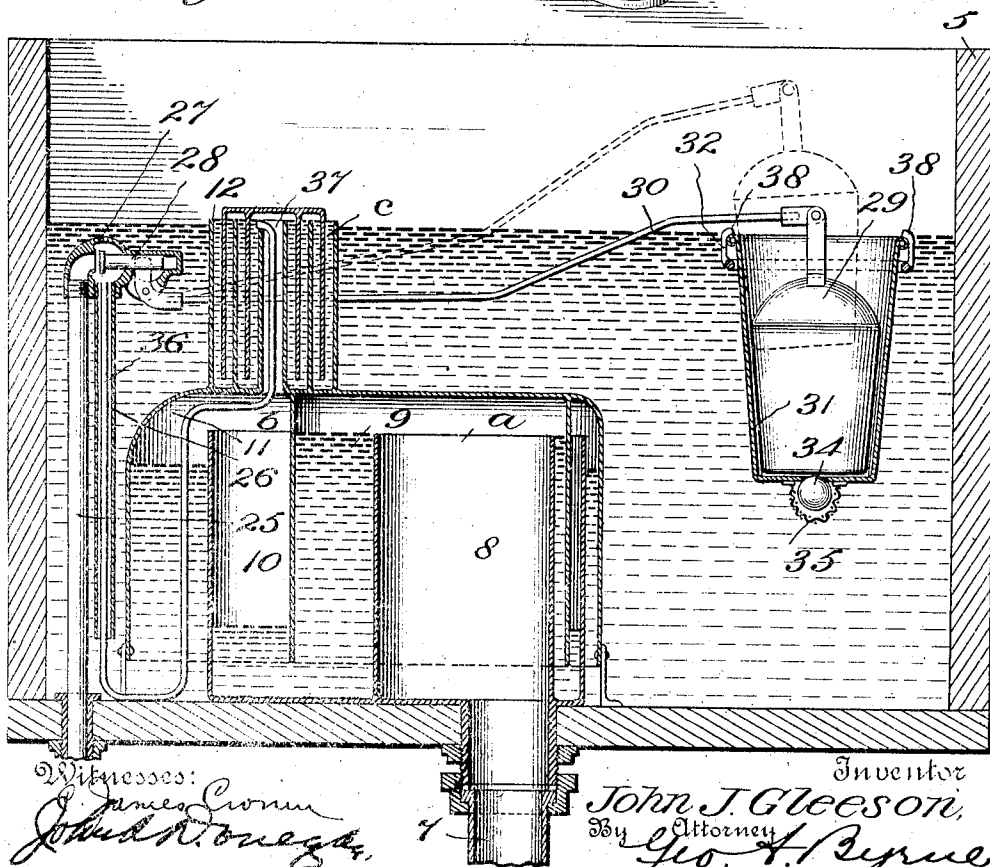
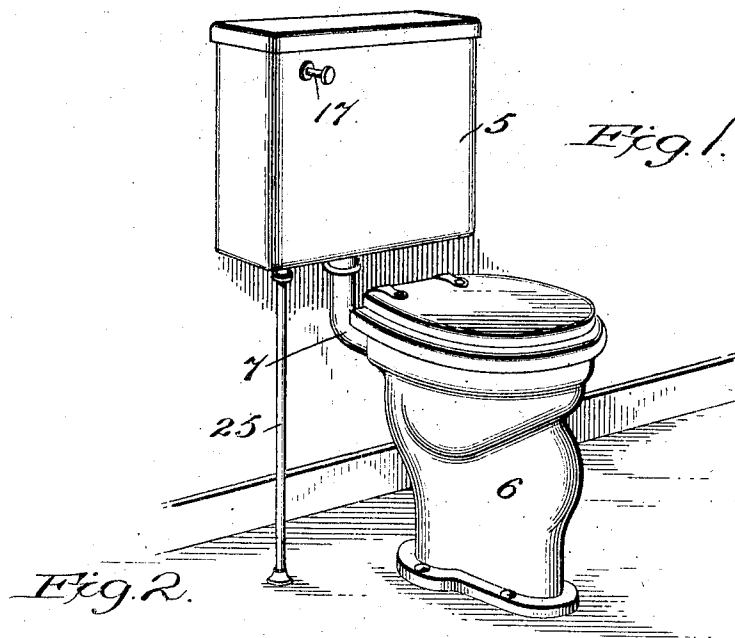


1,084,267.

2 SHEETS—SHEET 1.



J. J. GLEESON.
FLUSHING APPARATUS.
APPLICATION FILED AUG. 27, 1912.

1,084,267.

