

No. 641,238

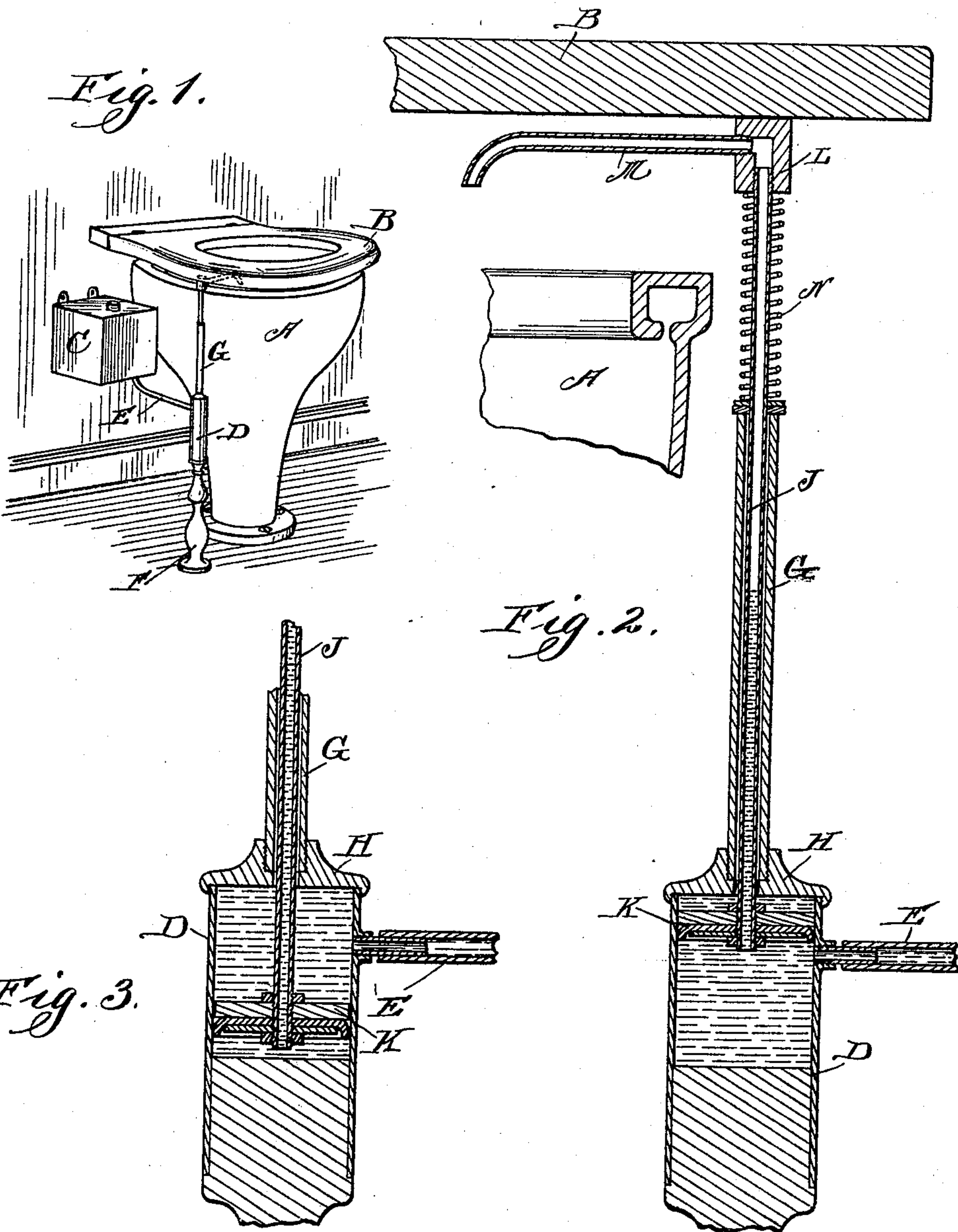
Patented Jan. 9, 1900.

