(No Model.)

C. F. LOGAN.

STOP COCK.

No. 478,618. Patented July 12, 1892.

Fig. 1.

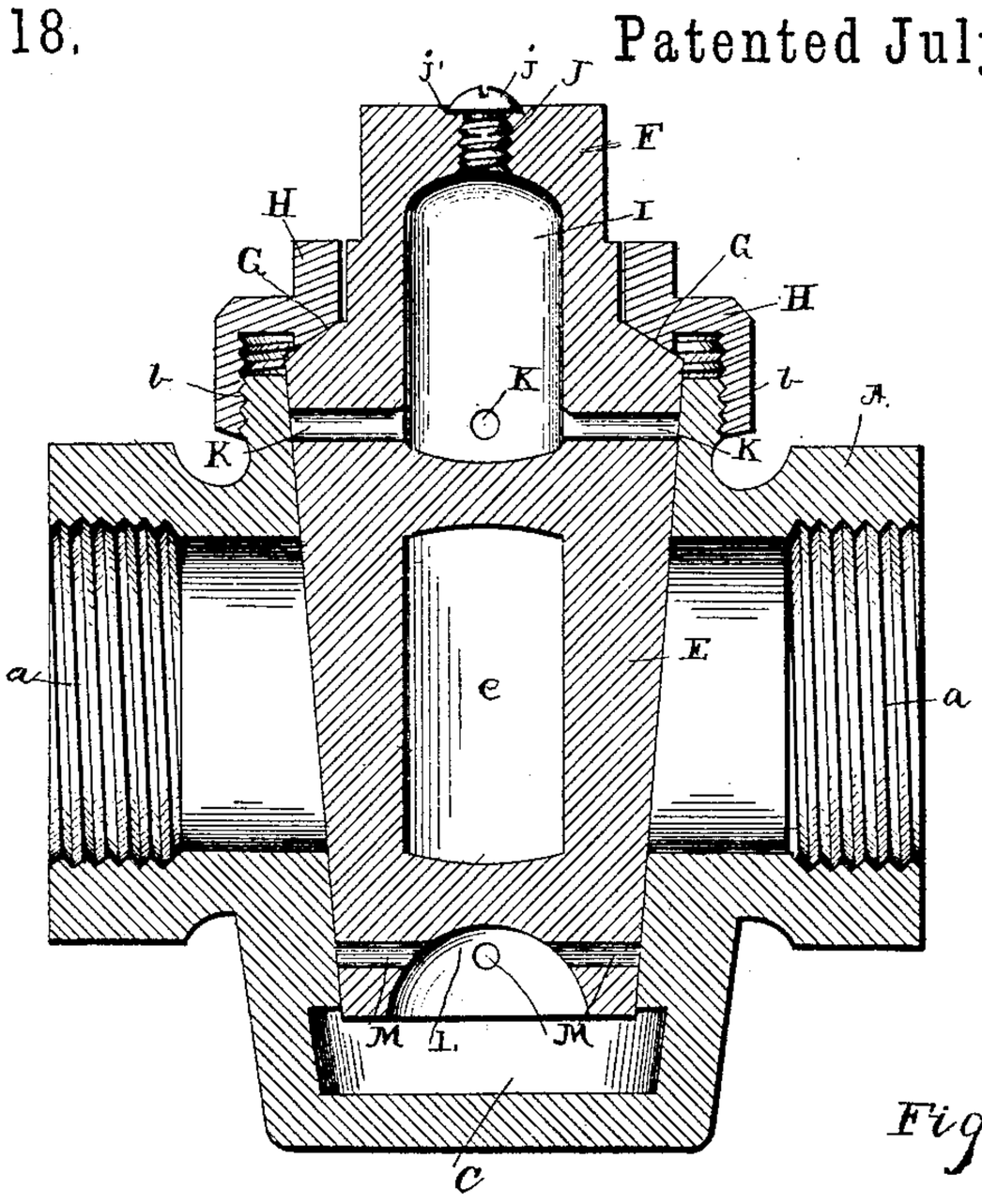


Fig. 2.

