Title: DISPENSING DEVICE FOR CLEANING AGENTS

Abstract: The present invention discloses a dispensing device adapted to dispense a predetermined amount of cleaning agent into a toilet tank. The dispensing device comprises a container, which is positioned externally of the toilet tank. The container is fluidically connected to an inner dosing mechanism that is governed by movements of a float that floats on the water in the toilet tank. The float moves between an upper most position in which the container is fluidically connected to a dozer, and a lower position in which the dozer is fluidically connected to the toilet tank. In the upper most position, a portion of the cleaning agent is received in the dozer, and in the lower position, the portion dispenses into the toilet tank so that when water enters the toilet tank, it mixes with cleaning agent, ready to be flushed into the toilet bowl. The container can be disposable.
DISPENSING DEVICE FOR CLEANING AGENTS

FIELD OF THE INVENTION

The present invention relates to cleaning and maintaining devices for bowls. More particularly, the present invention relates to dispensing device for dispensing detergents, disinfection materials and fragrance materials from the toilet tank into a toilet bowl.

BACKGROUND OF THE INVENTION

Toilet bowls need to be cleaned and maintaining on a daily basis or even more then once a day. Although this task is bothersome, people want toilet bowls and toilet rooms to be clean, odorous and spread fragrance at all times.

One of the simplest solutions that are available in order to maintain cleanliness and smelly toilet is to suspend soap in the toilet bowl. Every time the water is flushed, a portion of the soap is dissolve in the water that stays in the bowl. An example for a product that is adapted to maintain for a certain time the cleanliness and smell of the toilet bowl is sold by Sano Bruno's Enterprises, Ltd. and called Sano blue. An IL patent no. 122871 describes the article designed for mounting in the path of flushed water in a toilet. The main disadvantages of these types of suspended products are that they have to be often replaced and they dispense different amounts of cleaning material in every flush. Moreover, when the toilet bowl is cleaned, it has to be removed and then placed again. Another drawback of the suspended devices is that they tend to fall into the toilet bawl and in some cases can cause damage to the draining system.

Another solution that was proposed by some companies is a small container with soap and fragrance that is kept in the toilet tank. Every flush withdraws some of the material from the container into the flushing water. An example of such a device is disclosed in US patent no. 6,055,679 "Passive
Lavatory Cleanser dispensing system" filed in 1995 by Goelz et al. This patent relates to dispensing systems, such as lavatory cleansing systems, particularly, dispenser suitable for placement into a liquid containing vessel whose level of liquid is capable of changing from an upper level to a lower level and vice versa, such as a toilet tank. An additional passive dispenser is disclosed in IL patent no. 124518 "Passive Dispenser for Dosing and Issuing a Predetermined Amount of Dispensable Liquid" that discloses another in-tank passive dispenser. These dispensers dispense and deliver a conserved amount of lavatory cleanser, into the liquid containing tank by controlling the rate at which water enters the dispenser. Such products are placed in the toilet tank and order to refill container or to put the container inside the tank, the tank lid has to be removed. Dismantling the toilet tank is a difficult task in many of the tanks.

There are in-tank dispensers that utilize the movement of the water in the tank. In WO02092924 it is disclosed a dispenser having a dosing chamber containing therein a floating shuttle that seals a lower opening in the dosing chamber and floats up therefrom as an aliquot of chemicals is prepared for release during the next cycle. There is also a float controlled external valve pin at a lower end of the dispenser for alternately opening and closing a lower opening in the dosing chamber. In another example disclosed in US patent no, 5,488,742 there is a toilet disinfectant release apparatus that includes a housing disposed and supported inside a toilet tank by a U-shaped hanger fitting over a sidewall of the toilet tank, into which housing disinfectant supply control device is mounted. Other examples actuating on similar physical principle are disclosed in US 5,038,417, US 5,839,128, and US 4,356,483. The disclosed apparatii are provided with many elements and are all suspended in the toilet tank so that when the cleaning material is finishes, the tanks lid has to be lifted.

