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H. DAWSON.

SUPPLY APPARATUS FOR WATER CLOSETS.

No. 301,868. Patented July 15, 1884.

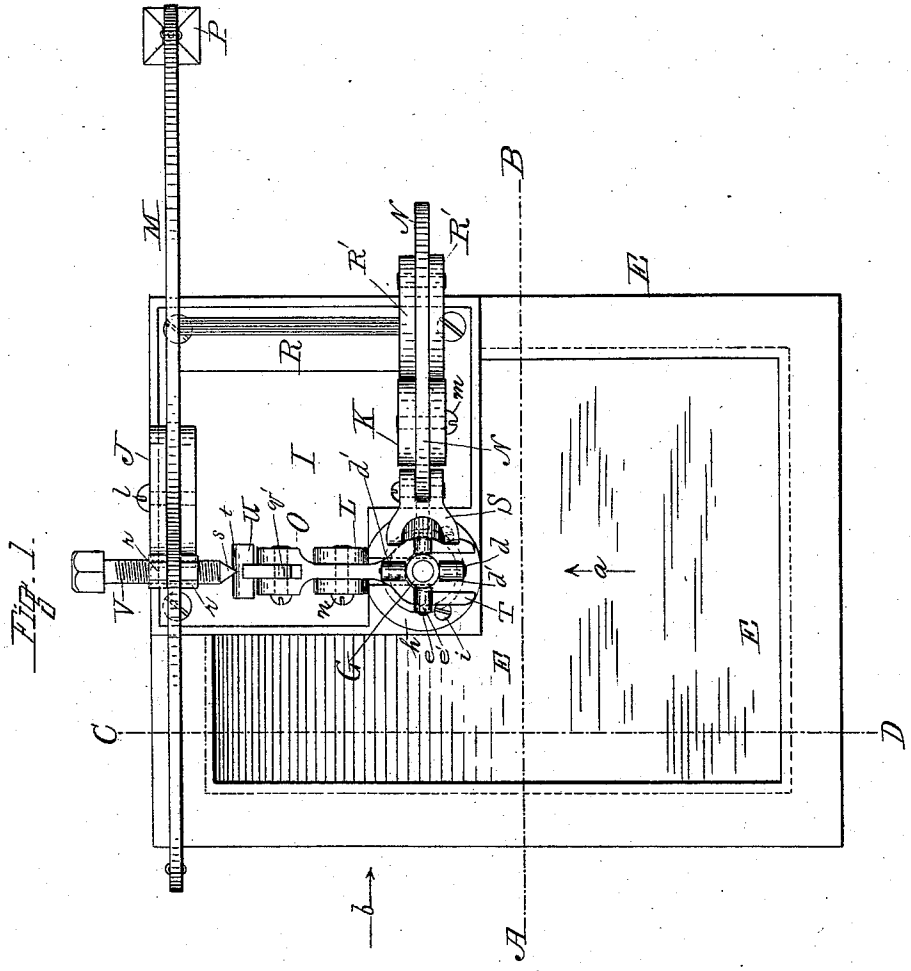


Fig. 1.

