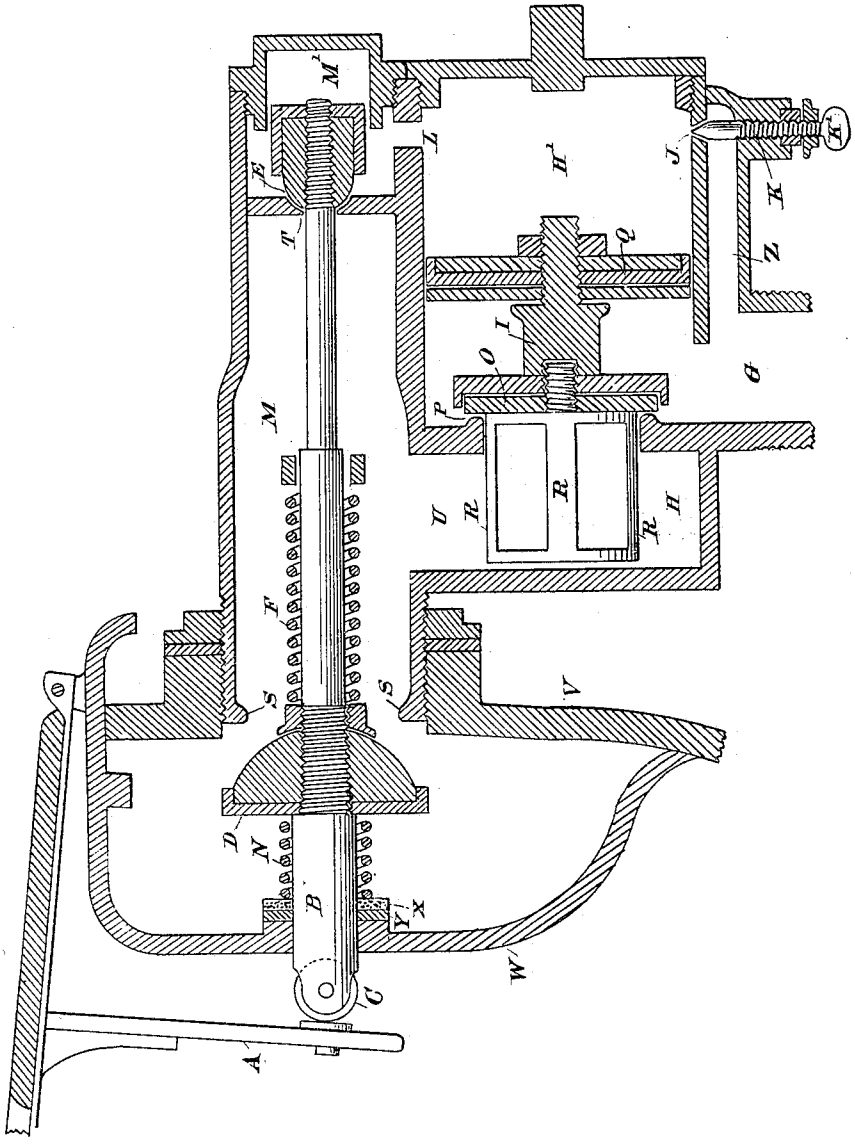
No. 801,682. PATENTED OCT. 10, 1905.

W. H. OSBORN.

WATER CLOSET.

APPLICATION FILED FEB. 4, 1905.



WITNESSES.

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WATER-CLOSET.

No. 801,682. Specification of Letters Patent. Patented Oct. 10, 1905.

Application filed February 4, 1905. Serial No. 244,093.

To all whom it may concern:

Be it known that I, WILLIAM H. OSBORN, a citizen of the United States, residing at Oakdale, in the county of Jefferson and State of Kentucky, have invented a new and useful Improvement in Water-Closets, of which the following is a specification.

The object of my contrivance is to provide apparatus for automatically flushing water-closets direct from the supply-pipe and without the use of a tank, affording at the same time means for regulating the length and amount of flushing and preventing leakage at the entry into the bowl or flushing-rim. I attain these objects by means of the mechanism illustrated in the drawing, in which the figure is a vertical sectional elevation of a portion of the closet-bowl and my improved system of valves applied thereto.