Patented Jan. 13, 1914.

2 SHEETS-SHEET 2.

Fig. 3.

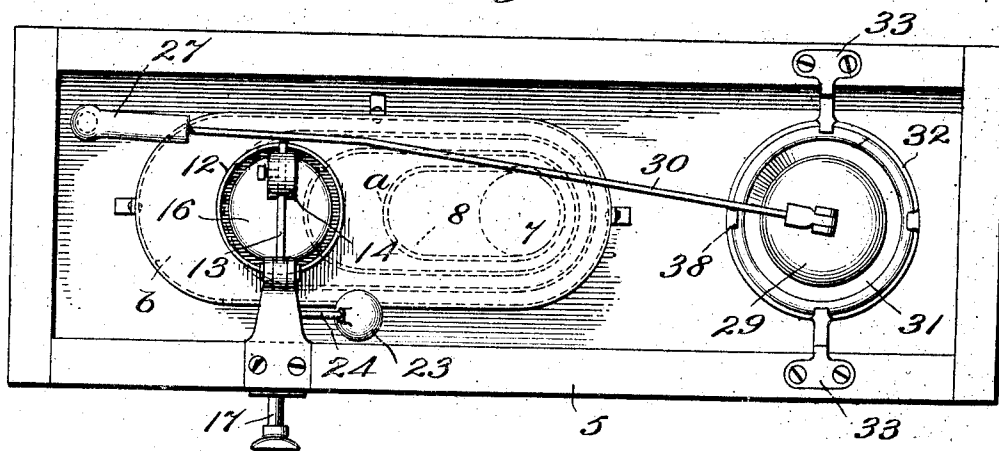


Fig. 4.

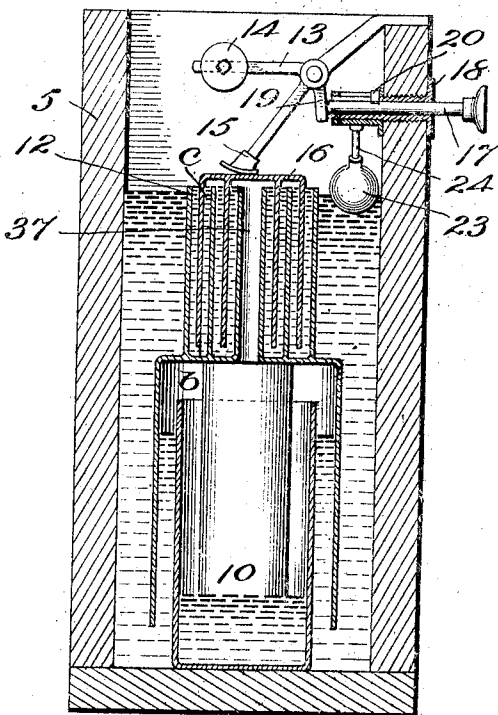
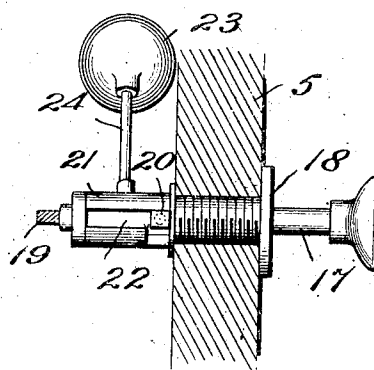


Fig. 5.



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UNITED STATES PATENT OFFICE

JOHN J. GLEESON, OF NEW YORK, N. Y.

FLUSHING APPARATUS.

1,084,267.

Specification of Letters Patent.

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Application filed August 27, 1912. Serial No. 717,397.

To all whom it may concern:

Be it known that I, JOHN J. GLEESON, a citizen of the United States, residing at New York city, New York, have invented certain new and useful Improvements in Flushing Apparatus, of which the following is a specification.

The general object of the invention is to accelerate the discharging of what are known as low down flush tanks. And to this end the invention consists in providing for draining the tank, a siphon whose legs are of different cross sectional areas.

Other objects will appear and be better understood from that embodiment of my invention of which the following is a specification, reference being had to the accompanying drawings forming part hereof, in which:—

Figure 1 is a perspective of a closet equipped with my improved device. Fig. 2 is a vertical longitudinal section showing the device arranged for use in a tank. Fig. 3 is a plan of Fig. 2. Fig. 4 is a section taken at right angles to Fig. 2. Fig. 5 is a detail showing the position of the lock for the operating rod when the tank is full.

