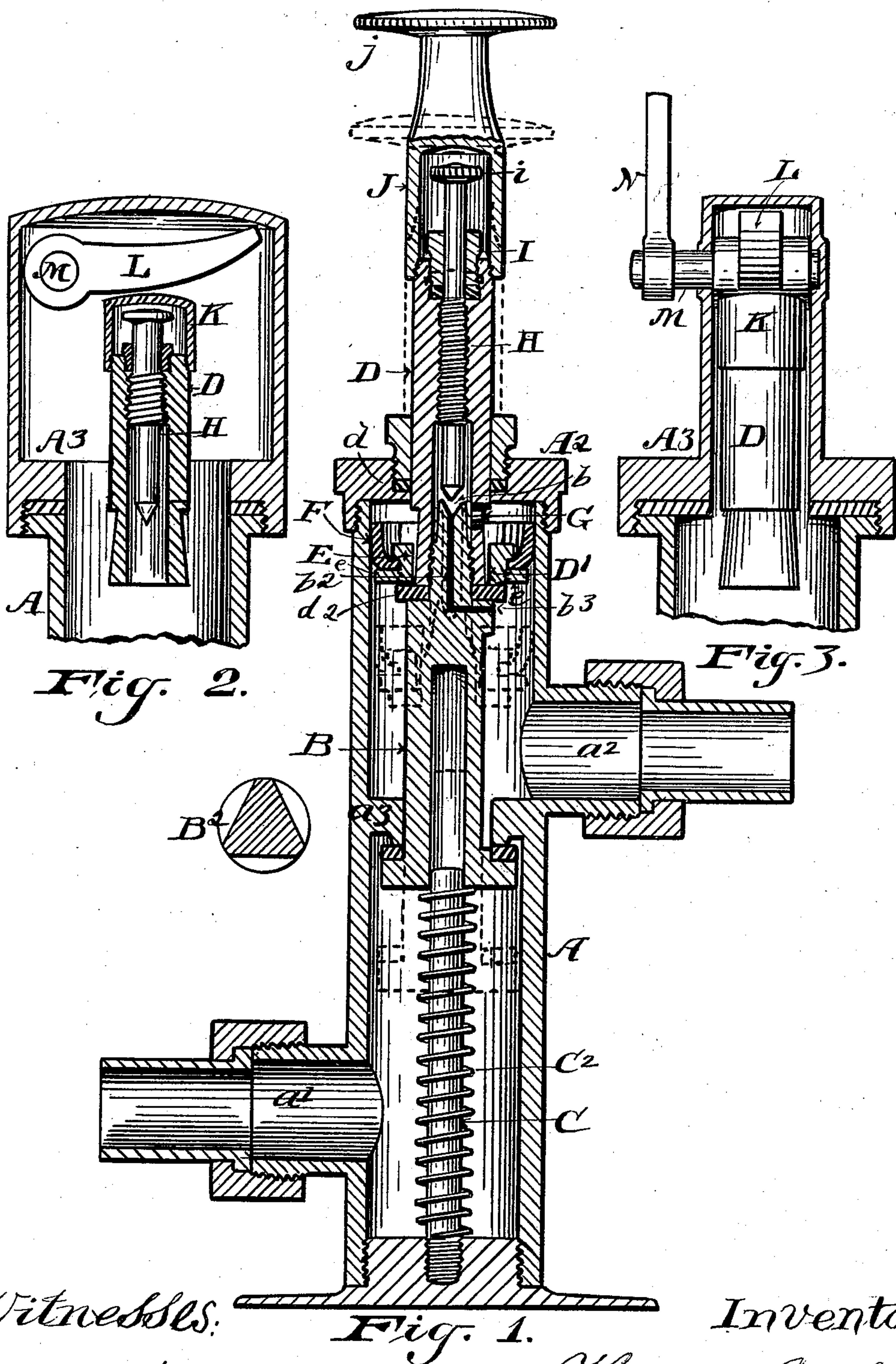


(No Model.)

H. J. GILCHER.
CLOSET FLUSHING DEVICE.

No. 506,221.

Patented Oct. 10, 1893.



Witnesses:

C. M. Buettner.

C. M. Limmon.

Fig. 1.

Inventor,

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UNITED STATES PATENT OFFICE.

HENRY J. GILCHER, OF CLEVELAND, OHIO.

CLOSET-FLUSHING DEVICE.

SPECIFICATION forming part of Letters Patent No. 506,221, dated October 10, 1893.

Application filed December 14, 1892. Serial No. 455,209. (No model.)

To all whom it may concern:

Be it known that I, HENRY J. GILCHER, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga, State of Ohio, have invented certain new and useful Improvements in Closet-Flushing Devices, of which the following is a specification.

This invention relates to a device for flushing water closets, to be substituted for flushing tanks, and consists in the new constructions and combinations as hereinafter described and pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical section of my new flushing device. Fig. 2 represents a lever and cam mechanism for depressing the valve in the cylinder, which may be substituted for the button on the push rod. Fig. 3 is a transverse sectional view of the same.

A is a cylindrical body having a suitable base or foot, and provided with an inlet water connection a' near the base, and an outlet connection a^2 , a short distance from the top, and also having a partition or diaphragm a^3 , on a level with the lower side of the outlet having a central opening, the under side of which constitutes a valve seat. The top of cylinder A is closed with a suitable cap A^2 .

