(No Model.)

W. A. EBERHART.

FLUSHING APPARATUS.

No. 516,002. Patented Mar. 6, 1894.

Fig: 1.

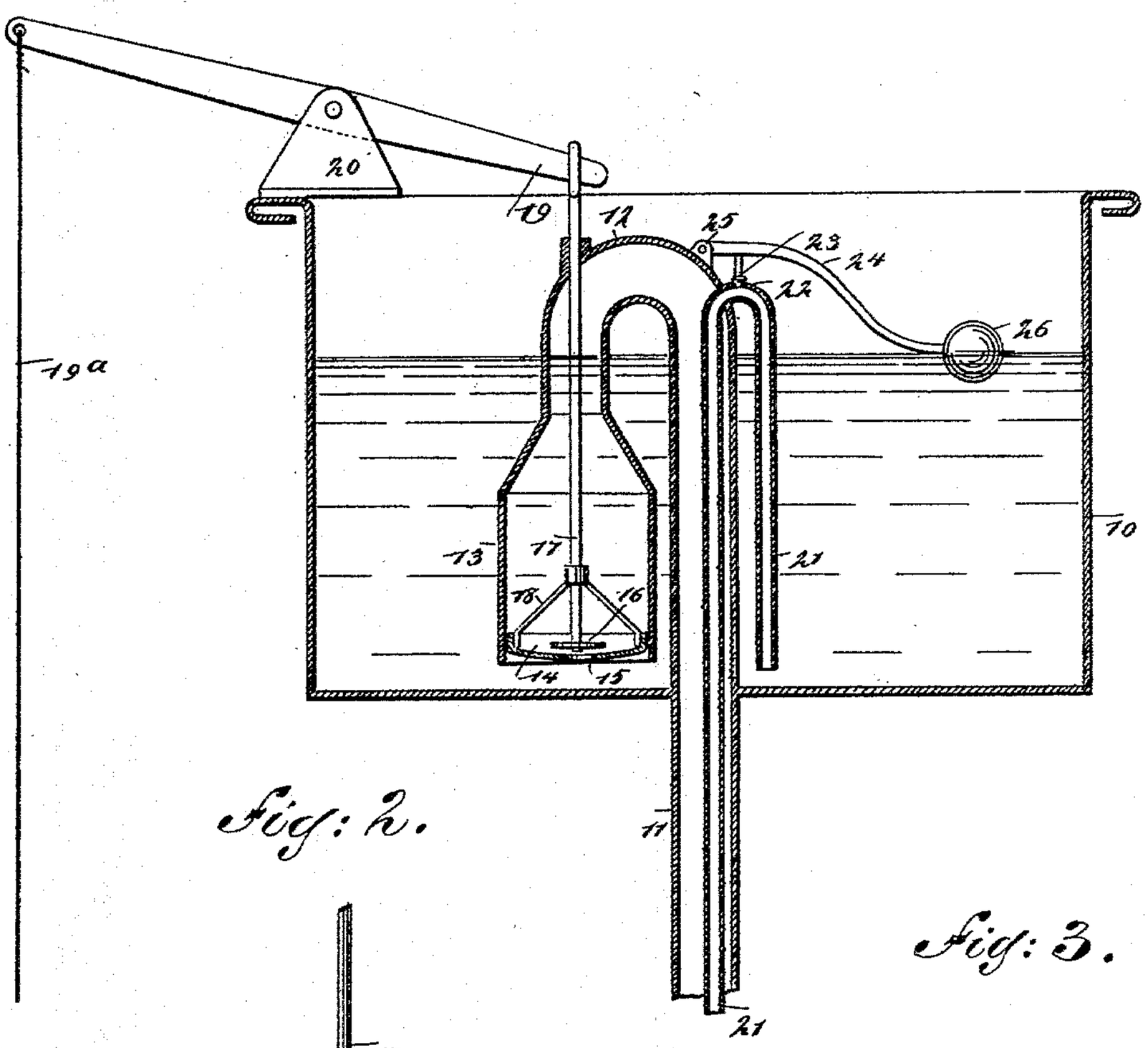


Fig: 2.

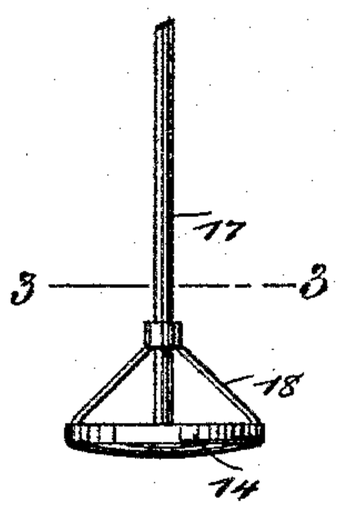
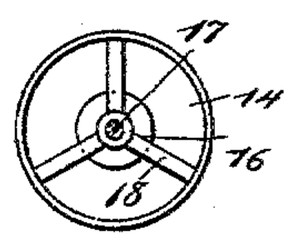


Fig: 3.



