(No Model.)

F. L. DECARIE.

VALVE.

No. 524,134. Patented Aug. 7, 1894.

Fig. 1.

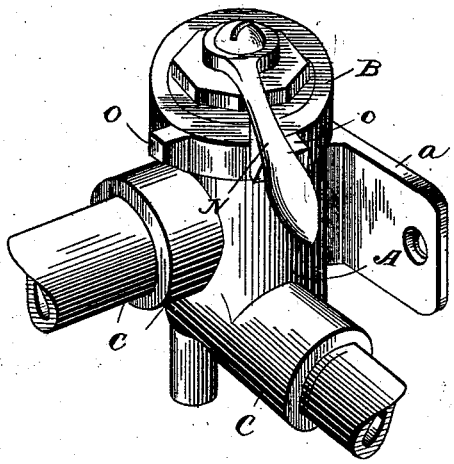


Fig. 2.

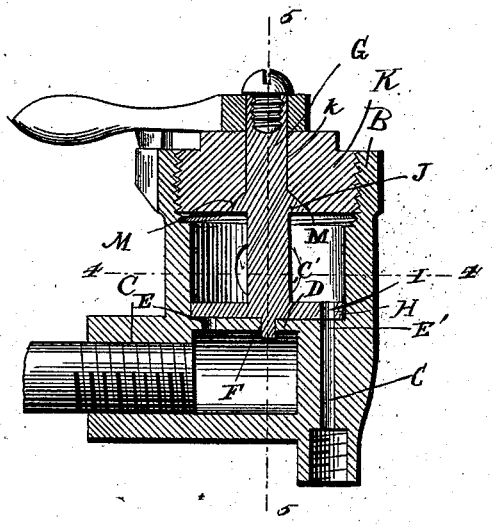


Fig. 4

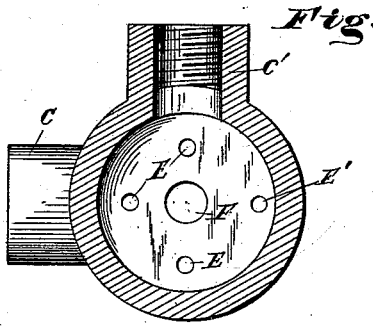


Fig. 3.

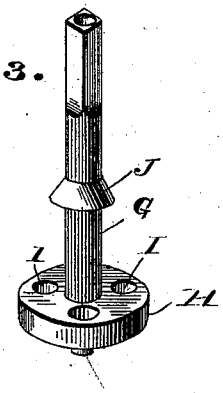
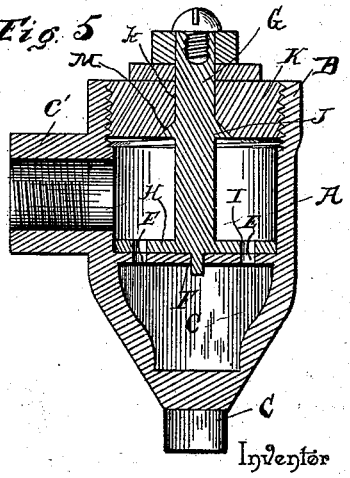


Fig. 5



Witnesses

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UNITED STATES PATENT OFFICE.

FELIX LOUIS DECARIE, OF MONTREAL, CANADA.

VALVE.

SPECIFICATION forming part of Letters Patent No. 524,134, dated August 7, 1894.

Application filed June 13, 1892. Serial No. 436,563. (No model.) Patented in Canada November 18, 1891, No. 31,808.

To all whom it may concern:

Be it known that I, FELIX LOUIS DECARIE, a subject of the Queen of Great Britain, residing at Montreal, in the Province of Quebec, Canada, have invented a new and useful Valve, (patented in Canada, No. 31,808, dated November 18, 1891,) of which the following is a specification.

This invention relates to valves; and it has for its object to effect certain improvements in valves of that character employed as cut-offs in steam and water distribution, or in other connections, and the improvements contemplate a valve in which the working parts thereof are so arranged as to provide a substantially pressure balanced valve, whereby the friction thereof is materially reduced, while at the same time compensating means are provided to take up any wear that may occur.

With these and other objects in view which will readily appear as the nature of the invention is better 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 perspective view of a valve constructed in accordance with this invention, employed as a bib-cock with hot and cold water pipes. Fig. 2 is a vertical sectional view of the same. Fig. 3 is a detail in perspective of the valve proper. Fig. 4 is a detail cross section of the casing on the line 4—4 of Fig. 2, the valve being removed. Fig. 5 is a vertical sectional view on the line 5—5 of Fig. 2.

