A. E. SMITH.

APPARATUS FOR THE AUTOMATIC DELIVERY OF DISINFECTANTS TO THE FLUSHING WATER OF WATER CLOSETS, URINALS, AND THE LIKE.

APPLICATION FILED NOV. 23, 1909.

969,729. Patented Sept. 6, 1910.

Fig. 2.

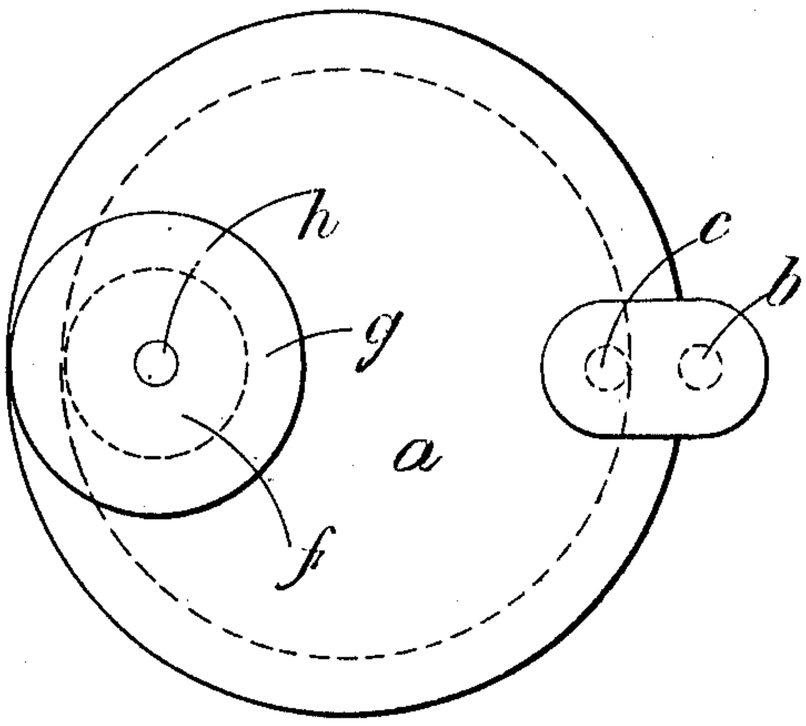


Fig. 4.

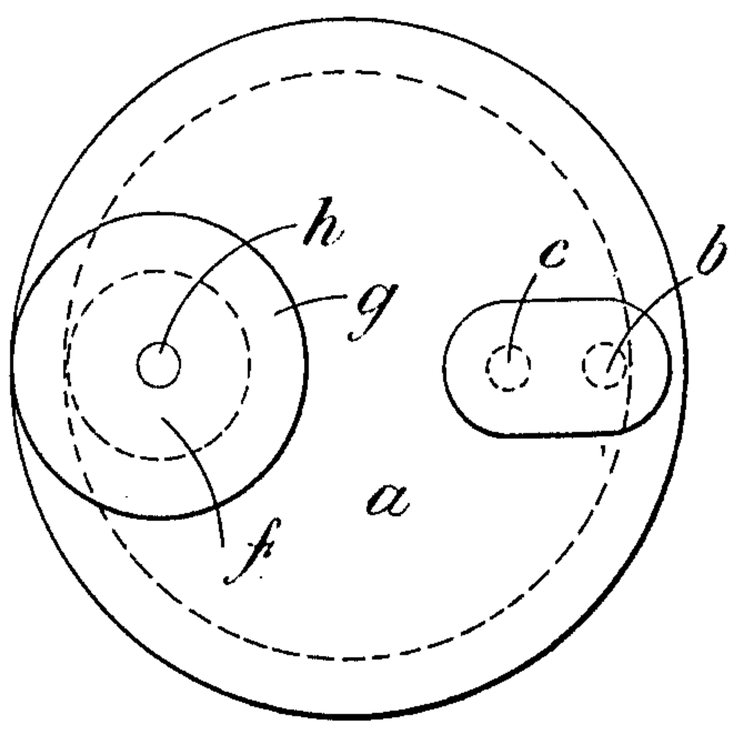


Fig. 1.

