

(No Model.)

W. SWABEL.

STOP COCK.

No. 343,283.

Patented June 8, 1886.

Fig. 1.

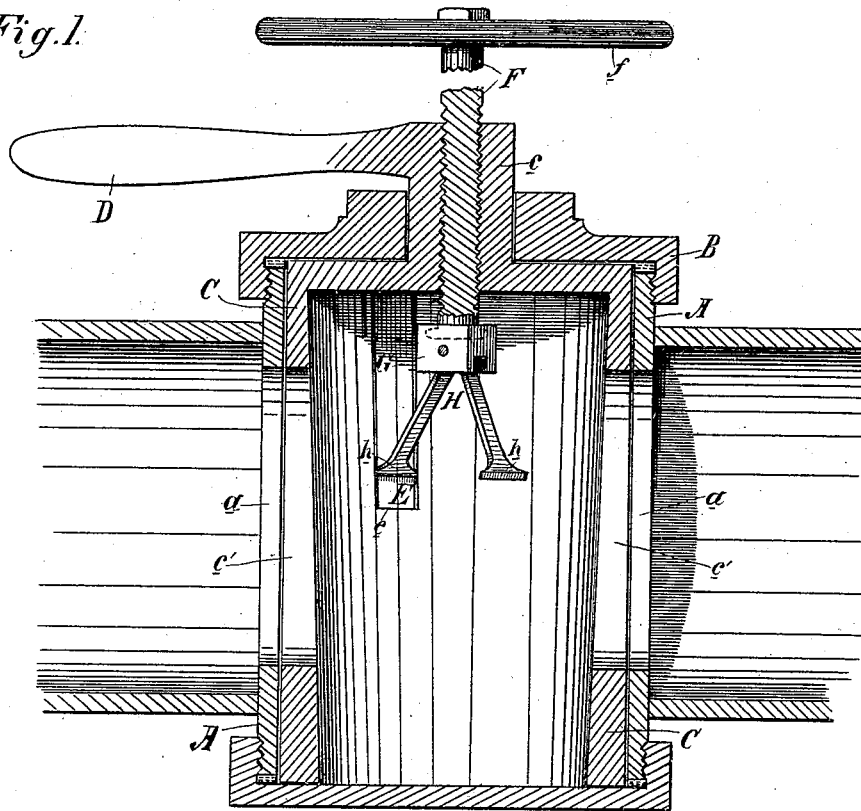
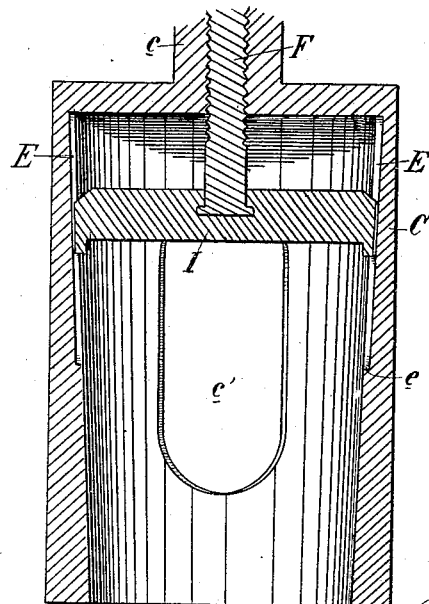


Fig. 2.



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UNITED STATES PATENT OFFICE.

WILLIAM SWABEL, OF SAN FRANCISCO, CALIFORNIA.

STOP-COCK.

SPECIFICATION forming part of Letters Patent No. 343,283, dated June 8, 1886.

Application filed September 9, 1885. Serial No. 176,639. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM SWABEL, of the city and county of San Francisco, and State of California, have invented an Improvement in Stop-Cocks; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to the class of stop-cocks; and it consists in a novel expanding-plug therefor and in the means by which the plug is expanded, as I shall hereinafter fully explain.

The object of my invention is to provide a stop-cock in which the plug can be tightly adjusted to its seat and relieved when desired.

