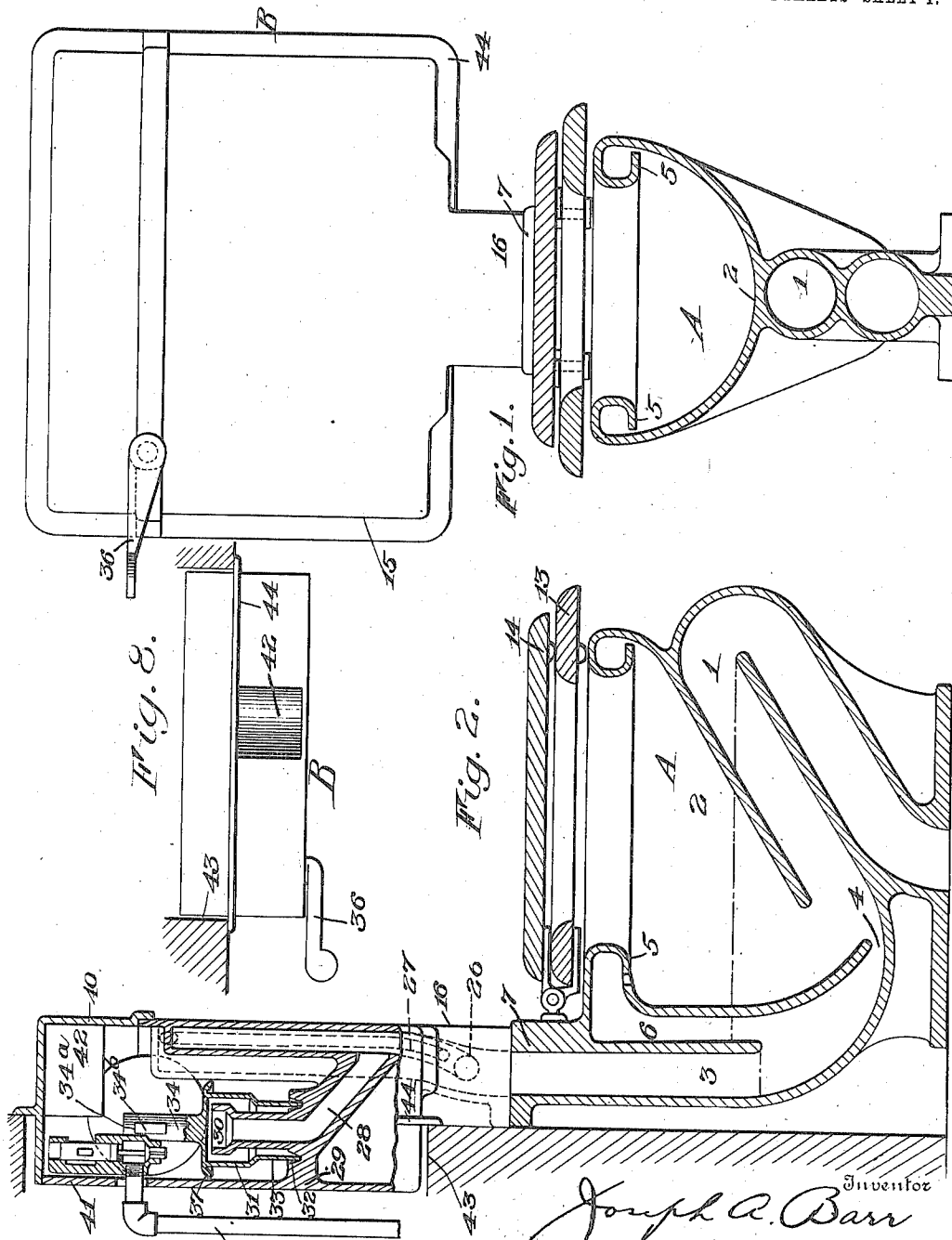


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J. A. BARR.
WATER CLOSET.
APPLICATION FILED JULY 17, 1907.

Patented Feb. 1, 1910.

2 SHEETS—SHEET 1.



Witnesses

Matthew B. Payne
H. H. Linn

Inventor
Joseph A. Barr
By *Charles Rich*
His Attorney

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2 SHEETS—SHEET 2.

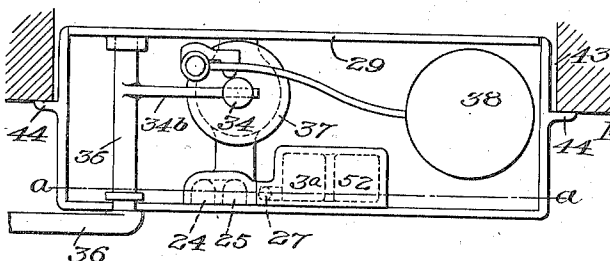


Fig. 3.

