F. W. POPP.

CLOSET CISTERN.

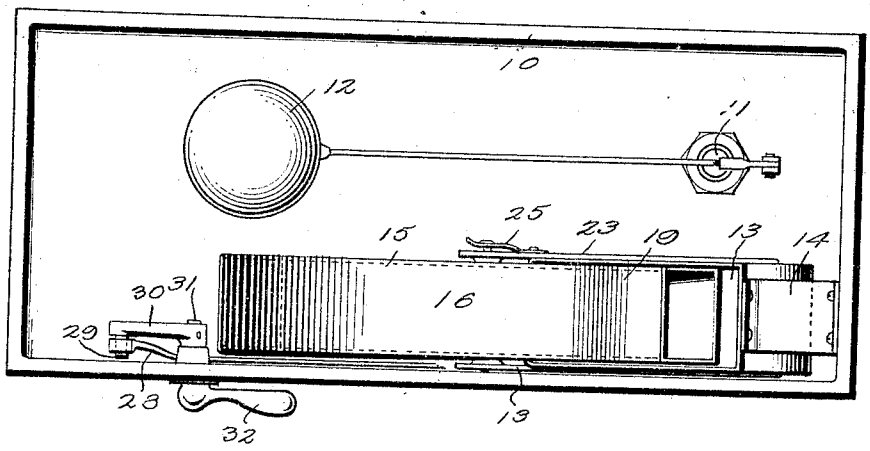
APPLICATION FILED NOV. 7, 1919.

1,364,309.

Patented Jan. 4, 1921.

2 SHEETS—SHEET 1.

Fig. 1.



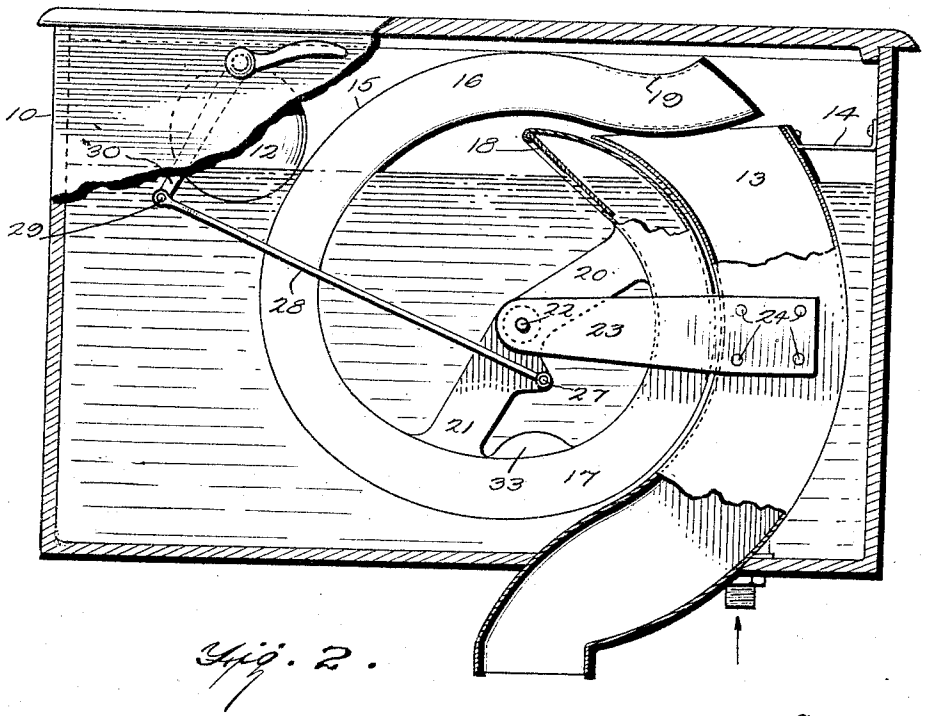


Fig. 2.

Inventor

FRED W. POPP,

By Chas. Parker

Attorney

MORRIS PETERS INC., LITHO., WASHINGTON, D. C.

F. W. POPP.

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2 SHEETS—SHEET 2.

Fig. 3.

