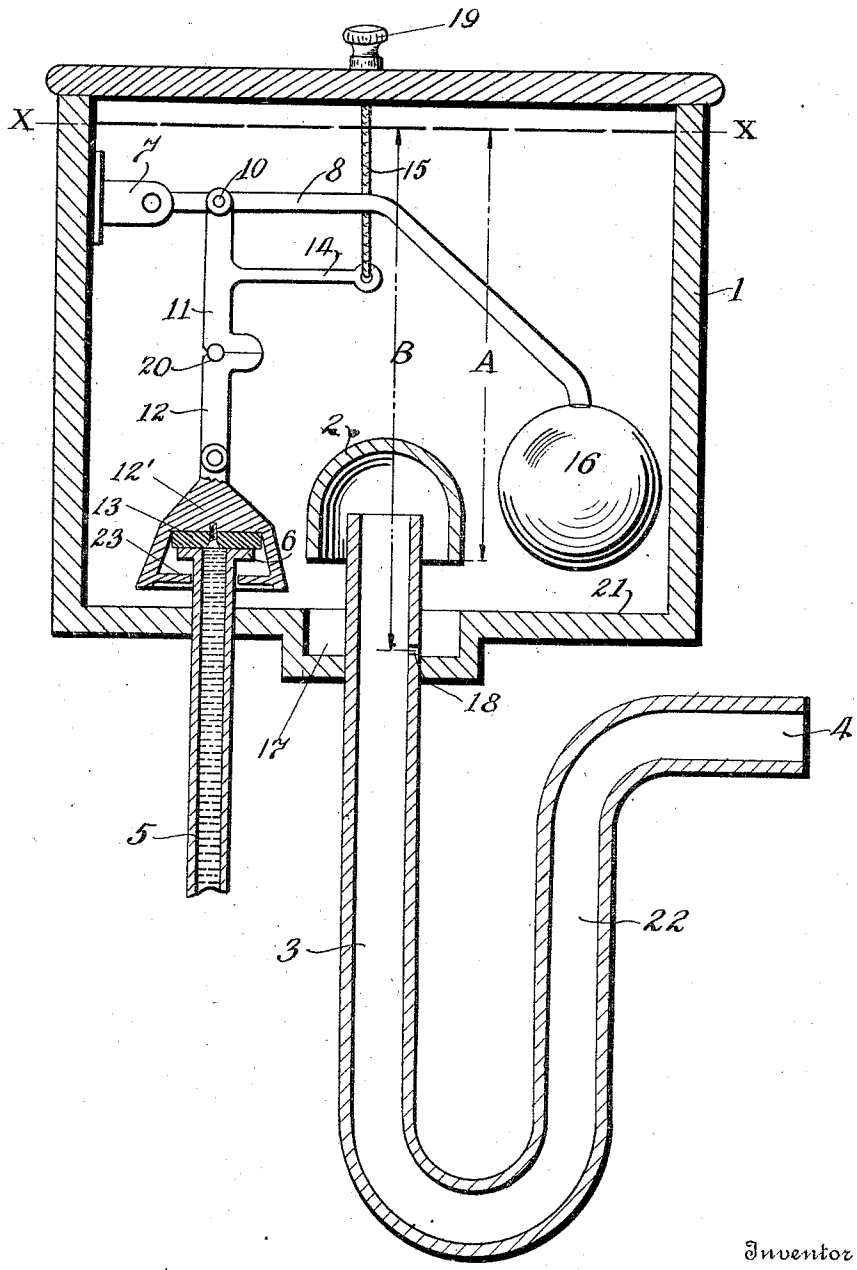
H. DE L. MOÏSE.

FLUSH TANK.

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1,078,796. Patented Nov. 18, 1913.



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FLUSH-TANK.

1,078,796. Specification of Letters Patent. Patented Nov. 18, 1913.

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To all whom it may concern:

Be it known that I, HARMON DE LEON MOÏSE, a citizen of the United States, residing at Sumter, in the county of Sumter and State of South Carolina, have invented certain new and useful Improvements in Flush-Tanks, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to normally empty flush tanks having non-automatic means for charging and automatic means for discharging, and consists of an improved inlet valve mechanism, simple and cheap to make and very positive in operation (being independent of the pressure) in combination with an improved air-bound discharge siphon whereby all of the liquid is completely drained from the tank after tach flush without the use of valves; thus eliminating all danger from freezing.

The figure shown by way of example is a front sectional view through a flush tank embodying the invention.

1 is a tank of any suitable construction, positioned therein is the bell 2 covering the upper end of the long leg of an air-bound siphon 3, the short leg being shown at 22, 4 being the outlet thereof.

