

FORM 2
THE PATENT ACT 1970
(39 OF 1970)
AND
The patent rules, 2003
COMPLETE SPECIFICATION
(See section 10: rule 13)

1. **TITLE OF INVENTION**

Siphon Cistern Toilet Flushing Apparatus

2 **APPLICANTS**

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3. **PREAMBLE TO THE DESCRIPTION**

COMPLETE

Following specification particularly describes the invention and the manner in which it is to be performed.

4. DESCRIPTION.

Technical field of invention:

Present invention in general relates to toilet, urinal flushing apparatus means cistern and particularly to western, Indian and similar commodes means toilet bowls.

Prior art:

The term cistern means an apparatus used to clean defecate/urine having means of flushing.

Existing toilet cistern comprises a float valve which controls the flow to maintain a desired level of water in the cistern which is located above the toilet bowl at a height of meter or less so that when water is flushed by means of activating flush valve, the water cleans the toilet bowl under action of gravity. In the conventional cistern plenty of water to the tune of 10 to 15 litres is required for each toilet flushing.

A conventional cistern is either connected to public water source or overhead water tank located at certain height and water is stored and controlled up to certain level by a float valve in cistern container. In cistern apparatus the volume of the flushing water adjusted by float valve. The cistern valves are prone to scale formation, aging, misalignment when used in water and particularly in hard water and subsequent leakages are very common requiring periodical replacements/maintenance.

In many installations a direct water supply is used for flushing toilet using an inlet cock. Normally for minimizing water head loss a larger

diameter supply pipe is used, requiring higher installation cost. Further where the water supply line is long it may not work that effectively due to water column inertia and water hammering.

US 8,387,173 B2 disclosed a cistern assembly for a flush toilet includes means a water bowl pivoted to the cistern housing wherein the flushing water with requisite quantity discharges in the toilet or urinal by siphon action by tilting the said water bowl clockwise or counter clockwise however, suffers from various complex mechanisms, pivot etc.

Hence there was a long felt need in the art to have simple apparatus means device, when installed would replace conventional cistern having flush valve means discharge valves and minimize maintenance etc.

Object:

1. The object of the present invention is to dispense with flush means discharge valve used in conventional cistern.
2. Another object of the present invention is to dispense with complex mechanism associated with flush means discharge valve activation used in conventional cistern.
3. Another objective of the present invention is to make suitable for hard water and dispense with associated salt scale.
4. Another object of the present invention is to minimize water wastage and associated replacement of flush valve means maintenance.
5. Still another object of the present invention is to provide simple embodiment for discharge volume adjustment to save water.

6. Yet another object of the present invention is to make it cost effective, safe to make use of and easy to install.

Other objects, features and advantages will become apparent from detail description and appended claims to those skilled in art.

STATEMENT:

Accordingly following invention provides a novel cistern as compared to various toilet flushing means cleaning apparatuses to dispense with discharge flush valve, associated maintenance, manufacturing cost by a novel embodiment comprising a siphon pipe, conventional float valve for maintaining water level (not being part of the invention) such that one end of the novel siphon pipe is attached to the outlet of the cistern container and remaining end of the said siphon pipe placed inside the cistern container at certain level wherein the position of the said siphon determines the quantity of discharging flush water through the outlet and the level of the water in the container is so adjusted by means of the said float valve to remain always below the top of the said siphon so that it does not become active in normal course and a control float manually operated by means when pushed once in the container it displaces the water thereby increasing the level so that the water reaches above the siphon top end to make it active and by such condition the water in the container discharges through the discharge pipe in to the connected toilet or urinal bowl till the water level in the cistern container reaches to the lower end of said siphon pipe inside the said container thereby dispensing with discharge valve and its associated leakage, complex mechanism and maintenance and further by other embodiment attached

to the flush container at a suitable height to reduce the size of the actuating flush float mechanism.

BRIEF DESCRIPTION OF DRAWING:

This invention is described by way of example with reference to the following drawing where,

Figure 1 and Figure 2 of sheet 1/1 show the front elevation and top view of container of the said cistern in normal condition before operation with top lid, siphon pipe, float valve and actuating float mechanism. Where, 100 denotes the cistern embodiment.

