

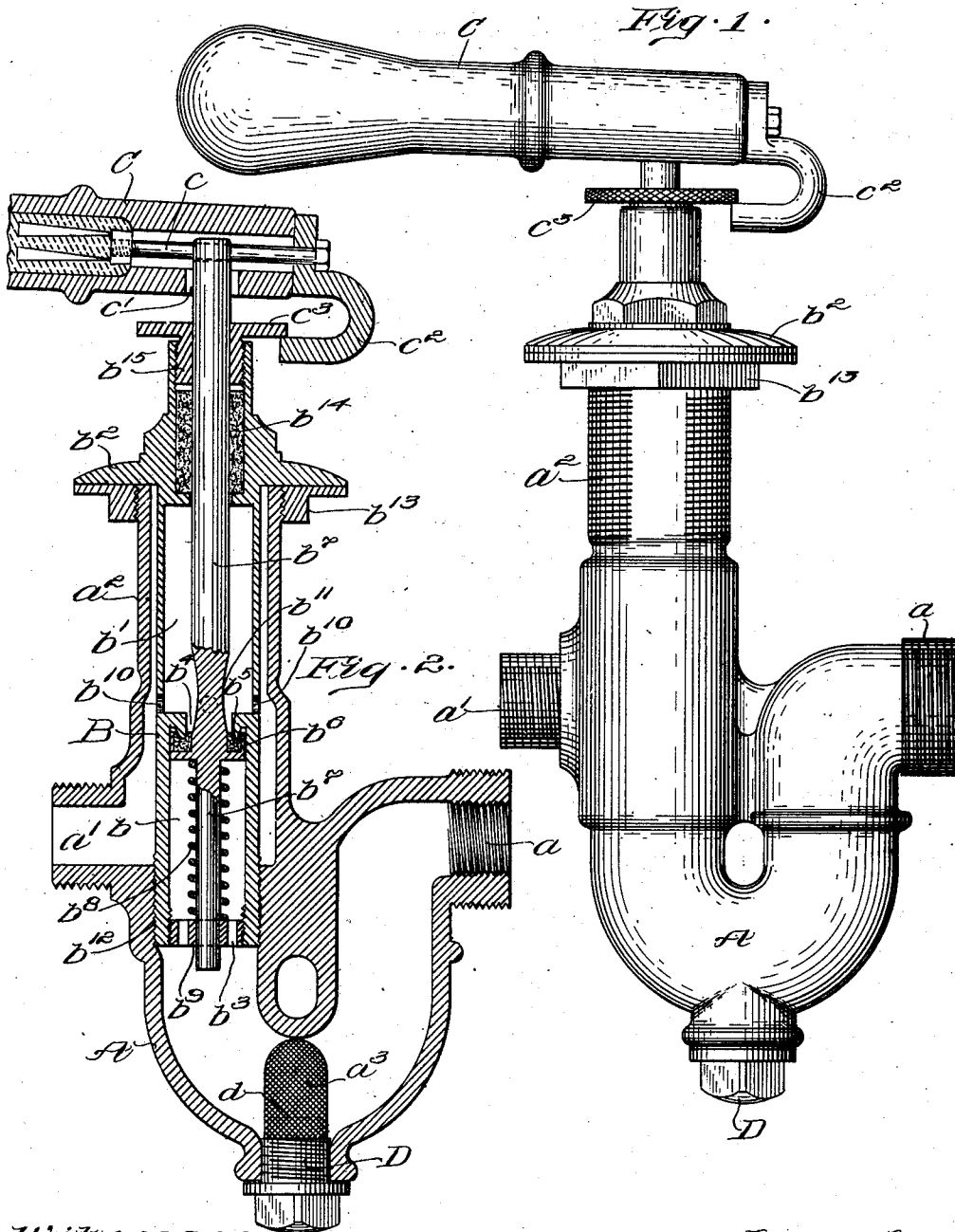
D. CRAIG.
COCK.