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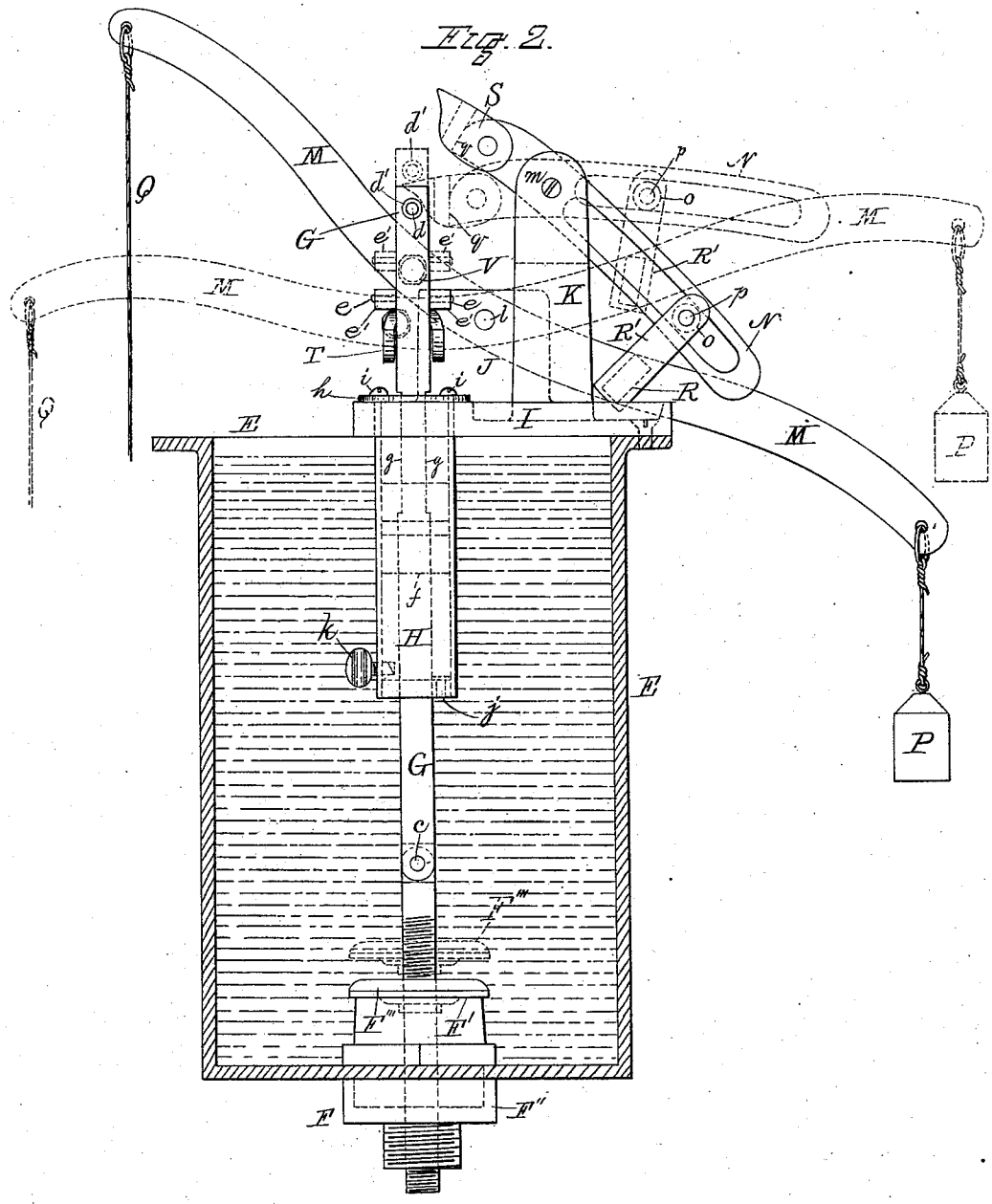
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Fig. 2.



