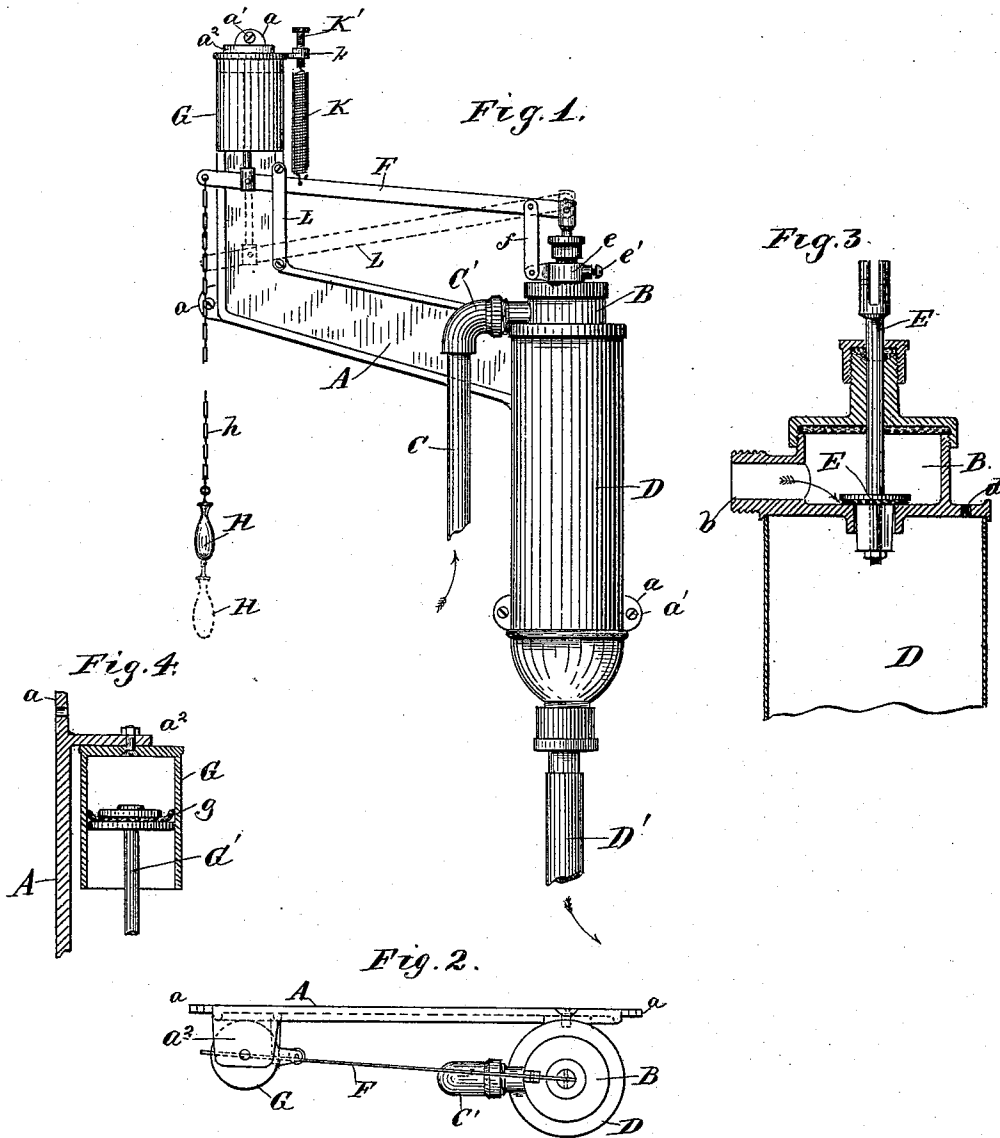


(No Model.)

A. D. HOFFMAN.
WATER CLOSET VALVE.

No. 468,876.

Patented Feb. 16, 1892.



Witnesses.

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UNITED STATES PATENT OFFICE.

AUSTIN D. HOFFMAN, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR TO CHARLES G. BATES, MONROE E. WALLACE, AND BERNHARD HIRTH, OF SAME PLACE.

WATER-CLOSET VALVE.

SPECIFICATION forming part of Letters Patent No. 468,876, dated February 16, 1892.

Application filed February 27, 1891. Serial No. 383,020. (No model.)