APPLICATION FILED FEB. 13, 1909.

974,027.

Patented Oct. 25, 1910.

2 SHEETS—SHEET 1.



Witnesses:

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2 SHEETS—SHEET 2.

Fig. 3.

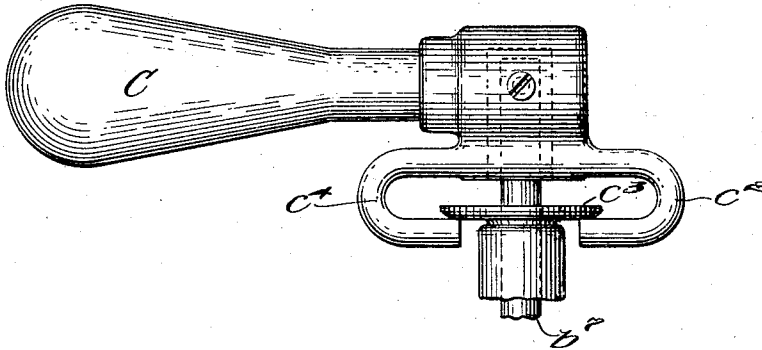


Fig. 4.

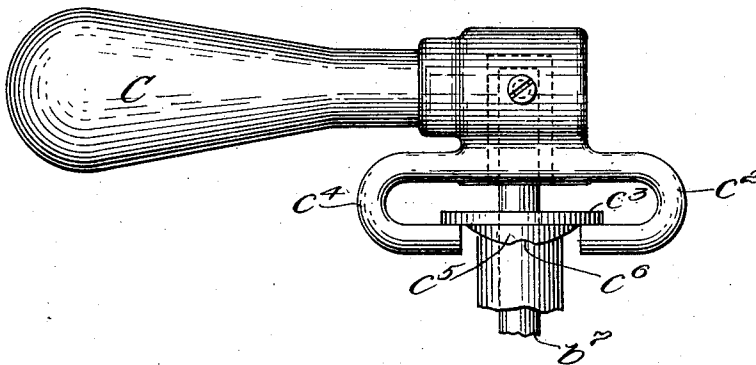
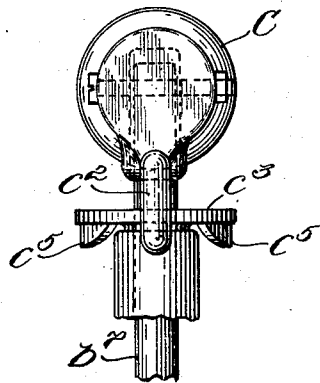


Fig. 5.



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UNITED STATES PATENT OFFICE.

DAVID CRAIG, OF MELROSE, MASSACHUSETTS.

COCK.

974,027.

Specification of Letters Patent.

Patented Oct. 25, 1910.

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To all whom it may concern:

Be it known that I, DAVID CRAIG, a citizen of the United States, and resident of Melrose, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Cocks, of which the following is a specification.

This invention relates to cocks and consists in the improvements hereinafter fully described and specifically pointed out in the claims.

In the accompanying drawings which illustrate certain embodiments of my invention,—Figure 1 is a side elevation of a cock embodying my invention in one form; Fig. 2 is a sectional view of the cock shown in Fig. 1; Fig. 3 is a side view of a modified form of an operating lever and its associated parts; Fig. 4 is a side view of another modification of an operating lever and its associated parts; and Fig. 5 is an end view of the parts shown in Fig. 4.

Referring to the drawings, A represents the outer casing, having the inlet port a , the outlet port a' and the vertical branch a^2 . A strainer a^3 may be provided if desired. Independent of the outer casing is a valve casing B, preferably of generally cylindrical form adapted to be inserted in the outer casing through the end of branch a^2 . The valve casing B comprises a valve chamber b located between the inlet and outlet ports of the outer casing, a discharge chamber b' and a cap b^2 adapted to engage and close the end of branch a^2 . The valve chamber b is provided with inlet openings b^3 , an outlet opening b^4 , and a valve seat b^5 . The valve b^6 is mounted on valve stem b^7 , and is normally urged toward its closed position by coil spring b^8 which abuts at one end against the under side of valve b^6 and at its other end against the perforated abutment b^9 , screwed into the bottom of the valve chamber, which abutment also serves as a guide for the lower end of the valve stem.