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FLUSHING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 516,002, dated March 6, 1894.

Application filed March 15, 1893. Serial No. 466,015. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. EBERHART, of Asbury Park, in the county of Monmouth and State of New Jersey, have invented a new and Improved Flushing Apparatus, of which the following is a full, clear, and exact description.

My invention relates to improvements in flushing devices, and especially to such as are adapted to empty a tank or cistern at each discharge, as in the case of devices used for flushing the bowls of water closets.

The object of my invention is to produce an extremely simple apparatus which will operate noiselessly, which will empty the tank quickly, which cannot readily get out of repair, and which is adapted to deliver a small supplemental discharge into the bowl after the water has ceased to flow through the main discharge pipe, to the end that the bowl may be always full.

To these ends my invention consists in certain features of construction and combinations of parts, as will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a broken sectional elevation of the apparatus embodying my invention. Fig. 2 is a detail side elevation of the siphon plunger or piston; and Fig. 3 a sectional plan on the line 3—3 in Fig. 2.

The tank 10 may be of any usual kind and it has a discharge pipe 11 leading through its bottom and adapted to connect with a bowl, while the upper end of the pipe extends up into the tank to a point near the top and is then doubled and returned upon itself, as shown at 12, its open upper end terminating in a bell 13, the open end of which extends nearly to the tank bottom. In this bell 13 is a vertically movable plunger or piston 14 which has preferably a convex lower face, and the piston has a central opening 15 above which is a vertically movable check valve 16 which slides on the piston rod 17, this being adapted to move vertically and extending upward through the bell and through the top of the pipe 11. The piston is connected with the piston rod by means of a suitable bracket 18. The upper end of the piston rod is pivotally connected with one end of a tilting lever 19 which is fulcrumed near its center on a bracket 20, carried on the top and at one end of the tank, while the outer end of the lever has attached thereto a cord 19^a, or its equivalent, which hangs downward to a point within easy reach, so that by pulling upon it the lever 19 will be tilted, the piston rod 17 and piston 14 lifted, and the water in the bowl 13 forced above the bend of the pipe 11, thus starting the siphon. A small pipe 21 extends longitudinally through the main pipe 11 and emerges from the pipe near the top, the pipe 21 being bent downward, as shown at 22, so as to form a second siphon, and this bent end of the pipe extends to a point a little lower than the lower end of the bell 13. In the top of the siphon, or the pipe 21, is an air vent which is held closed normally by a valve 23 carried by a lever or float arm 24, this being pivoted at one end, as shown at 25 to the pipe 11 and at its other end it carries a float 26.

The action of the apparatus is as follows:—When the piston 14 is raised by the tilting of the lever 19, it lifts quickly the volume of water in the bell 13, the check valve 16 sinking to its seat so as to prevent the escape of water through the opening 15. The water in the bell is thus forced through the bend of the pipe 11, thus starting the siphon, and the water continues to flow through the bell and main pipe 11 as the out-flowing water lifts the valve 16 from its seat and passes freely through the opening 15. The water will thus be quickly discharged through the pipe 11 so as to flush the closet, and the water, as it passes through the main pipe, creates a suction in the pipe 21 which causes the water to flow through said pipe also, and as the upper end of the pipe 21 is a little lower than the bottom of the bell 13, the water in the tank bottom will continue to flow for a short time through the pipe 21 after the water has reached a level lower than the bell bottom, and thus a gentle stream flows into the bowl, after it has been flushed by a deluge from a

larger pipe, and the bowl is left full. It is well understood that a larger pipe discharges so rapidly and ceases to flow so suddenly that but little water is left in the bowl, but this arrangement obviates the difficulty. When the water rises in the tank 10 it raises the float 26, thus lifting the float arm 24 and raising the valve 23 from its seat in the top of the siphon of the pipe 21, and the vent thus opened stops the pipe 21 from flowing.

It will be understood that the supplemental pipe 21 and the arrangement for stopping its flow may be applied to other forms of discharge pipes which act as siphons.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In flushing apparatus, the combination with a tank, of the main siphon, an auxiliary siphon having a vent at or near its bend, and a closure for such vent the said closure opening by the rising of the water in the tank, substantially as described.

2. The combination with the main siphon discharge pipe, of a supplemental siphon pipe extending longitudinally through the discharge pipe and leading out of its upper end, the upper terminal of the supplemental pipe being lower than the upper terminal of the main siphon pipe, and a float actuated vent valve in the siphon of the supplemental pipe, substantially as described.

3. The combination with the main siphon discharge pipe and the supplemental siphon pipe leading into it, of a movable vent valve in the top of the supplemental pipe, a vertically swinging arm to raise the valve, and a float on the arm, substantially as described.

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Witnesses:

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