(No Model.)

C. H. HARKINS.

WATER CLOSET VALVE.

No. 344,270. Patented June 22, 1886.

Fig. 1.

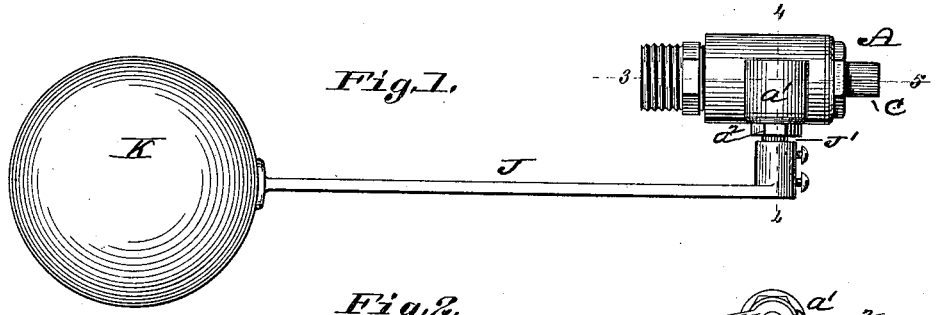


Fig. 2.

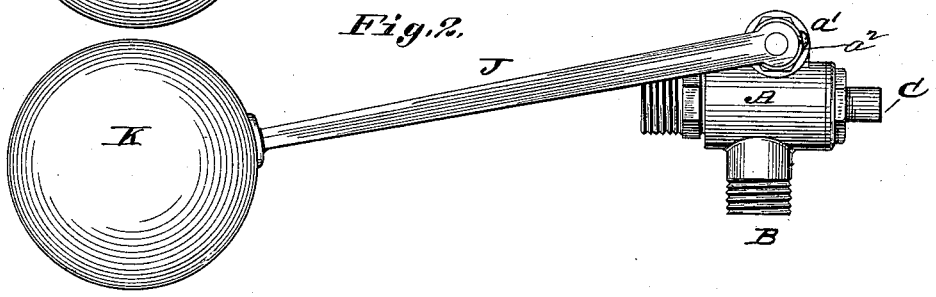


Fig. 3.

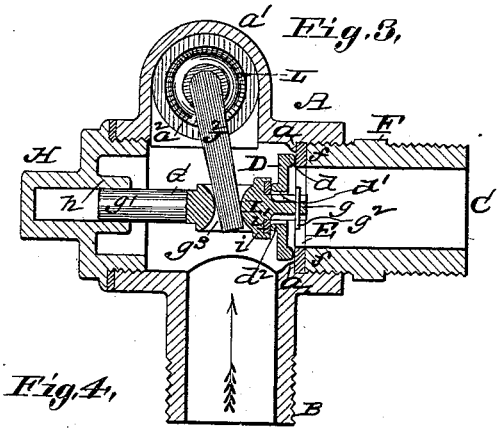


Fig. 4.

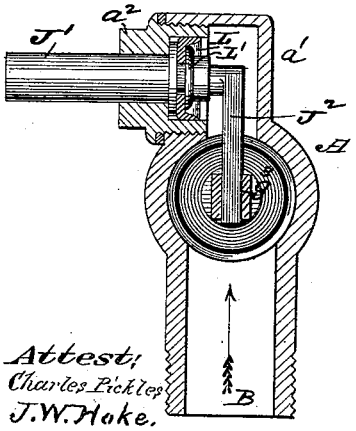


Fig. 5.

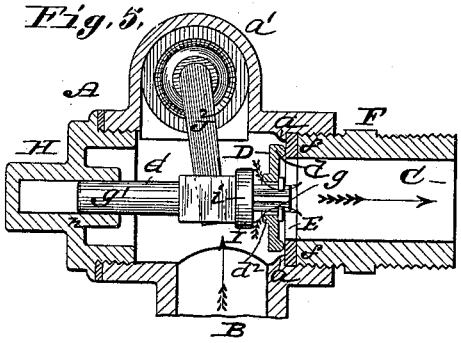


Fig. 6.

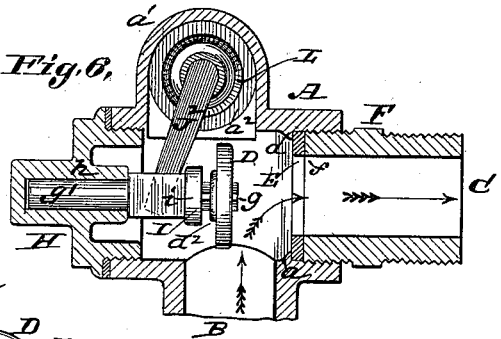
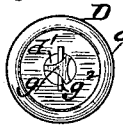


Fig. 7.



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atty

UNITED STATES PATENT OFFICE.

CHARLES H. HARKINS, OF ST. LOUIS, MISSOURI.

