

W. A. FRASER.
FLUSHING SYSTEM.
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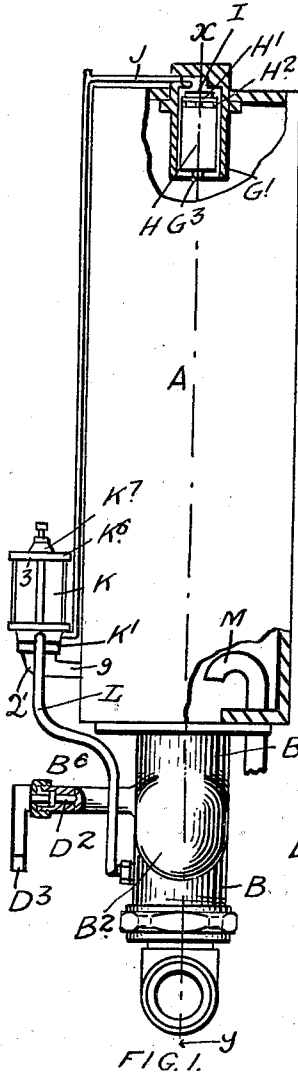


FIG. 1.

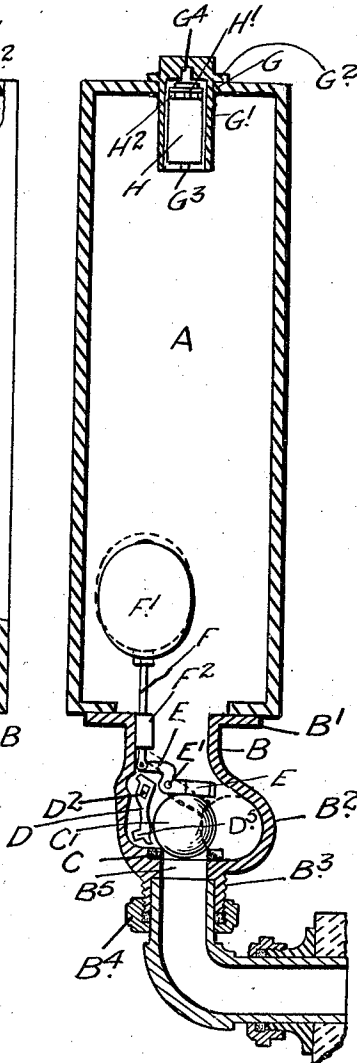


FIG. 2.

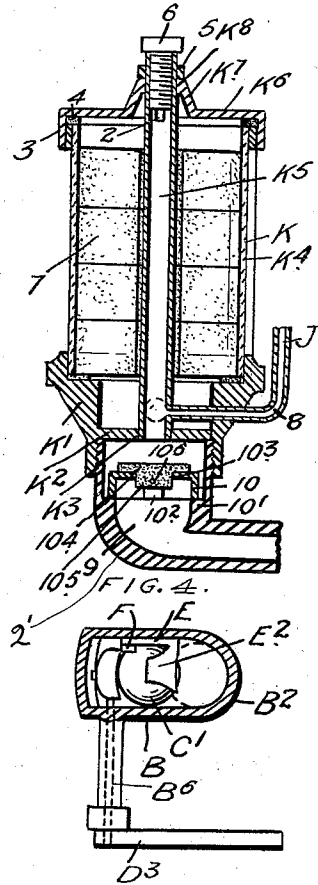


FIG. 3.

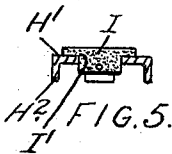


FIG. 5.

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FLUSHING SYSTEM.

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To all whom it may concern:

Be it known that I, WILLIAM ALEXANDER FRASER, of the town of Georgetown, in the county of Halton, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Flushing Systems, of which the following is the specification.

My invention relates to improvements in flushing systems, and the object of the invention is to devise a simple, cheap, reliable flushing system particularly adapted for water closets in which the water control is extremely simple, in which the valve on intake valve is dispensed with, and in which the flushing valve can be readily lifted from its seat without any appreciable exertion.

A further object is to make a closed tank system quite independent as to whether the tank is supplied by either a high or a low pressure supply.

A still further object is to provide for the perfect sanitation of the refill or reflush water after the flushing has been effected.

