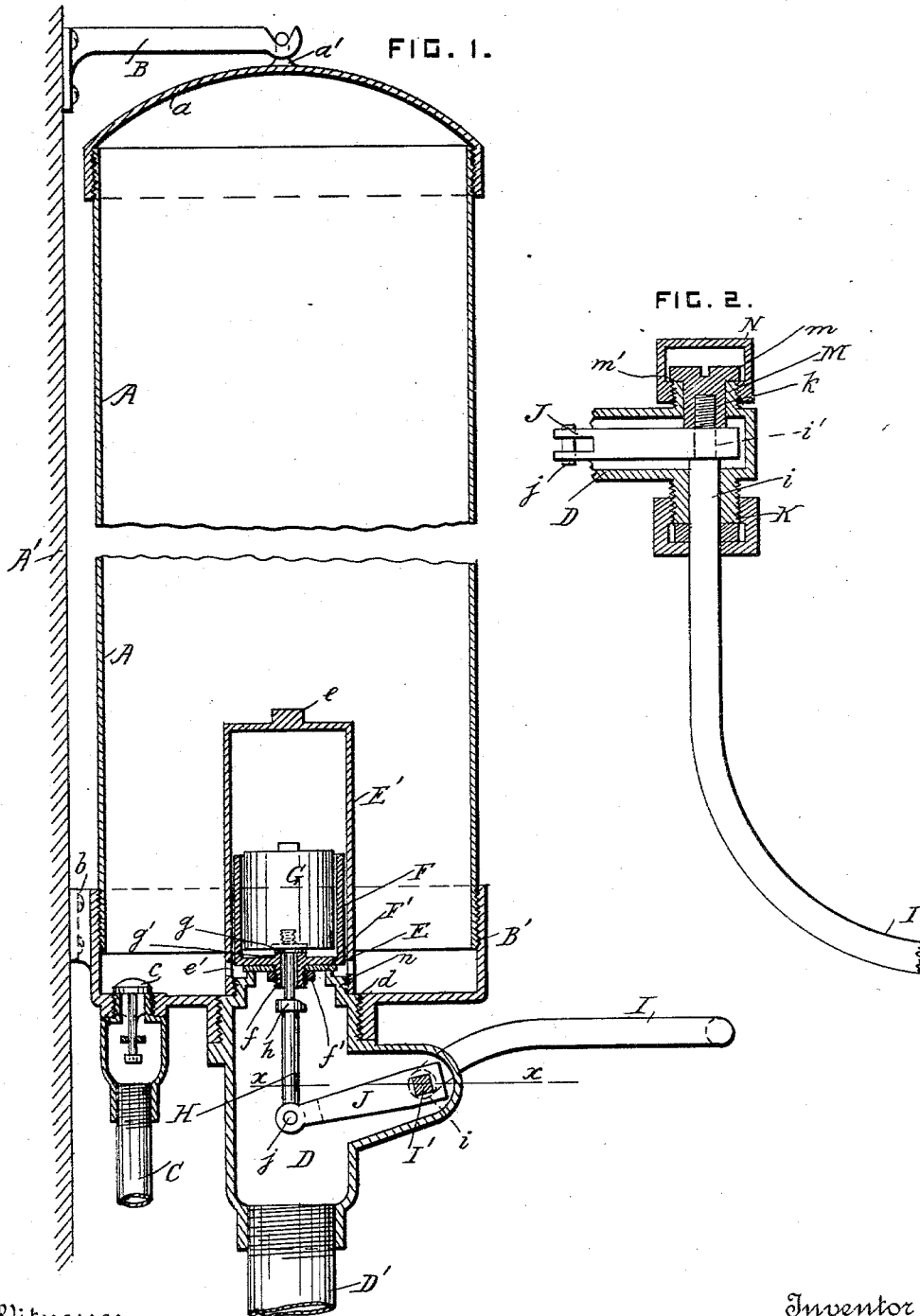


(No Model.)

