H. L. SCHELLENBERG.

DISINFECTOR.

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961,650. Patented June 14, 1910.

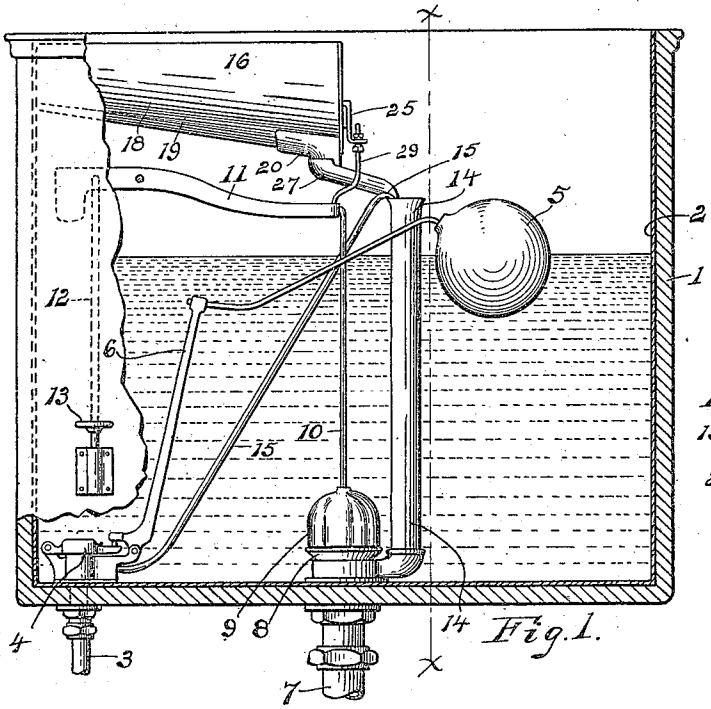

Fig. 1.

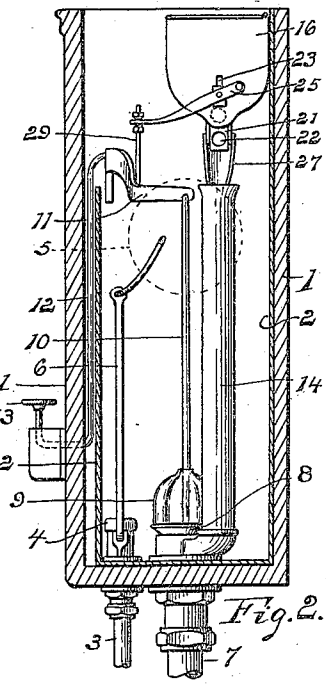

Fig. 2.

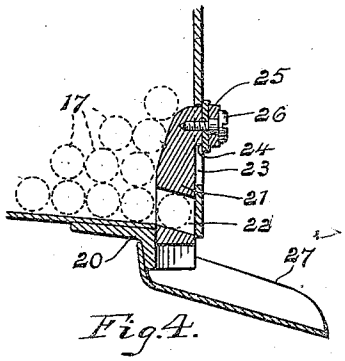

Fig. 4.

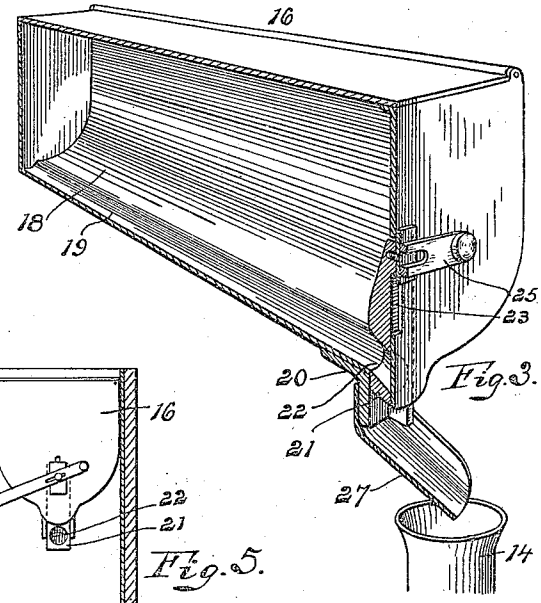

Fig. 3.

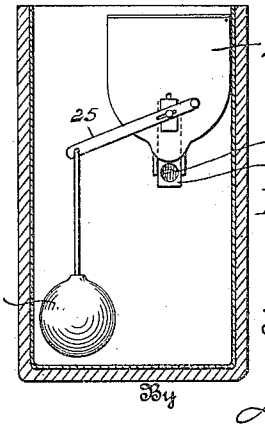

Fig. 5.