101 denotes cistern container wall, 102 denotes top lid, 103 denotes outer pipe of siphon with closed top end 103A whereas its lower end opening 103B exposed to the cistern container water, 104 denotes inner pipe of the siphon assembly placed inside and having its top end 104A extended and anchored to the closed top end 104A the outer siphon pipe 103 and further the said pipe 104 having opening 105 at its top end for the passage of water and its remaining end 104B brought out of the lower side of container 101 and connected through suitable fixture to the flush toilet. 111 denotes a standard float valve assembly (not part of the present invention), connected to the service water supply outlet and adjusted so as to maintain container 101 normal water level 109A being always below the opening 105 of the inner pipe 104. 106A denotes a float actuating mechanism embodiment floating on container water level 109A and attached to an actuating pin 107A such that when the said pin

107A is pressed means actuated such that it presses the float 106A accordingly inside the container water to attain another position 106B and when left unattended restores its original position 106A by its buoyancy. 112 denotes another embodiment of the said invention in the form of hollow chambers attached to cistern container 101 and occupying top air packet of the cistern container 101 above top water level 109B for reducing the size means dimensions of the float 106A.

Figure 4 of sheet 1/1 shows the variation in said embodiment 103 where the lower end of outer pipe 103B divided in 115 and 116 segments to enable the initial setting of the quantity means volume of water to be discharge in the attached toilet. The section 116 fits easily and snugly in section 115 of the outer pipe 103. When the segment 116 removed the quantity of discharge water decreases as per the dimension of segment 115.

Figure 5 of sheet 1/1 shows the variation in said embodiment 103 where outer pipe 103 and inner pipe 104 replaced by a 'U' shaped pipe 118 with similar dimensions.

Figure 6 of sheet 1/1 shows the variation in said embodiment 118 where the lower end 118B of the said 'U' pipe 118 divided in 119 and 120 segments to enable the initial setting of quantity means volume of water to be discharge in the attached toilet. The section 120 fits easily and snugly in section 119 of the 'U' pipe 118. When the segment 119 removed the quantity of discharge water decreases as per the dimension means length of segment 118.

In order that the manner in which the above-cited and other advantages and objects of the invention are obtained, a more particular description

of the invention briefly described above will be referred, which are illustrated in the appended drawing. Understanding that these drawing depict only typical embodiment of the invention and therefore not to be considered limiting on its scope, the invention will be described with additional specificity and details through the use of the accompanying drawing.

Detailed description:

The present invention provides a novel cistern means an apparatus for flushing means cleaning toilet bowl and sewer line effectively and efficiently dispensing with the flush valve and associated complex mechanism being normally failure prone and more seriously with hard service water.

The present toilet flushing apparatus invention comprises a cistern container (101) having unrestricted connection to a source of service water through float valve assembly (111) (not being part of the present invention) so as to maintain water level in the said cistern container (101) to specific level (109A) and further fitted with a siphon pipe assembly comprising outer pipe (103) and inner pipe (104) or a “U” shaped pipe (118) with identical upper end (119) and lower end (120) as that of the said siphon assembly ends (113) and (114) respectively and further the top end of the inner pipe (104) provided with opening (105) for a free flow of water from outer pipe (103) to inner pipe (104) such that the water flows freely through bottom opening (103B) of inner pipe to the toilet (not shown) and the said water level (109A) always remains below the opening (105) of the inner pipe (104) and an actuating float (106A) attached to operating mechanism pin 107A such that when pin (107A) actuated assumes another position (107B) and likewise the

attached float moves from (106A) to (106B) position whilst the volume of said water displaced by the said float raises the level of the container from (109A) to (109B) and being sufficiently above the siphon end (113) the siphon action starts and empties the water of the aid container in the connected toilet (not shown) till the said water level lowers just below the lower end (114) of the said siphon the air enter the siphon thereafter the siphoning action stop and water level reaches to 109C, whereupon the float valve starts functioning and fills the said container to specific level (109A) and the float (106A) with actuator pin (107A) assumes the original position by buoyancy and gets ready for next cycle.