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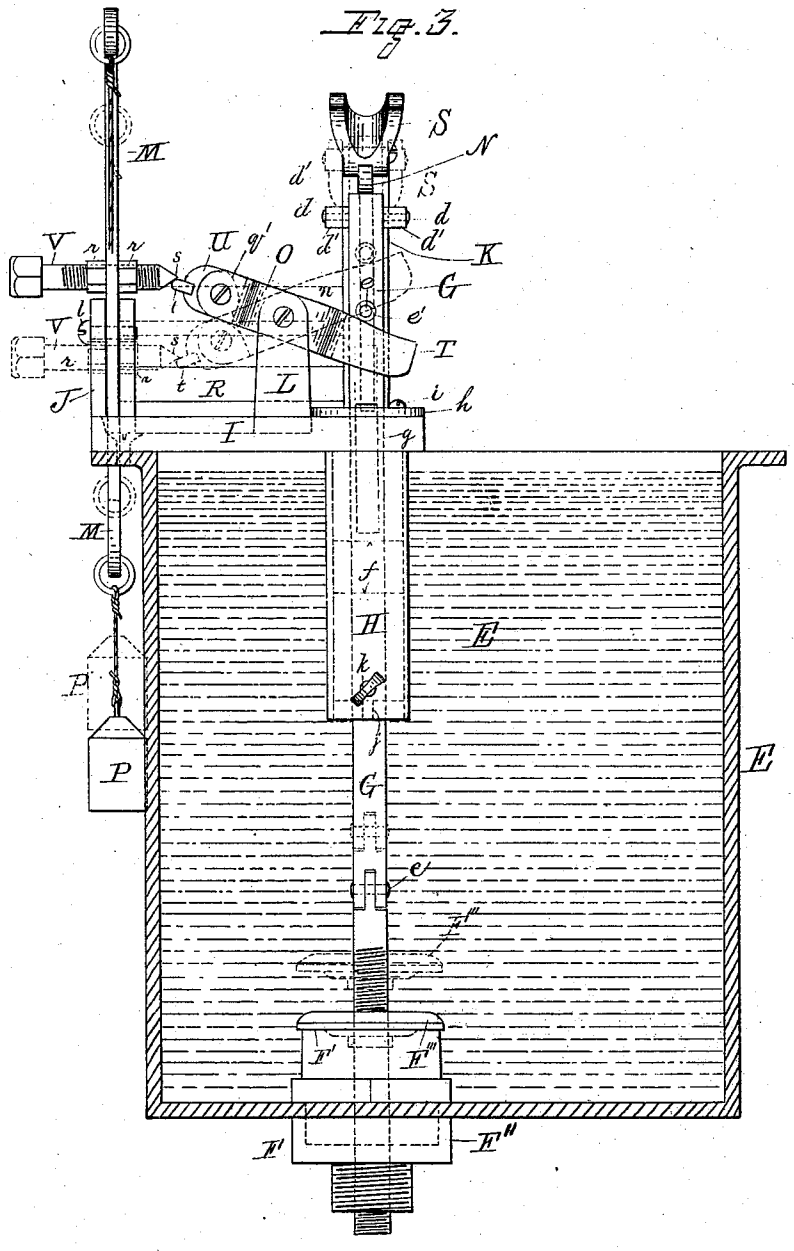
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Fig. 3.