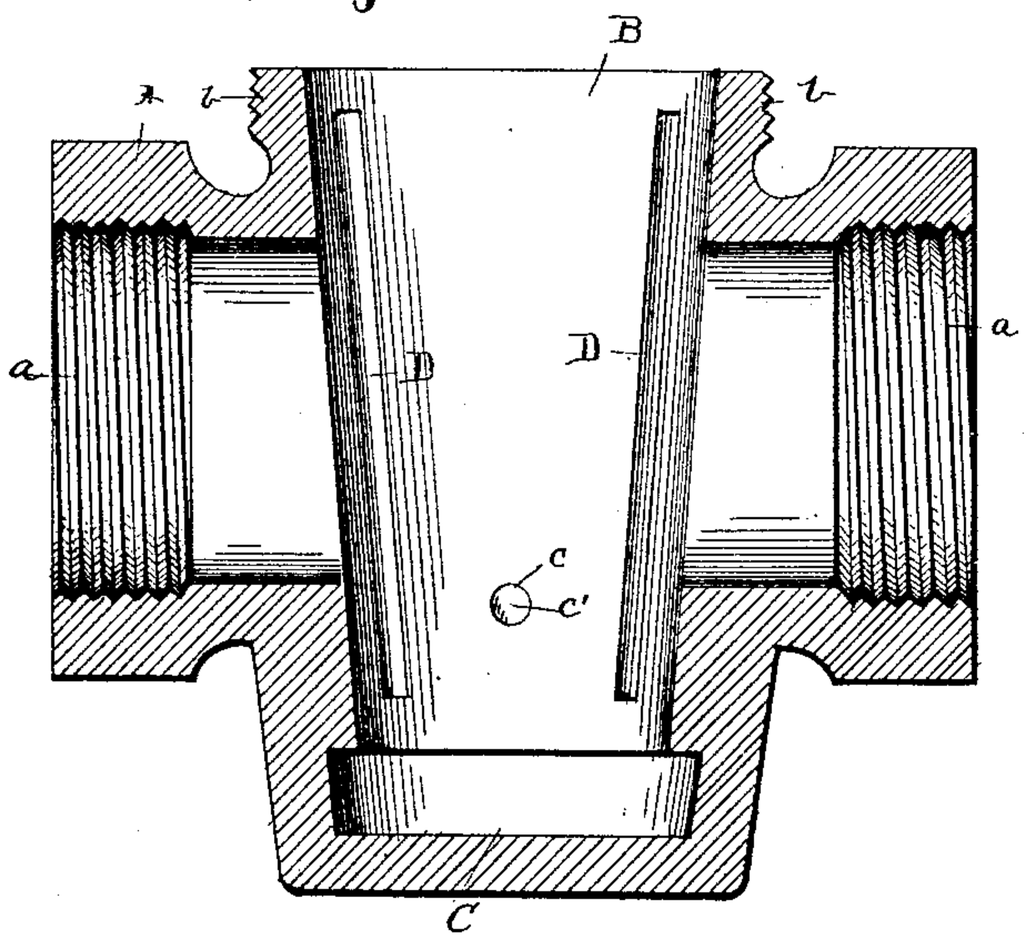
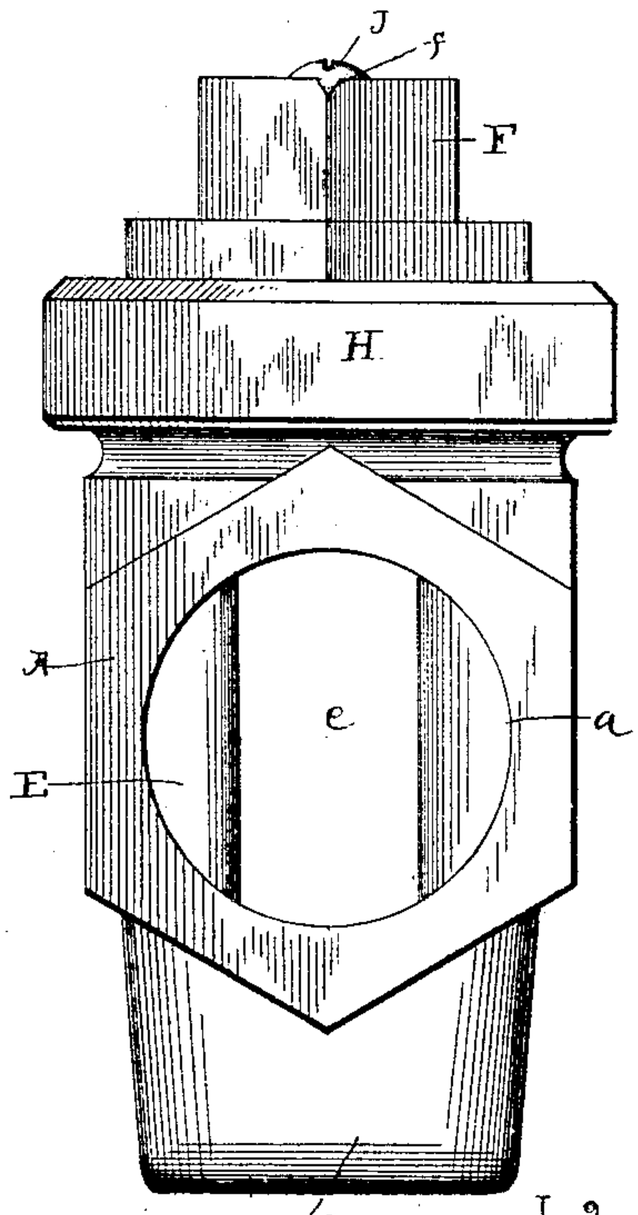