Witnesses

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UNITED STATES PATENT OFFICE.

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DISINFECTOR.

961,650. Specification of Letters Patent. Patented June 14, 1910.

Application filed February 1, 1909. Serial No. 475,385.

To all whom it may concern:

Be it known that I, HARRY L. SCHELLENBERG, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Disinfectors, of which the following is a specification.

This invention relates to disinfectors for water-closets and other sanitary devices, and its object is to provide suitable means for holding and automatically discharging quantities of disinfectant and to so construct and arrange said means that the operation of the same will be automatically controlled by the water supply for said devices, to discharge a predetermined quantity of the disinfectant into the trap, bowl, or other device to be disinfected after each flushing operation takes place.

A further object of the invention is to provide certain other new and useful features in the construction arrangement and combination of parts, all as hereinafter more fully described reference being had to the accompanying drawing in which,

Figure 1 is a front elevation of a flushing tank with the front broken away to show the interior and a device embodying this invention in place therein. Fig. 2 is a cross section of the same on the line *x*—*x* of Fig. 1; Fig. 3 is a perspective view of the holder showing the same in longitudinal section; Fig. 4 is a sectional detail of the discharge slide; and Fig. 5 is a detail illustrating a modified construction.

As shown in the drawings 1 represents the outer rectangular casing of an ordinary flush tank, and 2 the inner metal lining or tank of the same.

3 is the water supply pipe entering the bottom of the tank near one end, and 4 is a valve to control the inflow of the water which valve may be of any suitable construction and operated in the usual manner by means of a float 5 attached to the end of a lever arm 6 acting upon the valve to close the same when the float is lifted by the rise of water in the tank.

7 is a flush pipe leading to the bowl or other device to be flushed, and 8 is a valve of the ordinary construction controlling the outflow of water from the tank into the flush pipe. This valve 8 is provided with a float 9 so that when the valve is lifted by means of the valve rod 10 attached to the end of the lever 11 pivoted to the side of the tank and operated in the usual manner by means of a rod 12 connected to a push button 13 on the outside of the tank, said valve will be held from its seat by said float until the water has escaped from the tank. The overflow pipe 14 is connected to the flush pipe below the valve 8 and an after-fill tube 15 is connected at one end with the casing of the inlet valve 4 and at its upper end discharges into the upper end of the overflow pipe, said overflow and afterfill being constructed and arranged to operate in the usual manner to supply the bowl with a quantity of water after it has been flushed out by the volume of water in the tank.

A small receptacle forming a holder 16 for disinfectant material is supported in any suitable manner in the upper part of the flush tank. The disinfectant contained in this holder is preferably made up in the form of small balls 17, and to insure the movement of these balls toward the discharge end of the holder, said holder is made with a semi-circular bottom 18 having a depression or groove 19 along its longitudinal center line. This bottom is also preferably made at a slight incline toward its lower end at which end is a discharge opening in the bottom of the groove.

A guide casting 20 is secured to the bottom of the tank and surrounds three sides of the discharge opening to form a guideway for a vertically reciprocatory discharge slide 21 which is provided with a transverse hole 22 of a diameter just sufficient to receive one of the disinfectant balls. This slide lies against the end wall of the holder in which wall is a vertical slot 23 to receive a tongue 24 on the slide. An operating lever 25 is pivotally attached at one end to the end of the holder and through a longitudinal slot in this lever is inserted a screw 26 engaging a screw threaded opening in the upper end of the discharge slide. The slide is thus guided at its lower end in the casting 20, and at its upper end by the tongue 24 engaging the slot 23. The free end of said lever 25 is connected by means of a rod 29 to the lever 11 and the said lever 25 is moved thereby, such a distance that the slide will be moved downward sufficiently to expose the end of the hole 22 below the end wall of the holder, and when the slide is raised to position shown in Fig. 3 to receive a ball in its hole 22 and the slide is then moved downward,

the ball will roll out at the opposite end of the hole into a suitable trough 27 secured at one end of the casting 20, and be discharged into the upper open end of the overflow pipe 14. The slide moving up and down within the casing at the lower end of the groove 19 will agitate the balls and insure the entrance of a ball into the hole therein at each reciprocation of the slide. In this construction the full benefit of the disinfectant and the very best results are secured by ejecting a quantity of disinfectant which is in the proper proportion to the water in which it is placed, or the after-fill water which stands in the bowl and trap or other part flushed until the next flushing operation, and thus thoroughly disinfects the parts.

