No. 747,439. PATENTED DEC. 22, 1903.

P. F. KING.

CLOSET FLUSHING APPARATUS.

APPLICATION FILED DEC. 15, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

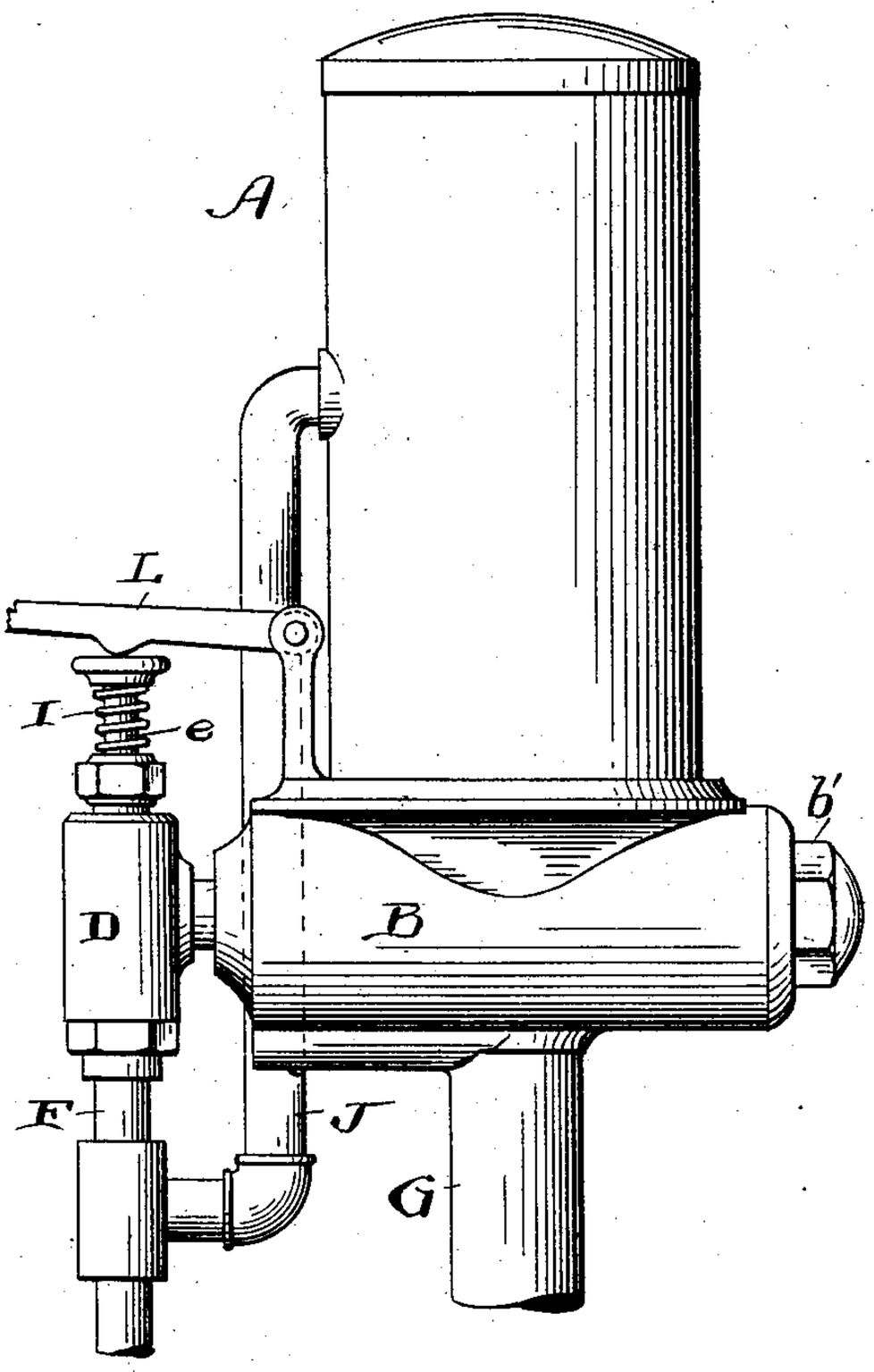
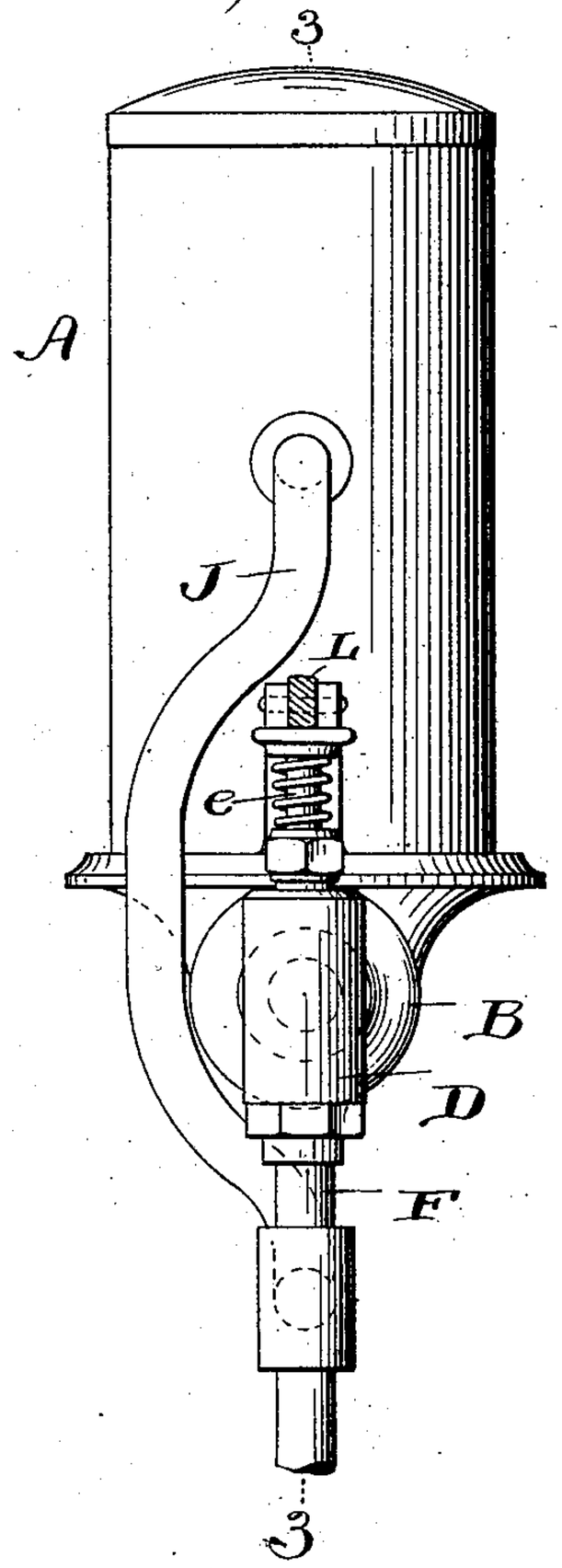