The discharge chamber b' is provided with outlet ports b^{10} which communicate with the outlet port a' of the outer casing through the space between the valve casing and the outer casing. The valve stem b^7 is reduced in diameter as shown at b^{11} so as not too much to obstruct the outlet opening b^4 when the valve is opened.

The lower end of the valve casing is ex-

teriorly screw threaded and the outer casing A is correspondingly interiorly screw threaded, as shown at b^{12} so that all that is necessary to do to assemble the valve casing and the parts carried thereby, with the outer casing, is to insert the former in the branch a^2 and screw it up. For further security it may be locked in place by nut b^{13} which is screwed on to the end of branch a^2 and abuts against cap b^2 . The cap b^2 is provided with a stuffing box surrounding the valve stem b^7 in which suitable stuffing or packing b^{14} is inserted, the stuffing box being closed by nut b^{15} .

With the foregoing construction, should it be desired to gain access to the valve or valve seat or any of their associated parts for the purpose of cleaning or repairing them, all that needs to be done is to remove the inner valve casing B which carries the valve, the valve seat, the valve operating spring, etc., all of which are separable from the outer casing A as a unit. The outer casing A is then an empty shell and its interior is also readily accessible for cleaning since it is unobstructed by the valve seat which usually forms a part of such outer casing.

C is the operating lever or handle, preferably made hollow and having a rod c suitably secured therein. The valve stem b^7 projects through an aperture c' in the under side of lever C and pivotally engages rod c . At the end of lever C is a downwardly extending projection herein shown as a hook c^2 , which extends around the periphery of the disk-like projection c^3 which is fast upon the valve casing and engages the under side thereof. Thus the lever C may be turned or swung angularly with relation to the casing, and in any angular position the projection c^2 will engage the under side of disk c^3 , the point of engagement constituting the fulcrum of the lever when the same is pressed downward to move the valve stem or rod b^7 endwise to open the valve.

In the modification shown in Fig. 3, a second projection c^4 , opposite projection c^2 , is provided engaging the under side of disk c^3 . With this construction the valve may be opened either by pressing the lever C downward or lifting it upward, the point of engagement between projection or hook c^4 and disk c^3 constituting the fulcrum of the lever when the latter is lifted upward, and the

operation being the same no matter in what angular position with relation to the casing the lever may be.

In the modification shown in Figs. 4 and 5 I have shown means whereby the valve will be opened by pressing it downward, or by lifting it upward, or by swinging it angularly with relation to the casing, so that no matter whether the operator swings the handle in a horizontal plane or in a vertical plane, he will succeed in opening the cock. This means consists of the same device as shown in Fig. 3 to respond to movement of the lever in a vertical plane, and of cams c^5 on the under side of disk c^3 , upon which the hooks c^2 and c^4 ride when the lever is swung laterally causing the valve rod b^7 to be moved endwise, precisely as though the lever had been pressed down or lifted up instead of being swung angularly in a horizontal plane. The cams c^5 may be provided if desired with dwell surfaces c^6 at their highest points, to engage and hold projections c^2 and c^4 and prevent them from riding down the cam surfaces again under the influence of spring b^8 .

The strainer a^3 is of any suitable material such as wire fabric shaped in a dome-like or thimble-like form, the lower end being open and fitting over a boss d on the end of the plug D. Thus the strainer extends across and conforms substantially to the shape of the duct through the fitting or casing A. The plug D is screwed into the casing A at the bottom of the elbow or bend of the casing where solid particles carried into the casing would by gravity most naturally tend to lodge. When it is desired to clean or replace the strainer or to clean the bend of casing A, all that is necessary to do is to unscrew the plug D from the casing and withdraw the plug together with the strainer which is carried thereby.