To all whom it may concern:

Be it known that I, AUSTIN D. HOFFMAN, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Water-Closets; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to water-closets, and has for its object to provide a convenient, efficient, and reliable flushing device capable of direct attachment to the water-supply pipe. To this end to some convenient part of the water-supply pipe containing water under pressure from the main or otherwise I place a vertical valve-chest equipped with an ordinary lifting-valve. Fulcrumed to a suitable support adjacent to the valve, at a point near one of its ends, is a valve-operating lever, the short end of which is attached to the valve-stem. In line with the movement of the outer or free end of this lever, and preferably above the same, is located a dash-pot having its piston connected to the lever. To a lug on the cylinder of the dash-pot or some other adjacent support above the lever is attached one end of a retracting-spring, the lower end of which is attached to the lever. As a convenient means for adjusting the tension of this spring, it may be connected with its support by a set-screw or other adjusting device. To the outer extremity of the free end of the lever is attached by a chain or other flexible connection a hand-pull within convenient reach. The discharge-pipe from the valve-chest leading to the closet is preferably enlarged immediately below the valve-chest to several times the diameter of the supply-pipe and is provided with a perforation at its upper end for the admission of air, in order to provide an expansion-chamber to relieve the high pressure from the main and prevent splashing in the closet-basin. The perforation permits the drip caught from the valve to be passed to the discharge-pipe.

All the parts may be secured to a bracket, so that the entire device may be supplied as

an attachment capable of ready connection with the water-pipe and the closet.

The invention is illustrated in the accompanying drawings, wherein like letters refer to like parts throughout.

Figure 1 is a side elevation of the entire device. Fig. 2 is a plan view of the same. Fig. 3 is a vertical section through the valve-chest and a part of the discharge-pipe, and Fig. 4 is a vertical section from front to rear through the dash-pot.

A is an angular bracket capable of attachment to the wall or other support by lugs and set-screws *a* and *a'*.

B is the valve-chest. *b* is the inlet to the same, screw-threaded for connection with supply-pipe C by union C'.

D is the enlarged section of the discharge-pipe with perforation *d*, and D' is the section connecting the same with the closet-basin. (Not shown.)

E is the lifting-valve in the chest B.

F is the operating-lever; *f*, a link pivotally connected at its upper end to the lever and at its lower end to the sleeve *e*, mounted on the cap of the valve-chest and removably and adjustably secured thereon by a screw *e'*.

G is the cylinder of the dash-pot, secured to an outwardly-extended lug *a*² at the upper extremity of the bracket A.

G' is the piston of the dash-pot, the head of which is provided with the flexible cup-packing *g*.

H is the hand-pull, and *h* is the chain.

K is the retracting-spring, and K' is the set-screw mounted in the lug *k*, projecting from the top of the cylinder G.

For preventing the lateral displacement of the free end of the lever a guide L may be secured to the bracket and spaced apart from the same, through which space thus formed the lever is made to work.

The operation is evident. By the hand-pull H the pivoted lever is lowered and the valve is raised, permitting the inflow of water from the supply-pipe to the discharge-pipe and closet-basin. The downward pull of the lever sets the retraction-spring under tension, which would immediately and instantly re-

turn the lever when set free, but is prevented from doing so by the retarded movement of the dash-pot piston G' in its cylinder G, which retards the action of the spring, thus allowing the valve to remain open for a sufficient length
5 to allow enough water to escape into the discharge-chamber to effect the flushing required. It will thus be seen that the spring K is an automatic retracting device for closing the
10 valve and that the dash-pot is a retarding device to check the closing movement of the valve. It is evident that other devices capable of these same actions might be substituted for the same so long as they are automatic in
15 their action. It should also be noted that both the dash-pot and spring resist the opening movement of the lever, thus affording a cushion against any strain of the parts under a violent usage of the hand-pull. The valve
20 is seated by direct pressure from the main, the construction being such that the pressure acts on the top of the valve.

The great advantage of the device is that the arrangement of the lever affords the requisite power to open the valve against this

high pressure and the dash-pot retards the closing movement, avoiding the shock and giving the requisite discharge.

What I claim, and desire to secure by Letters Patent of the United States, is as follows: 30

The combination, with the angular bracket A, the vertical valve-chest B, and the pressure-seated valve E, of the supply-pipe C C', the vertical enlarged discharge-pipe D D', located below the valve, the sleeve e on the
35 valve-stem cap, the link-fulcrum f, secured to the said sleeve, the lever F, pivoted to said link, having its short end connected to the valve, the retracting-spring K, the dash-pot G, both attached to the said lever near its
40 outer end, the hand-pull H and flexible connection h, secured to the outer extremity of said lever, and the guide L, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses. 45

AUSTIN D. HOFFMAN.

Witnesses:

JAS. F. WILLIAMSON,
EMMA F. ELMORE.