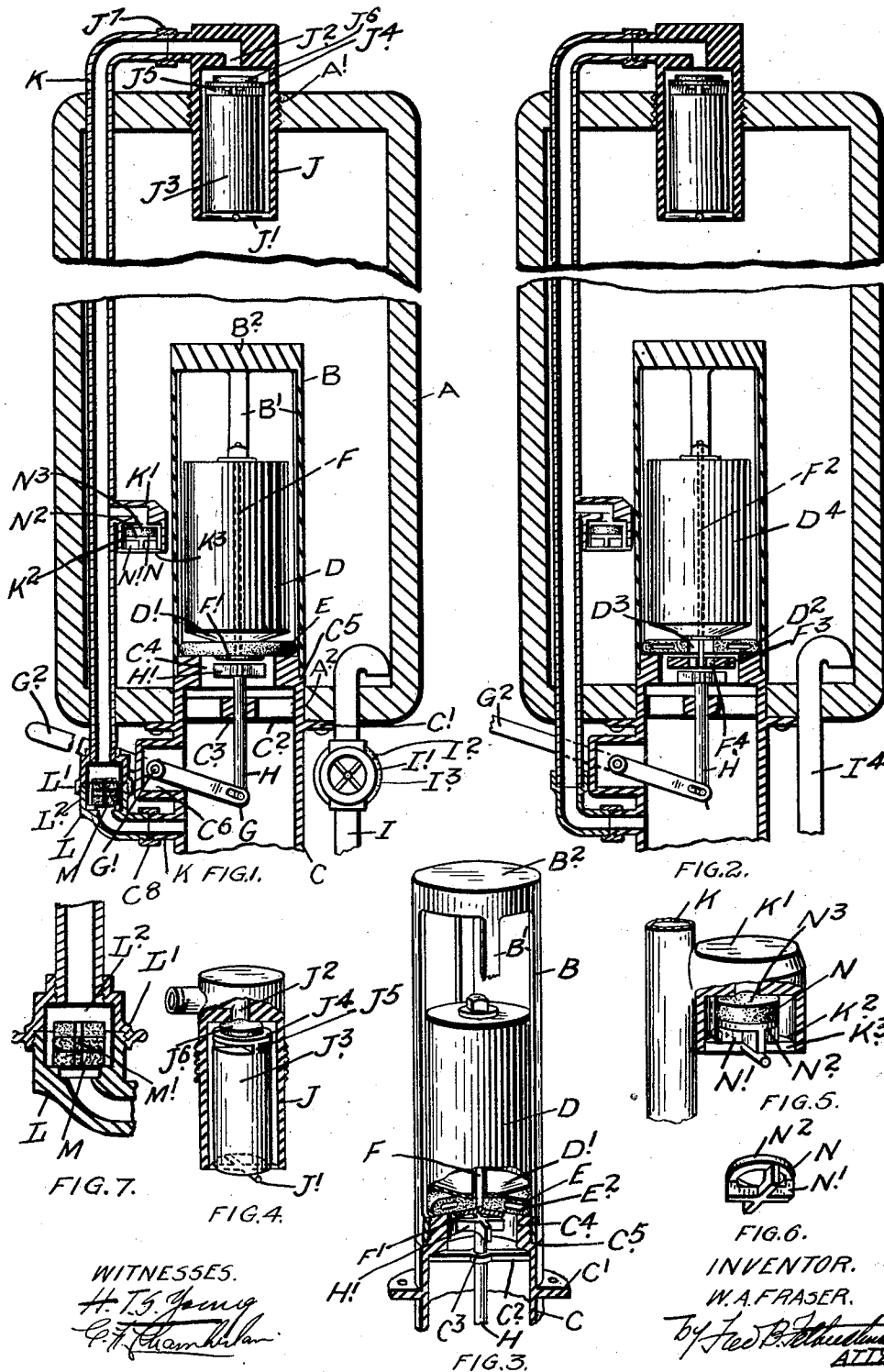


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FLUSHING TANK.  
APPLICATION FILED NOV. 8, 1911.

1,047,510.

Patented Dec. 17, 1912.



WITNESSES.

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# UNITED STATES PATENT OFFICE.