A is a lug or lever attached to the hinged closet-seat projecting downward into the bowl and actuating rearward a spindle B, to which I prefer to attach adjacent to the lever the friction-wheel C to prevent binding, and which spindle is guided truly along and within the tube M, hereinafter described. The spindle bears a valve-disk D and after an interval of some inches a valve-disk E, a spring F, adapted to actuate the spindle forward, and to the front of disk D the spiral spring N. These disks are rigidly attached to the spindle and are composed of rubber or like soft material or are faced with such material, so as to make a waterproof joint with slight pressure. The spindle is normally actuated forward by the springs acting on the shoulders or valve-seats within said tube, and thereby the spindle is normally pushed upward. When the spindle is thus actuated forward, the disk E presses against the seat T and closes that aperture in the tube, the valve D S being open. When the spindle is pushed back, the disk D presses against the seat S and closes that aperture in the tube, the valve E T being open.

G is the supply-pipe. This leads into a horizontal tube H, preferably adjacent and parallel to tube M, closed at both ends and extending in both directions from the entry of said pipe. Into tube H fits a plunger consisting of a central shaft I, bearing near the rear end a disk Q, which fits snugly in the tube, and bearing nearer the front a valve-disk O, adapted to close port P in said tube H when pushed forward, and, further, bearing at the forward ends the guides R R, which fit within the periphery of the tube H where it is narrower—that is, in front of said port P.

Near the rear end of tube H, which I designate as the chamber H′, is a pin-hole J, the opening of which is regulated by the pin K, operated by the screw K′, which may be readily worked from the outside without disturbing any part of the apparatus. Said pin-hole is connected with the supply-pipe, preferably through an auxiliary tube or channel Z. Near the same end of tube H is also aperture L, which leads into the adjacent tube M in the part to the rear of valve E, which I designate as chamber M′.

U is a port in tube H, leading into tube M at a point between the two valve-seats therein.

V is the bowl of the closet, and W is the flushing-rim.

X is a brass washer actuated by the spring D against the leather washer Y, which forms a water-tight joint between the valve-spindle and the flushing-rim to prevent splashing at the inlet-point from the flushing-pipe to the rim. The washers are rigidly attached to the spindle.

My contrivance operates as follows, being partly the same as shown and claimed in my Patent No. 755,922: When the closet is out of use, the spindle B is actuated forward by the spring F. The valve D S is thus opened and the valve E T is closed. Consequently the water coming from the supply-pipe through the pin-hole J through the rear part of tube H and through it and aperture L also into the rear of tube M has no exit, and its pressure drives the plunger forward and forces the valve-disk O against the valve-seat P, and the water from the supply-pipe is thus shut off from entry into tube M through the valve O P. When the closet is put to use, the weight of the body actuates the spindle rearward, the valve D S is thus closed, and the valve E T is opened. The water back of the plunger-disk Q being thus given an exit, the pressure on that side of the disk is released. The water from the supply-pipe forces this disk Q back, opening the valve O P, and the water flows into and through tube M until its further progress is stopped by the valve-disk D. When the seat is released, the spindle is actuated forward by the spring F, the valve D S is opened, and the valve E T is closed. The water from the

supply-pipe rushes through the valve D S into the flushing-rim. In the meanwhile, the valve E T being closed, the pressure of the water coming through the pin-hole J back of the disk Q gradually pushes it forward and presses valve-disk O against the valve-seat P, whereby the flow of the water through valve O P and the tube M into the closet is again entirely cut off. The enlarging or lessening of the pin-hole J by means of the pin K causes the chamber H' back of disk Q to fill with greater or less rapidity, and thus the length of the flushing time may be regulated.

Timing arrangements have been contrived operated by the gradual filling of a tube or chamber with water; but a great advantage of mine is that the tube is arranged horizontally, so that I need no force to counteract the gravity of the plunger and all its movements are more easily effected. What is especially novel and useful about my contrivance is the combination of the apparatus for timing and regulating the flushing with the valves for doing the flushing operated by the seat and springs.

