

No. 748,401.

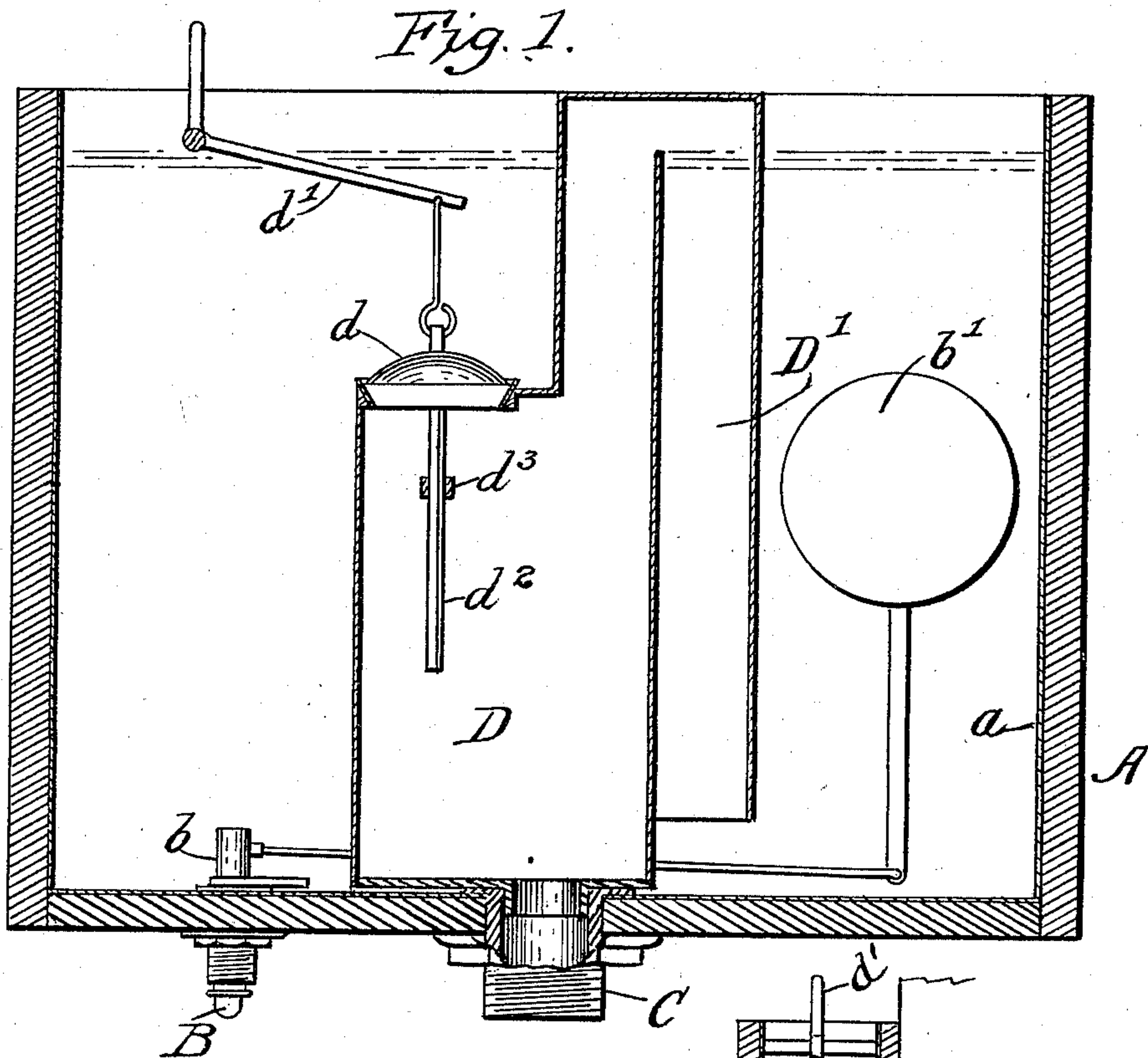
PATENTED DEC. 29, 1903.