There are no available long-lasting solutions that dispense soap and disinfection material to the toilet bowl and can be replaced easily without dismantling the toilet tank. There is a need to provide a device that dispenses cleaning material as well as materials that kill germs and spread fragrance into the toilet bowl in an easy manner. Moreover, there is no available device
that can be refilled with cleaning material after the device empties without the 
need to replace the device.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a soap dispensing 
device for toilet bowls that dispenses a predetermined amount of cleaning, 
fragrance, disinfection or like materials upon every flush of water from the 
toilet tank.

It is another object of the present invention to provide soap dispensing 
device for toilet bowls that dispenses the material from the toilet tank upon 
water flushing and can be refilled without the need to dismantle the toilet tank.

It is yet another object of the present invention to provide a soap 
dispensing device for toilet bowls that can be easily installed in every standard 
toilet tank.

Yet, it is another object of the present invention to provide an improved 
toilet tank that comprises soap dispensing device that dispenses a 
predetermined portion of cleaning material in every flush of water.

An additional object of the present invention is to provide a soap 
dispensing device for toilet bowls that can be operated manually.

It is thus provided in accordance with a preferred embodiment of the 
present invention, a dispensing device adapted to dispense a predetermined 
amount of cleaning agent into a toilet tank wherein the cleaning agent is 
flushed into a toilet bowl with water that is received in the toilet tank, the 
dispensing device comprising:

a container having a bottom side and an upper side, said 
container is provide with a first opening in the upper side that is 
adapted to receive the cleaning agent and a second opening in the 
bottom side that is adapted to dispense the cleaning agent, wherein 
the container is adapted to be mounted on the toilet tank so that 
said first opening is positioned externally to the toilet tank and said 
second opening is positioned inside the toilet tank;
a float provided with a passage having a third opening and a fourth opening, said float is adapted to float on the water in the toilet tank, wherein the float moves between two extreme positions, an upper most position in which said third opening is fluidically connected to said second opening, and a lower position in which a portion of the float blocks said second opening and said fourth opening is fluidically connected to the toilet tank;

a shutter provided opposite said second opening, said shutter blocks said fourth opening when said float is in the upper most position;

whereby in the upper most position, a portion of the cleaning agent is received in said passage, and in the lower position, the portion dispenses into the toilet tank so that when water enters the toilet tank, it mixes with cleaning agent, ready to be flushes into the toilet bowl.

Furthermore, in accordance with another preferred embodiment of the present invention, the container is positioned outside the toilet tank.

Furthermore, in accordance with another preferred embodiment of the present invention, the container is provided with a hose positioned in the bottom of the container, said hose pass through a side wall of the toilet tank, and wherein said second opening is positioned in the hose.

Furthermore, in accordance with another preferred embodiment of the present invention, said first opening is provided with a corresponding cover.

Furthermore, in accordance with another preferred embodiment of the present invention, said float comprises a portion that floats on the water and an upwardly projecting portion, and wherein the float and the projecting member are adjacent to a said wall of the toilet tank, where second opening is provided.

Furthermore, in accordance with another preferred embodiment of the present invention, said passage is provided in said upwardly projecting member.

Furthermore, in accordance with another preferred embodiment of the present invention, said second opening is provided with an extension that wraps a portion of said upwardly projecting member so that the projecting
member can slide within said extension, and wherein a portion of said extension acts as the shutter.

Furthermore, in accordance with another preferred embodiment of the present invention, said upwardly projecting member is provided with a first stopper that prevents the member from sliding out from said extension when the float is in the lower position.

Furthermore, in accordance with another preferred embodiment of the present invention, said upwardly projecting member is provided with a second stopper that secures the fourth opening and the second opening together so as to establish a connection between said passage and said container when the float is in upper most position.

Furthermore, in accordance with another preferred embodiment of the present invention, the container is provide with a level measuring means that indicates the level of the cleaning agent within the container.

Furthermore, in accordance with another preferred embodiment of the present invention, container or part of said container is made of a transparent material.

Furthermore, in accordance with another preferred embodiment of the present invention, the cleaning agent is selected from a group of cleaning materials such as detergents, disinfection material, fragrance material, and any combination between the materials.