In a construction where the flush tank is periodically emptied by means of a siphon or other automatic device, the operating lever 25 of the discharge slide is actuated as shown in Fig. 5, by means of the float 28 attached thereto, and the holder may be arranged to discharge the disinfectant directly into the tank, as shown in said figure, or it may be arranged to discharge into any other convenient part of the flushing system.

While I have shown my invention as applied to flushing systems of a particular class, namely those embodying a flushing tank, I do not wish to limit myself to its application to such systems, as the invention may obviously be applied to flushing systems other than those of the class shown.

Having thus fully described my invention what I claim is:

1. A flush tank having an inlet, a flush pipe leading therefrom, a valve controlling the discharge into the flush pipe, an overflow pipe, a holder for a disinfectant, and means operated by the operation of said valve to discharge quantities of disinfectant from the holder into the overflow pipe.

2. An apparatus of the character described comprising a flush tank, a flush pipe leading from said tank, an after-fill communicating with the flush pipe, a holder for a disinfectant, and means for discharging in timed relation to said after-fill discharge quantities of disinfectant from the holder into said discharge from the after-fill.

3. An apparatus of the character described comprising a flush tank, a flush pipe leading from said tank, a valve controlling the discharge from the tank into said pipe, means for raising said valve from its seat, a float to retard the closing of said valve, a disinfectant holder, and means for discharging quantities of disinfectant from the holder into the flush pipe operated by the seating of said valve, whereby disinfectant is discharged into the flush pipe after the passage of the discharge from the tank therethrough.

4. The combination with a receptacle for water and a valve to control the discharge of water therefrom, of a holder for disinfectant, a movable member adapted to receive and discharge fixed quantities of disinfectant from the holder, and a float within said receptacle connected to said valve to retard the seating of the same and connected to said member to delay the moving of the same to discharge position until the seating of said valve.

5. The combination with a flush tank and its discharge valve, of a holder for disinfectant, a lever to operate the valve, means for discharging disinfectant from said holder operated in one direction by the movement of said lever, and a float connected to said discharge valve to retard the seating of the same and to retard the movement of said means in the opposite direction to discharge the disinfectant.

6. The combination of a flush tank, filling and discharging mechanism therefor, an overflow pipe communicating with the discharge from the tank, a holder for disinfectant supported adjacent to the upper end of said pipe, a vertically movable slide within the holder having an opening to receive quantities of the disinfectant and discharge the same into said pipe, a lever to move said slide, and means for actuating the lever in timed relation to the discharge of water from the tank.

7. The combination with a flush tank and filling and discharging mechanism therefor, of a holder for disinfectant in the form of balls, having a longitudinal groove in its lower side to receive and direct the balls, a discharge slide having an opening to receive the balls one at a time, and means for actuating the slide.

8. The combination of a flush tank, a flush pipe, a discharge valve controlling the discharge into said pipe, means for operating said valve, an overflow pipe, a holder for disinfectant, means for discharging the disinfectant into the overflow pipe, an after-fill discharging into the overflow pipe, and means for actuating said discharging means in timed relation to the discharge of water from the tank.

9. The combination of a flush tank, a flush pipe leading from said tank, a discharge valve opening into said pipe, means for operating said valve, a receptacle for disinfectant, means for discharging quantities of disinfectant carried by the receptacle, an overflow pipe adapted to receive the disinfectant from the receptacle and connected to said flush pipe, and a lever for moving said discharging means connected to the means for operating said valve to be operated thereby in timed relation to the seating of the valve.

10. The combination with a flush tank, a discharge valve for the tank, means for op-

erating said valve, an overflow pipe and a flush pipe to which the overflow pipe is connected; of a holder for disinfectant supported in a plane above the upper end of the overflow pipe, a discharge slide movable within the holder, means for moving the slide operated by the seating of the valve, and means for conducting the disinfectant from the slide into the upper end of the overflow pipe.

11. The combination of a flush tank, a flush pipe, a discharge valve controlling said pipe, an overflow pipe communicating with the flush pipe, an afterfill pipe discharging into the overflow pipe, a lever to operate the valve, a float to retard the seating of the valve, a holder for disinfectant, a vertically movable slide within the holder having a transverse opening, guides on the holder for the slide, a lever to actuate the slide connected to, and operated by the lever for actuating the valve, and a trough to conduct the disinfectant from the slide into the upper end of the overflow pipe.

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

HARRY L. SCHELLENBERG.

Witnesses:

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