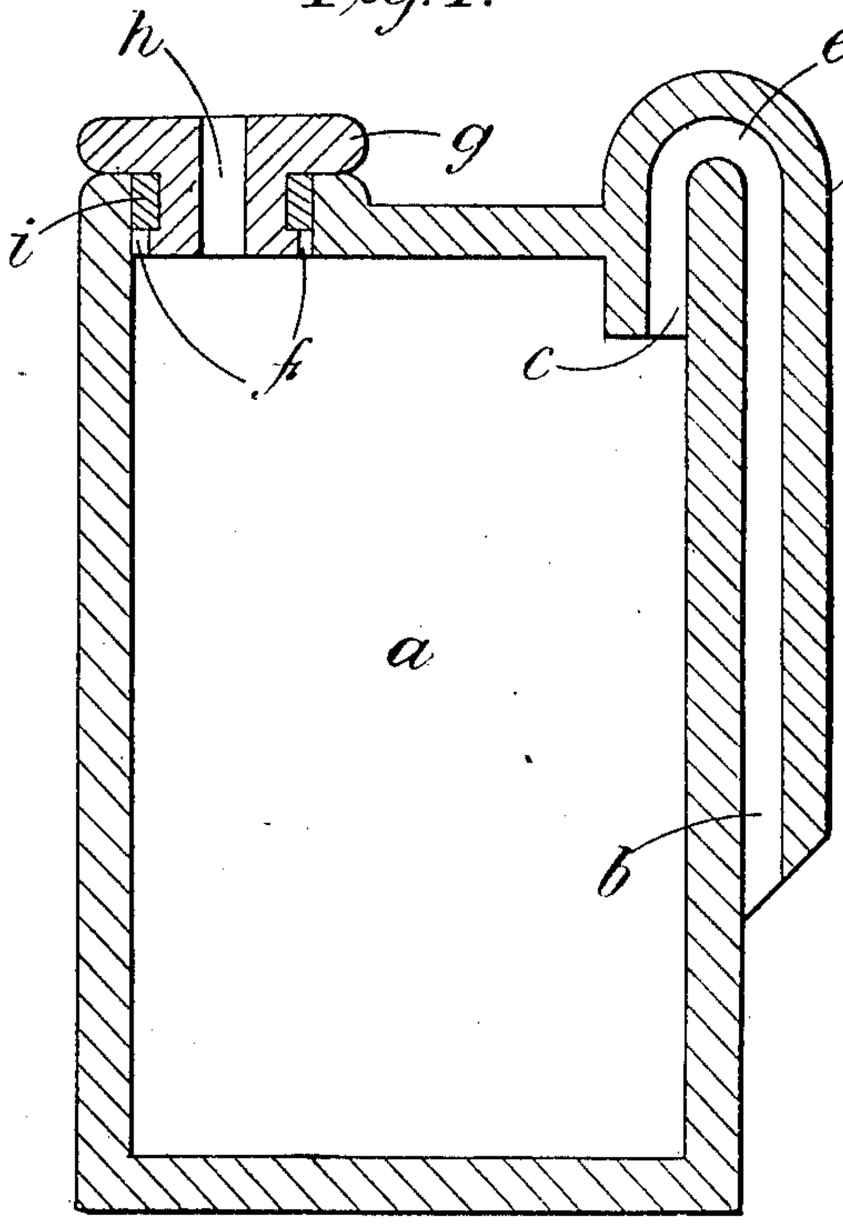
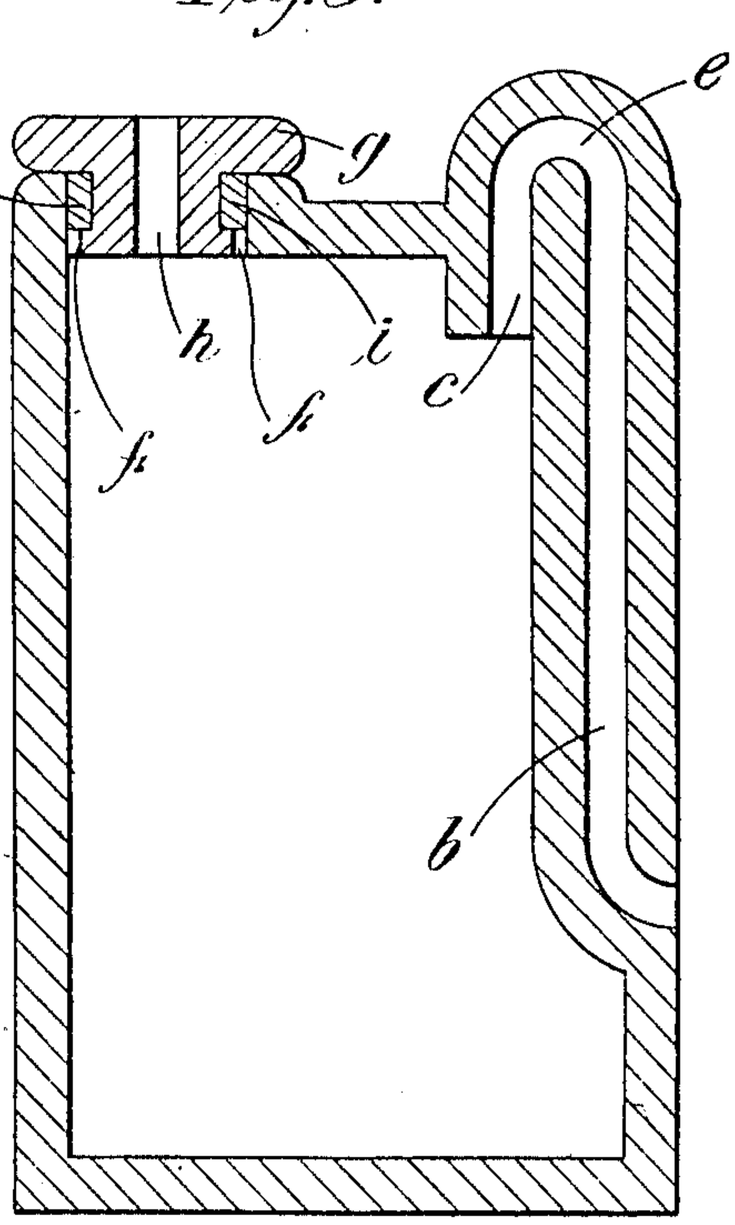


