

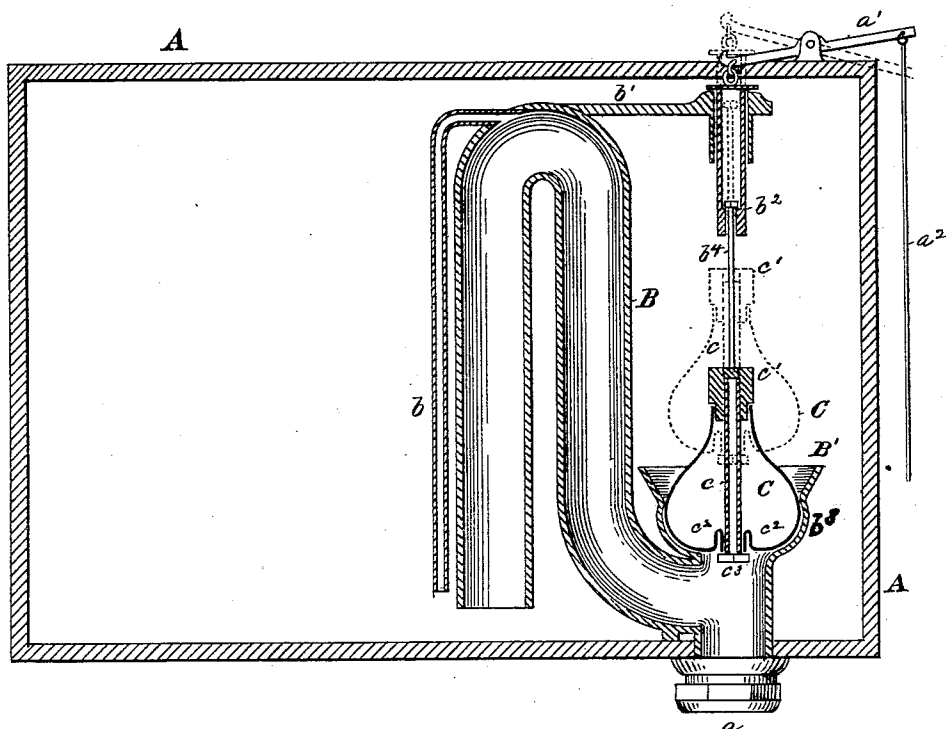
(No Model.)

P. J. BROGAN.

COMBINED FLUSH AND SIPHON TANK FOR WATER CLOSETS.

No. 580,034.

Patented Apr. 6, 1897.



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Witnesses

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PHILIP J. BROGAN, OF LOUISVILLE, KENTUCKY.

COMBINED FLUSH AND SIPHON TANK FOR WATER-CLOSETS.

SPECIFICATION forming part of Letters Patent No. 580,034, dated April 6, 1897.

Application filed March 16, 1896. Serial No. 583,383. (No model.)

To all whom it may concern:

Be it known that I, PHILIP J. BROGAN, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in a Combined Flush and Siphon Tank for Water-Closets; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to tanks used for flushing water-closets; and the objects of my invention are to provide an improved method of obtaining combined flush and siphon action and of breaking the siphonage and lessening the wear and tear by dispensing with all heavy lifting and hinges. I accomplish these objects by the means hereinafter described, specifically set forth in the claims, and illustrated in the accompanying drawing, in which the figure represents a vertical longitudinal section of my improved tank through the medial line of the siphonage and flushing devices.

A represents the frame of the tank; a , the discharge-pipe.

a' represents the lever attached to slide to raise the float; a^2 , the pull cord or chain attached to outer arm of lever.

B represents the siphon.

B' represents a cup and valve-seat for a float, adapted when seated to shut off the water so far as the cup is concerned.

b represents an air-pipe leading to top of siphon, adapted to break the siphonage when the tank is sufficiently emptied.

b' represents a guide rest or arm projecting from the top of the siphon parallel with the top of the tank and provided with guide-flanges at its outer end in which the slide b^2 , attached to the inner end of the lever a' , works.

b^3 represents a spherical recess or bulge in the cup B' beginning just below the lips of the cup and adapted to receive and seat the lower part of the float.

b^4 represents the stem connecting the slide b^2 and float C, which is an oval bulb of rubber having a hole in top and bottom to admit the passage of a metal tube c , having a cap at the top to which the stem b^4 is attached,

and over the lower part of which the open upper end of the rubber float fits, and at the bottom a screw-nut c^3 , working on the end of the tube c and adapted to press the bulb up to form the fold c^2 and increase the tightness and resiliency of the bulb and prevent future contraction of the seat.