W. RUTHVEN.

DISINFECTING APPARATUS FOR WATER CLOSETS.

(Application filed Feb. 14, 1898.)

(No Model.)



Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM RUTHVEN, OF CHICAGO, ILLINOIS.

DISINFECTING APPARATUS FOR WATER-CLOSETS.

SPECIFICATION forming part of Letters Patent No. 641,238, dated January 9, 1900.

Application filed February 14, 1898. Serial No. 670,215. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM RUTHVEN, a citizen of the United States, and a resident of Chicago, Cook county, Illinois, have invented
5 certain new and useful Improvements in Disinfecting Apparatus for Water-Closets, of which the following is a specification.

My invention relates to that class of disinfecting devices to be used in connection with
10 water-closets and which are adapted to be automatically operated whenever the closet is used to discharge a liquid disinfectant into the bowl. My invention is designed to produce an apparatus of this kind which shall
15 be simple in its construction, certain in its operation, durable, and not liable to get out of order.

Among other features of my invention I have produced a combination in which no
20 valves are employed, and which is consequently more certain in its operation and more durable. Another feature is found in the fact that I have so constructed my device as to compel the fluid to reciprocate therein,
25 thus preventing any possible clogging of the apparatus and securing a desirable agitation of the fluid. To obtain these results, I have made my invention, one form of which is illustrated in the annexed sheet of drawings, in
30 which the same letters of reference are used to designate identical parts in all the figures, of which—

Figure 1 is a perspective view illustrating the complete apparatus in position. Fig. 2 is
35 a central sectional view, and Fig. 3 is a similar view with the piston in another position.

The bowl A is of the ordinary construction and is provided with a seat B, which is of the type that is normally held raised a little by a
40 spring or other mechanism and is ordinarily designed to be pressed down by the weight of the individual when seated to automatically flush the bowl upon rising or at any desired time.

45 The reservoir C for the fluid is attached to any convenient wall or supported upon a standard, the only limitation on its position being that it shall be below the discharging-point and above the cylinder D, to which it is connected by the pipe E. This cylinder D
50 is conveniently supported by a stand F. A

tube G, which may be screwed or otherwise secured in the head H of the cylinder, serves as a support or bearing for the hollow piston-rod J, which has secured to its lower end the
55 piston K, which may be of any desired construction so as to operate fluid-tight in the cylinder. The upper end of the hollow piston-rod J is screwed or otherwise fastened in an apertured block L, in which is also secured
60 the discharge-tube M, opening over the bowl. Of course it will be understood that I might make the piston-rod J and the discharge-tube M continuous instead of interposing the block L, the only requirement being that the pas-
65 sage shall be continuous and uninterrupted from the piston K to the discharge-point. A coiled compression-spring N is conveniently interposed between the block L and the up-
70 per end of the tube G to normally hold the piston in its uppermost position, as shown in Fig. 2, where it is above the entrance of the tube E to the cylinder D.

The operation of the apparatus is as follows: The disinfecting fluid stands at the
75 same height in the piston-rod J that it does in the reservoir C. Hence the necessity for having the reservoir located as stated above. The seat B normally rests either upon or slightly above the block L, so that when the
80 seat is depressed the piston K is forced downward to the position shown in Fig. 3. As soon as it passes the orifice of the tube E the fluid below the piston having no other outlet is forced up through the piston-rod J and is dis-
85 charged through the tube M. When the seat is released, the piston K rises under the stress of the spring N, and as soon as the piston passes above the orifice of the tube E the liq-
90 uid flows by gravity into the cylinder D, thus charging it ready for another discharge. It will be noted from Fig. 3 that the cylinder is filled after the piston is depressed below the orifice of the tube E and that as the piston is raised under the stress of the spring N the
95 fluid will be forced back into the reservoir until the piston passes above the orifice. This action causes a flow in alternating directions in the pipe E, which is extremely desirable in keeping the pipes open and the liquid prop-
100 erly agitated.