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

CYRUS F. LOGAN, OF LOCK HAVEN, PENNSYLVANIA.

STOP-COCK.

SPECIFICATION forming part of Letters Patent No. 478,618, dated July 12, 1892.

Application filed November 24, 1891. Serial No. 412,910. (No model.)

To all whom it may concern:

Be it known that I, CYRUS F. LOGAN, a citizen of the United States, residing at Lock Haven, in the county of Clinton and State of Pennsylvania, have invented a new and useful Stop-Cock, of which the following is a specification.

This invention relates to stop-cocks for water, steam, or used in connection with any device for which stop-cocks are designed; and it has for its object to provide an improved self lubricating and packing stop-cock which, while being tightly secured within its seat, always provides for a lubrication of every part of the cock having frictional contact in its bearings, and thus providing one which can always be readily turned and avoids the possibility of sticking, while otherwise serving all the functions of ordinary cocks.

With these and many other objects in view, which will readily appear as the nature of the invention is fully understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

In the accompanying drawings, Figure 1 is a vertical longitudinal sectional view of a stop-cock constructed in accordance with my invention. Fig. 2 is a similar view, the plug being removed. Fig. 3 is an end view of the casing and cock.

Referring to the accompanying drawings, A represents the cock-casing, having the usual threaded ends *a* to allow for the attachment of the cock in a line of piping, the same having the ordinary longitudinal fluid or vapor passage therethrough. The said body or casing is provided with the intermediate tapered or conical plug seat or bearing B, extending transversely into said casing and surrounded at its upper end by the exteriorly-threaded neck or flange *b*, and said casing is further provided directly below the lower end of said conical plug-seat, below the line of the passage through said casing with an enlarged oil-reservoir C, which may be readily filled from the outside of the casing through the opening *c* in the side of the conical bearing and plugged by the plug-screw *c'*, closing said opening after the filling of said reservoir. The inner bearing-face of said conical plug-seat is provided with a series of vertical V-shaped oil-grooves D, arranged around the same and extending nearly the full length of said seat. Seated and working within said bearing and seat is the conical rotating plug or gate E, provided with a single passage *e* through the body thereof, which is designed by the turning of said plug to be thrown into alignment with the passages through the cock-casing or to be turned to stop the flow of the fluid or vapor, as desired. The said plug E extends above the top of the casing A and terminates in the squared head F, which is engaged by a wrench or other tool to turn said plug, which is indicated as being turned on or off by means of the indicating-groove *f*, formed in the top of said head and parallel with the opening through the plug. The said plug is provided at the base of said head, directly above the flange *b*, with the beveled bearing-surface G, against which bears a correspondingly-beveled surface formed on the securing cap or nut H, provided with a depending interiorly-threaded flange engaging the exteriorly-threaded flange *b*, and thus firmly holding the plug within its seat, the joint between the beveled surface of said cap and that of the plug being an ordinary metallic ground joint, which effectually prevents leakage.