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## FLUSHING-TANK.

1,047,510.

Specification of Letters Patent.

Patented Dec. 17, 1912.

Application filed November 8, 1911. Serial No. 659,153.

*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-Tanks, of which the following is the specification.

My invention relates to improvements in flushing tanks, and the object of the invention is to devise a flushing tank and water controlling mechanism therefor, which will entirely dispense with the intake valve commonly known as the ball float valve.

A further object is to make the tank compact in form and size, and independent of variation in pressure.

A still further object is to provide a sanitary antiseptic device, which will insure the reflush water in the bowl being antiseptic.

My invention consists of a tank having a main water supply pipe, a main flush pipe to the bowl, a cylindrical float provided with a suitable valve designed to rest upon a seat at the top of the flush pipe, a controlling lever, and a controlling disk designed to co-act with the valve, an air outlet at the top of the tank provided with a cylindrical valve and extending at the bottom into a flow pipe, a valve communicating with the interior of the tank and to the air valve designed to control the water passing to the bowl to reflush it, a casing located intermediate of the length of the air pipe and containing a suitable antiseptic substance designed to disinfect and render odorless the reflush water as it passes to the bowl, the parts being otherwise constructed and arranged as hereinafter more particularly explained.

Figure 1, is a vertical section through my flushing tank. Fig. 2, is a similar view showing a slight modification. Fig. 3, is a perspective detail partially in section showing the main float valve. Fig. 4, is a perspective view mostly in section showing the air pipe valve. Fig. 5, is a detail showing the valve for controlling the re-flush water. Fig. 6, is a perspective detail of the valve support shown in Fig. 5. Fig. 7, is an enlarged view showing the antiseptic casing on the air pipe.

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

A is the tank, which is closed both at the bottom and top being provided with a

threaded orifice A' at the top and a plain orifice A<sup>2</sup> at the bottom.

B is the float cage, which has side guide-bars B' and a top B<sup>2</sup>.

C is the top portion of the main flushing pipe, which is provided with a flange C' whereby it is secured to the bottom of the tank, a spider C<sup>2</sup> with a central orifice C<sup>3</sup> and a seat C<sup>4</sup> at the top provided with an annular shoulder C<sup>5</sup> against which the bottom edge of the cage abuts.

D is the float, which is preferably cylindrical in form and has a cone-frustum shaped bottom D' to which is secured the disk valve E preferably made of rubber and having an annular space E<sup>2</sup> to make it more flexible and press more tightly on the seat C<sup>4</sup>. The disk valve E is secured in place by a rod F having a flat head F', such rod extending upwardly through the cylindrical float D and being held at the top by a nut and washer. The flush pipe C is provided with a lateral off-set portion C<sup>6</sup> in which is fulcrumed the arm G on the pin G', the outer end of which has connected to it the operating lever arm G<sup>2</sup>. The inner end of the arm G has a slotted connection to a rod H, which extends through the hole C<sup>3</sup> in the spider C<sup>2</sup> and has secured to the upper end a spider H'.

I is the main water supply pipe. This pipe I, I provide with a globe valve I' having an indicating pointer I<sup>2</sup> whereby the globe valve may be turned any desired distance to indicating points I<sup>3</sup>, so as to make the orifice through the valve larger or smaller according to the quickness with which it is designed to fill the tank. This valve is provided, where my flushing tank is arranged in connection with a reservoir especially used in railway coaches.

The threaded orifice A' at the top of the tank A carries a valve casing J having a bottom spider J' and a top elbow like orifice J<sup>2</sup>.

J<sup>3</sup> is a cylindrical float normally supported on the spider J' and provided at the top with a ring J<sup>4</sup> attached to or forming part of a spider-like support J<sup>5</sup>, which may form part of the cylindrical casing J<sup>3</sup>. On the top of the ring J<sup>4</sup> is arranged a valve J<sup>6</sup> preferably of rubber.

The casing J is provided at the top with a nipple J<sup>7</sup> and to this is connected a pipe K, which extends either inside or outside of the tank A. I have shown it on the

inside. At the bottom of the pipe K outside the tank I provide a supplemental separable casing L, which is threaded at the top on to the pipe K and is provided with  
 5 a flange L' by which the upper portion is screwed on to the exteriorly threaded top of the lower portion. The casing provides an enlargement L<sup>2</sup> between the lower end of the pipe and the nipple C<sup>s</sup> forming part  
 10 of the top portion C of the flush pipe.