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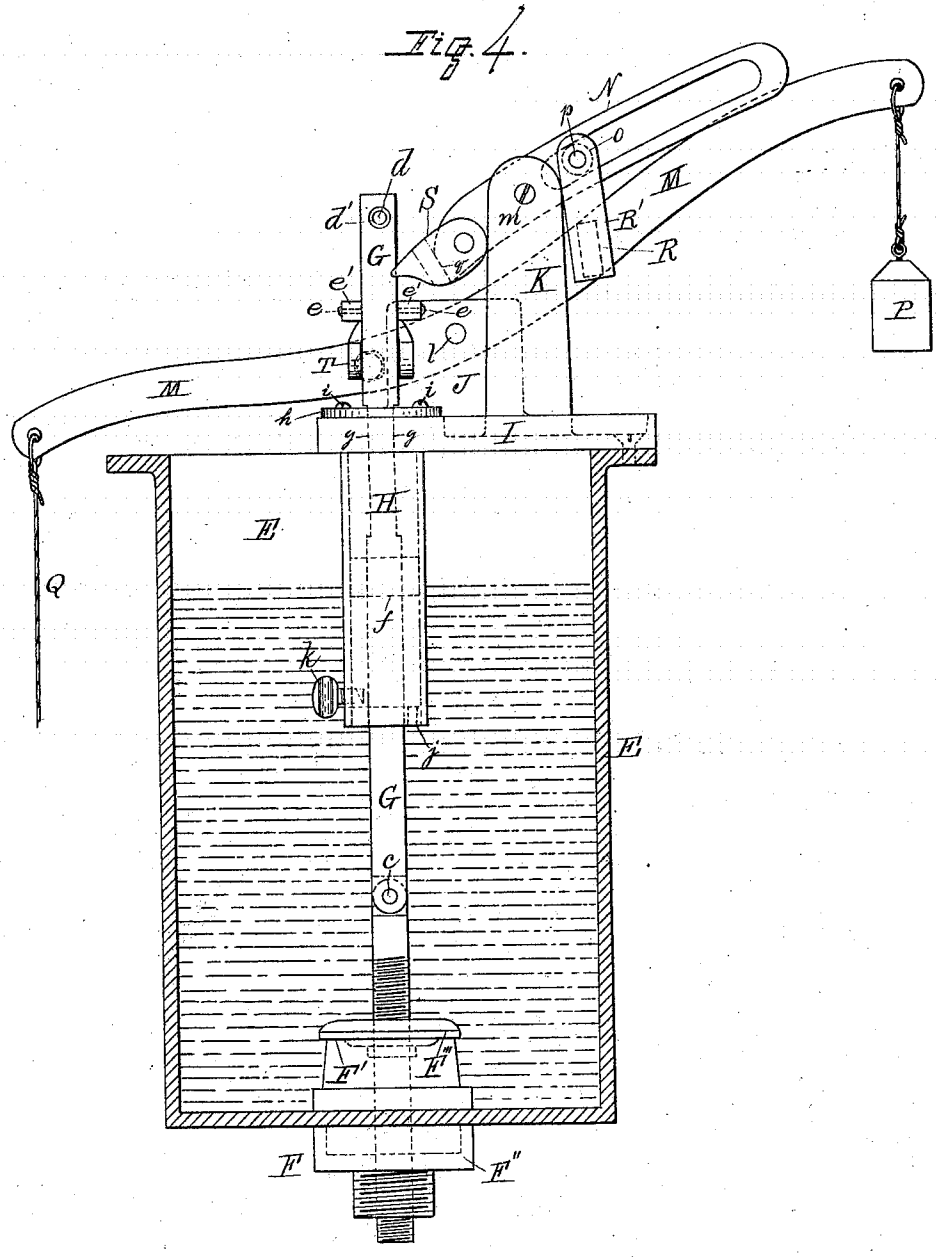
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Fig. 4.



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UNITED STATES PATENT OFFICE.

HENRY DAWSON, OF WORCESTER, MASSACHUSETTS.

SUPPLY APPARATUS FOR WATER-CLOSETS.

SPECIFICATION forming part of Letters Patent No. 301,868, dated July 15, 1884.

Application filed February 4, 1884. (No model.)

To all whom it may concern:

Be it known that I, HENRY DAWSON, of the city and county of Worcester, and State of Massachusetts, have invented certain new and useful Improvements in Supply Apparatus for Water-Closets; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 represents a top or plan view of my apparatus secured upon the top of a water-closet cistern or supply-tank. Fig. 2 represents a vertical section on line A B, Fig. 1, looking in the direction of arrow *a*, same figure, the full lines showing the normal position of the parts of my apparatus prior to their use in the same position as shown in the plan view, Fig. 1, and the dotted lines show the position of the parts when the valve is being opened a second time for the afterwash of the bowl after the closet has been used, as will be hereinafter fully described. Fig. 3 represents a vertical section on line C D, Fig. 1, looking in the direction of arrow *b*, same figure, showing the normal position of the parts of my apparatus not shown in Fig. 2, and also the mechanism by which the amount of water used for the preliminary wash of the bowl is regulated, and the dotted lines show the position of the parts when the valve is being opened for the first time for the preliminary wash of the bowl before the closet has been used, as will be hereinafter fully described; and Fig. 4 represents the position of the parts of my apparatus shown in Fig. 2 after the seat has been depressed, and while the valve is closed after the preliminary wash of the bowl, as will be hereinafter fully described.