D. T. KENNEY.
WATER CLOSET CISTERN.

No. 566,770.

Patented Sept. 1, 1896.



Witnesses

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DAVID T. KENNEY, OF NORTH PLAINFIELD, NEW JERSEY.

WATER-CLOSET CISTERN.

SPECIFICATION forming part of Letters Patent No. 566,770, dated September 1, 1896.

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To all whom it may concern:

Be it known that I, DAVID T. KENNEY, a citizen of the United States, residing at North Plainfield, in the county of Somerset and State of New Jersey, have invented certain new and useful Improvements in Water-Closet Cisterns; 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.

This invention relates to water-closets; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed whereby the closet is flushed.

In the drawings, Figure 1 is a vertical section through the flushing devices constructed according to this invention. Fig. 2 is a cross-section taken on the line *x x* in Fig. 1.

A is a hollow column supported vertically in any convenient position adjacent to a water-closet and preferably behind and a little above it.

A' is a portion of a wall or other similar fixed support.

The top of the column is closed by a cap *a*, having an eye or cross-piece *a'* at its top, and B is a hooked bracket secured to the wall and engaging with the said cross-piece, so that the column is supported.

The column is pivotally suspended from the bracket and there are several practical advantages gained thereby. The column is easier to set in position. The parts below it do not receive its weight, and the vibrations of the building, which are always lateral, do not loosen or break the joints at the base of the column.

B' is a base secured to the lower end of the column and provided with lugs *b* for securing it to the wall.

C is the water-supply pipe, connected to the base of the column, and *c* is a check-valve of any approved construction interposed between the pipe C and the base B'.

D is a valve-outlet chamber, provided with a screw-threaded portion *d*, which is screwed into a boss on the bottom of the base B'.

D' is the flushing-pipe, which connects the bottom of the chamber D with the water-closet.

The water-closet may be of any approved form and construction, and the pipe D' is connected to it in any approved manner.

E is the seat for the main valve at the top of the chamber D, and E' is the casing for the main valve screwed on the cylindrical portion *n*, which projects within the column. The casing E' is cylindrical and is closed at the top and provided with a rectangular projection *e*, by which, with the aid of a wrench, it is screwed onto the chamber D. The casing is provided with holes *e'* in its periphery close above the valve-seat E.

F is the main valve, which slides freely in the cylindrical casing E'. This valve is substantially buoyant, being hollow and cylindrical internally and has a downwardly-projecting tubular stem *f* at its base.

F' is a facing of soft material, such as leather or india-rubber, secured on the stem *f* by the nut *f'* and resting on the valve-seat E.

G is the vent-valve, which slides freely in the main valve F, and *g* is a facing of soft material, such as leather or india-rubber, secured to the bottom of the valve G and resting on the seat *g'*, formed inside the valve F, around the upper end of its stem *f*.

H is the stem of the vent-valve, provided with a collar *h* a little below the bottom of the stem *f* when the valve G is closed. The collar must not fit tightly under the tubular stem when raised, so as to act as a valve and prevent the passage of water through the tubular stem. Any sort of a projection may be used as the equivalent of a round collar, and the round collar can be notched or grooved, if desired, so as to let the water pass it freely.

I is a lever for operating the flushing-valves. This lever projects from a spindle *i* and is bent around, so as to place it in any convenient position with respect to the water-closet.

I' is a square portion on the spindle *i*, and J is an arm secured on the square portion I'. The other end of the arm J is pivoted to the lower end of the valve-stem H by the pin *j*.

K is a stuffing-box on the valve-chamber D. The spindle *i* is journaled in this stuffing-box, and is provided with a screw-threaded end *k*.

M is an externally-screw-threaded bearing on the inlet-chamber D, and *m* is a cylindrical

nut screwed on the end *k* and journaled in the bearing *M*. The nut *m* has a shoulder *m'* at its end which bears against the end of the bearing *M* and prevents the spindle from sliding longitudinally in the stuffing-box. *N* is a cap screwed on the bearing *M* and inclosing the said nut.