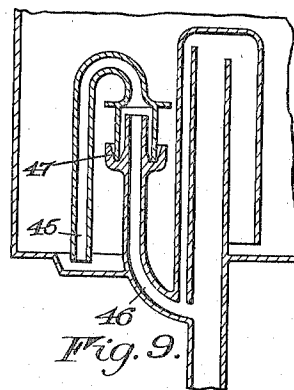


Fig. 9.

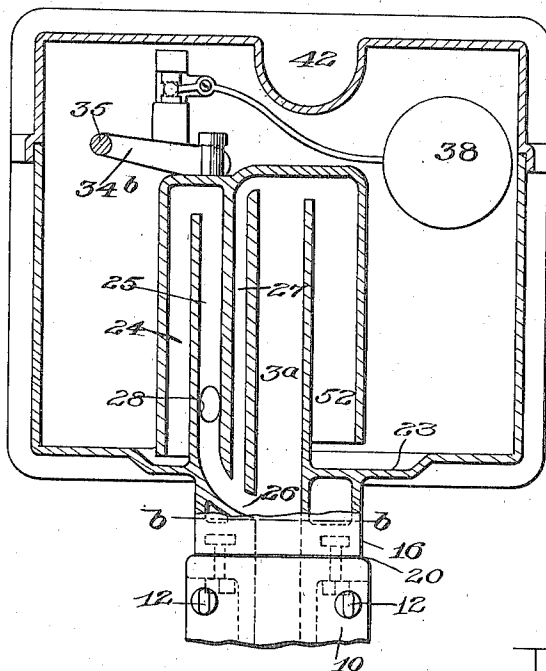


Fig. 4.

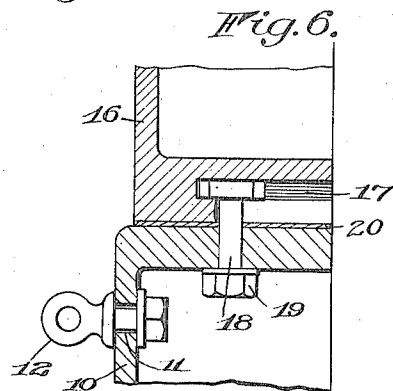


Fig. 6.

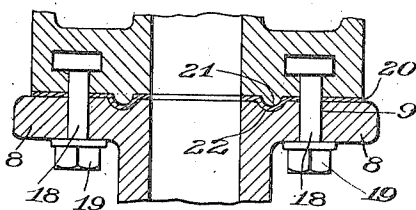


Fig. 7.

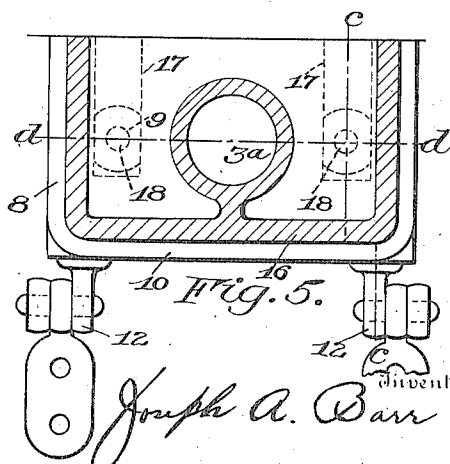


Fig. 5.

Witnesses

Walter B. Payne,
H. H. Simms

By

Joseph A. Barr
Charles Rich
His Attorney

UNITED STATES PATENT OFFICE.

JOSEPH A. BARR, OF ROCHESTER, NEW YORK.

WATER-CLOSET.

947,782.

Specification of Letters Patent.

Patented Feb. 1, 1910.

Application filed July 17, 1907. Serial No. 384,276.

To all whom it may concern:

Be it known that I, JOSEPH A. BARR, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Water-Closets; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of the specification, and to the reference characters marked thereon.

This invention relates to water closets of the type in which a siphonic flushing apparatus is employed and it has for its object to provide a construction and an arrangement of parts in both the bowl and the flushing apparatus, whereby a high sanitary condition may be maintained.

