

J. A. STACY.
Hydrants.

No. 156,385.

Patented Oct. 27, 1874.

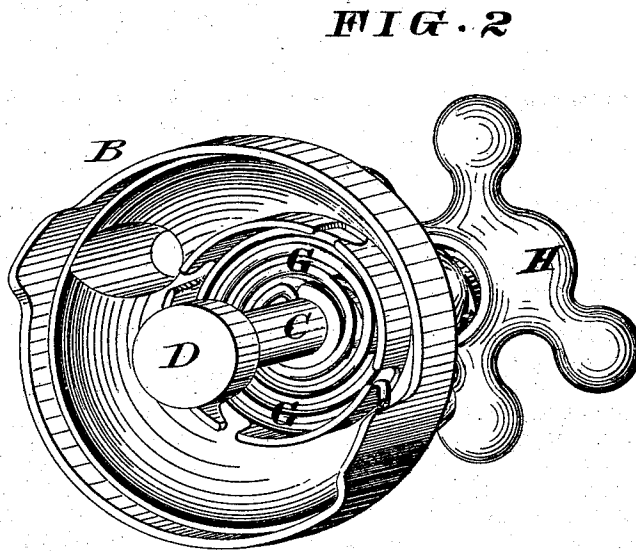
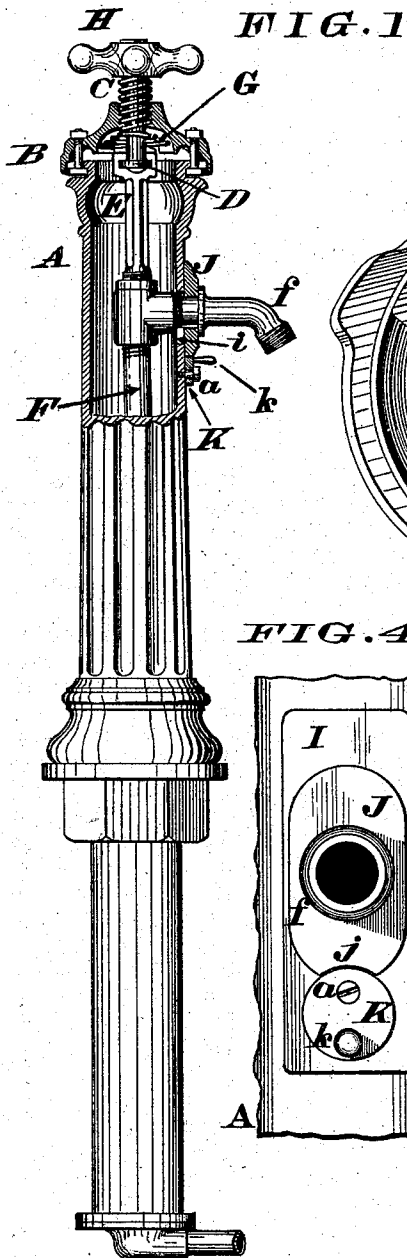


FIG. 4.

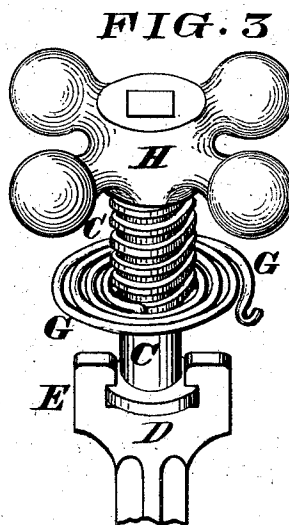
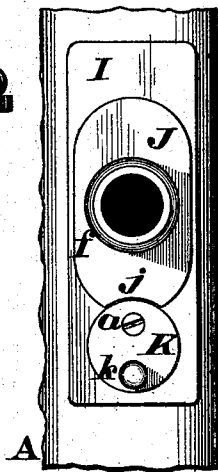
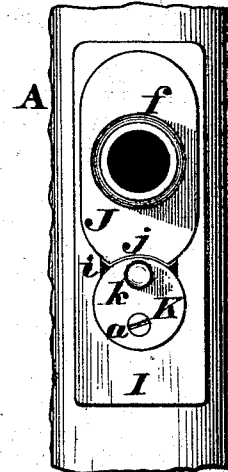


FIG. 5.



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UNITED STATES PATENT OFFICE.

JOHN A. STACY, OF CINCINNATI, OHIO.

IMPROVEMENT IN HYDRANTS.

Specification forming part of Letters Patent No. **156,385**, dated October 27, 1874; application filed August 12, 1874.