A. M. MORRISON.

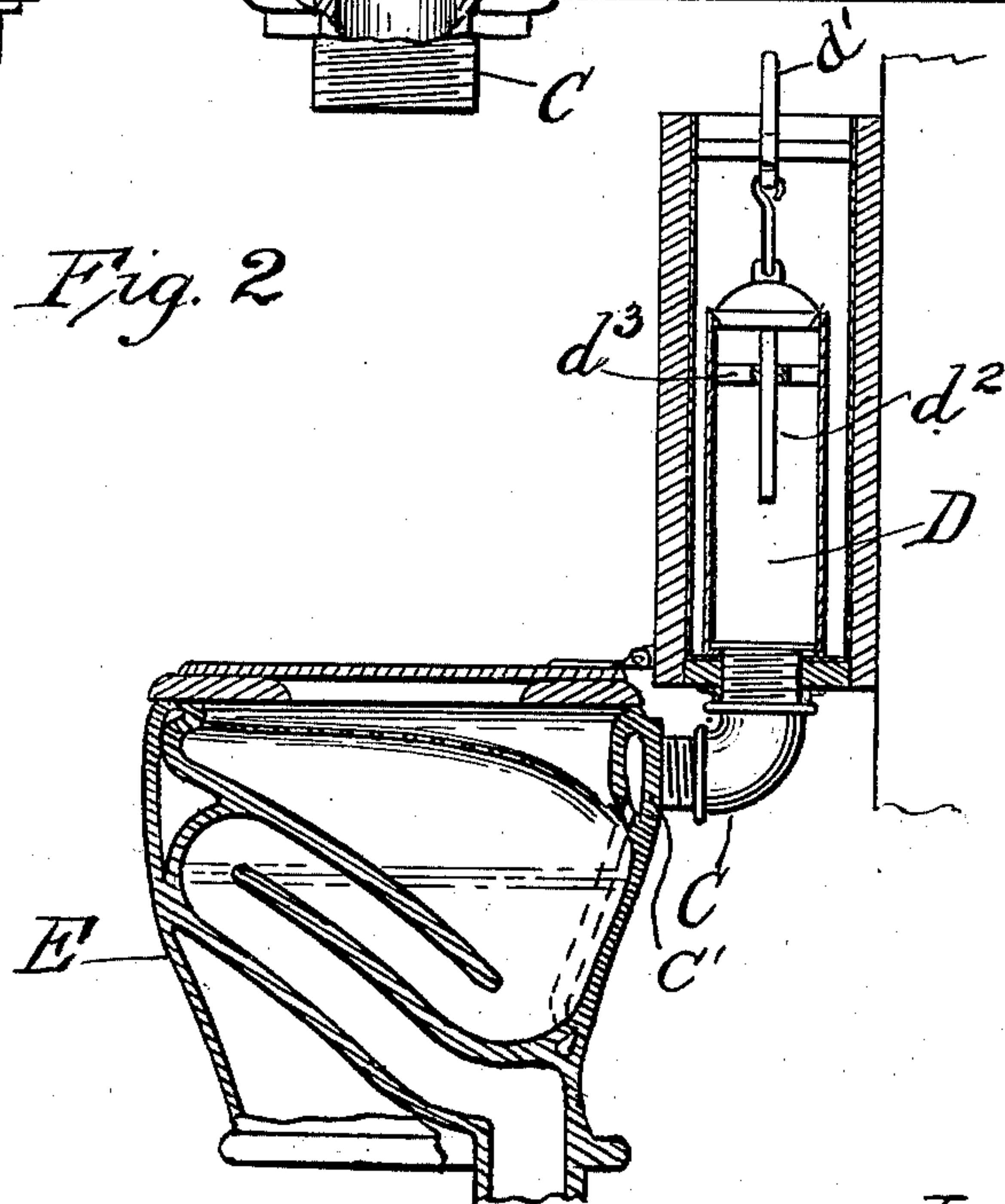
SIPHON RESERVOIR FOR TOILET CLOSETS OR THE LIKE.

APPLICATION FILED JAN. 26, 1903

NO MODEL.



*Fig. 2*



Witnesses  
J. W. Angell  
A. B. Hills

Inventor  
Andrew M. Morrison.  
by Atty Charles Hills



# UNITED STATES PATENT OFFICE.

ANDREW M. MORRISON, OF DUBUQUE, IOWA.