My invention consists of a tank having a downwardly extending flushing pipe provided with a hollow boss, a ball valve, an automatic float and control for the ball, and a shifting lever and handle therefor designed to be operated manually, a suitable inlet pipe extending into the interior of the tank and having a downwardly turned end, a closing valve and casing located at the top of the tank, a sanitary device connected by a pipe to the tank near the bottom and provided with a soluble antiseptic disinfecting substance, a pipe connecting the divide to the valve at the divide of the tank and a pipe connecting the divide to the flushing pipe, the parts being otherwise constructed and arranged as hereinafter more particularly explained.

Figure 1, is a side elevation partially in section showing a flushing system constructed in accordance with my invention. Fig. 2, is a vertical longitudinal section on the line $x-y$ Fig. 1. Fig. 3, is a detail of the flushing pipe valve and mechanism. Fig. 4, is a detail of the sanitary device. Fig. 5, is a section detail of the top valve.

In the drawings like letters of reference indicate corresponding parts in each figure.

A is the tank, which is provided with a flushing pipe B suitably secured to the bottom of the tank by flanges B' and extending from the orifice A' at the bottom of the

tank in the form of somewhat of an elbow as indicated clearly in Fig. 2. The flushing pipe B extends to the bowl of the closet or other receptacle, which it is designed to flush.

The flushing pipe B is provided with a hollow forwardly extending boss B² and is also provided with a depending threaded nipple B³ into which the upper portion of the elbow proper extends and is held by means of the nut B⁴.

B⁵ is an orifice in the lower portion of the flushing pipe immediately above the elbow 2' and of the same internal diameter.

C is a rubber washer forming a seat for a ball C', which forms the valve.

D is a lever secured on the squared end D' of the spindle D² extending through the laterally extending bearing boss B⁶ forming part of the flushing pipe. The outer end of the spindle D² is provided with an operating handle D³ of any suitable form.

E is a lever of a somewhat Z-form, which is fulcrumed on a pin E' held in the one side of the flushing pipe. The forward end of the lever is provided with a laterally extending lip E² which is narrowed to extend substantially over the center of the ball C'. The opposite end of the lever E is pivotally connected to a rod F at the top of which is located a hollow or other suitable float F'. The rod F has vertical movement within a hole in the lug F².

G is an orifice located at the top of the tank and closed by a valve casing G' secured in position by bolts extending through the flanges G² thereof. The casing G' is open at the bottom and is provided with a supporting cross bar G³. The casing G has located within it a cylindrical float valve H, which is supported on the cross bar G³ at the bottom of the casing. The float valve is of less diameter than the interior of the casing and is provided at the top with a ring H' supported on lugs H² and is attached to the top of the float valve. A disk I is provided at the top of the ring H', such disk being provided with a shoulder I' whereby it is supported on the edge of the ring H' and the reduced end of the disk extends through the opening within the ring H' and is secured in position by means of a cross pin H³ (see Fig. 5). The top of the casing is provided with a recess G⁴ into which extends a pipe J.

K is my sanitary device. The device has

a base K' having a central partition K² provided with a central orifice K³. The lower portion of the base K is internally threaded as indicated.

5 K⁴ is a cylinder preferably of glass forming the wall of my sanitary device.

K⁵ is a tube, which extends up through the center of the device from the orifice K³ to a point above the top of the wall K⁴.

10 K⁶ is the top of the sanitary device, which is provided with a raised central boss K⁷ having a central orifice K⁸ through which the tube K⁵ extends.

The tube K⁵ is provided with a slot or slots 2 near the top. The top K⁶ is provided with a depending flange 3 and a washer 4 situated between the top and the top of the wall K⁴. A nut 5 extends over the top of the tube K⁵, which is threaded and thereby holds the top K⁶ in place. A set screw 6 extends into the threaded top of the tube K⁵ and according to the position to which it is raised or lowered the size of the opening of the slot 2 is increased or diminished, so as to allow of the passage of a more or less quantity of water into the interior of the device.

7 are a series of washer-like cakes of an antiseptic disinfecting substance, which is soluble. The hole in the center of the washerlike cakes is larger than the diameter of the tube K⁵ in order that the water may pass down inside of the washers and thereby absorb and carry off a certain quantity of the disinfecting substance into the bottom of the device.

The tube K⁵ is connected by a laterally extending elbow 8 to the lower end of the pipe J connected to the valve casing G. 9 is an elbow, which extends into the tank A near the lower end and also is suitably threaded to fit into the threaded interior of the bottom of the base K'.