To these and other ends the invention consists in certain improvements and combinations of parts all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings: Figure 1 is a view showing the bowl in transverse vertical section; and the flushing tank in front elevation; Fig. 2 is a longitudinal vertical section through the bowl and an irregular section through the flushing apparatus; Fig. 3 is a top view of the flushing apparatus with the cover removed; Fig. 4 is a section on line *a-a* Fig. 3; Fig. 5 is a section on line *b-b* Fig. 4; Fig. 6 is a section on line *c-c* Fig. 5; Fig. 7 is a section on line *d-d* Fig. 5; Fig. 8 is a top view of the flushing apparatus showing its position when mounted in a wall. Fig. 9 is a sectional view showing another manner of initiating the flow of the starting siphon.

The invention which is susceptible of various embodiments, in the present form, comprises a bowl A having a siphon discharge 1, the inlet of which, with the bowl portion 2, acts as a seal with which the lower portion 3 of the flushing siphon, to be described, has communication, as by a port 4 located below the liquid level of the seal at the discharge leg of the flushing siphon. This port 4 being small as compared with the lower end 3 of the discharge leg of the flushing siphon causes the water to pass into the discharge siphon 1 with very great force and also causes a backing up of the water in the discharge leg 3, thereby producing a flow through the flush rim 5 which for this purpose

is connected to the leg by a passage 6. It will be noted that the opening 4 permits liquid from the bowl-seal to enter the discharge leg 3 of the flushing siphon and that the level of this liquid is above the point where the passage 6 leads from the leg, thereby sealing the lower end of the latter against the entrance of air thereto when the closet is not in operation, and causing the confinement of a body of air in the discharge leg.

The lower portion 3 of the discharge leg 1 is preferably made integral with the bowl and extends through an upright extension 7 arranged at the rear of the bowl. This extension on each side has horizontal flanges 8 provided with bolt openings 9 and at its front has oppositely disposed vertical flanges 10 provided with horizontal openings 11 which serve to receive portions of the hinges 12 which secure the seat 13 and the cover 14 to the bowl. The object of this integral extension is to throw the joint between the bowl A and the flushing tank above the top of the bowl to a position where the joint is less likely to be splashed and to collect undesirable matters; and further to position the metal hinges where they will be less liable to oxidation.

The flushing apparatus B preferably has all of its immovable parts made of one piece of suitable material, such as porcelain, and in this instance comprises a tank 15 having a depending extension 16 preferably hollow, open at its rear, and having a flat lower end formed with two T shaped grooves 17 opening also at their rears and adapted to receive the heads of bolt 18 in a manner to prevent the latter from turning, said bolts, after passing through the openings 9 in the bowl extension being held by nuts 19 arranged below the flange 8, thus forming a means for holding the extensions 7 and 16 together. A packing 20 may be arranged between the extensions if desired, and lugs 21 may be provided on one extension to enter depressions 21 in the other extension to hold the flushing tank against lateral movement relatively to the bowl.

Preferably integral with the front wall of the tank 15, are the upper portion 3^a of the discharge leg and the inlet leg of the flushing siphon, the upper portion of the discharge leg passing through the extension 16 and connecting with the lower portion on the bowl and the inlet end being arranged in

a plane above the bottom of the tank and preferably over the depression 23 in the bottom of the latter.

In the depression 23 depends the inlet end of a starting siphon 24 which is also made integral with the front of the flushing tank and has its discharge leg 25 connected to the discharge leg of the flushing siphon, preferably below the bottom of the flushing tank as at 26, connection between the siphon and the flushing siphon being also established by a passage way or leg 27 which extends from a point immediately adjacent the connection 26 to the bend of the flushing siphon.

It is apparent that upon the operation of the starting siphon, air will be drawn from the bend of the flushing siphon both by reason of the suction created in the leg 27 and the discharge into the leg below the bend, thus causing the starting of the flushing siphon, which continues until the level in the tank reaches the lower end of the inlet leg 52, when it stops. The starting siphon during the flushing is in operation, and, as its inlet end is below the inlet end of the flushing siphon, continues for a short time afterward so that a positive refilling of the seal in the bowl and at the lower end 3 of the discharge leg is insured. The bend of the starting siphon is arranged at such a distance below the liquid level maintained by the float valve, to be described, that when the water gets above this level the starting siphon will begin to run to prevent an overflow of the water in the tank.