Referring to the accompanying drawings, A represents an integrally cast valve casing having at one side thereof the perforated attachment flange or bracket *a*, adapted to receive suitable securing means for attaching the casing to a wall or other object. The casing A, is also provided with the upper interiorly threaded neck B, and the lower and upper inlet and outlet openings C and C′, respectively, while below the upper interiorly threaded neck, and separating the separate sets of openings or passages is arranged the horizontal integral flat ground valve seat D. The said flat ground valve seat D is provided with a series of ports or passages, some of which E, are in communication with one of the lower inlet openings or passages of the valve casing, while one of such ports E, of the same series of openings, is in communication with a different lower inlet opening as clearly illustrated in the drawings. The ports communicating with the different inlet openings or passages are adapted to be separately uncovered, and in the form of valve shown in the drawings three ports E, communicate with a single inlet, inasmuch as this particular inlet is designed to supply cold water in sufficient quantity for use. The said integral valve seat D, is further provided with a central bearing opening F, to receive the lower extremity of the turning valve stem G.

The turning valve stem G, is provided at its lower end with an integral flat valve disk H, fitting snugly within the valve casing and adapted to work flat upon the valve seat without the use of washers or packing of any description, inasmuch as means are provided for avoiding any appreciable friction. The said flat valve disk H, is also provided with a series of ports I, less in number than those in the valve seat, so that when the valve disk is turned in one direction all of the ports in the same are designed to register with the several ports communicating with the cold water inlet opening or passage of the casing, while on the other hand, when the valve is turned slightly in the opposite direction, the inlet opening or passage E′, is uncovered, thus providing a construction whereby the valve is well adapted for use in connection with hot and cold water pipes, it being illustrated that the outlet opening of the casing is located above the valve seat.

The valve stem G, carrying its integral valve disk H, projects above the valve casing and at a suitable point above the valve disk H, is provided with an integral beveled bearing disk J, which not only forms the main bearing of the valve, but assists in the balancing of the same, and being of a less diameter than the valve disk necessarily reduces the friction of the valve to a minimum.

That portion of the stem G, above the bearing disk J, turns in the smooth central bore of the combined bearing and take-up cap K. The bearing and take-up cap K is exteriorly threaded continuously so as to adjustably work in the threaded neck B, of the valve

casing, and is provided with a central perforation or bore *k*, to accommodate the valve stem G. At the lower end of the central bore or perforation *k*, the cap K, is further provided with a beveled bearing seat M, in which registers the beveled bearing disk J, whereby the flat under face of said bearing disk will be disposed flush with the inner face of the cap K, to receive the pressure of the fluid or steam thereagainst, while the valve is in operation.

The contacting portions of the beveled bearing disk and the seat M, are ground to provide an easy bearing, and by reason of the specific construction of the bearing disk J, it will be seen that the downward adjustment of the cap K, holds the valve H, tightly onto its seat, while at the same time a part of the friction incident to the turning of the valve is distributed on the bearing disk J. It will also be obvious that in operation, the pressure of the steam or water, distributed by the valve, will be in part exerted against the flat under face of the bearing disk J, as well as against the face of the valve disk so that the valve will be substantially balanced, whereby the turning thereof can be much more easily accomplished and the friction on the valve disk and its seat will be materially reduced, since the bearing disk J forms a substantial part of the bearing of the valve. Any wear resulting from friction can be easily compensated for by further adjustment of the cap K, into the neck B.

An operating handle N, is secured to the upper end of the valve stem G, above the cap K, and is provided with a downwardly projecting pin moving between the stops O, projected from one side of the casing A, to limit the turning of the valve disk in covering and uncovering the ports in the valve seat.

The important improvements claimed in the specific manner of mounting the valve and its stem within the casing have been particularly referred to, and while such construction may be adapted for use in connection with any form of casing, it may be further noted that the specific construction of casing illustrated in the drawings is especially useful in connection with hot and cold water distribution, and by reason of the disposition of the cold and hot water passages in the valve casing a single casing is adapted for a twofold purpose, and the right angled arrangement of the enlarged cold water and smaller hot water inlet openings provides a construction whereby different quantities of cold and hot water can be distributed.

Changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

What I claim is—

In a valve, the combination of the casing having separate passages, a horizontal flat ground valve seat turning in the casing and provided with ports communicating with the casing passages, and an upper interiorly threaded neck, a centrally-bored and continuously exteriorly-threaded bearing and take-up cap adjustably fitted in the neck of the casing and having a beveled bearing seat at the inner terminal of its smooth central bore, and the turning valve stem mounted to turn in said cap and provided at its lower end with an integral valve disk working flat on said valve seat and having ports registering and unregistering with those in the valve seat, and at a point above the valve disk with a beveled bearing disk registering in the beveled bearing seat and provided with a flat under face disposed flush with the inner face of said cap, 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.

FELIX LOUIS DECARIE.

Witnesses:
JOHN H. SIGGERS,
H. G. PIERSON.