It will be understood that my invention is

capable of some modifications and that I do not desire to be limited to the exact construction shown and described, but only so far as may be necessitated by the state of the art and the following claims:

1. In an apparatus of the class described, the combination with the supply-reservoir, of the measuring apparatus below the level of the supply-reservoir, and a hollow piston-rod coöperating with the measuring apparatus in its operative stroke to cut off its connection with the supply-reservoir and to force a liquid through said piston-rod and into the bowl above the level of the supply-reservoir, said piston-rod being adapted to be operated by the depression of the seat, and the working capacity of said measuring apparatus exceeding that of the piston-rod above the level of the supply-reservoir, whereby all valves may be dispensed with.

2. In an apparatus of the class described, the combination with the supply-reservoir, of the measuring-cylinder below the level of the supply-reservoir, connections between the reservoir and the cylinder comprising an orifice opening into the cylinder and a hollow piston-rod carrying an apertured piston coöperating with the cylinder and normally above said orifice and depressible past it to cut off the supply and force a liquid through the piston-rod and into the bowl above the level of the supply-reservoir, said piston being adapted to be operated by the depression of the seat, substantially as described.

3. In an apparatus of the class described, the combination with a supply-reservoir, of a measuring-cylinder closed at both ends and below the level of the supply-reservoir, connections between the reservoir and the cylinder comprising an orifice opening into the cylinder, and a hollow piston-rod carrying an apertured piston coöperating with the cylinder and normally above said orifice and depressible past said orifice to cut off the supply and force the contents of the cylinder through the piston-rod, and operating on its return stroke to force the fluid backward through said connections thereby flushing them, substantially as described.

4. In an apparatus of the class described, the combination of the supply-reservoir C, with the cylinder D, located below said reservoir and connected thereto by the pipe E, the hollow piston-rod J extending above the reservoir C and adapted to be depressed by the seat and carrying the piston K normally resting above the orifice of the tube E but passing below it at the beginning of its operative stroke, and the spring N interposed between the cylinder and the piston-rod, all co-

operating substantially as and for the purposes described.

5. In a device of the class described, the combination with a supply-reservoir, of a measuring-cylinder connected therewith and located outside of the bowl, a piston in said cylinder, a hollow piston-rod connected therewith and having its upper end reaching over the edge of and adapted to discharge into the bowl, a spring adapted to hold said piston-rod yieldingly in its uppermost position, and a seat normally resting substantially on the upper end of said piston-rod, and adapted when depressed to cause the descent of the piston and piston-rod to cause the discharge of a measured quantity of the fluid into the bowl, substantially as and for the purpose described.

6. In a device of the class described, the combination with a supply-reservoir, of a measuring-cylinder connected therewith and located outside of the bowl, a piston in said cylinder normally above but adapted to pass beneath the supply-port when depressed, a hollow piston-rod connected therewith and having its upper end reaching over the edge of and adapted to discharge into the bowl, a spring adapted to hold said piston-rod yieldingly in its uppermost position, and a seat normally resting substantially on the upper end of said piston-rod, the operative capacity of said measuring-cylinder exceeding that of the piston-rod above the level in the supply-reservoir, substantially as and for the purpose described.

7. In an apparatus of the class described, the combination with the supply-reservoir C, of the measuring-cylinder D closed at both ends and below the level of the supply-reservoir, the pipe E connecting said reservoir and cylinder, a hollow piston-rod J having its upper end reaching over the edge of and adapted to discharge into the bowl, and an apertured piston connected to said rod and coöperating with the cylinder D and normally above the entrance of the pipe E into said cylinder and depressible past said entrance to cut off the supply and force the contents of the cylinder through the piston-rod and into the bowl, and operating on its return stroke to force the fluid backward through the pipe E, substantially as and for the purpose described.

In witness whereof I have set my hand this 9th day of February, 1898.

WILLIAM RUTHVEN.

In presence of—

ALLAN A. MURRAY,
L. E. SERAGE.