(No Model.) 2 Sheets—Sheet 1.

G. P. KATO, Jr. & R. W. CARMAN.

DEODORIZING AND DISINFECTING APPARATUS.

No. 507,656. Patented Oct. 31, 1893.

Fig. 1.

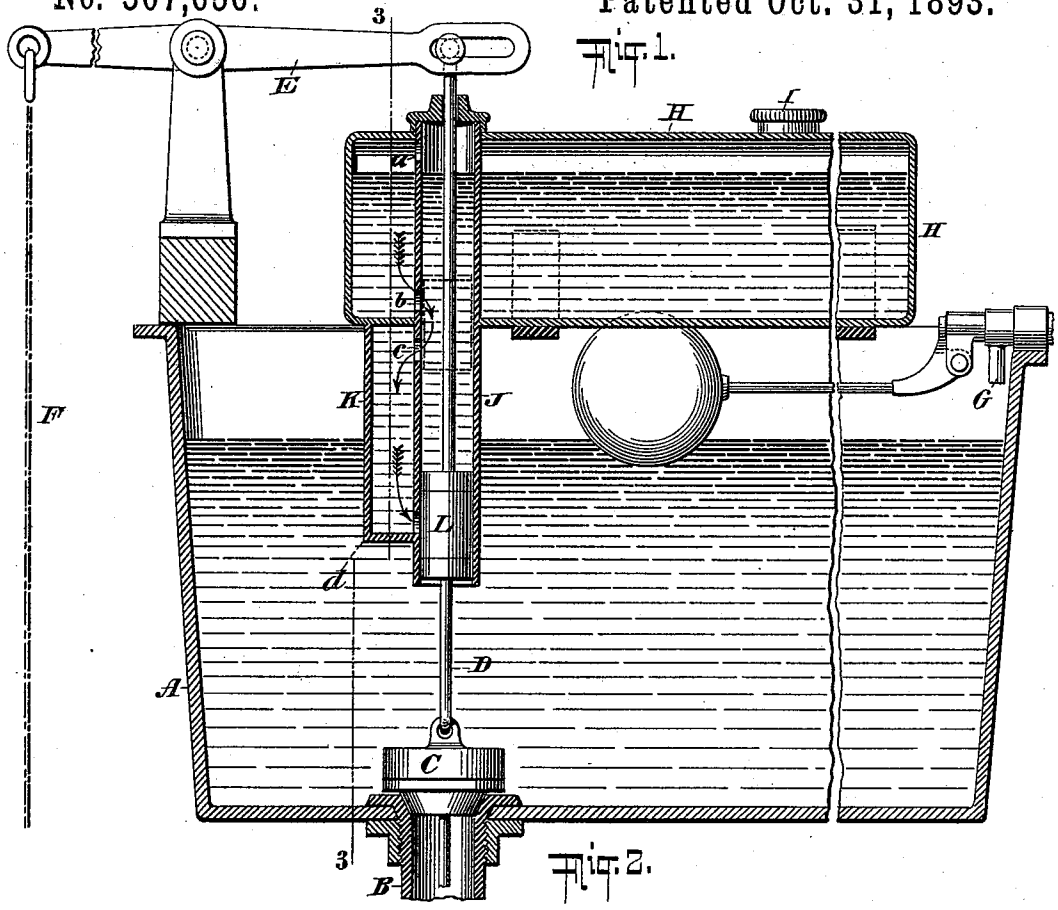

Fig. 2.