Fig. 2.



Witnesses
E. B. Gilchrist
N. L. Brennan

Inventor:
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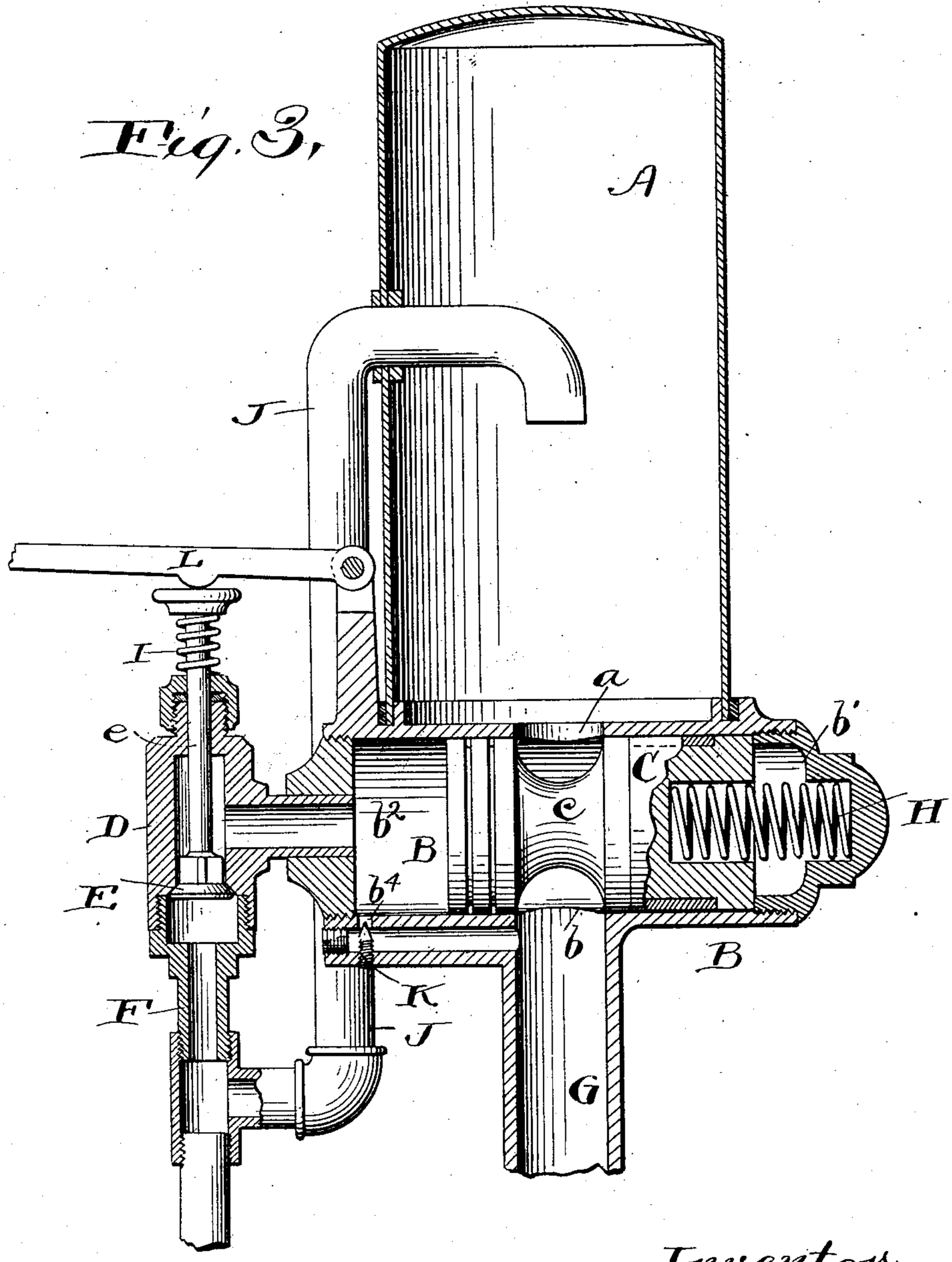
NO MODEL. 2 SHEETS—SHEET 2.

Fig. 3.



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UNITED STATES PATENT OFFICE.

PHINEAS F. KING, OF CLEVELAND, OHIO, ASSIGNOR OF ONE-HALF TO CHARLES H. TUCKER, OF CLEVELAND, OHIO.

CLOSET FLUSHING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 747,439, dated December 22, 1903.

Application filed December 15, 1902. Serial No. 135,218. (No model.)

To all whom it may concern:

Be it known that I, PHINEAS F. KING, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Closet Flushing Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

The object of this invention is to provide a closet flushing apparatus with which a sufficient volume of water may be discharged into the bowl at a pressure which is not dependent upon the elevation of the flushing-tank and an apparatus wherein there will be no noise due to the refilling of the reservoir or tank.

The apparatus employs an air-tight tank, in which the water is held under an air-pressure equal to and produced automatically by the pressure of the water in the water-supply system. The inflowing of the water into the tank is not terminated by the closing of a float-operated valve, as is customary; but such inflow does cease when the air-pressure in the tank balances the water-pressure of the supply system. The discharge end of the inlet-pipe within the tank is submerged, and the inflow of water is therefore noiseless. When the valve holding the water in the tank is opened, the water flows into the bowl with a rush of gradually-decreasing force until the valve automatically closes after the lapse of a sufficient period of time.

