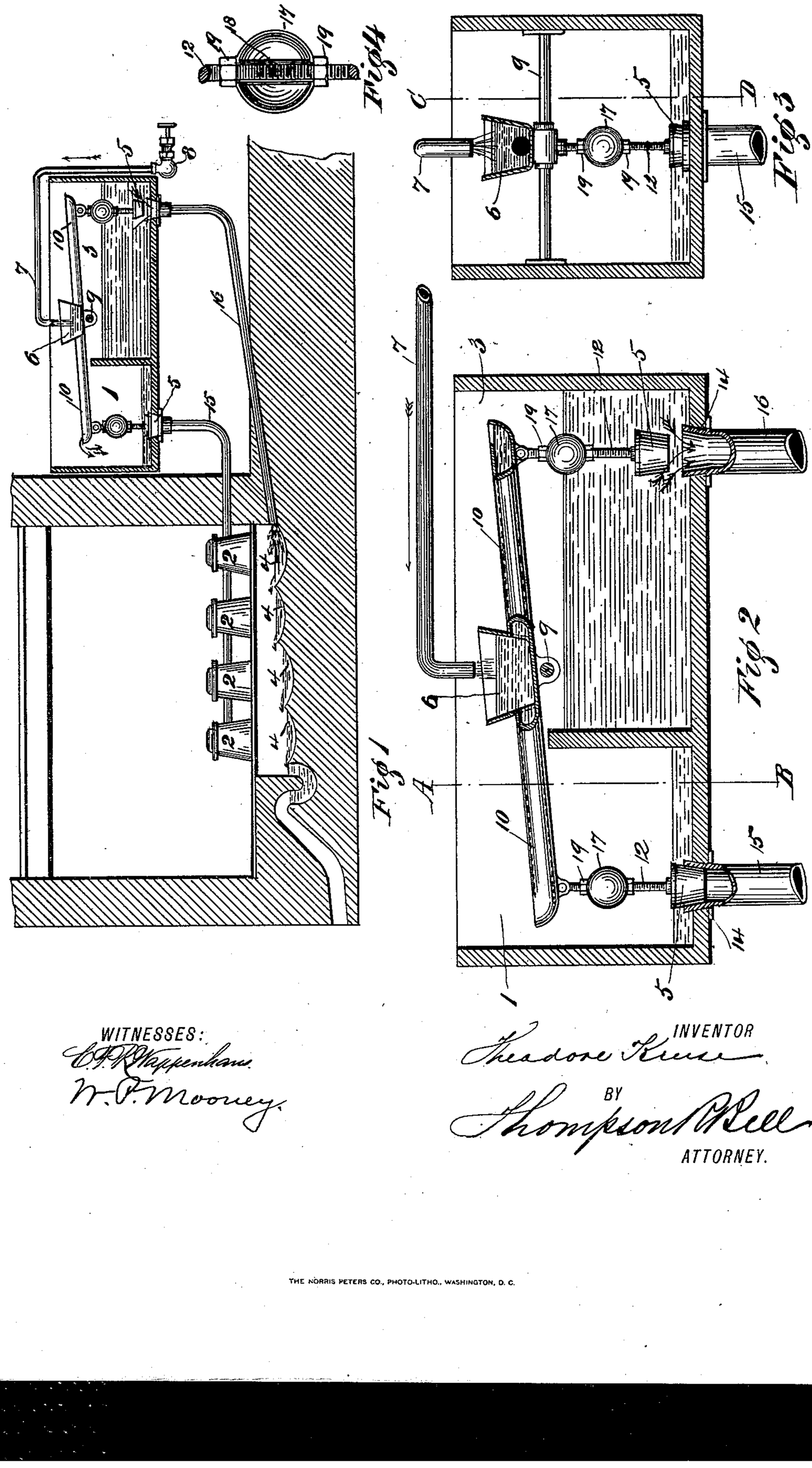
(No Model.)

T. KRUSE.

TANK FLUSH VALVE.

No. 565,465. Patented Aug. 11, 1896.



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THEODORE KRUSE, OF INDIANAPOLIS, INDIANA.

TANK FLUSH-VALVE.

SPECIFICATION forming part of Letters Patent No. 565,465, dated August 11, 1896.

Application filed May 2, 1896. Serial No. 589,998. (No model.)

To all whom it may concern:

Be it known that I, THEODORE KRUSE, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented new and useful Improvements in Tank Flush-Valves, of which the following is a specification.

My invention relates to certain new and useful improvements in automatic and intermittent flushing-valves for use particularly in connection with water-closets in large or public or other buildings, and will be hereinafter more particularly described, and pointed out in the claims.

The object of this my invention is to provide a tank-valve that will operate automatically to alternately flush the closet-basins direct and the catch-basins or sewer-pipe leading from said closets, and to secure perfect cleanliness and sanitary conditions. I attain these objects by means of the valve mechanism illustrated in the accompanying drawings, in which similar numerals of reference designate like parts throughout the several views.