The action of the starting siphon is initiated by any suitable means as by a device admitting fluid to the discharge leg thereof. For example, I may provide an upwardly extending branch 28 which is supported below its upper end from the rear wall of the tank as at 29, and has its upper end enlarged as at 30, for the purpose of increasing the pressure of the flow therethrough. The flow through this branch is normally closed by a valve preferably in the form of an inverted cup 31 having its lower end adapted to rest upon an annular seat 32 which contains mercury, and being contracted at 33 so that the valve seat may be reduced to the smallest practical size. The valve may be operated by any suitable means, as for instance, by an arm 34^a working in a vertical slot 34^a in an upright extension 34 thereon and extending horizontally from a rock shaft 35 journaled in the tank and adapted to be operated by a lever 36 which is arranged on the outside of the tank and extends in a direction opposite to the direction in which the arm 34 extends. When this lever is depressed the cup valve is elevated from its seat, causing water in the tank to pass into the branch and start the flushing apparatus. The valve, if the lever were held a moment, would, under ordinary cir-

cumstances, close the branch before sufficient water had entered to start the flushing apparatus and in order to prevent the valve closing too quickly I provide means to retard its descent, preferably an annular downwardly turned flange 37 which will co-operate with the water and act as a resistance to the travel of the valve. Instead of the cup valve I may divide the discharge leg of the starting siphon below the liquid level into two parts 45 and 46, the upper of which is formed to cover the other and rest on a mercury seat 47 as shown in Fig. 9 so as to permit the inlet leg to be elevated to admit water into the discharge leg. When the movable portion is released and drops, the siphonic action will continue through the starting siphon as in the other form of the invention. A float valve 38 of a suitable type is mounted independently of the tank on the supply pipe 39 which extends through the rear wall of the tank above the liquid level thereof.

The tank is provided with a removable cover 40 which is fitted thereon by a rearward sliding movement, the rear wall of the tank being extended above the front and side walls at 41 to permit this movement without interfering with the float valve, and this cover may have a pocket or depression 42 to receive a roll of toilet paper. So that the flushing tank will occupy as little space as possible, a pocket 43 is provided in the building wall in rear of the tank and the tank is formed with lateral flanges 44 on the top, side and bottom walls to abut the building wall about the pocket and thus hide any roughness therein.

I claim:

1. The combination with a bowl having a sealed discharge, of a flushing siphon having its discharge leg sealed by the bowl seal, and a starting siphon discharging into the seal, having its intake below the intake of the flushing siphon so as to fill the seal after the flushing siphon operates and connected to the flushing siphon to start the latter.

2. The combination with a bowl having a sealed discharge, of a flushing siphon having its long leg sealed by the bowl seal and a starting siphon discharging into the bowl seal and having an air passage leading therefrom and connecting with the flushing siphon to draw air from the latter at a point above the discharge of the starting siphon, the intake of the starting siphon being below the intake of the flushing siphon.

3. The combination with a bowl having a sealed discharge, of a flushing siphon having its discharge leg sealed by the bowl seal, and a starting siphon having a connection with the discharge leg of the flushing siphon to discharge therein and also having a connection with said flushing siphon to draw air from the latter at a point above the dis-

charge of said starting siphon, the intake of the starting siphon being below the intake of the flushing siphon.

4. The combination with a flushing siphon having a seal, of a starting siphon, an air passage connecting the discharge leg of the starting siphon with the flushing siphon to draw air from the high point of the latter, and a valved intake located in the discharge leg of the starting siphon at a point above that at which the air passage connects with the starting siphon.

5. The combination with a bowl having a sealed discharge, of a tank, a flushing siphon having its long leg sealed by said discharge seal and its short leg in the tank, a starting siphon within the tank having its high point below that of the flushing siphon and also below the top of the tank and having direct communication with the high point of the flushing siphon whereby the starting siphon will operate the flushing siphon automatically when the water in the tank reaches a certain level.

6. The combination with a flushing siphon having a sealed discharge, of a starting siphon, an air passage leading from the discharge leg of the starting siphon to the

flushing siphon above the seal, and a valved intake in the discharge leg of the starting siphon embodying a mercury seal.

7. The combination with a flushing tank having a depression in its bottom, of a flushing siphon having its discharge leg sealed and having its inlet end in the tank, and a siphon having a connection with the flushing siphon above the seal, having its inlet end depending into the depression in the tank below the inlet end of the flushing siphon and discharging into the latter above the seal.

8. The combination with a flushing tank, of a flushing siphon having its discharge leg sealed and having its inlet end in the tank, and a starting siphon connected to the flushing siphon at a point above the seal and below the bottom of the tank and having its inlet end located below the inlet end of the flushing siphon, the starting siphon having an independent connection with the bend of the flushing siphon.

JOSEPH A. BARR.

Witnesses:

THOMAS B. BARR,
H. H. SIMMS.