Referring to Fig. 1, 5 and 6 indicate respectively, a low down tank and a closet bowl which are connected by the usual angular-shaped flush pipe 7, the upright side of which forms a contracted continuation of one leg 8 of a siphon *a* which is located within the tank 5 and whose other leg 9 is of greater volume than the enlarged portion of the leg 8. The action of the siphon *a* is controlled by a siphon *b*, one of whose legs 10 communicates with and is of greater volume than the leg 9 and whose other leg 11 is of greater volume than the leg 10 and is in direct communication with the tank 5. The action of the siphon *b* is controlled by an air cushion in an air chamber in the crown of the said siphon, and the air cushion is confined by a water seal *c* contained in a series of concentric communicating chambers 12, the outermost of which communicates with the atmosphere and the innermost of which communicates with the air chamber in the crown of the siphon *b* through a tubular extension 37 of said chamber. The air cushion is controlled by a bell crank lever 13, one arm of which is provided with an adjustable weight 14 which serves to depress a shoe 15 on the other arm of the lever into contact with the bell 16

which forms the upper base for the air cushion and the side of the passages between the upper ends of the intermediate and central chambers 12. The action of the bell crank lever in one direction, is controlled by a push rod 17 mounted in a bearing 18 in the front side of the tank 5 and arranged so as to be convenient for pushing, on the part of the operator, whenever desired, the inner end of this rod contacting with an arm 19 on the bell crank lever 13.

The push rod 17 is controlled by a lock which is operated by the rise and fall of the water column in the tank 5. This lock includes a pin or stud 20 and a rotatable sleeve 21 mounted on the bearing 18 and provided with a bayonet slot 22. The turning of the sleeve is effected by a float 23 connected to the sleeve by an arm 24 and the parts are arranged so that when a predetermined amount of liquid is entered in the tank, the long side of the bayonet slot will be in alinement with the stud 20 so as to provide a passage for the stud when the rod is pushed inwardly. But when less than the aforesaid predetermined amount of water is in the tank 5, the float which follows the surface of the water, is at a different angle to the vertical than when the long side of the slot is in alinement with the stud 20 with the result that the sleeve 21 is turned so as to admit of the short side of the slot 22 receiving the stud 20 when the push rod is restored to its normal position under the action of the bell crank 13.

The supply pipe 25 is directed upwardly for any required distance through the bottom of the tank and communication between the said supply pipe and the inlet pipe 26 which extends downwardly into the tank and is connected to the supply pipe by a valve coupling 27, is controlled by the inlet or float controlled valve 28. The float 29 for the valve 28 is connected to the said valve by a rod 30 and is contained in a receptacle 31 arranged for a limited amount of bodily movement in a hanger 32 connected to the tank by brackets 33—35. The passage through the receptacle 31 is controlled by a float check valve 34 arranged in a cage 35 depending from the bottom of the receptacle and operating in a valve seat in the bottom of the receptacle. The supply for the water seal *c* is conducted by a pipe 36 extending from the valve 28 through the inlet pipe 26 and upwardly through the central tube 37

and into the central chamber, as shown in Fig. 2.

When bringing the device into use with the parts arranged as shown in Figs. 2 and 4, the push rod 17 is forced inwardly so as to rock the bell crank 13 upwardly. The compressed air in the siphon *b* and central tube 37 now effects the lifting of the bell 16 with the parts connected thereto, and this upward movement on the part of the bell increases the volume of the air chamber and effects a reduction of air pressure therein. Upon obtaining this reduction of pressure in the air chamber, the liquid rises through the leg 11 under the pressure of the column in the tank 5, and passes into the leg 10. This marks the beginning of the siphonic actions in the siphons *a* and *b*, which action results in the flushing of the bowl. Now the action of the liquid in passing through the crown of the siphon *b* creates a partial vacuum in the tube 37, with the result that the bell 16 returns to its normal position and the chamber's 12 discharge into the tube 37. The siphonic action continues until the level of the column in the tank is below the edges of the legs 9 and 11. Owing to the difference in volume in the several legs it will be manifest that the supply to the leg of less volume will be at a greater rate than the discharging of that leg with the result that the maximum rate of discharge through the legs of lesser volume, and especially through the contracted portion of the leg 8, will be obtained as long as the siphonic action continues. When the liquid column in the tank 5 is below the inlet end of the leg 11 of the siphon *b*, the siphonic action will have discontinued. Now with the inlet valve 28 open the water rising above the lower ends of the legs 10 and 11 will confine the air in the siphon *b* and effect the compression of such air as the said column rises to its normal height. Thus when the water rises above the lower edges of the legs 9 and 10 as previously stated, and to its normal level as shown in Fig. 1, a new air cushion will be provided in the crown of the siphon *b* and tube 37. When the water column in the tank 5 sinks below the lower end of the receptacle 31 the check valve 34 will open the passage for the water to pass from the receptacle 31 into the tank 5. During the filling of the tank and when the water rises into contact with the valve 34, such valve will float and seal the passage in the lower end of the receptacle. During this action on the part of the water and prior to its rising to normal level, the float 29 will be arranged wholly within the receptacle, as shown by full lines in Fig. 2, and thus maintain the valve 28 in the open position. But when the water column approaches its normal height, the receptacle 31 which is now immersed in the fluid and buoyed into contact with the in-