Figure 1 is a sectional elevational view showing a general arrangement of a water-closet system and my flushing-tank applied thereto. Fig. 2 is an enlarged longitudinal sectional view of the tank, taken through the line C D. (See Fig. 3.) Fig. 3 is a transverse sectional view of the same, taken through the line A B, (see Fig. 2;) and Fig. 4 is an enlarged detail sectional view of the float.

The water-tank is composed of two compartments—a smaller compartment 1, which is designed to supply the closets 2, and a larger compartment 3, designed to supply the catch-basins 4 underneath the water-closets 2.

The main feature of this my invention consists in the mechanism for automatically and alternately opening the flushing-valves 5, and consists in a central hopper or trough 6, having its top open, and into which water continuously flows from a suitable service or supply pipe 7, which latter pipe is provided with a suitable stop and regulating valve 8, by which the supply of water may be regulated or entirely shut off. Said hopper is pivotally mounted on a suitable supporting-shaft 9, which latter is firmly secured to the side walls of the tank, or otherwise suitably supported and secured. Projecting from the opposite sides of the trough 6 are the branch or discharging pipes 10, which have their ends closed, but are open on their top end sides, by which arrangement of discharge-openings a quantity of water is confined in the lower arm 10—that is, on the side of the closed valve—thereby securing a preponderance of weight against the closed valve to hold it firmly on its seat. At or near the ends of each of the arms 10 are pivotally secured the depending valve-rods 12, which are threaded their entire length, and are screwed into the plug-valves 5 at the top ends of the latter, thereby providing means whereby said valves may be screwed or unscrewed on said rods to fix their lengths to properly adjust said valves to their seats 14.

The valve-seats 5 are connected to suitable flushing-pipes 15 and 16, which lead to the closets 2 and to the catch-basins 4. (See Fig. 1.)

The floats 17 are hollow metallic spherical globes, having a central core tube, through which the valve-rods 12 are passed, and said floats are held in position and adjustably secured thereon by means of the top and bottom retaining-nuts 19, screwed on said valve-rods 12.

The operation of the device will be readily understood by referring to Fig. 1, which shows the smaller tank empty, and its valve 5 has descended and closed on its seat 14, thereby shutting off the flow of water through the flushing-pipe 15 to the closets 2. The arm 10, connected to the valves 5 of the tank 1 is therefore in its lower position to permit the water to flow therethrough into said tank 1, while at the same time the arm 10 on the opposite side of the trough 6 is in its higher or elevated position, with its discharge-opening above the level of the water contained in the trough 6, and consequently no water will flow through said opening into the tank 3 while said arm 10 is in its elevated position. It will also be seen that, both the valve-rods 12 being of the same length, the plug-valves 5 of the tank 3 will be full open to permit the full supply of water contained in said tank 3 to be discharged, through the flush-tank 16,

into the catch-basin 4. During this time the service or supply water has been discharged through the arm 10 into the smaller tank 1, and the said valve 5 in the tank 3 will remain open till the tank 1 is filled sufficiently to buoy up the float 17 to cause the arm 10 over the tank 1 to ascend to open the valve 5 thereof, and consequently to cause the opposite arm 10 to descend to close its valve 5, thereby permitting the supply of water to flow into the said tank 3 and permitting the discharge of the supply of water contained in the tank 1 to be discharged into the closets 2, and so the same operation is continued automatically so long as water is supplied by the pipe 7. The duration of time between the periods of flushing or discharging the water from the tank may be readily increased or diminished by means of the valve 8 on the supply-pipe 7. Thus if a shorter interim of time is required between the flushings, the valve 8 is opened its full extent, and if a longer period is required the said valve is turned to reduce the amount of the flow of the supply-water through said pipe 7.

The closet-supplying tank 1 is preferably made smaller in capacity than the tank 3 for the reason that in practise a greater body of water is required to supply and flush the catch-basins 4 than what is required for the closets 2, but any proportion of tank capacity may be adopted to suit varying conditions and circumstances, as such change will not in any manner detract from the efficiency of the invention.

Having thus fully described the nature and operation of this my invention, what I claim as new and useful, and desire to cover by Letters Patent of the United States therefor, is—

1. In an automatic flushing-valve, the combination with a tank divided into two separate compartments, and suitable discharging-valves connected to each of said compartments, of a receiving-trough pivotally mounted over said tank, suitable oppositely-disposed discharge-pipes, connected to said trough, and having their outer open discharge ends directed over the separate compartments of said tank, suitable valve-rods connecting the ends of said arms to said valves, and floats mounted on said rods, all substantially as and for the purpose set forth.

2. In an automatic flushing-valve, the combination with a hollow centrally-pivoted beam having its opposite remote top ends open and provided with a receiving-trough connected centrally on said beam, and a suitable supply-pipe directed toward said receiving-trough, of a tank divided into two separate compartments, valves connected to each of said compartments, valve-rods pivotally connected to the opposite ends of said beam at their top ends and adjustably connected to said valves at their bottom ends, and suitable floats adjustably secured on said valve-rods, all substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

THEODORE KRUSE.

Witnesses:
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