I claim:

1. A cock comprising a valve casing having therein a valve seat and valve, a rod to operate said valve movable endwise and projecting through said valve casing, a projection upon said casing, an operating lever engaging said rod adapted to move the same endwise, and a projection upon said lever extending downward and engaging the under side of the projection on the casing, the point of engagement between said projections constituting the fulcrum of said lever.

2. A cock comprising a valve casing having therein a valve seat and valve, a rod to operate said valve movable endwise and projecting through said valve casing, a flange upon said casing, an operating lever engaging said rod adapted to move the same endwise and also to be swung angularly with relation to said casing, and a projection upon said lever extending downward

and engaging the under side of said flange, the point of engagement between said projection and said flange constituting a fulcrum for said lever in any angular position of said lever.

3. A cock comprising a valve casing having therein a valve seat and valve, a rod to operate said valve movable endwise and projecting through said valve casing, a disk-like flange upon said casing, an operating lever engaging said rod adapted to move the same endwise and also to be swung angularly with relation to said casing, and a pair of opposed hooks upon said lever each extending around the edge of said flange at opposite sides thereof and engaging the under side of the flange, whereby the valve will be opened either by pressing the lever toward or away from the casing.

4. A cock comprising a valve casing having therein a valve seat and valve, a rod movable endwise to operate said valve, an operating lever engaging said rod and adapted to be swung in planes both parallel with and transverse of said rod, and means whereby movement of said lever in any of said planes will operate said valve through said rod.

5. A cock comprising a valve casing having therein a valve seat and valve, an operating lever connected with said valve adapted to be swung in two or more planes with relation to said casing, and means whereby movement of said lever in any of its planes of movement will operate said valve.

6. A cock comprising a valve casing having therein a valve seat and valve, a rod to operate said valve movable endwise and projecting through said casing, a disk-like flange upon said casing, an operating lever engaging said rod adapted to move the same endwise, said lever adapted to be swung in two or more planes with relation to said casing, a cam upon the under side of said flange, and a projection upon said lever extending downward and engaging the under side of said flange, whereby movement of said lever in any of its planes of movement will operate said valve.

7. A cock comprising a valve casing having therein a valve seat and valve, a rod to operate said valve movable endwise and projecting through said casing, a disk-like flange upon said casing, an operating lever engaging said rod adapted to move the same endwise, said lever adapted to be swung in two or more planes with relation to said casing, a pair of oppositely disposed cams upon the under side of said flange, and a pair of oppositely disposed projections upon said lever each extending downward and engaging the under side of said flange at opposite sides.

8. A cock comprising a valve casing having therein a valve seat and valve, a rod to operate said valve movable endwise and pro-

jecting through said casing, a disk-like
flange upon said casing, an operating lever
engaging said rod adapted to move the same
endwise, said lever adapted to be swung in
5 two or more planes with relation to said cas-
ing, a cam upon the under side of said flange,
and a projection upon said lever extending
downward and engaging the under side of
said flange, whereby movement of said lever
10 in any of its planes of movement will oper-
ate said valve, said cam having a dwell sur-
face at its top adapted to hold said projec-
tion.

9. A cock comprising an outer casing hav-
15 ing an inlet port, an outlet port and a
branch, an independent valve casing adapt-
ed to be inserted in said outer casing through

said branch and to be secured therein be-
tween said inlet and outlet ports, said valve
casing comprising a valve chamber having 20
therein a valve seat and valve, a discharge
chamber provided with outlet ports, and a
cap adapted to engage and close the outer
end of said branch, a valve stem extending
through said discharge chamber, and an 25
operating lever at the end of said valve cas-
ing engaging said valve stem.

Signed by me at Boston, Massachusetts,
this 5th day of February, 1909.

DAVID CRAIG.

Witnesses:

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ROBERT CUSHMAN.