It is also provided in accordance with yet another preferred embodiment of the present invention, a dispensing device adapted to dispense a predetermined amount of cleaning agent into a toilet tank wherein the cleaning agent is flushed into a toilet bowl with water that is received in the toilet tank, the dispensing device comprising:

- a receiver provided externally to the toilet tank, wherein said receiver has a bottom side and an open upper side, wherein said bottom side is provided with a spike protruding upwardly and a portion adapted to pass through a wall of the toilet tank;
- a passage extending through said spike and through said portion passing through the wall of the toilet tank;
at least one of a plurality of disposable containers, wherein said container is provided with a resilient closure corresponding to said spike so that when said at least one of a plurality of disposable containers is placed on said bottom side of said receiver, said spike tears said resilient closure so that the disposable container is fluidically connected to said passage;

a dozer provided in the toilet tank wherein said dozer is fluidically communicating with said passage;

a float adapted to float on the water in the toilet tank, wherein the float is connected to said dozer and moves between two extreme positions, an upper most position in which said passage is fluidically communicating with said dozer and a lower position in which said dozer is fluidically communicating with the toilet tank; whereby in the upper most position, a portion of the cleaning agent is received in said dozer, and in the lower position, the portion dispenses into the toilet tank so that when water enter the toilet tank, they mix with cleaning agent, ready to be flushes into the toilet bowl.

According to another aspect of the present invention, it is provided an improved toilet tank provided with a dispensing device adapted to dispense a predetermined amount of cleaning agent into the improved toilet tank wherein the cleaning agent is flushed into a toilet bowl with water that is received in the improved toilet tank, the improved toilet tank comprising:

a toilet tank provided with a bore on a side wall;

a container having a bottom side and an upper side, said container is provide with a first opening in the upper side that is adapted to receive the cleaning agent and a second opening in the bottom side that is adapted to dispense the cleaning agent, wherein the container is adapted to be mounted on said toilet tank so that the first opening is positioned externally to said toilet tank and the second opening is positioned inside the toilet tank and wherein a portion of the container passes through said bore;

a float provided with a passage having a third opening and a fourth opening, said float is adapted to float on the water in said
toilet tank, wherein the float moves between two extreme positions, an upper most position in which said third opening is fluidically connected to said second opening, and a lower position in which a portion of the float blocks said second opening and said fourth opening is fluidically connected to the toilet tank;

a shutter provided opposite said second opening, said shutter blocks said fourth opening when said float is in the upper most position;

whereby in the upper most position, a portion of the cleaning agent is received in said passage, and in the lower position, the portion dispenses into the toilet tank so that when water enters the toilet tank, it mixes with cleaning agent, ready to be flushed into the toilet bowl.

Additionally it is provided in accordance with yet another preferred embodiment of the present invention, a dispensing device adapted to dispense a predetermined amount of cleaning agent into a toilet tank through a bore that is provided on the side of the toilet tank, wherein the cleaning agent is flushed into a toilet bowl with water that is received in the toilet tank, the dispensing device comprising:

a container having a bottom side and an upper side, said container is provide with a first opening in the upper side that is adapted to receive the cleaning agent and a second opening in the bottom side that is adapted to dispense the cleaning agent;

a housing provided with a resilient element and a piston wherein said piston is partially accommodated in said housing and wherein said piston can move between two extreme positions, a first position in which the piston is pressed against said resilient element and a second position in which the piston is pushes by the bouncing force of the resilient element;

two openings are provided in said housing, a third opening joins second opening of said container and a fourth opening joins the bore in the toilet tank;

a passage is provided in said piston;
whereby in the second position, a portion of cleaning agent from the container is received in said passage, and in the first position, the portion dispenses into the toilet tank through said bore so that the cleaning agent is mixed with the water, ready to be flushed into the toilet bowl.

BRIEF DESCRIPTION OF THE FIGURES

In order to better understand the present invention and appreciate its practical applications, the following Figures are attached and references herein. Like components are denoted by like reference numerals. It should be noted that the figures are given as examples and preferred embodiments only and in no way limit the scope of the present invention as defined in the appending Description and Claims.