My invention relates to a supply apparatus for water-closets, to be used in connection with a single-compartment reservoir or supply-tank, to which it is attached, and a depressible seat. Said supply-tank has a supply-pipe provided with a supply-cock, which is automatically operated by the usual ball-float; but these parts I have not shown in the drawings, as they are well-known devices and form no part of my present invention, which consists in certain novel features of construction of the apparatus for supplying the flow of water from the tank to the bowl, so that by the use of a single valve at the bottom of the tank, which tank may be of the common form of single-compartment tanks or cisterns, I obtain two distinct and separate flows of water from the supply-tank to the bowl of the closet each time the closet is used—the preliminary wash for the bowl and the afterwash; and, further, I am also able to regulate the quantity of water used at each wash, and to vary the quantity as may be desired, as will be hereinafter fully described. My apparatus is operated to open and close the valve by a cord or chain attached to a depressible seat in the usual manner.

To enable those skilled in the art to which my invention belongs to make and use the same, I will proceed to describe it more in detail.

In the drawings, E represents a single-compartment supply cistern or tank for water-closets, made of cast-iron. In practice the said tank E is filled with water by a supply-pipe having a supply-cock, and provided with a ball-float for automatically operating the same, all of the common form, and well-known devices in general use in water-closet tanks, and therefore not shown in the drawings.

In the bottom of the tank E there is a hole, into which is fitted the valve F, having a coupling, F″, to the lower part of which is attached the discharge-pipe, which pipe, as usual, leads to the bowl where the water is to be used. The valve F is the common form of valve used in water-closet tanks, having a coupling, F″, upon the lower part thereof, with which the discharge-pipe is connected, the cup F‴ being secured by a thread to rod G, by means of which it is raised from its seat F′, (see dotted lines, Figs. 2 and 3,) to allow the water to flow into the discharge-pipe, and also lowered again upon its seat, (see full lines, Figs. 2, 3, and 4,) to shut off the flow of water from the tank. The rod G is made in this instance of round metal, and made in two parts jointed together by a pin, *c*, as shown in the drawings, the lower part being provided with a thread at its lower end, and extending down through the valve F and coupling F″, as shown in the drawings. The upper part of the rod G is provided at its upper end with two sets of pins or studs, *d* and

e, extending out from opposite sides thereof, as shown. These studs may be cast with the rod G, or attached thereto in any suitable manner, and are used for raising and lowering the said rod G to open and close the valve F by a system of levers in the manner to be hereinafter fully described. The said studs are provided with small rollers *d'* and *e'*, as shown in the drawings. The rod G has the plunger *f* attached thereto, which works up and down in the cylinder H, attached to the plate I, when the rod G is raised or lowered, and is operated upon the same principle as the common form of syringe.

In order to prevent the rod G from turning around in the cylinder H in either direction, it is flattened slightly on two sides, where it extends through the upper part of the cylinder H, as shown at *g*, Figs. 2 and 3, and a slotted disk, *h*, is fitted over the top of said cylinder, resting on the plate I around the rod G, being held in place by screws *i*, or in any other suitable manner, to prevent said rod G from turning as it is moved up and down. The cylinder H has a sucker-hole, *j*, in the lower end thereof, and also a vent-hole in the side thereof, at its lower part, which is provided with a thumb-screw, *k*, by means of which the rapidity with which the plunger *f* sinks in the cylinder G may be regulated, for the purpose to be hereinafter explained.