Referring to the accompanying drawings, Figure 1 is a vertical section of my stop-cock. Fig. 2 is a section of plug C, showing the cross-head I as a modification of the toggle-lever.

A is the shell of the cock, provided with ports *a*, which communicate with the connections which are made with the cock. The inner surface of the shell is made cylindrical and perfectly straight, having the same diameter throughout.

B is the screw-cap for the top of the shell.

C is the plug, which is made cylindrical, its periphery being straight and adapted to fit within the shell A. The stem *c* of the plug projects upwardly through the cap B, and is provided with a handle, D, by which the plug may be partially rotated to bring its ports *c* into alignment with the ports *a* of the shell or turn them away. The inner surface of the plug C is made tapering, its greatest diameter being above. In the walls of the plug are made dovetail grooves E, the lower ends of which are provided with stops *e*.

F is a screw-stem, having on the top a crank-wheel, *f*, and extending downwardly through the perforated stem of the plug into said plug. It has connected with its lower end by a suitable swivel-joint a bearing, G. In the lower end of the bearing are pivoted the arms of a toggle-lever, H, the ends of which are provided with cross-heads *h*, which play in the grooves E in the inner wall of the plug.

The operation is as follows: By means of the handle D the plug may be turned to open or close the cock in the ordinary manner.

The crank-wheel *f* is then turned so as to force the screw-stem F downwardly, which causes the toggle-lever H to move down in its grooves until it is limited by the stops *e* in the bottom of said grooves. The further downward movement of the stem then causes the arms of the toggle-lever to increase their divergence, whereby said lever presses outwardly against the walls of the plug, so that it fits tightly the shell A. To relieve it the screw-stem F is raised, thereby drawing up the toggle. It will be observed that the toggle acts as a wedge, which, in fact, I may employ. Thus in Fig. 2 I show, instead of the toggle-lever, a cross-head, I, the ends of which are guided in the dovetailed grooves E and its body swiveled to the screw-stem F. The operation of this cross-head is the same as that of the toggle-lever, though I prefer the latter, for the reason that when elevated, on account of its arched shape, it is entirely out of the way, and does not impede the flow of water through the cock, whereas the cross-head would be in the way, though it is serviceable enough for small cocks.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a stop-cock, the combination of the shell A, provided with suitable ports, with the plug C, fitting within said shell, and having suitable ports, said plug consisting of a continuous or integral cylindrical piece, and a vertically-reciprocating wedge within the plug and bearing against its walls, whereby they are forced to fit the shell, substantially as herein described.

2. In a stop-cock, the shell A, having suitable ports, in combination with the plug C, formed of a single piece of metal, having ports and means for oscillating it, the grooves E in the inner tapering surface of the plug, the toggle-lever H, the arms of which are guided in the grooves and bear against the wall of the plug, and a means for depressing said lever to force its arms outwardly against the plug and to raise the lever to relieve said plug, substantially as described.

3. In a stop-cock, the shell A, having suitable ports, in combination with the plug C, composed of a single piece of metal, having

suitable ports, and a stem provided with means for oscillating it, the inner surface of the plug having a downward taper extending its entire length, as described, and provided with grooves
5 E, with stops *e* at their bottoms, the swiveled toggle-lever H, the arms of which are guided in the grooves, and the screw-stem F, secured to the toggle-lever and passing upwardly through the stem of the plug, substantially as
10 herein described.

4. A stop-cock comprising the shell A, having ports *a*, the cylindrical hollow plug C, having ports, and a downwardly-tapering inner surface provided with grooves E, having
15 stops *e* at their bottoms, the cap B, the stem *c*

of the plug provided with a handle, D, the screw-stem F, passing through and seated in the stem of the plug, and having crank-wheel *f*, the bearing G, swiveled to the bottom of the screw-stem, and the toggle-lever H, the arms 20 of which are pivoted to the bearing and play in the grooves of the plug, substantially as herein described.

In witness whereof I have hereunto set my hand.

WILLIAM SWABEL.

Witnesses:

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