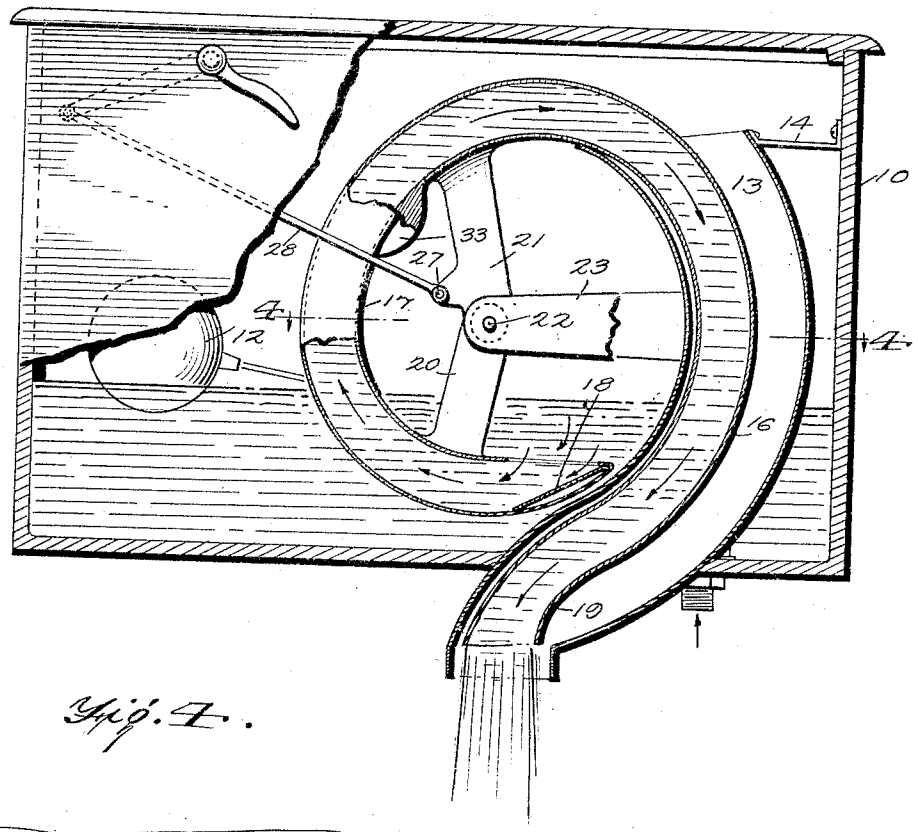
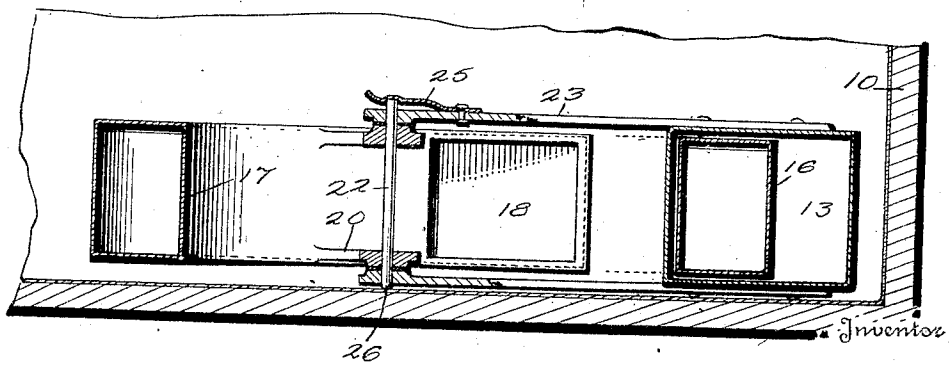


Fig. 4.



Inventor

FRED W. POPP,

By Chas. Parker

Attorney

THOMAS PETERS, INC. LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FRED W. POPP, OF VALLEJO, CALIFORNIA.

CLOSET-CISTERN.

1,364,309. Specification of Letters Patent. Patented Jan. 4, 1921.

Application filed November 7, 1919. Serial No. 336,339.

To all whom it may concern:

Be it known that I, FRED W. POPP, a citizen of the United States, residing at Vallejo, in the county of Solano and State of California, have invented certain new and useful Improvements in Closet-Cisterns, of which the following is a specification.

This invention relates to improvements in closet cisterns.

An important object of the invention is to provide a cistern having as few moving parts as possible and wherein the use of valves is reduced to a minimum.

A further object is to provide a cistern having a shiftable siphon the discharge leg of the siphon being normally held in an elevated position and being returned to such elevated position when the contents of the siphons have been discharged.

A still further object is to provide a cistern having a shiftable siphon for removing its contents. the siphon being so mounted as to be readily removable for inspection or repair.

Other objects and advantages will be apparent throughout the course of the following description.

In the accompanying drawings wherein for the purpose of illustration is shown a preferred embodiment of my invention and wherein like numerals designate like parts throughout.