The dotted lines indicate positions taken by the float, lever, and attachments when the cord is pulled to empty the tank. The openings at the top and bottom of the bulb are only sufficient to admit the passage of the tube c by strong pressure and the elasticity of the rubber will then hold it fast in position on the tube without any connecting devices.

The operation of my device is as follows: The tank being full up to the bottom of the bend in the siphon at which point the water is shut off by the ball-cock, if it is desired to empty the tank a slight pull on the cord or chain a^2 will unseat the float-valve C, when its light specific gravity will cause it to rise above the mouth of the cup, leaving that opening clear for the exit of water and remain floating until the water in the tank falls to the level of the mouth of the cup when the suction will carry it down and seat it in the recess, closing the exit through the cup. As soon as that occurs the siphon B will begin to act and continue to drain the tank until it reaches the bottom of the air-pipe b , when the admission of the air at the top of the siphon will immediately shut off the flow in the siphon.

The ball-cock, which is not shown because of ordinary construction and not claimed for, is so adjusted as to admit water as soon as the flow through the siphon is stopped and to shut off the water as soon as it approaches the lower edge of the bend in the siphon.

The stem b^4 , working freely in the slide b^2 , which is kept in true position by the guides on the end of b' , keeps the float C centered exactly over the cup B and insures that it will settle accurately in position as the water is exhausted below the mouth of the cup. The diameter of the cup at the point where the bulged recess b^3 begins is slightly less than the largest diameter of the float C, while the recess b^3 corresponds with the periphery of the float. The float drawn down by the

suction of the descending water is compressed and squeezes through this narrowed part and forms a tight seat on both sides and bottom.

If the float C should fail to rise and float when pulled from its seat, or if it should be made heavy instead of light, the complete flushing of the closet and emptying of the tank constructed according to my invention would go on without interruption, because when the cup B' is once opened by the pulling up of the valve-float the water immediately begins to discharge through it, and no matter how soon it is closed afterward the water at once begins to discharge through the siphon and continues till the tank is empty.

In my improved tank the siphon-tube B is made of a diameter sufficient to carry off more water than can be admitted through the ball-cock, which prevents any possibility of the overflow of the tank. The arrangement of the air-pipe b breaks the siphonage immediately at the top of the main siphon-pipe, preventing any repetition of siphonage after the tank begins to refill and preventing the gurgling sound which usually occurs in tanks where the air-supply enters through a hole near the bottom of the siphon. The air-tube b, being shorter than the receiving-arm of the siphon-tube, takes air and conveys it to the top of the siphon-tube before the water has time to get low enough to cause any noise in the siphon-tube by suction. The air being carried directly to center on top divides the water immediately at top of the bend and part will drop back into the tank and the other part pass through the discharge-pipe into the fixture below, making it almost perfectly noiseless and leaving the tank free to refill without any possible repetition of siphonage.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a combined flush and siphon tank for water-closets, the combination of a flush-exit

having a valve-seat, a valve provided with a stem, a slide within which said stem works freely, a lever for actuating said slide, and a siphon-tube adapted to discharge more water than can be admitted into the tank.

2. In a tank for water-closets, the combination of the flush-exit having a valve-seat, a valve provided with a stem, a slide within which said stem works freely, and a lever for actuating said slide.

3. In a combined flush and siphon tank an arm b' projecting from the top of the siphon-tube, on a line parallel with the longest side of the tank, having downwardly-extending flanges near its end, a slide guided by said flanges, a lever for actuating said slide, and a float-valve having a stem, actuated by said slide, substantially as described and for the purposes specified.

4. In a tank for water-closets, a float-valve C consisting of a hollow oval rubber bulb with holes at the top and bottom of its longest diameter, a metal tube c' larger in diameter than the hole in the bottom of the bulb passing through the bulb from top to bottom, provided with a cap at the top having a stem on its lower part larger than the top hole in the bulb over which the edges of the hole can be stretched, and a screw nut or cap c³ working on threads at the bottom of the tube and adapted to hold the edges of the lower hole of the bulb pushed upward and doubled into the fold c³ substantially as described and for the purposes specified.

5. In a combined siphon and flushing tank a rubber-bulb float-valve, and a flushing discharge-cup B' bulged spherically outward just below the lips to form a seat b³ for said valve, substantially as described.

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

PHILIP J. BROGAN.

Witnesses:

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