Figure 1a illustrates a side view of dispensing device for cleaning agent for toilet bowls in accordance with a preferred embodiment of the present invention, in a close state.

Figure 1b illustrates a side view of the dispensing device shown in Figure 1a, in an open state.

Figure 2a illustrates a front view of the dispensing device shown in Figure 1a, in a closed state.

Figure 2b illustrates a front view of the dispensing device shown in Figure 1a, in an open state.

Figure 3a illustrates a side view of a dispensing device for cleaning agent for toilet bowls in accordance with another preferred embodiment of the present invention, operated manually in closed state.
Figure 3b illustrates a side view of the dispensing device shown in Figure 3a, in an open state.

Figures 4 illustrates a side view of a dispensing device mounted on a toilet tank in accordance with yet another preferred embodiment of the present invention, provided with a disposable container.

Figure 5a-e illustrate side cross sectional views of the inner dispensing mechanism in an open and close states as well as views of the different parts of the dispenser.

DETAILED DESCRIPTION OF THE PRESENT INVENTION

The present invention provides a new and unique cleaning agent dispensing device for toilet bowls that dispenses a predetermined amount of cleaning, disinfecting, or like materials into the flushing water upon every flush of water into the toilet bowl. A fragrance material can be added as well to the device so that a fresh and pleasant odor is kept in the toilet room. Generally, the materials in the container will be referred to in this application as cleaning agents.

In a preferred embodiment of the present invention, the dispensing device of the present invention comprises two parts. The first is a container that is positioned externally to the toilet tank. The external container is provided with two openings, a first opening for refilling and a second for dispensing the cleaning material so that the container can be easily refilling with new cleaning agent when the container is empty. The second opening of the container, which is for dispensing the cleaning agent, is positioned in the interior of the toilet tank. A dispensing mechanism is also provided. The dispensing mechanism comprises a dozer and a shutter that are positioned in the toilet tank and blocks or opens the second opening so that the cleaning agent will be discharged into the toilet tank. The dispensing mechanism is
actuated by a float that floats on the water level in the toilet tank while closing or opening the second opening.

In another aspect of the present invention, the container outside the toilet tank is a disposable container that can be changed similarly to a cartridge instead of refilling. In this case, externally to the toilet tank, a receiver is provided onto which the disposable container is fluidically connected.

Reference is now made to Figure 1a illustrating a side view of a dispensing device for cleaning agent for toilet bowls in accordance with a preferred embodiment of the present invention, in a close state. Container 10 is provided with an opening 12 in the upper portion of the container. Opening 12 can be closed by a corresponding cover 14. Opening 12 is designated for refilling the container with cleaning agent. A hose 16 provided at the bottom of container 10 passes through a side wall 18 of a toilet tank. Hose 16 is provided with an opening 20 that is positioned in the interior of side wall 18 of the toilet tank.

In the interior of the toilet tank, a float 21 is provided. Float 21 floats on a level 22 of water that is received in the toilet tank, and is connected to an upwardly projecting member 24. Float 21 and projecting member 24 are placed adjacent to the side wall of the toilet tank in the side where opening 20 is positioned. Float 21 changes its position from an upper most level when the toilet tank is filled with water and lower level when the toilet tank is empty. A passage 26 passes through upwardly projecting member 24. Passage 26 has an opening that faces side wall 18 and an opposite opening that faces the interior of the toilet tank. Passage 26 is placed in a position so that when float 21 is in an upper most level and so is the connected projecting member, passage 26 is adjacent to opening 20 so that hose 16 and passage 26 are fluidically connected.

Opening 20 is provided with an extension 28 that wraps about projecting member 24 wherein the member, when changes its position, slides within extension 28. Extension 28 is provided with a shutter 30 in the side of which passage 26 opens into the toilet tank. When float 21 is in an upper most position and passage 26 is positioned adjacent to opening 20, shutter 30
shuts passage 26. Shutter 30 can be maintained opposite opening 20 by using any other means besides extension 28, such as bands.