## SIPHON-RESERVOIR FOR TOILET-CLOSETS OR THE LIKE.

SPECIFICATION forming part of Letters Patent No. 748,401, dated December 29, 1903.

Application filed January 26, 1903. Serial No. 140,681. (No model.)

*To all whom it may concern:*

Be it known that I, ANDREW M. MORRISON, a citizen of the United States, and a resident of the city of Dubuque, county of Dubuque, and State of Iowa, have invented certain new and useful Improvements in Siphon-Reservoirs for Toilet-Closets or the Like; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of the specification.

This invention relates to improvements in siphon-reservoirs for toilet-closets and the like, and is shown more particularly in relation with closets in which the reservoir is located but slightly above the level of the seal of the closet, though obviously the device may be used with the reservoir elevated or low down, as preferred.

Heretofore with closets of the low-down variety it has been difficult in many instances to provide for the afterfill of the closets, or, in other words, to provide a sufficient force for the flow of water to perform the office of thoroughly cleansing the closet, and also to provide means for furnishing an afterfill of water for the closet to provide the water seal therefor.

It is also an object of the invention to provide a construction which shall be so nearly noiseless as possible and so simply constructed as to be sure and positive in operation and not likely to get out of order when in use.

The invention consists in the matters hereinafter described, and more fully pointed out and defined in the appended claims.

In the drawings, Figure 1 is a longitudinal section of a reservoir embodying my invention, showing the top or cover thereof omitted. Fig. 2 is a transverse section of the reservoir and closet, showing the same with a closet in a familiar form, the reservoir also having the cover omitted.

As shown in said drawings, A indicates a tank having bottom, end, and side walls in the usual manner and lined with metal, as is usual, said metal lining being indicated by *a*. Opening into the bottom of the reservoir is the water-supply pipe B, which is provided within the reservoir with a float-valve *b* of any desired form, actuated by the float *b'* in the usual manner and acting to regulate the

admission of water into the reservoir from the water system. Opening through the bottom of the reservoir is the threaded pipe C, adapted to be connected with the closet inlet C' and which, as shown, is located centrally in the bottom of the reservoir.

Within the reservoir is provided a siphon, the longer leg D of which incloses the opening into the pipe C much smaller than the siphon-leg, and the siphon is soldered, brazed, or otherwise secured to the metal lining of the floor or the bottom of the tank. Said longer leg of the siphon is of much greater size than the shorter leg to near the top of the same, at which point a weighted valve-closure is seated to close a complementary aperture at the top of said enlargement in said siphon-leg. At the top of said valve-closure means are provided for actuating the same, comprising, as shown, a bell-crank lever *d'*, engaged by means of a link to the top of said valve-closure *d*, and is provided on the outer side of the reservoir with a pull of any desired kind adapted to permit said valve-closure to be operated. To insure the accurate register of said valve when released, a downwardly-extending stem *d<sup>2</sup>* is provided centrally thereon and extends through a suitable guide *d<sup>3</sup>*, thereby directing the closure into its seat. The shorter leg *d'* of the siphon extends to near the bottom of the reservoir, as shown in Fig. 1, and is shown of approximately the same size as the upper portion of the longer leg. The closet or stool E may obviously be of any desired type.

The operation is as follows: The reservoir constructed as described is connected with a source of water-supply, and the short leg of the siphon as well as the reservoir are filled to approximately the point indicated in the dotted lines in Fig. 1. A pull on the bell-crank *d'* now acts to lift the weighted valve-closure *d*, permitting water to flow into the enlarged part of the longer leg, thereby starting the flow of water through the siphon into the closet, which continues after the weighted valve-closure is released, and it falls again into its seat, tightly closing the long siphon leg. The water is now rapidly siphoned out of the reservoir, the enlarged portion of the leg D gradually filling as the air is carried out with the flowing water passing through the discharge-pipe C, which is much smaller in



diameter than either the siphon-legs in the reservoir or in the bowl.