Disks or washers M of any convenient size are utilized in the enlargement L<sup>2</sup> and these disks are made of any antiseptic or disinfecting substance and are preferably  
 15 provided with an orifice M', and are of less diameter than the diameter of the enlargement. By unscrewing the top portion of the casing L the washers may be placed in position.

20 K' is an elbow-like extension of the pipe K located inside of the tank A and provided with a recessed enlargement K<sup>2</sup>.

N is a valve having a spiderlike bottom N' and a ring-top N<sup>2</sup> surmounted by a disk valve N<sup>3</sup> and held on the top of a spider K<sup>3</sup>  
 25 at the bottom of the enlargement K<sup>2</sup>.

In Fig. 2, I also show the style of valve used in connection with the main float, which I use where the tank is under pressure, such as from a city main. In this  
 30 form I make the disk valve D<sup>2</sup> with a central orifice D<sup>3</sup>, the float D<sup>4</sup> carrying the central rod F<sup>2</sup>, which extends through the float to a disk F<sup>3</sup> having a central opening  
 35 F<sup>4</sup>. Upon the depression of the lever G<sup>2</sup> and consequently the raising of the rod H the float is first raised without raising the disk valve and the water under pressure passes through the orifice D<sup>3</sup> and orifice F<sup>4</sup>.  
 40 This serves to relieve the pressure on the disk valve D<sup>2</sup>, so that when the disk F<sup>3</sup> reaches it the valve being relieved of pressure may be readily removed from its seat and allow of the water to pass underneath  
 45 the same.

Having now described the principal parts involved in my invention I shall briefly describe its operation and utility.

Referring to Fig. 1, the water passes  
 50 through the pipe I into the tank and rises in the tank. The displaced air in the meantime passes outwardly around the valve J<sup>3</sup> and through the pipe K and down into the flushing pipe C. This passing of the air  
 55 through the pipe C continues until the water has risen sufficiently high in the tank to raise the valve J<sup>3</sup> and close the orifice by means of the valve J<sup>6</sup>. During this period the pressure of the water in the tank is not

at first sufficient to close the valve N<sup>3</sup>, so  
 that the water coming into the tank will partially pass through the elbow K' and will trickle down through the pipe K into the  
 flush pipe C permeating on its way the antiseptic disks M and carrying with it a cer-  
 60 tain amount of disinfecting fluid, which passes into the bowl in the closet, and, therefore, will keep it sanitary. When the water has reached a sufficient height the pressure  
 65 on the valve N<sup>3</sup> will cause it to close and stop any more reflux water passing. It will, of course, be understood that the orifice in the elbow K' is comparatively much smaller than the orifice in the pipe I from  
 70 which the pipe is fed.

It will be seen from this description that by the means, which I employ for operating my float and valve, that it is not necessary to have any packed joints, or separate opening to the tank, which minimizes the liability of leakage. It will also be seen from  
 80 this description that I am enabled to fill the tank very quickly, and without any air pressure on the water as it passes to the tank as the air is drawn off as the water rises.  
 85 Another advantage in my invention is that the operating lever is always restored to normal by the fall of the valve on to its seat.

What I claim as my invention is: 90

1. The combination with the tank and flushing pipe, of an air pipe, extending within the tank from the top of the tank down to the flushing pipe, and a valve for closing the air pipe at the top of the tank upon the  
 95 rising of the water in the tank, an elbow on the air pipe located intermediate of its length within the tank provided with an orifice, an enlargement formed on said elbow, a valve located within said enlargement and beneath said orifice, a second enlargement formed on the lower end of said  
 100 air pipe adapted to receive antiseptic material.

2. The combination with the tank and 105 flushing pipe and inlet pipe, of an air pipe extending from the tank to the flushing pipe, of a conduit leading to the air pipe and provided with a suitable valve, said air pipe having an enlargement at its lower end  
 110 adapted to receive disinfectant material, said enlargement comprising two separable sections.

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Witnesses:

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