5 is a supply pipe, the upper end of which carries the valve seat 6. This seat may be attached to the pipe in any suitable manner, or may form a portion of the upper parts of the valve which may attach to the pipe as a unit.

7 is a support to which is pivoted the inner end of the float lever 8. Attached to the float lever a suitable distance from 7 is the upper member 11 of a toggle joint, 12 constituting the lower member thereof which carries pivotally attached at its lower end, the plunger 12′ having on its bottom, the packing 13 which normally closes the pipe 5. The lower portion of 12′ is preferably bell-shaped, and is kept in position around the pipe by the inwardly projecting fins 23 which guide it laterally but do not interfere with its vertical motion except when they strike on the outwardly projecting lip of the valve seat thereby preventing the member 12′ from being forced out of position by the pressure of the incoming fluid. The bell-shaped end of 12′ noiselessly deflects the liquid to the bottom of the tank, and by using a float of the proper proportions this valve can be used with any pressure. 11 has a projecting arm 14, to which is attached the chain or other operating means 15.

16 is a float heavy enough to keep the supply valve closed against the supply pressure, yet sufficiently buoyant to float while the tank is filling.

17 denotes a sump which surrounds the siphon, and 18 a suitable hole through the siphon on a level with the bottom of the sump, this sump is in the preferred form of apparatus though not essential.

In operation, the tank being normally empty, an upward pull on the handle 19 draws chain 15 upward, this operates lever 14, and breaks the toggle 11 and 12 at joint 20, thereby unseating 13 from 6 and permitting the liquid to enter the tank through pipe 5. Breaking the toggle relieves the valve from the weight of the float 16 which, reaching the bottom of the tank 21, causes the valve to remain open. When the float rises upward on the rising liquid, it permits the weight of arm 14 to straighten the toggle. During the charging of the tank the liquid is prevented from escaping by reason of the well known action of the air-bound siphon. The valve remains open until the flushing height is reached, when, as the liquid recedes in the tank, the weight of the float and arm are delivered to the valve through the straightened toggle, thus automatically closing the valve.

In tanks as heretofore constructed (without the hole 18 which I employ) the liquid when the siphon broke remained in the tank up to the bottom of the bell 2, and often some liquid remained in the bell, which would make the tank inoperative by reason of the siphon not becoming air-sealed and ready for another flush. This invention prevents this, and also removes all liquid, leaving a dry tank, and further provide a sufficient afterflow for the resealing of the stool (if one is used at 4) by providing a hole 18, through which the liquid is discharged from the tank and bell, leaving a perfectly empty tank. It is true that a small amount of water escapes through 18 during the charge and discharge of the tank, but this is unimportant and does not interfere in any way with the operation thereof.

Air will not escape from the hole 18 during the operation of the tank by reason of

the fact that the pressure of the liquid on the outside of the hole during the charging is greater than is exerted by the air within the siphon, as the head of the liquid which exerts pressure against the air within the siphon, is measurable from a point within the bell 2, which point is always above the hole 18. This will be readily understood by reference to the lines A and B.

X denotes the flushing height of the liquid, A the height of liquid pressing on the air in the siphon (this is attained gradually as the tank fills), and B the height of liquid pressing against the outside of hole 18. B is always greater than A, therefore no trapped air will escape.

While I have shown but one form of siphon and valve, it is easily seen that any suitable form of siphon and valve can be employed.

I claim:—

1. In a flushing device, the combination with a tank provided with a water supply, a normally closed controlling valve for the water supply, a lever pivotally mounted in the tank and having a pivotal link connection with the valve, an arm projecting from the link connection, manually operated means engaging the arm and adapted to distort the link connection to open the valve, and means for causing the lever to automatically restore the link connection to normal position to close the valve.

2. In a flushing device, the combination with a tank provided with a water supply, of a normally closed controlling valve for the water supply, a lever fulcrumed in the tank, a link pivotally connected to said lever, a link pivotally connected to the free end of the aforesaid link and to the said valve, manually operated means for distorting said link connection to open said valve, and a combined float and weight carried by the lever for automatically restoring the linked connection to normal position to close the valve.

3. In a normally empty flush tank, an inlet valve, a lever fulcrumed in said tank, a link pivotally connected to said lever, a link pivotally connected to the aforesaid link and engaging said valve, manually operated means for distorting said links to unseat said valve, and a combined weight and float carried by the lever for automatically restoring said link connection to reseat said valve.

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

HARMON DE LEON MOÏSE.

Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."