Figure 1 is a plan view of a cistern embodying my invention, the cover being removed.

Fig. 2 is a side elevation partially in section of a cistern embodying my invention.

Fig. 3 is a similar view, the siphon being shifted to the discharged position, and

Fig. 4 is an enlarged section taken on the line 4—4 of Fig. 3 and looking in the direction of the arrow.

Referring now more particularly to the drawings the numeral 10 indicates the usual cistern tank having therein an inlet valve 11 operated in the usual manner by a float ball 12.

The cistern is provided with an outlet 13, the upper ends of which extends above the level maintained by the float 12 and is open and the lower end of which is adapted for attachment to the discharge pipe to the bowl (not shown). The outlet 13 may be secured in position by any suitable means, such as brackets 14.

A siphon 15 is provided having a portion 16 which represents approximately the point farthest removed from the pivot 22 of the siphon, presently to be described. From the portion 16 which is taken on a radius from the pivot 22, the siphon spirals as at 17 to the intake end thereof which is provided with an opening, closed by a gravity and flow operated valve 18 as will be presently described. The discharge end of the siphon has a slight curve outwardly from the curve of the portion 16 as at 19. Radial arms 20 and 21 are provided connecting the siphon with a suitable pivot 22 mounted in brackets 23 secured as at 24 to the outlet 13. This pin extends through the arms 20 and 21 and brackets 23 and engages against one side of the casing 10 as clearly illustrated in Fig. 4. The pivot 22 is held in this position by a shiftable spring clip 25. It will be seen that if for any purpose it is desired to remove the siphon the spring clip 25 may be shifted and the pin 22 removed. Pivotally connected to the siphon or to one of the arms thereof as at 27 is a link 28, the opposite end of which is pivotally connected as at 29 to the lever 30. The lever 30 is secured to a rock shaft 31 pivoted in the casing and provided upon its outer end with the handle 32. By examining Figs. 2 and 3, it will be seen that shifting of the handle causes the siphon to shift to the discharged position. The use of the handle is not necessary to return the siphon to its inoperative position as the siphon is provided with a counterweight 33 for this purpose.

The operation of my device is as follows:

When the siphon is in the position shown in Fig. 2 the water maintains the level within the siphon equal to its own level as is well known. If the handle is shifted the rush of the water within the siphon closes the valve 18 and the water is carried with the siphon, a too early release thereof being prevented by the outcurved discharge end 19 of the siphon. As soon as the water is carried to a point at which it is centered there is a balance overthrow which causes the siphon to assume the position shown in Fig. 3 and the discharge commences. The rush of the water is now against the opposite side of the valve 18 and the valve consequently opens allowing the water to pass through the siphon and downwardly and out at the discharge end, the discharge end

being below the intake end at this junction. As soon as air enters the siphon and the discharge is broken the arm 16 and discharge end 19, now lacking the overbalancing effect of the added weight of the water and the rush of the water through the tube, is returned to normal position by the counterweight 33.

It will be obvious that the principle herein involved may be applied in various manners not herein shown or described and I accordingly do not limit myself to the specific construction herein shown but may make any changes of this character without departing from the spirit of the invention, or the scope of the subjoined claims.

What I claim is:

1. In a closet cistern, means for normally maintaining a water level therein, a discharge outlet for said cistern extending above the level of the water therein and having an open mouth, a siphon normally having its discharge end above the level of its intake end and above the open mouth of said outlet, means for shifting said siphon to place the discharge end thereof below said intake end and within said outlet, a valve arranged within said siphon adjacent the intake end thereof and adapted to be closed by the weight of the water within said siphon during the shifting of said siphon to prevent the loss of water from the intake end thereof.

2. In a closet cistern, a casing, means for normally maintaining a water level in said casing, a discharge outlet for said casing extending above the water level therein and having an open mouth, said discharge outlet being arranged within said casing, brackets secured to said discharge outlet, a siphon normally having its discharge end above the level of the intake end thereof and above the open mouth of said outlet, arms secured to said siphon and meeting centrally thereof and provided at their junction with an opening a shaft mounted in said brackets and extending through the opening in said arms, one of said shaft engaging the wall of said casing, a spring clip secured to one of said brackets and engaging the opposite end of said shaft to prevent longitudinal displacement thereof, and means for shifting said siphon to place the discharge end thereof below said intake in and within said outlet.

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

FRED W. POPP.

Witnesses:
JNO. A. BROWNE,
J. D. WEBSTER.