Having now described my contrivance, what I claim as my invention, and desire to secure by Letters Patent, is—

1. In water-closets, a spindle, within a tube M, actuated toward the closet by a spring within said tube, and actuated in the reverse direction by means operated by the downward pressure of the closet-seat; a valve-disk D, attached to nearer part of the spindle, which closes a valve D S in tube M when the spindle is actuated rearward from the closet, and a valve-disk E, attached to the farther part of the spindle, which closes a valve E T in tube M, when the spindle is actuated forward; tube H connected with a supply-pipe, and adjacent to tube M; a plunger in said tube H; port P in said tube, and disk O, connected with the plunger, and adapted to close said port; pin-hole J in tube H connected with the supply-pipe, and means for regulating the size of said pin-hole; a hole leading from tube H to tube M rearward of valve E T, and a hole leading from tube H to tube M between valve-disks D and E, substantially as described.

2. In water-closets, a spindle, within a tube M, actuated toward the closet by a spring within said tube, and actuated in the reverse direction by means operated by the downward pressure of the closet-seat; a valve-disk D, attached to the nearer part of the spindle, which closes a valve D S in tube M, when the spindle is actuated rearward from the closet, and a valve-disk E attached to the farther part of the spindle, which closes a valve E T in tube M, when the spindle is actuated forward; tube H connected with a supply-pipe and adjacent to tube M; a plunger in said tube H; port P in said tube, and disk O, connected with the plunger, and adapted to close said port; pin-hole J in tube H connected with the supply-pipe; a hole leading from tube H to tube M rearward of valve E T, and a hole leading from tube H to tube M between valve-disks D and E, substantially as described.

3. In water-closets, a spindle, reciprocally actuated by a spring and by the closet-seat; a valve-disk D attached thereto, a tube M containing said spindle and a valve-seat S therein adapted to be closed by said disk; a tube H, disk O therein, a port P therein, adapted to be closed by the disk, so as to shut off the otherwise free passage from the supply-pipe across tube H to tube M; a plunger within tube H connected with disk O; means for slowly bringing water from the supply-pipe into a temporarily-closed chamber in tube H, so as to actuate the plunger, and thereby force the disk against the port P valve-disk E attached to the spindle, adapted to close valve-seat T in tube M, thereby stopping exit of water through hole L and forming said closed chamber in tube H behind plunger Q; washers surrounding the spindle and packed tight around it and against the flushing-rim, and the spring so pressing it, substantially as described.

4. In water-closets, a spindle, reciprocally actuated by a spring and by the closet-seat; a valve-disk D attached thereto, a tube M containing said spindle and a valve-seat S therein, adapted to be closed by said disk; a tube H, a disk O therein, a port P therein, adapted to be closed by the disk so as to shut off the otherwise free passage from the supply-pipe across tube H to tube M; a plunger within tube H, connected with disk O; means for slowly bringing water from the supply-pipe into a temporarily-closed chamber in tube H, so as to actuate the plunger, and thereby force the disk against the port P valve-disk E attached to the spindle, adapted to close valve-seat T in tube M, thereby stopping exit of water through hole L and forming said closed chamber in tube H behind plunger Q, substantially as described.

5. In water-closets, the tube M the combination of a spindle within said tube, reciprocally actuated by the seat and by springs, and bearing a valve leading to the closet, tube H, a plunger-valve operated horizontally within said tube by a slowly-increasing water-pressure in a temporarily-closed tube, a port in tube H affording passage from the supply-pipe to the closet-valve, adapted to be closed by said plunger-valve, and a valve attached to said spindle, adapted to close the chamber for holding the water actuating the plunger-valve, valve-disk E adapted to close a chamber in tube H behind plunger Q and supply-pipe G and pin-hole J, adapted to slowly increase the pressure within said chamber substantially as described.

6. In water-closets, the combination of a flushing-valve, and the seat and a spring reciprocally actuating said valve; a plunger-disk adapted to stop the flow of water to the valve; a tube containing the valve and a tube connected therewith, containing the plunger-disk; means for closing exit from a chamber in the tube behind the plunger-disk, and means for slowly bringing water thereto from the supply-pipe, substantially as described.

Louisville, Kentucky, February 2, 1905.

WILLIAM H. OSBORN.

Witnesses:
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JOHN H. CHANDLER.