A water closet tank extends vertically above the inlet to the bowl and has a vertically movable plug to control the discharge of water for flushing the bowl directly from the tank and the water supply to the tank, the plug being operated by a vertical pipe projecting upwardly from the top of the tank; a float valve at the top of the tank controls the entry of water into the tank.
1 WATER SAVING WATER CLOSET TANK

This invention is characterized by the fact of its having been created specifically to solve a water saving problem, inasmuch as it only needs 9 liters of water to operate perfectly, while conventional tanks use from 13 to 15 liters; besides, its vertical position over the W.C. affords saving of space, and its geometrical shape and weight permits it to be transported and stored in large quantities at a low price, and it can at the same time be manufactured in several metals, such as tin, aluminum, plastic and/or any other cheap material hardly susceptible to breakage or failures.

Its operation is practical and it is easily mounted or dismounted, regardless of the water supply piping being on the left or the right side, inasmuch as the device has equal faces, and only half a turn is sufficient.

It fills quickly since normally it can be adapted direct to the diameter of the conventional pipings used for distributing water in houses.

As water enters from underneath the device, when it functions it is completely silent. Noise is heard only during the 7 seconds for which draining may last.

Lastly, this tank can be installed both in bowls having holes separated 14 cm. and in those having 16 cm.

The advantage is evident if we take into consideration that at present merchants must have in stock tanks of both dimensions, namely, they must duplicate their stock and space.

In the drawings, FIG. 1 is a perspective view of a preferred form of water closet tank constructed in accordance with the present invention, and; FIG. 2 is a vertical cross-section of the same.

It deals with a device having two oval faces with 10 cm. separation between them, in its narrower part, and 12 cm. in the center, its total height being 48 cm.

The other two faces are entirely straight and are 10 cm. wide, with 17 cm. separation between them and a height of 48 cm. At the bottom, forming a 90° right angle in relation to said faces is at the center a drainage opening 1 connected to the bowl by means of a pipe 2, 3 cm. long and an outer diameter of approximately 63 mm. On the upper part, which also forms a 90° right angle in relation to the faces, there is at its center a circular opening 3, 10 cm. in diameter with a neck 2 cm. high with an outer thread for closing it with a cover 4 of like dimensions. At the center of said cover 4 there is an opening through which a pipe 6, 20 mm. in diameter, passes, which serves to collect water overflows and to operate the plug 5 at the bottom of the device. This pipe which protrudes when it contacts the bottom, in closed position 5 cm. over the cover 4, has its 4 upper cm. covered by a plug 7 of rubber or any other material in the shape of the head of a walking cane, there remaining underneath an opening on each side of the pipe 3 cm. high by 1 cm. wide through which air circulates and at the same time it serves to remove the possible overflow of water.

COUPLING

The device carries at the bottom two openings 8, 15 mm. in diameter, each being located 7 cm. equidistantly from the center; through them there pass two thumbscrews 9 that serve to fasten the device to the bowl or W.C.

At the bottom center of the device there is an opening to which a pipe 10, 3 cm. long by 63 cm. outer di-

2 CLOSING MECHANISM

The closing of the opening 1 at the bottom is achieved by means of a special plug 5, of rubber, of circular shape, with a 20 mm. opening in its center equal to the diameter of the pipe 6 which fastens it and operates it with a thread to prevent it from sliding. Said opening at the center of the plug 5 is to permit draining of the water that may overflow at the upper part through the opening at the air inlet 11.

PIPE OR HANDLE FOR OPERATING

The pipe or handle for operating 7 consists of a pipe 6, 20 mm. in diameter, that extends from its connection in the rubber plug aforementioned to the upper end which ends in the form of the handle of a walking cane. At the height of 10 cm. from the bottom there is a fork 13 that serves as a guide for making the plug fit in the draining opening 1 and closes it hermetically. Said fork 13 shall be held with the nut 14 that will hold the water inlet pipe 15 from outside.

SMALL SYRINGE

As already said, at the center of the upper part of the device there is a circular opening, 10 cm. in diameter, with an outer threaded neck 4-A.

Now, then, in this opening there is placed an inverted cover which fits exactly inside the above mentioned neck, its 12 cm. deep part being smooth, but on the upper part it has a small flange at right angle in relation to the depth of 2 mm. so as to fix the part to prevent it from falling inside the device.

