(No Model.)

D. J. MURPHY & H. F. LOW.

STOP AND WASTE COCK.

No. 339,316. Patented Apr. 6, 1886.

Fig. 1

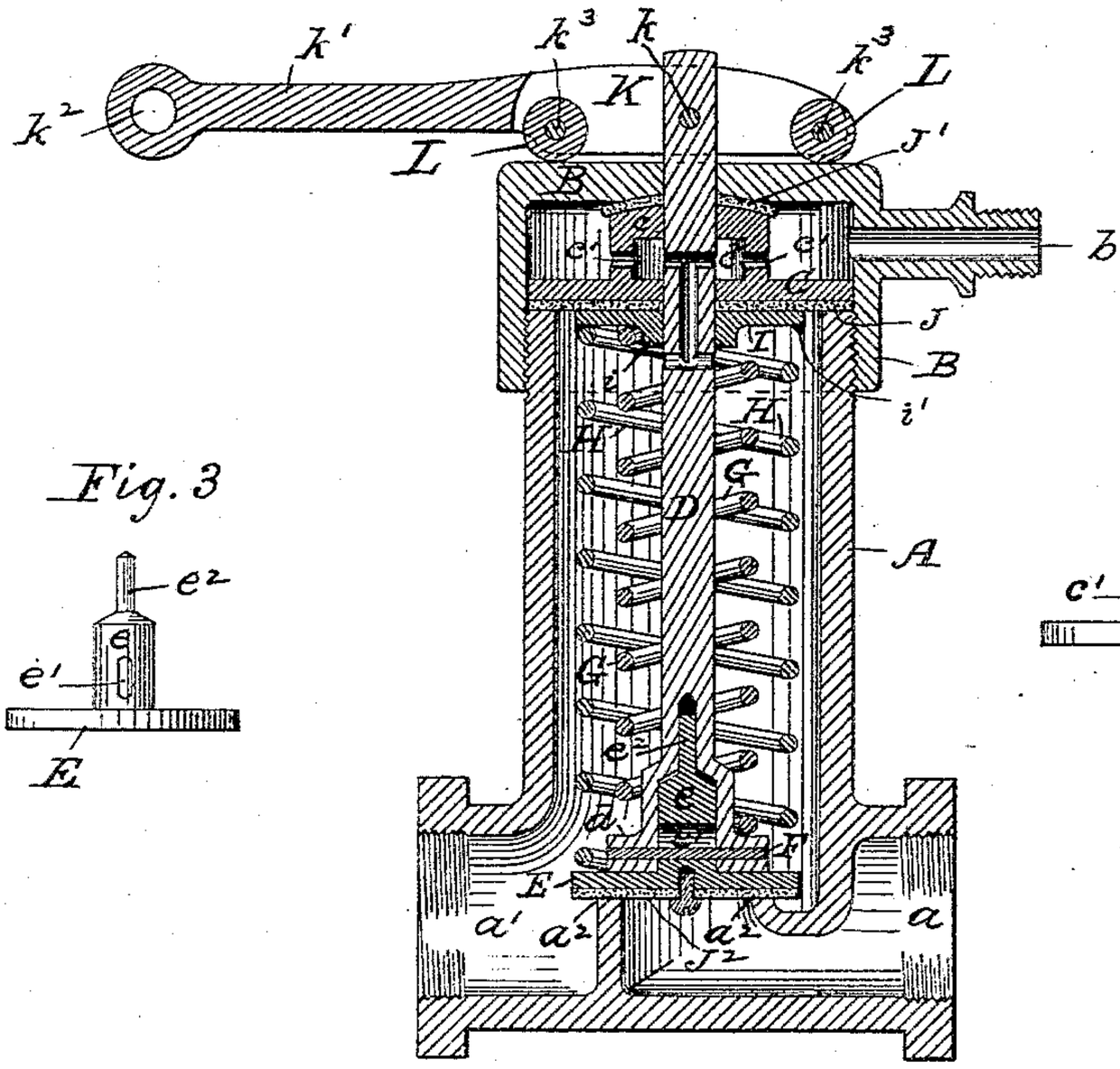


Fig. 3

Fig. 4

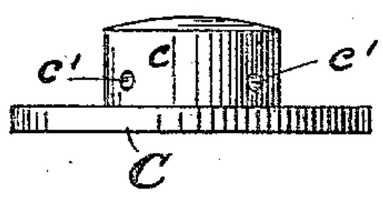
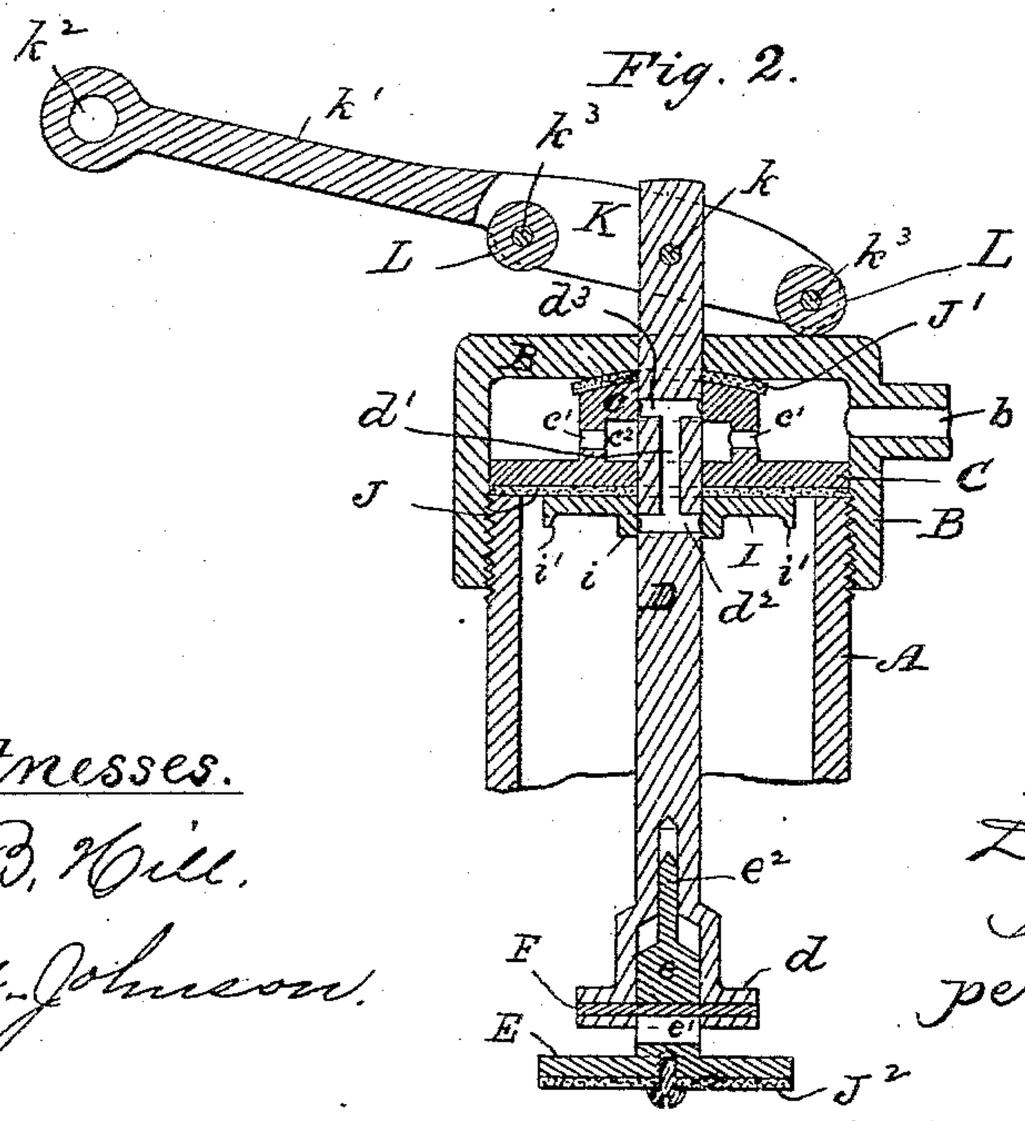


Fig. 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

DANIEL J. MURPHY AND HAMILTON F. LOW, OF MANCHESTER, NEW HAMPSHIRE; SAID LOW ASSIGNOR TO SAID MURPHY.

STOP AND WASTE COCK.

SPECIFICATION forming part of Letters Patent No. 339,316, dated April 6, 1886.

Application filed September 14, 1885. Serial No. 177,015. (No model.)

To all whom it may concern:

Be it known that we, DANIEL J. MURPHY and HAMILTON F. LOW, citizens of the United States, residing at Manchester, in the county of Hillsborough and State of New Hampshire, have invented certain new and useful Improvements in Stop and Waste Cocks, of which the following is a specification.

Our invention relates to stop-cocks with automatic waste.

The object of our invention is to provide in a stop-cock an outlet for the escape of the water contained in the pipes above the said cock, said outlet to be opened and closed automatically by the operation of the valve in said cock in such manner as that when the cock is open the waste-outlet will be automatically closed, and vice versa.

Our invention consists in the peculiar form of connecting the valve-stem to the valve, whereby the said stem is permitted to rise one-quarter inch (more or less) before lifting the said valve.

Our invention further consists of the application of two independent springs for accomplishing the above purpose, one exerting its force upon the valve-stem and the other upon the valve.

Our invention further consists in providing a waste-chamber in said cock above the valve-chamber.

Our invention finally consists in providing in the valve-stem a central waste chamber or passage having its inlet so located as to connect with the valve-chamber, and its outlet with the waste-chamber when said valve is closed, thus allowing the standing water above said cock to pass back through the valve-chamber, the valve-stem, and the waste-chamber, and to escape by means of the waste-pipe connected to said waste-chamber.