WATER-CLOSET VALVE.

SPECIFICATION forming part of Letters Patent No. 344,270, dated June 22, 1886.

Application filed December 10, 1885. Serial No. 185,313. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. HARKINS, of St. Louis, Missouri, have made a new and useful Improvement in Water-Closet Valves, of which the following is a full, clear, and exact description.

The improvement in question relates partly to the construction of the relief mechanism, partly to the construction of the main-valve seat, and partly to the means used in transmitting the movement of the float-lever to the valve-stem.

In the annexed drawings, making part of this specification, and exhibiting the improved valve, Figure 1 is a plan, and Fig. 2 is a side elevation, of the entire construction. Fig. 3 is a section, upon an enlarged scale, on the line 3 5 of Fig. 1, the main and also the relief valve being seated. Fig. 4 is a section on the line 4 4 of Fig. 1. Fig. 5 is a section on the line 3 5 of Fig. 1, the main valve being seated and the relief-valve being unseated. Fig. 6 is a section on the line 3 5 of Fig. 1, the main valve being unseated; and Fig. 7 is a bottom view of the main valve.

The same letters of reference denote the same parts.

A represents the valve-chamber.

B represents the inlet through which the water enters the valve-chamber, and C represents the outlet therefrom.

D represents the main valve. It is adapted to close upon the seat E, which consists of a ring of leather or other similarly elastic or pliable material, held in place by confining it between the inner end, *f*, of the tube F and the shoulder *a* of the valve-chamber.

The main valve is provided with a flange, *d*, which is the part that comes in contact with the valve-seat, the outer edge of the flange being adapted to be pressed against the inner side of the valve-seat, as shown in Figs. 3, 5. The valve-seat can be readily reached for removal or repair by unscrewing the tube F from the valve-chamber.

The main valve is centrally perforated at *d'*, to receive the extension or outer end, *g*, of the valve-stem G. The inner end, *g'*, of the valve-stem is adapted to be held and worked longitudinally in guide *w*, with which the cap H of the valve-chamber is provided.

The valve-stem serves a double purpose. It carries a relief-valve, I, and operates the main valve. The relief-valve is, compared with the main valve, much smaller in diameter, and it is arranged upon the valve-stem and adapted to seat upon the inner side of the main valve, which for that purpose is provided with a flange, d^2, which surrounds the perforation *d'*, and constitutes the seat proper for the relief-valve. The preferable shape of the relief-valve is that shown—namely, a flange, *i*, recessed in the direction of the main valve, to receive and hold a leathern washer, *i'*, which is the part that forms the contact with the flange d^2, as seen more distinctly in Fig. 3. The relief-valve is fast upon the valve-stem, and hence follows the valve-stem in its movement. The main valve is loose upon the valve-stem, being hung upon the extension *g* thereof, and so that the valve-stem can be moved a limited distance before acting to unseat the main valve—that is, the valve-stem to open the main valve is first moved to raise the relief-valve, and, as shown in Fig. 5, unseat it from the main valve, which yet remains seated upon its seat E. Then, by continuing to move the valve-stem in the same direction, the main valve is unseated, as represented in Fig. 6. The valves seat with the pressure; hence the relief-valve can be more readily unseated than the main valve.

The extension *g*, as seen more distinctly in Fig. 7, does not fill the perforation *d'*, and when the relief-valve is unseated the water, as indicated by the arrows in Fig. 5, can pass through the perforation *d'*. The main valve is secured upon the stem-extension *g* by any suitable means, such as the pin g^2.

In the place of extending the valve-stem through the cap H and there connecting it with the float, provision is made for connecting in a lateral direction with the float. To this end the valve-chamber is extended laterally at *a'*, and the lever J of the float K is at J' extended at right angles to the main part of the lever, through a plug, a^2, that is used to close the valve-chamber extension *a'*, in which plug, as in a bearing, the part J' is adapted to rotate. After passing the plug, and within the chamber *a'*, the lever is extended at J^2, Figs. 3, 4, 5, 6, the extension ultimately passing through a perforation, g^3, in the valve-stem. The extensions J' J^2 form a crank-

arm for the lever, and as this lever is attached to side of the valve-chamber the float moves on a rock-shaft, and a very free-and-easy movement is obtained. As the float rises in the usual manner, it causes, by means of the lever J J′ J², the valve-stem to move and lift, first, the relief-valve from off the main valve, and then the main valve from off its seat. The joint around the part J′ of the float-lever is packed by means of the cup-leather L, Fig. 4, held in place by a nut, L′.

I claim—

In combination with the valve-chamber A, having the lateral extension a' and plug a^2, the float-lever J, having crank-arms J′ J², the cup-leather L, the perforated valve-stem G, working at one end on the guide h, and having at the other end the main and relief valves, as described.

Witness my hand this 3d December, 1885.

CHARLES H. HARKINS.

Witnesses:
C. D. MOODY,
J. W. HOKE.