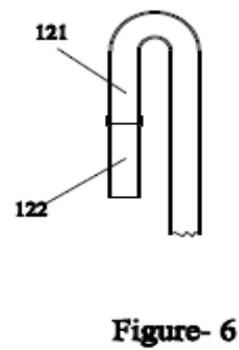
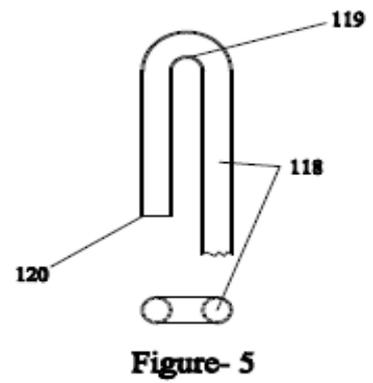
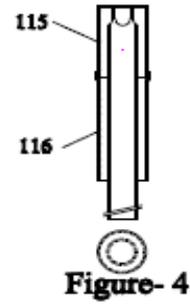
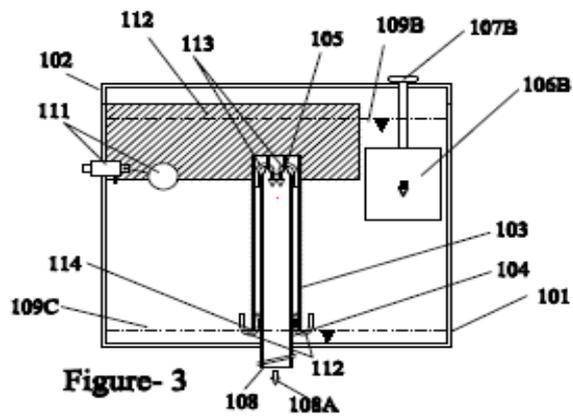
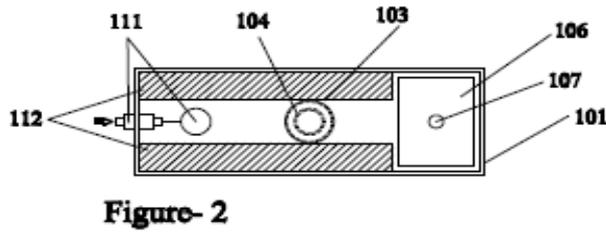
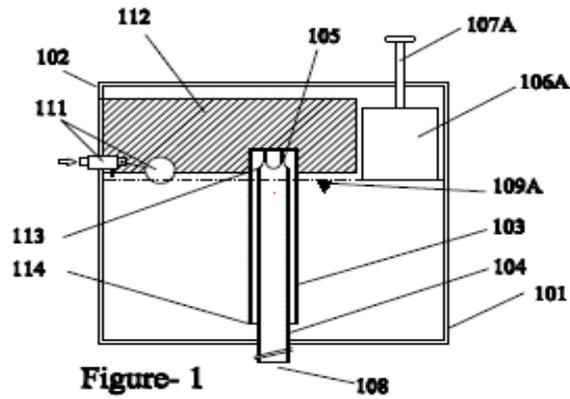
Additional advantages and modification will readily occur to those skilled in art. Therefore, the invention in its broader aspect is not limited to specific details and representative embodiments shown and described herein. Accordingly various modifications may be made without departing from the spirit or scope of the general invention concept as defined by the appended claims and their equivalents.

CLAIMS

We claim:-

1. A siphon apparatus comprising pipes having top end means upper level and lower end means lower level openings at its short leg and the long leg of the said siphon pipe connected to toilet, urinal or any desired utilities and further comprising another embodiment means a float with external pushing mechanism means actuator for pushing the float inside the cistern container to raise the water level above the said siphon embodiment of a conventional toilet cistern apparatus comprising a closed container and top lid for storing water for toilet flushing and a conventional inlet service water float valve and the container water level normally remaining below the said siphon embodiment.
2. The siphon as claimed in 1, comprises an inner pipe having a opening at its top end and lower end is meant for connection to the utilities and an outer pipe having larger diameter means cross section than the inner pipe and the closed top end attached to the top of said inner pipe and having an opening inside the said container at a length means height.
3. The siphon as claimed in 1,2 comprises a variation in the siphon embodiment where the said siphon in the form of a 'U' pipe and long end is meant for connection to the utilities and the short leg means end having an opening inside the said container at a length means height.
4. The float as claimed in 1 comprises a hollow body to float on the container water and having freedom of motion in up and down direction when actuated by external pushing means actuating embodiment.
5. The siphon as claimed in 1,2 comprises an outer pipe having two or plural attachable and detachable segments for varying the height of the outer pipe.
6. The siphon as claimed in 1,3 comprises a variation in the siphon embodiment where the said siphon in the form of a 'U' pipe and short end being inside the said container long having two or plural attachable and detachable segments for varying the height of the short end.
7. The siphon top end as claimed in 1,2,3,4 set above the normal water level in the container by the float valve.

8. The float as claimed 1, 3, 6 having a volume when dipped in water by actuated by actuating mechanism to raise the level of container water above the top end of the said siphon.



ABSTRACT

Present invention replaces conventional cistern by a novel cistern to dispense with discharge flush valve, associated complex actuating mechanism, associated leakage and maintenance of flush valve, to operate maintenance free in hard water, lower manufacturing cost being simple in construction, by a novel embodiment and further provided with in situ discharge water adjustment choice to save water. Following invention is described in detail with the help of Figure 1 and Figure 2 of sheet 1 showing the front elevation and top view of container of the said cistern in normal condition before operation with top lid, siphon pipe, float valve and actuating float mechanism.