Fig. 3.



Witnesses.

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APPARATUS FOR THE AUTOMATIC DELIVERY OF DISINFECTANTS TO THE FLUSHING-WATER OF WATER-CLOSETS, URINALS, AND THE LIKE.

969,729. Specification of Letters Patent. **Patented Sept. 6, 1910.**

Application filed November 23, 1909. Serial No. 529,576.

To all whom it may concern:

Be it known that I, ANTHONY EDMUND SMITH, a subject of the United Kingdom, residing at No. 13 Brunswick Square, Camberwell, in the county of Surrey, England, have invented new and useful Improvements in Apparatus for the Automatic Delivery of Disinfectants to the Flushing-Water of Water-Closets, Urinals, and the Like, of which the following is a specification.

This invention for improvements in disinfectors for automatically delivering disinfectant to a charge of water, relates to that class of apparatus which contains a disinfectant that is soluble in water, which, each time the flushing tank is filled and emptied, delivers a quantity of disinfectant to the flushing water.

The objects of the present invention are to provide apparatus which, while avoiding the use of valves, or other operating parts, will effectively prevent the "creeping" of the dissolved disinfectant from the container, or receptacle, to the flushing tank, during the periods when the flushing operations are not taking place, thereby obtaining, first a flush of clear water, to be followed by a final flush of water and disinfectant, so that part of such final flush will remain in the pedestal, or pan, of the closet; and to simplify, and reduce the cost of construction of such apparatus and to render them less liable to get out of order.

The invention comprises a chamber, or receptacle, of any suitable substance, preferably of glazed earthenware, for containing permanganate of potash, or other disinfectant capable of becoming soluble in water; a siphon pipe whose shorter arm extends a distance within the vessel, or receptacle, such distance being regulated by the quantity of dissolved disinfectant required to be withdrawn at each operation of the flushing tank; and an opening in the top of the vessel, or receptacle, for the admission of air while the siphonic action is taking place, and for the emission of air from the containing chamber when the flushing tank and the chamber are being refilled.