turned upper edge 38 of the hanger 32, will descend under the weight of the water flowing thereinto and during such descent there will be a relative movement upward on the part of the float, brought about by the entrance of the water into the said receptacle so that a quick closing action on the part of the valve 38 will be obtained and the usual hissing noise prevented. While the water is rising in the tank 5 the supply of water to the seal *c* will also be had through the pipe 36 and as this supply through the pipe 36 overflows the central chamber, the water will pass into the leg 10 of the siphon *b* and operate to dislodge a sufficient quantity of water from the leg 9 into the leg 8 and into the goose-neck of the bowl so as to renew the water seal in the said goose-neck after the flushing of the bowl.

What is claimed as new is:

1. In a flushing apparatus, the combination with a tank; of a push rod arranged in one wall of the tank, a lock for the push rod including a pin, a rotatable sleeve having a bayonet slot for receiving the pin, and a float for turning the sleeve.

2. In flushing apparatus for closets, a tank, a series of siphons therein, one of the siphons normally opening to the tank, the other siphon normally opening to the flushing connection of the tank, an air chamber in the return bend of the first siphon, concentric water sealing compartments, a tube extending through one of the compartments and opening at one end into the air chamber, a bell having walls movable in the compartments and having a crown overlying the other end of the tube, and a normally operative movable shoe engaging against the bell to hold the same at one limit of its movement and operable when released from the bell to permit the latter to expand under the action of the air in the air chamber and thereby reduce the pressure in the air chamber and render the siphons operative for the discharge of the tank water to the flushing connection.

3. In flushing apparatus for closets, a tank, a series of siphons therein, one of the siphons normally opening to the tank, the other siphon normally opening to the flushing connection of the tank, an air chamber in the return bend of the first siphon, concentric water sealing compartments, a tube extending through one of the compartments and opening at one end into the air chamber, a bell having walls movable in the compartments and having a crown overlying the other end of the tube, and a normally operative movable shoe engaging against the bell to hold the same at one limit of its movement and operable when released from the bell to permit the latter to expand under the action of the air in the air chamber and thereby reduce the pressure in the air chamber and

render the siphons operative for the discharge of the tank water to the flushing connection and operable also on the return of the bell to its normal position to reestablish normal pressure in the air chamber to render both siphons inoperative to a discharge of the water to said flushing connection.

4. In flushing apparatus for closets, a tank, a series of siphons therein, one of the siphons normally opening to the tank, the other siphon normally opening to the flushing connection of the tank, an air chamber in the return bend of the first siphon, concentric water sealing compartments, a tube extending through one of the compartments and opening at one end into the air chamber, a bell having walls movable in the compartments and having a crown overlying the other end of the tube, a normally operative movable shoe engaging against the bell to hold the same at one limit of its movement and operable when released from the bell to permit the latter to expand under the action of the air in the air chamber and thereby reduce the pressure in the air chamber and render the siphons operative for the discharge of the tank water to the flushing connection, controlling means for the shoe, and

means for rendering the controlling means inoperative until the tank water reaches its normal level.

5. In flushing apparatus, a series of connected siphons, an air chamber in the crown of one siphon operating to maintain a water sealed condition of the other siphon, a water sealing chamber closing the air chamber to the atmosphere and operable on the reduction of the air pressure to render both siphons operative under the pressure of tank water and including, a bell, movable means engaging the bell to render the same immovable, means for manually actuating said movable means to free the same from the bell, and locking means operable on the rise and fall of the tank water to render the actuating means respectively operative and inoperative.

In testimony whereof I, JOHN J. GLEESON, have signed my name to this specification in the presence of two subscribing witnesses, this 16th day of August 1912.

JOHN J. GLEESON.

Witnesses:

JOS. G. ABRAMSON,
GEO. A. BYRNE.