The plug E is further provided directly above the opening therethrough and within the body thereof with the interior oil-reservoir I, the upper end of which communicates with a threaded opening J, through which the oil is supplied to the reservoir and which is plugged by the plug-screw *j*, screwing therein and having the head thereof resting upon the lead seat *j'*, which prevents the oil from leaking out of the head. A series of oil-distributing perforations or passages K communicate with the lower end of said reservoir and extend at right angles therefrom and to each other through the body of the plug and meet on the bearing face or seat within which said plug works, and as said plug is turned in either direction it can be readily seen that the oil will pass through said passages, and as the same strike the vertical oil-grooves D the oil will flow from said reservoir down said vertical grooves, and thus provide for a lubri-

cation of the plug from the uppermost point thereof to a point slightly below the opening therethrough.

The plug E is provided with a concaved bottom L, which when said plug is within its seat incloses the bottom reservoir C at the bottom of the cock-casing, and a series of oil-passages M also communicate with said reservoir and are arranged in the extreme lower end of the plug at right angles to each other and radially from the reservoir, in order to distribute the oil as the said plug is revolved upon and around the conical seat and bearing.

The lower oil-reservoir is readily filled by raising the plug sufficiently to allow the side filling-opening *c* to be employed for filling the said chamber or reservoir without a complete removal of the plug, as will be at once apparent.

The plug-screw *c'*, plugging the opening to fill the lower reservoir, is of course provided with a lead seat similar to that of the plug-screw *j* in the head of the plug for the same purpose.

The advantages and superior qualities of the herein-described self-lubricating plug-cock are now thought to be apparent, as well as its operation, without further description.

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

1. In a stop-cock, the combination of the casing having a conical seat and bearing, a series of open V-shaped vertical oil-grooves arranged in a series around in the face of said bearing, and a rotating plug provided with an upper and lower inclosed oil-reservoir, and a series of distributing-passages communicating with said reservoirs and extending through the body of the plug, substantially as set forth.

2. In a stop-cock, the combination of the casing having a conical seat and bearing and an oil-chamber located beneath said bearing, a series of vertical V-shaped oil-grooves formed in the face of said bearing, and a rotating plug provided with an inclosed reservoir at its upper end, a series of distributing-passages communicating with said reservoir and extending through the body of the plug, and a series of supplemental distributing-passages in the bottom end of said plug and communicating radially with the oil-chamber located beneath said plug and bearing, substantially as set forth.

3. In a stop-cock, the combination of the casing having a conical seat and bearing and an oil-chamber located beneath said bearing, a series of vertical oil-grooves formed in the face of said bearing, a rotating plug mounted within said seat and provided with a lower concaved end inclosing said casing oil-chamber, an inclosed reservoir within the top end of said plug, a series of radially-extending distributing-passages communicating with said reservoir and extending through the body of the plug, and a supplemental series of radially-extending distributing-passages in the bottom end of said plug and communicating with the space inclosed by the concaved bottom thereof, substantially as set forth.

4. In a stop-cock, the casing having the bottom reservoir C, combined with the rotating plug E, provided with the concaved bottom F, which when the plug is seated within the casing incloses the bottom reservoir, and the series of oil-passages communicating with the concaved bottom, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CYRUS F. LOGAN.

Witnesses:
B. F. GEARY,
WILLIAM BALDWIN.