The invention may be here summarized as consisting of the construction and combination of parts constituting the apparatus as shown and giving to it the characteristics above described, all of which will be definitely pointed out in the claim.

In the drawings, Figure 1 is a front elevation of said apparatus. Fig. 2 is a side elevation thereof, and Fig. 3 is a central vertical section on the line 3 3 of Fig. 2.

In the drawings, A represents an air-tight tank, which may be located anywhere in respect to the other parts of the mechanism, provided there is a suitable passage-way from said tank to the valve-casing B. In the best construction the tank is placed directly over said valve-casing, the floor of the tank being a part of the same casting in which the valve-casing is formed, and an opening *a* is formed through this floor from the tank to the interior of the valve-casing. The valve-casing is a horizontal cylinder closed by a screw-plug *b'* at one end, but having a valve-controlled connection b^2 at the other end with the water-supply. An opening *b* directly below the opening *a* communicates with a pipe G, which discharges into the bowl.

Within the valve-casing is a piston-valve C, which, between its ends, is constructed to permit the water to pass when the valve is in the proper position. As shown, the annular groove *c* is formed around the valve, and when the valve is open the water flows in this groove from the inlet *a* to the outlet *b*. A coiled spring H in the closed end of the valve-casing B exerts its force between the plug *b'* and valve so as to move the valve toward the opposite end of said casing and to thereby cause it to cover and close the two openings *a b*.

An operating valve-casing D is connected with the pipe b^2, which valve-casing is connected by means of a pipe F with the water-supply. Within the valve-casing D is a valve E, placed substantially as shown so as to prevent communication between the water-supply pipe F and the interior of the valve-casing B. The stem *e* of this valve E extends upward and out of the valve-casing through a suitable stuffing-box, and a spring I, which surrounds the projecting end of the stem, may be employed to assist in closing this valve. A lever L may also be employed to move this valve E in the contrary direction. When the valve E is opened, water from the pipe F flows into the valve-casing B and against the piston-valve C, which is thereby moved in opposition to its spring until the valve assumes the position shown in Fig. 3. The communication between the reservoir A and the pipe G being thus opened, the water from the reservoir will flow to the bowl with a force which at first is equal to the pressure of the water in the supply-pipe, because the air-pressure in the tank just balances that water-pressure. The water will therefore flow with a rush down to the bowl; but the force of water will lessen as the tank

empties. The operator will in the meantime have allowed the valve E to close.

In that end of the valve-casing B which is in communication with the valve-casing D there is a small port b^4, connecting that end of the valve-casing B with the pipe G. When the valve E is closed the water in the valve-casing B will run out of the valve-casing through the port b^4 and allow the spring H to move the valve C in the closing direction. The length of time during which the valve C shall remain open will depend upon the size of this port b^4, through which water must escape from the valve-casing B. The size of this port may, if desired, be regulated by means of the set-screw K, whose pointed end may be screwed in to a greater or less extent. When the valve C is closed, the tank A will gradually fill up through pipe J, which is in open communication with the water-supply, and will continue to fill, as before stated. The air-pressure in its upper end balances the water-supply pressure. This pipe J has its end turned down in the tank, and therefore the end will be covered by the water long before the tank is filled. Indeed, the port b^4 might be of such size that the valve C will close before the lower end of the pipe J is uncovered.

Having described my invention, I claim—

The combination of a cylindrical valve-casing B, having on its upper side a plate through which is a hole communicating with said valve-casing, a tank secured upon said plate and forming therewith an air-tight reservoir, and a pipe connected with the water-supply and extended into this tank, a discharge-pipe connected with said valve-casing, and a passage-way connecting one end of the valve-casing with the discharge-pipe, with a valve-casing connected with that end of the valve-casing B with which said passage-way is connected, and also connected with the water-supply, a valve E located between the water-supply and the valve-casing B, a piston-valve in the casing B, and a spring acting to move the said valve to close it, substantially as described.

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

PHINEAS F. KING.

Witnesses:
E. L. THURSTON,
H. M. WISE.