In the accompanying drawings, forming part of this specification, Figure 1 represents a central vertical sectional elevation of our improved cock having its valve closed and the waste-passages open. Fig. 2 represents a vertical section of the top of the improved cock, showing the valve-stem as when raised sufficiently to have carried the waste-inlet to said stem within the washer directly under the disk which separates the valve-chamber from the waste-chamber. Fig. 3 shows a detailed elevation of the pressure-valve, and Fig. 4 a detached elevation of the disk or plate dividing the valve-chamber from the waste-chamber.

Like reference-letters indicate corresponding parts throughout the various views.

The cock A is provided with an inlet, *a*, and an outlet, *a'*, both located at its bottom, and to its top is threaded a cap, B, to which a waste-pipe may be connected at *b*. To this cap B is fitted a disk, C, having on its upper side a hollow hub, *c*, in the cylindrical sides of which are provided several holes, *c'*, connecting with the chamber c^2. The valve-stem D passes up through the disk C and the cap B, its lower end being secured to the valve E by a pin, F, which passes through said valve-stem and an elongated opening, *e'*, made in the hub *e* of said valve for the purpose of allowing the said stem a limited vertical movement before it shall have raised the said valve. The hub *e* may be provided with a spindle, e^2, which, with said hub, will enter the valve-stem and act as a guide for said valve in its motion to and from its seat a^2. Two spiral springs are placed within the valve-chamber and surrounding the valve-stem, one within the other, the smaller spring, G, resting upon the flange *d*, formed on the bottom of the valve-stem, and the larger spring, H, resting upon the valve E, the tops of both bearing against a washer, I, which is made circular and provided with two annular flanges on its lower side, the smaller flange, *i*, projecting slightly within the spring G, while the larger flange, *i'*, projects down around the top of the spring H.

The valve-stem D is provided with a concentric vertical chamber, *d'*, an orifice, d^2, connecting with its lower end, and orifice d^3 with its upper end, the location of this vertical chamber and its orifices being such as that when the said valve-stem is resting upon the valve E and said valve is seated the orifice d^2 is in position to receive the waste water from the pipe leading from and above the cock, and the orifice d^3 is in position to discharge said water through the apertures *c'*, formed in the hub *c* of the disk C, into the waste-chamber, and thence out through the aperture *b* of the cap B, as clearly shown in Fig. 1 of the drawings.

For the purpose of packing the valve-stem suitable washers, J J′, formed of leather or rubber, are placed one below the disk C, between it and the metal-spring seat or washer I, and another above the convex top of the hub *c* of said disk and between it and the concavity formed on the under side of the top of cap B. The washer J is made large enough to cover the top of the cock A, and serve also as a packing for the cap B by reason of its compression by the disk C when said cap is screwed down.

Various means may be provided for operating the valve-stem, one of which is shown in Figs. 1 and 2, in which a lever, K, is fulcrumed at *k* to the valve-stem, said lever being provided with two rolls, L, pivoted thereto on opposite sides of and equidistant from said valve-stem, and with an arm, *k′*, by which it may be raised either by hand or by means of a rod, which may be connected thereon at k^2. The said rolls L when in their normal position bear upon the top of the cap B, and when the arm *k′* is raised that roll at the other side of the valve stem will travel toward said stem, and the said stem will also be raised.

The advantage of our improved cock over those in ordinary use is the combined action of the waste-duct and the pressure-valve, the operation of which is as follows: When the valve-stem D is raised by the lever K or other mechanism, the waste-duct through said valve-stem, consisting of passages d^2 *d′* d^3, is first closed by reason of the orifice d^2 having entered the piece I, the further movement of the said valve-stem upward causing the pin F to bear against the top of the elongated opening *e′* of the valve E and raise said valve, thus admitting water through the inlet *a* to the valve-chamber, when it will make its exit at *a′*. By letting go the lever K the valve is immediately closed and the waste-duct opened. Thus the waste-duct is always closed before water can be admitted to the cock.

Having described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In a stop and waste cock, the combination, with a valve-stem having a concentric chamber running lengthwise of the same, and inlet and outlet orifices connecting therewith for the passage of waste water, and a spring exerting a downward pressure thereon, of a disk-valve movably connected to the lower end of said valve-stem, and a spring exerting a downward pressure thereon, all constructed and operating in the manner and for the purpose set forth.

2. In a stop and waste cock constructed substantially as described, the combination, with a valve-stem and a spring exerting a downward pressure thereon, of a disk-valve movably connected to the lower end of said valve-stem, and a spring exerting a downward pressure thereon, and suitable waste-passages adapted to close automatically with the upward motion of said valve-stem and before the admission of water to said cock, as and in the manner shown and described.

In testimony whereof we affix our signatures in presence of two witnesses.

DANIEL J. MURPHY.
HAMILTON F. LOW.

Witnesses:
J. B. THURSTON,
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