In the position shown in Figure 1a, passage 26 is closed by shutter 30; hence cleaning agent 32 that is received in container 10 cannot flow from the container, however, passage 26 receives a predetermined portion 34 of the cleaning agent. Passage 26 acts basically as a dozer.

Reference is now made to Figure 1b illustrating a side view of the dispensing device shown in Figure 1a, in an open state. When water is flushed out from the toilet tank into the toilet bowl (cannot be seen in the Figures), float 21 drops to a most lower level while pulling projecting member 24 downwardly. When passage 26 is in this position, the opening that faces side wall 18 is closed and the opening that faces the interior of the toilet tank is open. Predetermined portion 34 of the cleaning agent that was received in passage 26 (as shown in Figure 1a) is discharged into the toilet tank.

It should be noted that the passage and opening for dispensing the materials can be organized in a different configuration. For example, it can be organized so that the passage is open and the materials are dispensed into the toilet tank when the float is in the higher level. And, when the float is in the lower level, the passage is closed from the side of the toilet tank and open in the container's opening side. In this configuration, when the float is in the lower position, the cleaning agent is transferred from the container and into the passage, and when the float is in the higher position, the cleaning agent is transferred from the passage to the toilet tank. Any configuration is covered by the scope of the present invention.

Projecting member 24 is provided with two stoppers: a first stopper 36 prevent projecting member 24 from sliding out from within extension 28 when float 21 is dropping to its lower most level. A second stopper 38 that is positioned beneath passage 26 is provided so as to prevent float 21 from pushing projecting member 24 upwardly to a position that is further up then the upper most level. Figure 1a shows the position in which stopper 38 secures the positioning of passage 26 opposite opening 20 so as to establish a connection between container 10 and passage 26 in order to assure that passage 26 receives an additional portion of cleaning agent 32.
After the water was flushed into the toilet bowl, fresh water is received in the toilet tank. The water dissolves or mixes with predetermined portion 34 of the cleaning agent so that in the next flush of water, the water that is flushed into the toilet bowl contains the cleaning agent.

In order to better understand the positioning of float 21 and shutter 30, reference is now made to Figure 2a and 2b illustrating front views of the dispensing device shown in figure 1a and 1b, in a closed state and in open state, respectively. In the closed state, passage 26 is closed from the side of the toilet tank by shutter 30 so that the cleaning agent that was received by the passage is kept in. When water is flushed from the toilet tank, float 21 is in a downwardly position and the opening of passage 26 is exposed, letting the cleaning material to be discharged from the passage into the toilet tank.

As mentioned herein before, container 10 is refilled when the cleaning agent is completely discharged. Refilling the container is very simple; the cleaning material is inserted into the container through opening 12 while there is no need to dismantle any part of the toilet tank. Container 10 may be made of a transparent material so as to allow the user to view the level of the cleaning material in the container and to know when to refill it. It is also possible that a part of the container will be transparent. In this case, there is no need to add any measuring means to the container in order to measure the level of cleaning material in the container. The transparency of the container acts as a measuring means.

It is optional to use any other measuring means in order to measure the level of the cleaning material. Any other measuring means in no way limits the scope of the present invention. An example of another measuring means that can be employed in the container and is used as a measuring means for measuring level of liquids in many containers such as electrical pots in a glass or a plastic tube that is positioned adjacently and out of the container while the tube is fluidically connected to the container in the bottom and in an upper position of the container. The level of the liquid or solid material that is inside the container will be the same as the level of the material in the tube.

Reference is now made to Figure 4 illustrating a side view of a dispensing device mounted on a toilet tank in accordance with yet another
preferred embodiment of the present invention, provided with a disposable container. A cross sectional view of a portion of a toilet tank 200 is provided with a dispensing device 202 that pass through a hole in the side of the toilet tank. The inner parts and mechanism of dispensing device 202 are generally similar to the inner mechanism employed in the dispensing device shown in Figure 1. A float 204 floats on the water level (the water are not shown in Figure 4) and through a rod 206 pushes and pulls a dozer (will be shown) and a shutter 208 that are provided preferably in a housing 210, which details will be provided herein after. Outwardly of toilet tank 200, a container receiver 212 is provided. A disposable container 214 is received in receiver 212 while the cleaning agent dispenses from disposable container as will be explained herein after. Receiver 212 that is positioned externally to the toilet tank is connected to housing 210 that is positioned within the toilet tank through a passage 218.