10 is a valve resting on a shoulder 10'. The valve 10 is provided with depending lugs 10² and central orifice 10³ and a disk 10⁴ preferably of rubber and having a depending portion 10⁵ extending through the orifice and held in position by a pin 10⁶ extending through the depending portion 10⁵ and the lugs 10².

L is a pipe leading from the base K' downwardly to the flushing pipe. Where the pipe leads from is indicated by a dotted circle L' shown in Fig. 4.

M is an intake pipe.

Having now described the principal parts involved in my invention I shall briefly describe its operation and utility. The ball valve C' being in the normal position, that is the closed position the water passes through the intake pipe M to the tank and fills the tank closing the float valve H. The tank being full in order to flush the bowl (not shown) the handle D³ is manipulated so as to throw the lever D, and therefore, the ball into the dotted position shown in Fig. 2.

The weight of the handle D when released now causes the lever D to return to the normal position, and thus allow freedom of movement of the ball back to its seat as will hereinafter appear. The float now rises in the water and throws the lever E into the position shown in dotted lines in the same figure, thus insuring the ball remaining securely in the hollow boss B'.

The water now passes downwardly freely through the flushing pipe until the level of the water is low enough to not support the float F' when the float will drop and thereby throw the lever E with the end E' upwardly. The suction of the water now as it finally passes downwardly from the tank through the flushing pipe causes the ball to assume the position shown in full lines or the closed position.

When the tank is full there is sufficient pressure of water therein passing through the elbow 2' to raise the valve 10 and holds it so as to close the bottom of the pipe K⁵, thereby preventing any water passing up into the pipe. When, however, the water has passed out of the tank and the pressure thereof is relieved from the underside of the valve 10, such valve will fall into the position shown in full lines in Fig. 4. The ball having resumed its seat and the water again passing into the tank through the intake pipe M will rise gradually in the tank and in so rising will now pass through underneath the valve 10 and around it and upwardly into the pipe K⁵ through the slot 2, and then downwardly through the antiseptic cakes surrounding the pipe K⁵ and outwardly through the pipe L at the dotted circle L', which represents the position of the hole in the base K' and downwardly through the pipe L and flushing pipe into the bowl. This water now refushes or refills the bowl and has carried with it sufficient of the antiseptic disinfecting substance for sanitary purposes.

When the water has filled the tank the pressure of the water on the valve 10, will on account of the orifice under the valve being less in diameter than the intake pipe raise the valve and close the bottom of the pipe K⁵. At this period, of course, the flow of the refush water is stopped the bowl being refilled. On every operation of the handle D³ the same action of the valve and the parts will take place.

The air pipe J hereinbefore referred to is open to the atmosphere at the elbow at the top and this air pipe communicating with the central pipe K⁵ insures the complete drainage of the sanitary disinfecting water from the base 10' after the valve 10 is closed.

Although I describe in detail the parts involved in my invention it will be understood that the construction described is not to be taken in a limiting sense but as broadly
5 as the state of the art will allow.

What I claim as my invention is:

1. In a flushing system, the combination with a tank and flushing pipe extending from the bottom thereof and having a suitable seat and ball resting on such seat, and
10 a hollow boss designed to receive the ball when shifted from its seat, of means for shifting the ball from its seat into the seat in the boss, a lever suitably fulcrumed and
15 located above the ball, and means for throwing the lever downwardly as the ball is shifted from its seat and for raising the end of the lever above the ball when the tank is emptied in order to permit the ball
20 being drawn by suction on to its seat as and for the purpose specified.

2. In a flushing system, the combination with a tank and flushing pipe extending from the bottom thereof and having a suitable seat and ball resting on such seat, and
25 a hollow boss designed to receive the ball when shifted from its seat, of means for

shifting the ball from its seat into the seat in the boss, a lever suitably fulcrumed and located above the ball, a rod connected to
30 the end of the lever remote from the ball, and a float located on the top of the rod and a suitable guide-way for the rod as and for the purpose specified.

3. In a flushing system, the combination
35 with a tank and flushing pipe extending from the bottom thereof and having a suitable seat and ball resting on such seat, and a hollow boss designed to receive the ball when shifted from its seat, of means for
40 shifting the ball from its seat into the seat in the boss, a substantially Z-shaped lever suitably fulcrumed and located above the ball, said lever having at its forward end a laterally extending lip narrowed to extend
45 substantially over the center of said ball, a rod connected to the end of the lever remote from the ball, and a float located on the top of the rod and a suitable guide-way
50 for the rod as and for the purpose specified.

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