

F. J. PAUL.
Hydrants.

No. 137,476.

Patented April 1, 1873.

Fig. 1

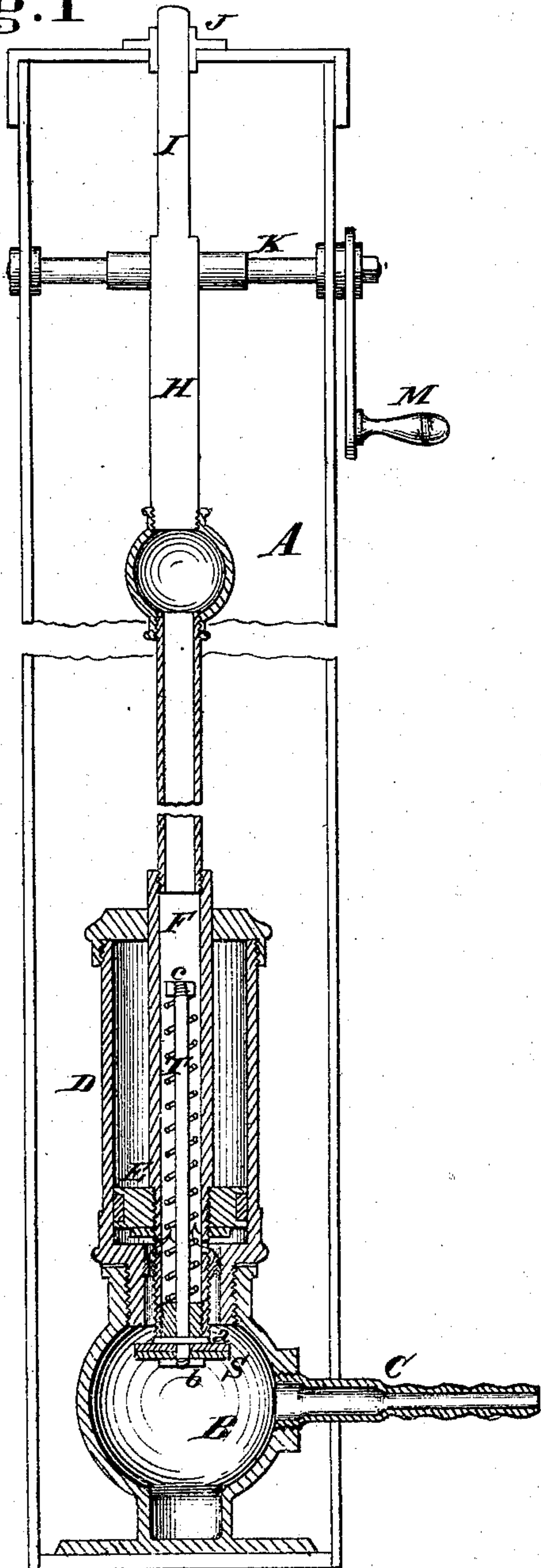
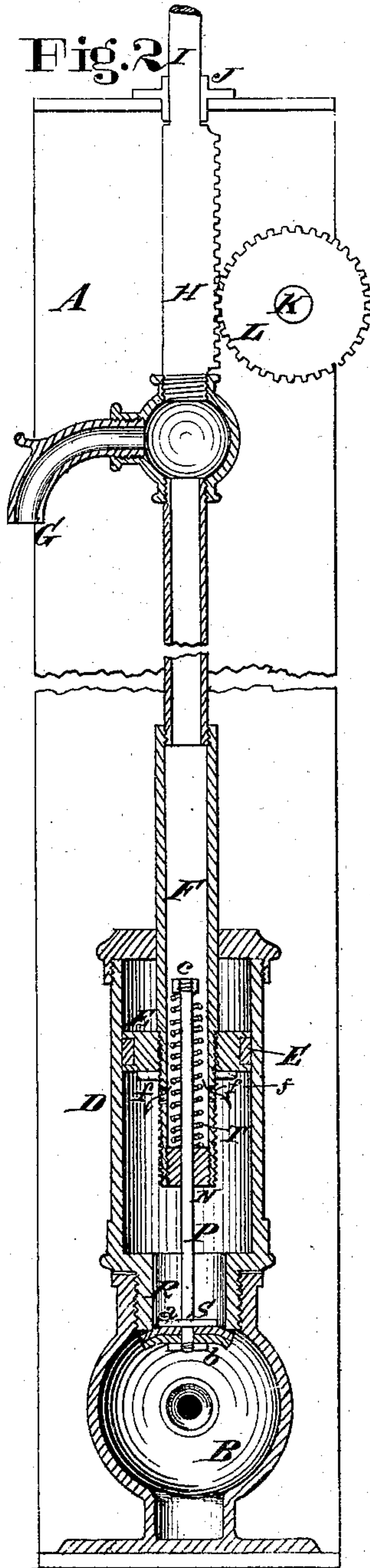