Owing to the difference in size between the outlet from the reservoir and the bowl-siphon, the bowl flushes several times during the discharge. When the water reaches the lower or open end of the short leg D', air is admitted into the siphon and the siphon broken, and the water contained in said short leg falls back into the tank A and, together with the inflowing water, again closes the leg D' and prevents air from entering therein. This permits the water contained in the enlargement of the long leg to flow in an interrupted stream out into the closet, the inflowing air through the outlet-orifice retarding the same sufficiently to prevent the bowl-siphon acting. The enlargement of said longer leg affords a secondary reservoir containing a considerable amount of water, which is released and flows into the closet, affording the desired seal and sanitary protection.

Obviously the siphon may be constructed of any desired material and the valves and cocks may be of any desired types. The filling operation is the reverse of the discharging—that is to say, when the reservoir has become emptied, or so nearly so as to permit the float-valve to open, the water from the system flows into said reservoir, gradually filling the same and the short leg of the siphon, displacing the air therefrom until the raising of the float serves to close said valve. It is obvious, owing to the construction described, that closets so constructed can make but little noise in flushing and will not be likely to get out of order readily. It is also obvious that the valve *d* may be located at any desired point in the long leg and may be of any preferred construction and many details of construction may be varied without departing from the principles of this invention.

I claim as my invention—

1. A flushing-reservoir comprising a water-tight receptacle, a water-service pipe connected therein, automatically-operating means for regulating admission of water therefrom into said reservoir, a siphon in said reservoir the longer leg of which incloses an aperture much smaller than the siphon-leg and opening to the part to be flushed, an enlarged chamber near the lower end of said longer leg and a valve acting to admit water into said chamber in the longer leg of said siphon and adapted to be opened externally of the reservoir and to close automatically.

2. A flushing-reservoir comprising a receptacle having a discharge-orifice therein, a siphon, the longer leg of which opens into and is of greater diameter than said discharge-orifice, an enlarged chamber therein a valve adapted to admit water from said reservoir into said enlarged chamber and means acting automatically to regulate the flow of water into said reservoir.

3. A flushing-reservoir for the purpose specified comprising a tank, a centrally down-

wardly opening discharge-orifice therein, a siphon in said reservoir of larger cross-section than said orifice, the longer leg thereof opening into said discharge-orifice, an enlarged chamber in the lower end of said longer leg, the shorter leg extending to near the bottom of the tank, self-closing means for admitting the water into the longer leg to fill the enlarged chamber and to start the flow through the siphon whereby the water flows steadily through said siphon into the closet until the siphon is broken after which the water in the enlarged chamber of the longer leg flows to afford a water seal for the flushed device.

4. A flushing-reservoir for sanitary fixtures comprising in combination an automatically-filling tank, a siphon therein opening through the longer leg into the discharge-orifice, an enlarged chamber in the lower end of said leg above the discharge-orifice and of much greater cross-sectional area than the same and adapted to cause an intermittent flow therethrough after the breaking of the siphon, a self-closing valve in the longer leg actuating means therefor external to the tank whereby opening of the valve serves to start the flow through the siphon, the chamber acting to provide an afterflow when the action of the siphon ceases.

5. A siphon-reservoir for the purpose specified comprising the reservoir having a discharge-orifice opening into the fixture to be flushed, a siphon therein, a chamber in the longer leg of said siphon of much greater cross-sectional area than said orifice and above and opening into the same adapted when the action of the siphon is broken to permit the contents thereof to flow in an interrupted stream and furnish an afterfill, a self-closing valve opening into said chamber and acting to start the flow.

6. In a flushing-reservoir the combination with a tank having an automatically-operated inlet-valve therein, a discharge-pipe, a siphon having an enlarged chamber in the longer leg thereof situated directly above and communicating with said discharge-pipe and a valve adapted to admit water into the chamber and start the flow of water through the siphon.

7. In a flushing-reservoir the combination with a tank having an inlet-valve and a discharge-orifice, of a siphon therein, means adapted to cause an afterfill for the fixtures to be flushed comprising an enlarged chamber forming the lower end of the longer leg of the siphon and adapted to cause the water to flow through the discharge-orifice in an interrupted stream after the flow of the siphon is broken.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

ANDREW M. MORRISON.

Witnesses:

C. E. MULLIN,  
C. J. YOUNG.