess, the chamber becomes firmly anchored in the base.

The operation of my hydrant is as follows:

When the hydrant is shut off, the valve O bears against the flange F, and also closes the inner end of the pipe C, thereby effectually preventing the entrance of water into the cylinder A.

As the chamber B communicates with the inlet-pipe C, by means of the passage P, said chamber is slowly filled with water, which, pressing against the bottom of the valve O, assists in maintaining it in its closed condition.

To turn the water on, it is only necessary to depress the rod R, by which act the stem K, plunger M, and valve O, are carried along with it, and as soon as said valve is released from its seat, and uncovers the end of the inlet-pipe C, the water flows into the lower open end of the cylinder A, thence out of the same, through the aperture *a*, and up the discharge-pipe D, as indicated by the red arrows in fig. 1.

In the act of depressing the valve O, the water beneath it in the chamber B is forced out through the passage P into the inlet-pipe C.

When the hydrant is turned on, the water is prevented from escaping at the upper end of the cylinder A, by means of the tightly-fitting plunger M, and the disks *m*, the latter of which bear against the upper end of said cylinder.

In shutting off the hydrant, the stem K, plunger M, and valve O, are elevated, so as to bring said valve in contact with its seat F, which elevation can only be effected very slowly on account of the passage P "wire-drawing" the water as it flows into the chamber B, to supply the vacuum caused by the ascension of said valve, and in opening the valve, the small passage P is again useful by providing an escape for the water below the plunger, so as to permit the latter to descend.

When the hydrant is shut off, the waste-way I is opened, so as to permit the water contained in the discharge-pipe D to escape, and thereby prevent the apparatus freezing up in winter.

It will be seen that the water is shut off from my hydrant at two places, both at the inner end of the pipe C, and also at the seat F, thereby diminishing the chances of leakage; and as the valve O bears directly against said seat, and without any rotating or grinding-action, it will last for a long time.

The operating-parts of the hydrant can be removed

in a few minutes by inserting a wrench down the stock and engaging it with the lugs H H', in such a manner that when said wrench is rotated, the cylinder A will be unscrewed from the chamber B, after which said cylinder, together with stem K and its accessories, can be lifted out by elevating the rod R.

In the drawings, the inlet-pipe C is shown as being connected to the chamber B, about its mid-length, and the passage P is represented as descending from said pipe C; but it is evident that this arrangement may be changed so as to attach the inlet-pipe nearer the bottom, and lead a branch-pipe up towards the valve-seat.

I claim herein as new, and of my invention—

The combination, substantially as described, of the open-ended and perforated cylinder A *a*, chamber B *b*, inlet-pipe C, discharge-pipe D, collar E, valve-seat F, packing G, stem K, plunger M *m*, valve O, and contracted passage P, all substantially as described, and for the object explained.

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

SOLOMON TICE.

Witnesses:

GEO. H. KNIGHT,
JAMES H. LAYMAN