Reference is now made to Figure 5a-e illustrating side cross sectional views of the inner dispensing mechanism in an open and close states as well as views of the different parts of the dispenser. Figures 5a and b illustrates the inner disposing mechanism in open and closed states, respectively. In the closed state, float 204 is floating on the level of the water that is received in the toilet tank (the toilet tank and the water are not shown in Figure 5) and is in a most upper position. In this state, a dozer 216 that is provided within housing 210 is fluidically connected to passage 218 that eventually connects dozer 216 to the outer disposable container. Fluid from the disposable container passes through passage 218 to dozer 216 that can contain a predetermined amount of cleaning material. Any residuals of materials can not pass to the toilet tank due to shutter 208 that fluidically blocks dozer 216. When water is flushed from the toilet tank and float 204 drops to a lower position, passage 218 is fluidically blocked by the side wall of dozer 216 and opening 220 of dozer 216 is open to dispense the fluid into the toilet tank. The predetermined amount of liquid is dispensed so as to be flushed to the toilet bowl in the next flush.

Figures 5c and d illustrates isometric and side views of receiver 212, respectively, that is provided with a passage 218 and a base 222 to position a
disposable container 224 that is shown in Figure 5e. Receiver 212 is preferably provided with adhering labels 226 so as to facilitate the installment of the dispensing device. In Figure 5d, a spike having a passage therein is provided in base 222 so that when disposable container 224 is positioned within the base, the spike pass through a resilient closure 230 in the bottom of disposable container 224 so that cleaning fluid transfers from the container to the dozer through passage 218 and the passage within the spike.

In another preferred embodiment of the present invention, it is provided a soap dispensing device that is mounted on a toilet tank and is operated manually. Reference is now made to Figure 3a and 3b illustrating a side view of a dispensing device for cleaning agent for toilet bowls in accordance with another preferred embodiment of the present invention, operated manually in a closed state and in an open state, respectively. In this preferred embodiment, the container and the actuating mechanism are positioned outside the toilet tank while the cleaning agent is dispensed into the toilet tank through a bore. Container 100 is provided with an opening 102 in the upper portion of the container. Opening 102 can be closed by a corresponding cover 104. Opening 102 is designated for refilling the container with cleaning agent when the cleaning agent is completed. A hose 106 provided at the bottom of container 100 has an opening 108.

A housing 110 is provided adjacent to hose 106 and to toilet tank 126 while the toilet tank and the hose are positioned in two opposite sides of housing 110. In the side that is adjacent to hose 106, an opening is provided in the housing that joins opening 108 to the hose. From the other side, another opening is provided in housing 110 that joins a bore 124 that is drilled in toilet tank 126. Housing 110 is provided with a resilient element, preferably a spring 112 positioned in the lower part of housing 110. Spring 112 has two ends, the first end is connected to the bottom of the housing and the second end is connected to a piston 116 that has a circumference that is congruent to the inner side of housing 110. Piston 116 is provided with a passage 118 having two openings, a first opening at the side of hose 106 and a second opening that faces toilet tank 126. Passage 118 is placed in a position so that when piston 116 is pushed by spring 112, passage 118 is adjacent to opening
108 so that hose 106 and passage 118 are fluidically connected. Piston 116 is provided with a stopper 120 that sits on a rim on the upper side of the housing and prevents the piston from ejecting out from housing 110. Moreover, it maintains the positioning of passage 118. The state shown in figure 3a is a close state in which a portion of cleaning agent 122 that is received in container 100 conveys to passage 118.

In the state shown in figure 3b, an open state, piston 116 is manually pressed down towards housing 110 and against spring 112 allowing the portion of cleaning agent 122 that was received in passage 118 to flow through the opening 124 that faces toilet tank 126 into the toilet tank. In the toilet tank, the cleaning agent is mixed with the water and can be flushed into the toilet bowl when necessary. After the pressure from piston 116 is removed, spring 112 pushes the piston upwardly and the closed state is attained.