According to the present invention, in order to guard against any "creeping" of the disinfectant fluid, the apparatus is constructed so that the top of the opening for the emission and admission of air, is exactly level with the top of the bore of the siphonic pipe; and in order to lessen the cost of construction, and reduce the liability of the apparatus getting out of order, the siphonic pipe is formed in one with the outer walls of the containing chamber.

Heretofore, in all devices for discharging a fluid disinfectant into a flushing tank, the difficulty has been to prevent a more or less continuous discharge of the disinfecting fluid from the receptacle into the water in the flushing tank, causing a considerable waste. This has been occasioned by the fact that in every case there has been a difference in the heights of the two pipes fitted to the receptacle. In those cases where siphon pipes have been used, the water, entering the receptacle on each re-filling of the flushing tank, enters by the siphon pipe 8, and falls into the receptacle, whence it rises up, the pipe 9 taking with it a portion of the disinfectant. When the flushing tank has been completely replenished the weight of the column of water and disinfectant in the pipe 9, being heavier than the column of liquid in the short arm of the pipe 8, slowly but surely causes a portion of the disinfectant fluid in the receptacle to "creep" up the side of the latter pipe and over the bottom of the bend of the same, whence it falls down the long arm, keeping to the inner side thereof, and so into the water in the flushing tank.

In the accompanying drawings:—Figure 1 is a sectional elevation of one form of apparatus constructed according to this invention. Fig. 2 is a plan of same. Fig. 3 is a sectional elevation of a modified form, Fig. 4 is a plan view of Fig. 3.

a is the chamber, or receptacle; *b* the siphon pipe, the shorter arm *c* of which passes through the upper end of the chamber *a*. It is only necessary for the arm *b* to extend slightly above the level of the top of the chamber as shown at *e*, in order to obtain a siphonic action.

f is the opening in the top of the chamber *a* for the purpose of charging the chamber, or vessel, with the disinfectant. It is partially closed by the stopper *g*, of rubber, cork, or other suitable material, such stopper having an opening, or passage *h* through same, for the admission and emission of air to and from the chamber *a*. An annular band of rubber *i* may be provided around the stopper *g* to make a close joint, while

permitting the stopper to completely enter the opening *f*, so that the bottom of such stopper will be level with the under surface of the top of the chamber *a*, so as to insure that the quantity of disinfectant withdrawn by each siphonic action of the pipe *b* will be in accordance with that predetermined by the size of the chamber, or receptacle *a*.

When the chamber *a* has been charged with disinfectant, it is placed within the flushing tank, and held down until the water therein, passing up the pipe *b*, enters the upper part of the chamber *a*, through the short arm *c*, displacing the air through the opening *h* in the stopper *g*, after which the apparatus retains an upright position in the flushing tank.

In the modified form shown in Figs. 3 and 4 the siphon pipe *b* is formed within the area of the chamber *a* instead of outside, as in Fig. 1, thus avoiding the possibility of fracture, and to render the parts more convenient for packing purposes.

When the flushing operation is taking place, the water in the tank falls, carrying with it the water in the pipe *b*, and the air passage *h* in the stopper *g* being opened, a siphonic action is set up in the pipe *c* and bend *e*, causing the disinfectant liquor in the upper part of the chamber *a* to be withdrawn and discharged into and mixed with, the final portion of the water in the flushing tank, whence it passes to the closet pedestal, or pan.

It will be obvious that the whole of the chamber *a* may be conveniently made in one piece of earthenware, or built up of metal, or other suitable substance, and may be of any desired shape or form, without departing from this invention.

What I claim and desire to secure by Letters Patent of the United States is:—

1. In a disinfector for water closets and the like, a chamber for containing a disinfectant capable of being rendered soluble in water, said chamber being provided with a siphon discharge pipe, and an air admission pipe, the top of the air admission pipe being formed level with the top of the bore of the siphon discharge pipe.

2. In a disinfector for water closets and the like, a chamber for containing a disinfectant capable of being rendered soluble in water, said chamber being provided with an air admission pipe, and a siphon discharge pipe, the top of the air-admission pipe being formed level with the top of the bore of the siphon discharge pipe, said discharge pipe being integral with said chamber and exterior thereof.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ANTHONY EDMUND SMITH.

Witnesses:
JAMES G. STOKES,
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