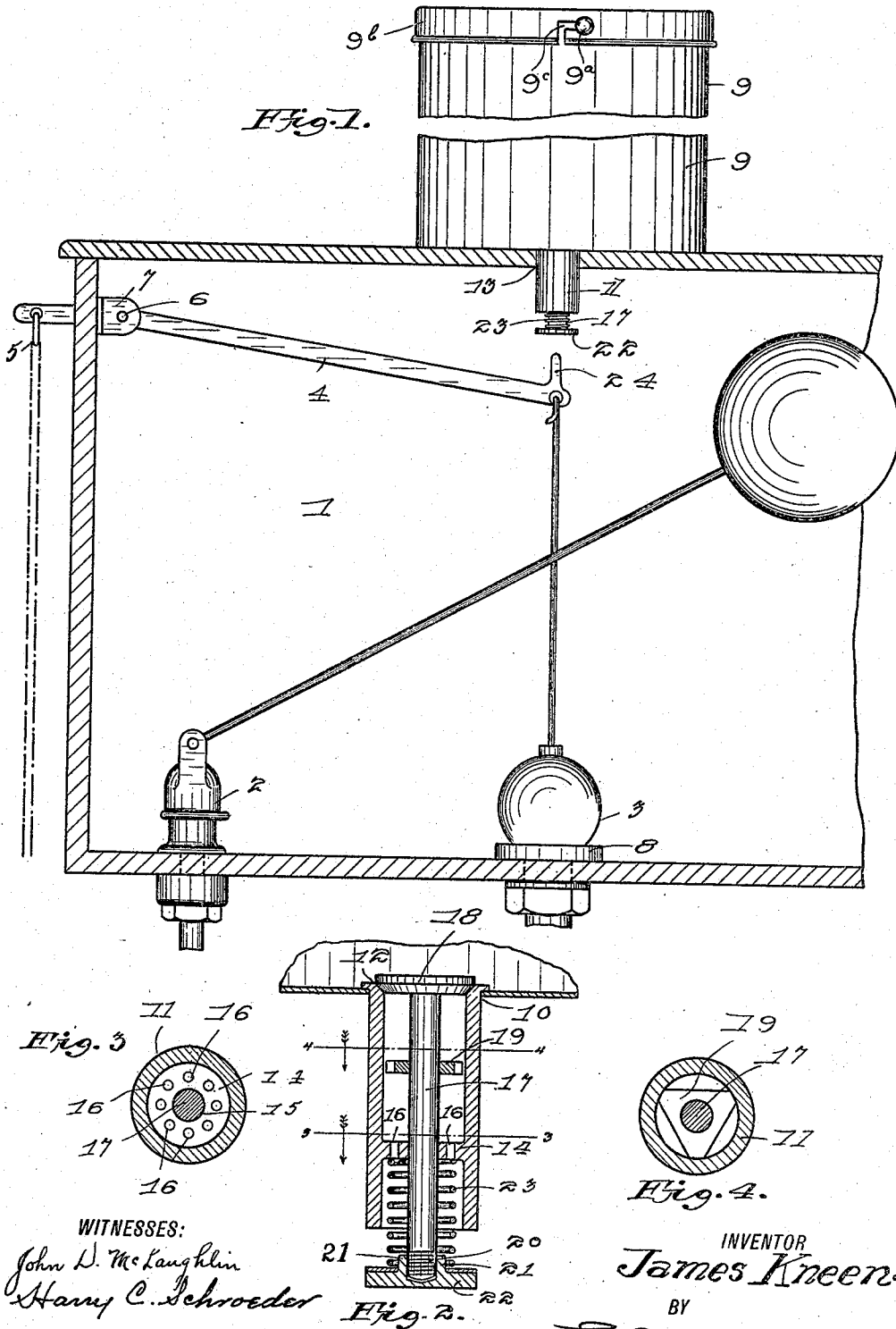


J. KNEEN.
VALVE FOR WATER CLOSET DISINFECTING DEVICES.
APPLICATION FILED MAY 14, 1909.

939,424.

Patented Nov. 9, 1909.



UNITED STATES PATENT OFFICE.

JAMES KNEEN, OF OAKLAND, CALIFORNIA.

VALVE FOR WATER-CLOSET-DISINFECTING DEVICES.

939,424.

Specification of Letters Patent.

Patented Nov. 9, 1909.

Application filed May 14, 1909. Serial No. 495,951.

To all whom it may concern:

Be it known that I, JAMES KNEEN, citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Valves for Water-Closet-Disinfecting Devices, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to disinfecting devices for water closets, and has principally in view a device of the character described which will be operated simultaneously with the operation of the flushing apparatus so that the water which is delivered to the closet bowl for flushing purposes will have a disinfectant intimately combined with it.

In carrying out the principal object of the invention generally stated above it is contemplated employing a disinfectant holder which may be mounted on the flushing tank and provided with a valve controlled communication with said tank which is automatically operated when the flushing valve is opened to cause disinfecting material to flow from said holder into the flushing tank and mingle with the flushing water that is being discharged therefrom.