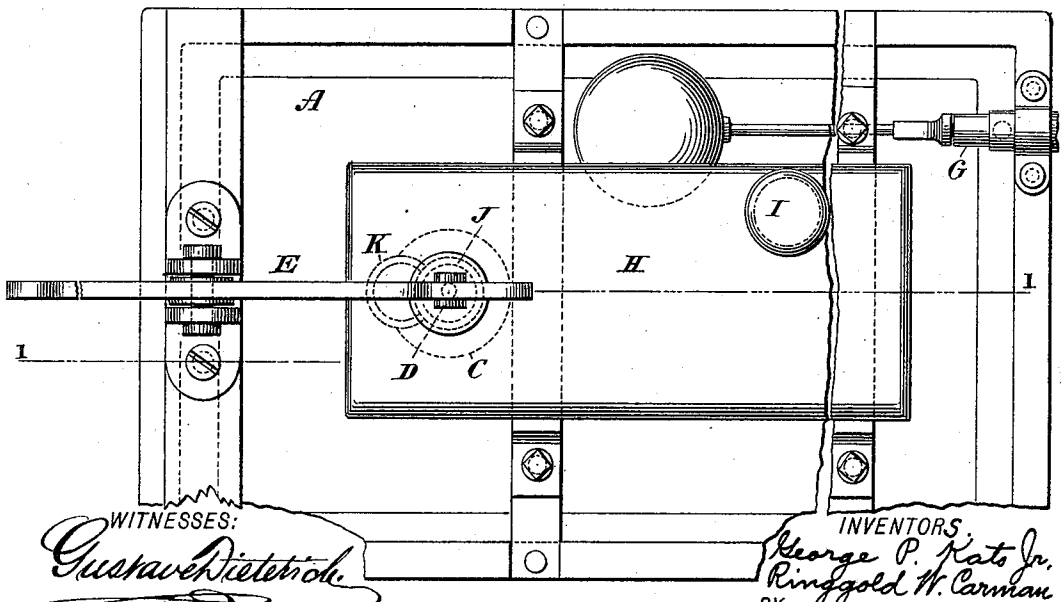

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Fig. 4.

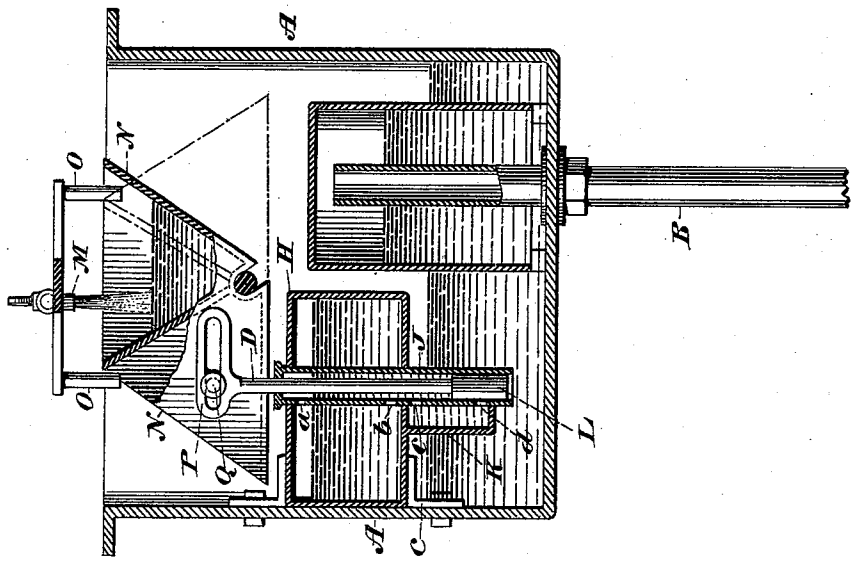
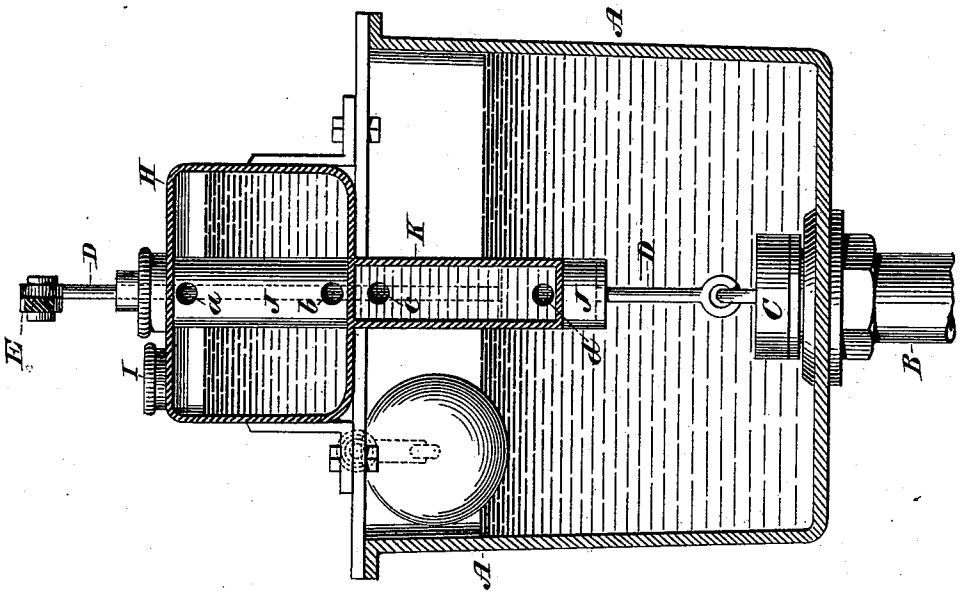


Fig. 5.