Upon the plate I, which is made of cast-iron and secured firmly upon or over the top of the supply-tank E, are the stands J, K, and L, cast with said plate I, or attached thereto, and projecting up at right angles therefrom. In the upper ends of the parts J, K, and L, at *l*, *m*, and *n*, are pivoted the levers M, N, and O, the combined action of which opens and closes the valve F in the manner to be hereinafter described. The lever M, pivoted in the stand J, has a weight, P, attached to one end and a cord or chain, Q, attached to the other end, the said cord Q being connected with the seat of the closet in the usual manner, the object of the weight P being to draw the lever M back into its normal position when the pressure is removed from the seat. The lever M has an arm or projection, R, extending out at right angles therefrom, and cast therewith or attached thereto, said arm R has a slotted piece, R', at its outer end, to form a connection for operating the lever N at the same time with and by means of lever M, said part R' being connected with the lever N by means of a small roller, *o*, and pin *p*, said roller working in a slot through the lever N, as shown in Figs. 2 and 4 of the drawings.

Upon one end of lever N is pivoted the forked part S. Said lever is rounded off upon its top surface, as shown by dotted lines Figs. 2 and 4, to allow of the part S being pushed up when it comes in contact with the rollers *d'*. (See dotted lines, Fig. 3.) The lever O, pivoted at *n*, is made with the forked part T at one end, which fits under the rollers *e'* on the lower set of studs, *e*, on the rod G to raise said rod, as shown in Fig. 3, to open the valve F for the first or preliminary wash of the bowl. At the other end of lever O is pivoted the part U, made in the form shown in Figs. 1 and 3, the upper inner corner being rounded off, as shown by dotted lines at *q'*, Fig. 3, to allow of its being pushed up, and the lower inner corner being square, as shown, to bear against the end of the lever O, and to hold the part U in the position shown in full lines, Fig. 3, when the lever M is drawn down by the cord Q to open the valve F for the preliminary wash of the bowl. The lever O is operated by the bolt V, which passes through a hole in the lever M, and is held in any desired fixed position by means of the two nuts *r*.

By means of the bolt V, in connection with the lever M and the lever O, having the part U pivoted in one end thereof, I am able to regulate the amount of water that will be discharged from the supply-tank E when the valve F is opened for the first time for the preliminary wash of the bowl, by pressure on the seat of the closet, connected with the cord Q; for if the bolt V is so adjusted in the lever M that its point *s* will only touch the end *t* of the part U of the lever O when the different parts are in the position shown by full lines, Fig. 3, then when the lever M is drawn down by the cord Q the lever O will only be slightly depressed before the point *s* of the bolt V will slide off of the projecting part *t* of the part U, allowing the lever O to return to its original position and close the valve F, which, being open for only a short space of time, will allow only a small quantity of water to be discharged into the bowl from the tank for the preliminary wash.

By means of the thumb-screw *k*, provided with a vent which fits into the hole in the lower part of the cylinder H, I am able to regulate the quantity of water that will be discharged from the tank when the valve F is opened the second time by the lever N for the afterwash of the bowl, by the weight P, the pressure being taken off of the seat of the closet. When the thumb-screw *k*, which is made with a vent in the usual manner, is turned in the hole into which it fits in the lower part of the cylinder H, so as to allow only a small quantity of water to escape through the vent in said screw and out of said hole, the plunger *f* will sink or descend slowly in the cylinder H, after the lever N has returned to its original position, as shown in full lines, Fig. 2, keeping the valve F open a longer time, and allowing a larger quantity of water to be discharged from the tank for the afterwash of the bowl of the closet than would be the case if the thumb-screw *k* were given one or two turns, so as to allow a larger quantity of water to escape through the more opened vent in said thumb-screw.