To all whom it may concern:

Be it known that I, JOHN A. STACY, of Cincinnati, Hamilton county, Ohio, have invented a new and useful Improvement in Hydrants, of which the following is a specification:

This is an improvement in those hydrants whose valves are closed down upon their seats by the action of a positive screw; and the first part of my invention consists in the application to such a valve of a coil or volute spring, which, the instant the handle of the hydrant is liberated after opening, operates to automatically rotate the screw, and, by so doing, to positively close the valve, as hereinafter fully explained. The second part of my invention relates to an eccentric or equivalent device for maintaining the discharge, by temporarily suspending the action of the self-closing mechanism when desired.

In the accompanying drawing, Figure 1 represents a hydrant provided with my improvement, the upper part of the hydrant being shown in axial section. Figs. 2 and 3 are perspective views on a larger scale, representing the spring and its accessories. Figs. 4 and 5 are elevations, showing my mechanism for suspending the action of the self-closing devices in its inoperative and operative conditions, respectively.

A may represent the hydrant-stock, of any suitable form. B is the cap of the same, screw-threaded interiorly to receive the screw-threaded stem C of collar D, that engages with a yoke or stirrup, E, of moving water-way F, whose lower end constitutes the valve, in the customary manner of this class of water-ways. G is a coil or volute spring, whose inner extremity is attached to the stem C, and whose outer extremity is attached to the cap B. The stem C is surmounted by any suitable handle, H, or by a head for the application of a suitable key or spanner. The stock A is provided with a raised seat, I, that is slotted at *i* to permit vertical movement of the projecting spout or nozzle *f* of water-way F. Bearing upon the seat I, and moving simultaneously with the nozzle *f*, is a sliding guard-plate or escutcheon, J, whose lower end is notched at

j to receive the edge of a cam or eccentric, K, which latter is pivoted to the stock at *a*. *k* is a handle wherewith the eccentric is manipulated.

The operation of my improvement is as follows: The valve is opened and again closed by the rotation of the screw in opposite directions, the closing rotation being effected automatically by means of the volute spring G, this closure being effected by the screw directly; and the pitch of the screw being necessarily such as will cause the screw to yield only to a force in the direction of its rotation, it follows that no upward pressure of the contained fluid can open the valve.

In this respect my arrangement differs essentially from those whose valves are made self-closing by the action of a spring whose stress is wholly axial. Such valves are held shut wholly by the spring, and are, of course, subject to be opened by an internal pressure in excess of the spring-pressure, and, even if raised from their seats by the action of a screw or spiral cam, are not closed thereby, nor can they be held shut by such a cam or spiral, because its pitch must necessarily be steep enough to permit the unrestricted action of the spring in the axial direction, while, on the other hand, the pitch of my screw must, with equal necessity, be so gradual as to afford unrestricted action to my self-closing coil—a pitch which necessarily operates to effect a positive closure of the valve.

In the former case the closure of the valve is effected solely by the spring, the screw, if any be employed, being of very steep pitch, and being for opening only, and the closure not being positive.

In my arrangement the valve is closed and held immovably shut by the screw alone, the functions of the spring being merely accessory—namely, to insure against an accidental leaving open of the hydrant.

As the stress of the spring G has a continual tendency to close the hydrant, and as, in some instances, it will be desired to keep the hydrant open without the trouble of holding the handle, I have provided, with this object,

a cam or eccentric, K, which, when the water-way is elevated, may be engaged under the sliding plate J, as shown in Fig. 5. The cam, by preventing the descent of the water-way, will operate to hold the hydrant open. To stop the flow of water it is then only necessary to release the cam, which dropping to the position shown in Fig. 4, the hydrant closes immediately by the action of the spring G upon the screw-stem C, as already explained.

The form selected to illustrate my invention may be changed in non-essential particulars. For example, a removable pin or a turn-button may be substituted for the eccentric K. The operating-spring, instead of being coiled in a horizontal plane, as shown, may be arranged around the stem in the form of a helix, and may occupy a corresponding neck projecting from the cap B; but, however formed or applied, its action upon the stem must be the same—that is to say, vortical, not vertical.

I claim as new and of my invention—

1. The described combination of screw-threaded valve-stem C and spring G, operating upon said stem to rotate the same to close the valve, as and for the purpose set forth.

2. The arrangement of the screw-threaded stem C with the coil or volute spring G, having one end united to or bearing upon the screw-stem and the other end to the cap or other stationary member, as and for the purpose set forth.

3. In combination with the vertically-moving and self-closing water-way F of a hydrant, the cam or eccentric K, or its equivalent, as and for the object stated.

In testimony of which invention I hereunto set my hand.

JOHN A. STACY.

Attest:

GEO. K. KNIGHT,
JAMES H. LAYMAN.