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UNITED STATES PATENT OFFICE.

GEORGE P. KATO, JR., OF JERSEY CITY, NEW JERSEY, AND RINGGOLD W. CARMAN, OF FLUSHING, NEW YORK.

DEODORIZING AND DISINFECTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 507,656, dated October 31, 1893.

Application filed June 5, 1893. Serial No. 476,581. (No model.)

To all whom it may concern:

Be it known that we, GEORGE P. KATO, Jr., residing at Jersey City, in the county of Hudson and State of New Jersey, and RINGGOLD W. CARMAN, residing at Flushing, Queens county, New York, citizens of the United States, have invented certain new and useful Improvements in Deodorizing and Disinfecting Apparatus, of which the following is a specification.

The invention relates to improvements in deodorizing and disinfecting apparatus, and is applicable particularly to cisterns which contain the water used for flushing the bowls of closets and urinals.

The apparatus constructed in accordance with the present invention embraces an independent receptacle for the disinfectant, the cistern having the inlet for water and an outlet connected with a pipe leading to the bowl to be flushed, lever mechanism adapted either by hand or automatically to operate the outlet valve, and a measuring device which receives the disinfectant from the said receptacle and delivers it into the water contained in the cistern, and which device operates in unison with the said outlet valve to deliver a measured charge of the disinfectant to the water in the cistern each time the valve is opened to permit the discharge of the water.

When the invention is applied to periodical cisterns for urinals, there being usually in such apparatus no hand-chain or lever devices to be operated by hand, the aforesaid measuring device will be connected with and operated by the tilting or pivotally mounted water receptacle located within the cistern.

When applied to cisterns for flushing the bowls of closets, the measuring device will be operated to deliver a definite quantity of the disinfectant into the water contained in the cistern by the usual hand chain each time it is pulled to secure the flushing of the bowl, the chain and its connections thus performing the double function of effecting the delivery of the measured quantity of disinfectant to the water in the cistern and the discharge of the water to the bowl to be flushed. The delivery of the measured quantities of disinfectant to the water results in the latter being kept charged with the same, and hence the water is preserved in proper condition for delivery to the bowl and the odor from the disinfectant will arise through the open top of the cistern and thoroughly permeate the atmosphere of the apartment in which the cistern is located.

The nature of the invention and the construction for carrying the same into effect will be more fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which—

Figure 1 is a central vertical longitudinal section of a cistern of usual form provided with the receptacle for disinfectant and the measuring device, the whole being constructed in accordance with and embodying the invention. Fig. 2 is a top view, partly broken away, of same. Fig. 3 is a vertical section of same on the dotted line 3—3 of Fig. 1; and Fig. 4 is a vertical transverse section of a periodical flushing cistern for urinals, the receptacle and measuring device for disinfectant being shown applied thereto.

In the drawings, referring to Figs. 1 to 3 inclusive, A designates the usual flushing cistern or tank, which is open at its top and provided at its bottom with the discharge pipe B leading to the bowl or basin to be flushed. The outlet for water from the cistern A to the discharge pipe B is controlled by a valve C, suspended by a rod D from the inner end of the pivotally mounted lever E, whose outer end receives the hand-chain F, by which the valve C may be elevated from its seat when desired. The valve C, rod D, lever E and chain F are of usual construction and operation. By drawing downward on the chain F, the valve C may be elevated from its seat and the water allowed to flow through the pipe B to the bowl; and upon releasing the chain the valve C will return to position and close the outlet of water, after which an additional supply of water will enter the cistern through the usual inlet G.

The receptacle for disinfectant is indicated by the letter H and is supported over the cistern A. The receptacle H will preferably be constructed of metal or glass and have a cap

I closing its inlet. The measuring and discharge portion of the receptacle H is composed of the tubes J, K, the former extending downward from within to an appropriate point below the receptacle and being provided with the ports *a*, *b*, *c*, *d*, respectively, hereinafter referred to. The tube K adjoins the tube J, as shown, and is closed at its upper and lower ends but communicates with the tube J through the said ports *c*, *d*, the port *c* being an inlet for disinfectant from the tube J to the tube K, and the port *d* being the outlet for disinfectant from the tube K to the lower open end of the tube J, as indicated by the arrows in Fig. 1. The port *b* constitutes the inlet for disinfectant from the cistern A to to the tube J, and the port *a* serves as an escape for the disinfectant within the upper end of the tube J when the piston valve L secured on the rod D is moved upward under the action of the chain F and lever E. As clearly shown in Fig. 1 the valve rod D extends downward through and has its vertical reciprocating movement within the tube J; and said rod carries the piston valve L which snugly fits the tube J and is of such length that when in its lower position (shown by full lines in Fig. 1) it will close the port *d*, and when in its upward position (indicated by dotted lines in Fig. 1) it will close the ports *b*, *c*.