When the flushing-valves are closed, the water from the supply-pipe enters the column and compresses the air in it. The check-valve retains the water in the column should the supply-pipe be cut off from the main, and the column is preferably of such a size as to always contain sufficient water to flush the closet once.

The closet is flushed by depressing the lever *I*. The vent-valve is raised first and relieves the main valve of the pressure above it, and the main valve is then raised.

The depression of the lever *I* one full stroke pushes up the main valve to the top of its casing with but little exercise of force, because the opening of the vent-valve has relieved it from the pressure of the water above it in the casing, and as soon as the main valve commences to rise the water rushes under it, buoys it up, and passes direct from the holes *e'* through the main-valve seat. The water above the main valve is forced from the upper part of the casing past the freely-slidable vent-valve and into the downward current of water passing through the main-valve seat.

When the lever *I* has been depressed to its full extent, it is let go and the two valves descend automatically. The weighted vent-valve closes first by gravity, the hollow main valve being buoyed up by the water passing under it and through its seat. When the vent-valve has closed, the weight of it depresses the buoyant main valve slowly and lets a prearranged amount of water pass through it, suitable in quantity for one flushing operation. The small annular passage around the main valve permits the water to be sucked up into the space above it by the weight of the descending valves.

The compressed air in the column *A* assists in forcing the water through the flushing-pipe into the closet.

The flushing devices hereinbefore described can be used in connection with sinks and drains, if desired, as well as in connection with water-closets.

What I claim is—

1. The combination, with a hollow and substantially buoyant main valve, of a casing inclosing the main valve and provided with a water-inlet at its lower part and a water-passage connecting its upper and lower parts, a weighted vent-valve slidable in the said main valve and operating to depress it after having closed, and a stem operating positively to raise

first the vent-valve and then the main valve, substantially as set forth.

2. The combination, with a stationary support, and a bracket projecting therefrom; of a column provided with a cap at its top pivotally supported from the said bracket, and a base secured to the said support; and a water-supply pipe and a flushing-valve arranged at the base of the column, substantially as set forth.

3. The combination, with a valve-outlet chamber provided with a main-valve seat, of a column secured over the said valve-seat, a cylindrical valve-casing provided with holes at its lower part and secured around the said valve-seat inside the said column, a main valve slidable in the said casing, a vent-valve slidable in the said main valve, and a valve-stem secured to the vent-valve and provided with means for raising the main valve, the said main valve being provided with an annular water-passage under the said vent-valve and around the said valve-stem, substantially as set forth.

4. The combination, with a valve-outlet chamber provided with a main-valve seat, of a column secured over the said seat, a cylindrical valve-casing provided with holes at its lower part and secured around the said valve-seat inside the said column, a cylindrical valve slidable in the said casing and provided with a tubular stem at its base and a vent-valve seat above the said stem, a cylindrical vent-valve slidable in the said main valve, and a stem secured to the vent-valve and provided with a collar for raising the main valve, the said tubular stem of the main valve forming an annular water-passage around the said valve-stem, substantially as set forth.

5. The combination, with a valve-outlet chamber provided with a stuffing-box and an externally-screw-threaded bearing at its sides, and a flushing-valve arranged at the top of the said chamber and provided with a stem for operating it; of a spindle provided with an operating-lever and journaled in the said stuffing-box, an arm secured to the said spindle between the said stuffing-box and bearing and pivoted to the said valve-stem, a cylindrical nut screwed on the end of the said spindle, journaled in the said bearing and provided with a shoulder in contact with the end of the bearing; and a cap screwed on the bearing and inclosing the said nut, substantially as set forth.

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

DAVID T. KENNEY.

Witnesses:

JAMES A. DALEY,
THEODORE J. F. ZELZER.