It will be understood, of course, that the essential features of the invention involved in the practical application of the improved disinfecting device to a water closet, are susceptible of structural changes and arrangements of details, one preferred and efficient embodiment of which is shown in the accompanying drawings, wherein—

Figure 1 is a vertical sectional view of a flushing tank, showing the improved disinfecting device carried thereby, the latter being shown in elevation. Fig. 2 is a detail vertical sectional view of the discharge valve and valve casing for the disinfecting device. Fig. 3 is a transverse sectional view taken on the line 3—3, Fig. 2. Fig. 4 is a similar view taken on the line 4—4, Fig. 2.

Referring to the accompanying drawings by numerals, 1 designates the usual flushing tank provided with the float controlled inlet valve 2, outlet valve 3, and lever 4 for operating the said outlet valve. Said lever 4 has one of its ends projected through the wall of the flushing tank and is connected with a chain 5 by means of which said lever is rocked on its pivot 6 in the pivot ears 7, in a manner well understood, to raise the

valve 3 from its seat in the end of the discharge pipe 8.

A disinfectant holder 9 is mounted on the top of the flushing tank 1 and has an opening 10 formed through its bottom through which projects one end of a tube or pipe 11 having outturned edges which engage over the edges of said opening, as shown more clearly in Fig. 2. Said tube has the inner side of its outturned edge beveled, as indicated at 12 to form a valve seat. The tube projects through an opening formed through the top of the flushing tank as indicated at 13 in Fig. 1, and is provided with an interior guiding diaphragm 14 provided with a central opening 15 which is surrounded by a plurality of openings or perforations 16. A valve stem 17 projects through the tube 11 and through the central opening 15 of the diaphragm 14, the upper end of said stem being equipped with a valve 18 adapted to be held to the seat 12 at the upper end of the tube 11. Intermediate of the valve and the diaphragm, the stem carries a guiding flange 19 preferably in the form of a triangle the three corners of which contact with the tube 11 to hold the stem at the center thereof and also to provide clearance space between the sides of said flange and the tube to permit disinfecting material to pass between the same when the valve is raised from its seat. The lower end of said stem projects beyond the lower end of the tube 11 and is threaded as indicated at 20 for engagement with a threaded boss 21 centrally located on and preferably integral with an annular disk or cap 22. A spiral spring 23 is coiled about the lower portion of said stem and has one of its ends seated on said cap 22 and its other end bearing against the diaphragm 13 with sufficient pressure to normally retain the valve to its seat in the upper end of the tube 11. The said end cap 22 of the valve stem 17 is directly above the inner end of the lever 4, and said lever 4 is provided with an upstanding lug or arm 24 which contacts with said cap when the lever is rocked to a valve-opening position and causes the valve stem to be raised against the tension of the spring 23 and thereby raise the valve 18 from its seat and permit disinfecting material to flow from the holder through the tube 11 and into the flushing tank and mix with the flushing water being discharged therefrom.

It will be seen from the foregoing that the valve of the disinfecting device is automatically operated when the flushing operation is performed to cause some of the disinfecting material to be discharged into the tank where it will intimately mingle with the flushing water, so that when the closet bowl is being flushed, it will at the same time be thoroughly disinfected.

10 Preferably the holder 9 is in the form of a cylindrical receptacle the upper edge portion being provided with a lug 9^a for locking engagement with a bayonet slot 9^c formed in the flange of a lid or cover 9^b.

15 What I claim as my invention is:—

1. In a device of the character described, the combination with a flushing tank provided with a discharge valve operating lever, of a disinfectant holder having a tube
20 communication with said tank, a valve stem slidable through said tube, a valve carried by said stem, a spring for normally holding said valve to the upper end of said tube,
25 stem and adapted to be engaged by said lever to open the valve when said lever is holding the discharge valve in an open position.

2. In a disinfecting device for closet
30 bowls, the combination with a flushing tank provided with a flushing lever, of a disinfectant holder having a tube connection with the interior of said tank, a guiding diaphragm carried by said tube and pro-

vided with perforations, a valve stem projecting through said tube, a valve on said stem and adapted to be seated on the inner end of said tube, a cap carried by the other end of said stem, a spring coiled about said stem and interposed between the cap and the diaphragm for holding the valve to its seat, and means carried by said lever for contact with said cap to raise said valve from its seat when said lever is moved in one direction.

3. In a disinfecting device for closet
45 bowls, the combination with a flushing tank provided with a flushing lever, a disinfectant holder carried by said tank, a tube connecting between the tank and said holder, said tube being provided with a valve seat at its upper end, a perforated guiding diaphragm carried by said tube, a valve stem extending through said tube and diaphragm, a guiding flange carried by said stem and provided with clearance between its sides and said tube, a cap carried by the other end of said stem, a spring carried by said stem and interposed between said cap and the diaphragm, and means carried by
50 said lever for contact with said cap to raise said valve from its seat.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

JAMES KNEEN.

Witnesses:

S. D. NOEL,

H. C. SCHROEDER.