In practical use, each time the chain F is pulled to flush the bowl, the rod D, valve L and valve C will be elevated, and at such time the water will flow through the pipe B to the bowl, and, the port *d* being open and the ports *b*, *c*, closed, the disinfectant within the tube K will pass through the port *d* and escape into the open cistern. As soon as the chain F is released the valve C and rod D will lower to their normal positions, cutting off the escape of water through the pipe B and carrying the valve L downward to close the port *d*, at which time the disinfectant will flow into the tube J through the port *b* and thence pass through the port *c* into the tube K, where it will be held until the valve L is again moved upward. It will be observed that when the valve C is opened and the valve L carried upward, the out-flow of water may be continued as long as desired but that, the ports *b*, *c*, being at such time closed, only that portion of disinfectant within the tube K can escape, and hence with such opening of the valve C only a predetermined measured quantity of the disinfectant will be delivered to the water in the cistern or tank A.

The repeated discharge of the disinfectant to the water in the tank or cistern A, has the effect of thoroughly permeating the water with the same, and, the tank being an open receptacle, deodorizing the atmosphere of the room.

The receptacle H may be refilled with the disinfectant as frequently as occasion may render necessary. The receptacle H with its measuring and discharge tubes J, K, may be applied at small expense to the cisterns or tanks now in use, and operated by the usual chain, rod or lever now employed for effecting the discharge of the water.

In Fig. 4 is illustrated the application of the receptacle H and tubes J, K, to a well known form of periodical flushing cistern for urinals, A denoting the open cistern, B the discharge pipe, M the inlet for water, N the pivotally mounted or tilting water receiver having two compartments, and O, O, the stops for arresting the tilting movement of the receiver. In the use of the invention illustrated in Fig. 4, there being no hand chain F present, the valve rod D carrying the piston valve L will be operated from the receiver N, which during its tilting movement back and forth will draw the rod D and valve L upward to open the port *d* and close the ports *b*, *c*, and then depress the rod D and valve L to close the port *d* and open the ports *b*, *c*; thus the valve L will be positively actuated to permit the measuring and discharge of the disinfectant into the open tank or cistern automatically by the action of the receiver N operating as a lever on the rod D. Various means for connecting the rod D with the receiver N will suggest themselves, and in Fig. 4 for this purpose is shown a slotted head P on the rod engaging a pin Q on the receiver, but the invention is not limited to any special means of connection between the rod and receiver.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The receptacle for disinfectant having the measuring and discharge tubes J, K, the former open at its lower end and having an inlet within the receptacle, and the tube K being closed at its ends and communicating by ports at its upper and lower portions with the tube J, combined with the valve L within the tube J and adapted when in its lower position to close the outlet from the tube K and when in its upper position to open said outlet and close the inlets to said tube J and tube K; substantially as set forth.

2. The flushing cistern or tank for water, combined with the main receptacle for the disinfectant, the tube for discharging the disinfectant into said cistern, a receptacle constituting a measure of predetermined capacity receiving the disinfectant from said main receptacle previous to its discharge into said cistern, and the valve controlling both said discharge tube and said measuring receptacle and having its rod connected with the lever mechanism discharging the water; substantially as set forth.

3. The flushing cistern having the outlet valve, valve rod, operating lever and chain, combined with the receptacle for disinfectant, the discharge tube therefrom encompassing said rod, the valve carried by the rod within said tube, and the measure communicating with said tube and controlled by said valve on said rod; substantially as set forth.

4. The flushing cistern having the outlet

valve, valve rod, operating lever and chain, combined with the receptacle for disinfectant, the discharge tube therefrom encompassing said rod and having an inlet within said receptacle, the valve carried by the rod within said tube and the measure communicating at its upper and lower portions by inlet and outlet ports with said tube, said inlet to the discharge tube and said inlet and outlet ports of the measure being controlled by said valve within the discharge tube; substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 2d day of June, A. D. 1893.

GEORGE P. KATO, JR.
RINGGOLD W. CARMAN.

Witnesses:
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