B is a valve stem having an annular flange on its lower end, which constitutes the valve seated up against the opening in the diaphragm, and having a suitable packing ring to insure a tight joint. The valve stem is made triangular above the valve, as seen in cross-section at B^2 , and is also made hollow from the bottom upward to near the top.

C is a central rod fixed in the base of the cylinder, having its upper end entering the bore of the valve stem. Upon said rod is provided a spiral spring C^2 , having its bearing against the base plate at its lower end, and up against the valve at its upper end, and is designed for forcing and holding the valve up against its seat.

D is an extension of the valve stem extending upward and playing through the cap A^2 , a packing ring or gasket d surrounding the stem to make a water and air-tight joint. The extension stem D is screwed onto a reduced portion of stem B.

Upon the lower end of extension stem D is provided a sliding cup valve E, resting nor-

mally upon a gasket d^2 , at the junction of the stems B, D. The valve E consists of a ring, fitted loosely on to a short tapering portion D' of stem D, and F is a leather or flexible cup-shaped valve, fixed by a ring nut e , gripping it on to the ring E. The outside of said cup pressing against the inside of the cylinder A, there being also a slitted metallic spring cup or lining to the flexible cup, provided for pressing the same against the cylinder.

In the sides of the stem B are holes G, which communicate with a chamber in the stem D, and in the top of the neck of stem B, on to which stem D is screwed, is made a cone-shaped cavity b , connecting with a small bore b^2 , having a branch bore b^3 , opening into the water space below valve E, in cylinder A, the purpose of which will be explained farther on.

Within the stem D, is provided a screw threaded spindle H, placed in the screw threaded bore of said stem, the lower end of which is made taper pointed to fit the cone-shaped cavity b . The upper end of said spindle extends up through a stuffing box I in top end of stem B, and has a button i by means of which the spindle may be turned.

J is a chambered cap screwed onto the top end of stem D, covering the button i , and has on its top end a broad flat head j , intended to be used for pressing down the valve stems, by pressure of the hand in operating the device.

Instead of the cap and head J, j , a cap A^3 , Figs. 2 and 3 provided with a chambered upward extension may be substituted, and in open communication with cylinder A. The stem D and spindle H are shortened, and the top of stem D closed with cap K.

L is a curved lever lying over the cap K, and is attached to a cross-shaft M journaled in the upper corner of the chambered cap extension A^3 .

N is a lever on the end of shaft M, outside of the chamber, designed for a means for operating the device.

This device may be located beneath a closet seat with the head j protruding up through or above the seat in any conveniently accessible place.

The working of this device is as follows:— By pressing the valve stem down and open-

ing the valve at A^3 , as represented by dotted lines, water is admitted through the diaphragm into the cylinder above it, which will flow out of the outlet to the closet bowl, at the same time valve E will be lifted to the height of the shoulder on the tapered portion of stem D. This allows water to pass up around the taper into the cylinder above said valve E. The pressure on the stem may be immediately released, but the stem cannot return quickly by reason of the water above said valve E, which water can only find an outlet through the holes G, and through the small passage way b^2 , b^3 , in the neck of stem B, so that the closing of the valve at diaphragm a^3 is retarded and still allows water to flow until the water above valve E has escaped, thus the flushing of the closet is continued for a considerable time after the hand of the operator has been removed.

The purpose of the spindle H with its tapered point is to regulate the opening b into the top of neck of stem B, for the admission of more or less water to the passage b^2 , and thereby control the discharge of water there-to for shortening the time of the closing the valve or for prolonging the closing of the valve for completely flushing purposes.

Having described my invention, I claim—
 1. In a flushing device the combination of a closed cylinder A, having inlet and outlet water connections a' , a^2 , and an open diaphragm a^3 , between said water connections, a hollow valve stem and valve B, a rod C and pressure spring C^2 below said valve and stem B; valve stem extension D, and lower tapered portion D' cup valve E loosely mounted on the said tapered portion D' of extension stem D; openings G in said tapered part D' communicating with chamber therein, and the cavity b and small bore b^2 , b^3 , in top end or neck of stem B, and means for operating said

valves and stems, substantially as and for the purpose set forth.

2. In a flushing device the combination of a closed cylinder A, provided with inlet and outlet water connections, a' , a^2 and an open diaphragm a^3 , between said water connections, a hollow valve stem and valve B, a rod C, and pressure spring C^2 , below said valve and stem B, valve stem extension D; and lower tapered portion D' a cup valve E, loosely mounted on the said tapered portion D' of extension stem D; openings G, in said tapered part D' communicating with chamber therein, and the cavity b and small bore b^2 , b^3 , in top end or neck of stem B; spindle H having tapered point, and adjustably fixed in the body of the stem D, adapted for controlling the cavity opening b , and means for operating the valves and valve stems substantially as and for the purpose set forth.

3. In a flushing device the combination of closed cylinder A, provided with inlet and outlet water connections a' , a^2 , and an open diaphragm a^3 , between said water connections; a hollow valve stem and valve B, a rod C and pressure spring C^2 , below said valve and stem B, a valve stem extension D; a cup valve E, loosely mounted on the lower tapered part D' of extension D; openings, G, in said tapered part D' communicating chamber therein, and cavity b , and small bore, b^2 , b^3 , in top end of neck of stem B; cap K on stem D; chambered cap A^3 in open communication with cylinder A above valve E, lever L bearing on cap K and mounted on shaft M journaled in top of cap chamber, and having lever N, all constructed to operate substantially as set forth.

HENRY J. GILCHER.

Witnesses:

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 M. G. NORTON.