This inner cover has at its center an opening through which the 20 cm. drain pipe passes, and another opening, 1 cm. in diameter, for inlet and outlet of air 11 whose center shall be 15 mm. distant from the edge of the cover.

The operation of the small syringe is like that of a small syringe itself, that is, that in addition to the 20 cm. pipe there will be another one whose inner diameter is equal to the outer diameter of the one sliding inwardly.

Consequently, to the aforementioned cover there must be added a pipe, 6 cm. long and inner diameter equal to the outer one for drainage.

There are several forms to connect it, whether the cover and the pipe be made of a single piece or soldered or by means of 2 nuts confining the edge of the pipe each one at each side of the inverted cover.

Nevertheless, since the fitting may not be perfect, where the pipe contacts said cover, it should have the shape of a crown or ring which has been split in half, namely, with the bulging part outwards.

Between this bulging part of the larger pipe 3 and the smaller one a crown or ring of massive rubber ring, 20 mm. in inner diameter and 30 mm. outer, shall be placed whereby water or air cannot filter by reason of the play that may exist between the pipes 17.

AIR INLET AND OUTLET OPENING

This small opening, 1 cm. in diameter 11 and through which eventually water may have drained, is controlled
by means of a ball of cork or any other floating element, of about 3 cm. diameter, in which there shall be connected or threaded a screw similar to those used to place locks in such a way that the part of the screw forming the circular ring does not drop through the hole and holds the ball, when the water fails to push the cork upward.

On the edge of said opening there is provided a washer of soft rubber, 2 cm. in outer diameter and 3 mm. thick, formed to fit the opening so that one portion is above the plate of the inverted cover and the other beneath, so that when water in the tank rises it exerts pressure on the cork and closes the opening hermetically.

In operation, when it is desired to flush the bowl the handle 7 is pulled upwardly to raise the plug 5 to uncover the opening 1 allowing water to flow directly from the tank and the supply pipe 15. When the handle is released the plug will close the opening and water admitted to the tank from supply pipe 15 will rise to the level of the float 16 carrying it upwardly until it seals the opening 11 and stops any further flow of water. In the meantime, after the plug 5 has closed the opening 1 the entrance of air below the plug is permitted because of the slotted openings at the upper end of pipe 6. In addition, as previously stated, if any water should leak past the float 16 it will flow into the discharge pipe through these slotted openings.

1. In a reservoir tank for water closets, the combination including a vertical closed tank having top and bottom walls, said bottom wall having a first discharge opening for connection with the inlet of a water closet bowl, attachment means to secure the tank to a bowl, plug means to close said first discharge opening, said plug means including a vertical pipe projecting upwardly through a second opening provided in said top wall, said tank also being provided with an inlet for connection with a water supply pipe and float valve means including a third opening in communication with the atmosphere at the top of the tank, said float valve means being mounted to close said third opening when the tank is full and to uncover said third opening when the water in the tank is below a predetermined level, said pipe being vertically slidable in sealing engagement with said opening to uncover said first discharge opening to permit water to enter a bowl directly from the tank and the water supply pipe, said vertical pipe being provided with an aperture to establish communication between the atmosphere and the interior of the vertical pipe, the lower end of the interior of the vertical pipe being in communication with said first discharge opening below said plug means, the top wall of said tank including an enclosed chamber having a pair of spaced walls, said vertical pipe extending through at least one of said spaced walls, said aperture in the vertical pipe being longitudinally slotted to establish communication between the interior of the enclosed chamber and the atmosphere, and said third opening being disposed in the other of said pair of spaced walls of said chamber.

2. The invention defined in claim 1, wherein said float valve means includes a buoyant element and said third opening is provided in the top wall of the tank, and means to suspend said buoyant element below said third opening for movement toward and away from said opening.

3. The invention defined in claim 1, wherein the other of said pair of spaced walls defining said chamber also comprises a portion of the top wall of the tank surrounding said vertical pipe, and said one of said pair of spaced walls comprises a removable outer cover surrounding said pipe.

4. The invention defined in claim 3, wherein said slotted aperture in the pipe extends upwardly from a location above said other of the pair of spaced walls.

5. The invention defined in claim 4, wherein connection for a water supply pipe also includes a fork for guiding the movement of the lower end of the vertical pipe.

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