The operation of my supply apparatus for water-closets is as follows: The several parts

are in the position shown by full lines, Figs. 1, 2, and 3, which will be their normal position when the closet is not in use, the tank E being filled with water and the cord or chain Q being attached to a depressible water-closet seat in the usual manner. When the closet is used, the depression of the seat will draw down the lever M, and at the same time the lever O, by means of bolt V, in the manner before described, and the forked end T of lever O, coming in contact with the rollers *e'* on the studs *e* on rod G, (see Fig. 3,) will raise said rod G and open the valve F, (see dotted lines, Fig. 3,) allowing the water to be discharged from the tank into the bowl of the closet for what is called the "preliminary" wash, the quantity of the water used being regulated by means of the bolt V, in the manner hereinbefore described. When the lever M has been depressed a certain distance, and also the lever O, the end *s* of the bolt V will slide off of and by the end *t* of the part U, pivoted in the end of lever O, allowing said lever O to return to its original position, being drawn back by the weight of the rod G, and the parts attached thereto, bearing on the forked end T of said lever O, through the rollers *e'* on the studs *e*, and closing the valve F, no longer being held open by the lever O, and shutting off the discharge of water from the tank as long as the seat of the closet remains depressed. When the levers M and O are drawn down, as above described, the lever N, connected with the lever M by means of the arm R in the manner hereinbefore described, will also be drawn down into the position shown in Fig. 4, the pivoted forked part S coming in contact with and sliding by the rollers *d'* on pins *d* on the rod G, as said rod G is raised by the lever O, as before described. As long as the seat of the closet is depressed, the valve F is closed after the preliminary wash, and the forked part S, pivoted in the end of lever N, will be in the position shown in Fig. 4; but as soon as the pressure is removed from the seat of the closet the weight P will draw the lever M, and at the same time the lever N, back into their original position, and the part S coming in contact with the rollers *d'* on studs *d*, as shown by dotted lines, Fig. 2, will raise the rod G and open the vave F, to allow of the discharge of water from the tank for the afterwash of the bowl. As the lever N is raised, as before stated, the part S, pivoted to one end of said lever, will gradually slide by the rollers *d'* on the studs *d* until it is in the position shown by full lines, Fig. 2, allowing the rod G to drop (the speed with which it descends being regulated by means of the thumb-screw *k* in the cylinder H, as before described) and close the valve F, shutting off the discharge of water. The closing of the valve F, after it has been opened by the lever N in the manner just described, will cause the lever O to return to its original position, (shown by full lines, Fig. 3,) it having been moved out of said position, in the opening of the valve F, by the lever N, and the apparatus will be ready to be used a second time in the same manner as before.

I have described my apparatus as being operated by means of a depressible seat of a water-closet, with which the cord Q is connected in the usual manner; but I do not wish to limit myself to the use of a depressible seat for operating my apparatus, as it may also be operated by attaching the cord Q to the door of the closet, the opening and closing of the door operating my apparatus, and other means of operating the same may also be employed, if preferred.

Having described my improvements in supply apparatus for water-closets, what I claim therein as new and of my invention, and desire to secure by Letters Patent, is—

1. The combination, with the levers M, N, and O and means for supporting and operating the same, substantially as described, of the stationary cylinder H, rod G, provided at its upper end with suitable projections, and valve F, substantially as shown and described.

2. The combination, with the discharge-valve F, rod G, provided with suitable projections at its upper end for the purpose stated, and the stationary cylinder H, of the lever O and the lever M, and means for operating the same, substantially as shown and described.

3. The combination, with the discharge-valve F, rod G, provided with studs or pins *e*, the stationary cylinder H, and the lever O, having at one end the forked part T and at its other end the pivoted part U, of the lever M, provided with the bolt V, for the purpose stated, and means for operating the same, substantially as shown and described.

4. The combination, with the lever M and the lever N, having the forked part S pivoted at one end, said levers being connected and operated substantially as shown, of the rod G, provided with pins or studs *d*, and the stationary cylinder H, having a thumb-screw, *k*, in the lower part thereof, provided with a vent, for the purpose stated, all constructed and operated substantially as shown and described.

5. The combination, with the lever M and the lever N and means for operating the same, substantially as described, of the discharge-valve F, rod G, provided with suitable projections at its upper part, for the purpose stated, and the stationary cylinder H, substantially as shown and described.

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