Fig. 2



Attest

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UNITED STATES PATENT OFFICE.

FREDERICK J. PAUL, OF CINCINNATI, OHIO.

IMPROVEMENT IN HYDRANTS.

Specification forming part of Letters Patent No. 137,476, dated April 1, 1873; application filed January 14, 1873.

To all whom it may concern:

Be it known that I, FREDERICK J. PAUL, of Cincinnati, Hamilton county, State of Ohio, have invented certain new and useful Improvements in Hydrants, of which the following is a specification:

Nature and Objects of Invention.

My invention relates to the class of cylinder and piston hydrants in which the water in the pipe of the stock, after use, is automatically drawn into the cylinder by the closing or shutting off of the hydrant, so as to avoid the freezing of water in the stock; and my invention consists in a peculiar construction and combination of piston and hydrant governing valve, by which the piston is made, in its motion up and down, to both open and close the valve, thus insuring positive action on the part of the valve.

Description of Accompanying Drawing.

Figure 1 is a vertical section of my improved hydrant in the open position. Fig. 2 is a vertical section of the same in the closed position.

General Description.

A is the frame or stock, and B the valve-chamber below the ground, into which the water is first received through pipe C. D is the cylinder, in which the piston E is fitted to move snugly in the act of opening or closing the hydrant. The piston is secured to a pipe, F, which communicates with the discharge-neck G of the hydrant. To the upper part of the pipe F a rack, H, is firmly secured, whose upper end is formed into a slide, I, fitted to move easily in a stationary guide, J, at the top of the stock. A shaft, K, is journaled in suitable bearings in the stock A, to which a spur-wheel, L, is fitted, which meshes into the rack H. A handle, M, by which the hydrant is operated, is firmly secured to the shaft K. It will be seen that it needs but a part of a revolution of wheel L to produce the required extent of movement on the part of the piston E, and thus the device is adapted for convenient operation. At the bottom of the pipe F a bush, N, is inserted, through which a stem, P, is fitted to slide, the bush serving as a

proper guide for it. Between the bush N and the piston E one or more perforations, *f*, are made in pipe F for the passage of water to the discharge-neck G when the valve is open, and for the return of the water undischarged to the reception-cylinder D when the valve is closed. The lower end of cylinder D is provided with a hollow neck, R, through which the lower end of pipe F passes, the hole in the neck being much larger than the exterior of the pipe to form an annular space for the passage of water. The exterior of the neck is screw-threaded to connect with the chamber B, and forms a seat for the hydrant-governing valve S. The neck should be larger than the valve, so that by unscrewing the cylinder from the chamber B the entire working parts of the hydrant can be drawn out for repairs, leaving the chamber B still attached to the lead pipe C undisturbed. The stem P has a collar, *a*, against which the valve S of leather disks is secured by nut *b*, and at the upper end has a nut, *c*, between which and the bush N a coiled spring, T, is interposed, whose tendency is to keep the valve against the bottom of pipe F.

When the piston E is moved up to close the hydrant it carries the valve S with it until the latter seats itself upon the neck R. The discharge of water is then stopped; but the piston continues its upward motion until all the water in pipe F above the perforations *f* is discharged into the cylinder D, the spring T allowing the piston to move while the valve stands still. The valve is forced off its seat (to open the hydrant) by the descent of piston E.

Claim.

I claim—

In combination with the cylinder D having a hollow neck, R, for a valve-seat, the pistoned pipe E F *f*, valve S P *c*, and spring T, connected and operating substantially as and for the purpose specified.

In testimony of which invention I hereunto set my hand.

FREDERICK J. PAUL.

Witnesses:

FRANK MILLWARD,
J. L. WARTMANN.