It is noted that the cleaning agent can be in a liquid form or a solid form and in no way limits the scope of the present invention. The cleaning agent can comprise cleaning materials, disinfection materials, fragrance materials or any composition that is a combination between those materials. Any other material that is adapted to clean, disinfect or keep fragrance in the toilet bowl can be added, too.

The cleaning agent dispensing devices of the present invention can be mounted on any available toilet tank that is already in use or can be sized to fit improved toilet tanks that comprise the cleaning agent dispensing devices as a unit. This is relevant to the dispensing device that is operated automatically by the movements of the water in the toilet tank and to the dispensing device that is actuated manually by pressing down a piston against a spring. The dispensing device can be designed to fit the toilet tank's dimensions, color, design or the like.

It should be clear that the description of the embodiments and attached Figure set forth in this specification serves only for a better understanding of the invention, without limiting its scope as covered by the following Claims.
It should also be clear that a person in the art, after reading the present specification can make adjustments or amendments to the attached Figures and above described embodiments that would still be covered by the following Claims.
CLAIMS

1. A dispensing device adapted to dispense a predetermined amount of cleaning agent into a toilet tank wherein the cleaning agent is flushed into a toilet bowl with water that is received in the toilet tank, the dispensing device comprising:
   a container having a bottom side and an upper side, said container is provide with a first opening in the upper side that is adapted to receive the cleaning agent and a second opening in the bottom side that is adapted to dispense the cleaning agent, wherein the container is adapted to be mounted on the toilet tank so that said first opening is positioned externally to the toilet tank and said second opening is positioned inside the toilet tank;
   a float provided with a passage having a third opening and a fourth opening, said float is adapted to float on the water in the toilet tank, wherein the float moves between two extreme positions, an upper most position in which said third opening is fluidically connected to said second opening, and a lower position in which a portion of the float blocks said second opening and said fourth opening is fluidically connected to the toilet tank;
   a shutter provided opposite said second opening, said shutter blocks said fourth opening when said float is in the upper most position;
   whereby in the upper most position, a portion of the cleaning agent is received in said passage, and in the lower position, the portion dispenses into the toilet tank so that when water enters the toilet tank, it mixes with cleaning agent, ready to be flushed into the toilet bowl.

2. The dispensing device as claimed in Claim 1, wherein the container is positioned outside the toilet tank.
3. The dispensing device as claimed in Claim 1, wherein the container is provided with a hose positioned in the bottom of the container, said hose pass through a side wall of the toilet tank, and wherein said second opening is positioned in the hose.

4. The dispensing device as claimed in Claim 1, wherein said first opening is provided with a corresponding cover.

5. The dispensing device as claimed in Claim 1, wherein said float comprises a portion that floats on the water and an upwardly projecting portion, and wherein the float and the projecting member are adjacent to a said wall of the toilet tank, where second opening is provided.

6. The dispensing device as claimed in Claim 5, wherein said passage is provided in said upwardly projecting member.

7. The dispensing device as claimed in Claim 6, wherein said second opening is provided with an extension that wraps a portion of said upwardly projecting member so that the projecting member can slide within said extension, and wherein a portion of said extension acts as the shutter.

8. The dispensing device as claimed in Claim 7, wherein said upwardly projecting member is provided with a first stopper that prevents the member from sliding out from said extension when the float is in the lower position.

9. The dispensing device as claimed in Claim 6, wherein said upwardly projecting member is provided with a second stopper that secures the fourth opening and the second opening together so as to establish a connection between said passage and said container when the float is in upper most position.
10. The dispensing device as claimed in Claim 1, wherein the container is provide with a level measuring means that indicates the level of the cleaning agent within the container.

11. The dispensing device as claimed in Claim 1, said container or part of said container is made of a transparent material.

12. The dispensing device as claimed in Claim 1, wherein the cleaning agent is selected from a group of cleaning materials such as detergents, disinfection material, fragrance material, and any combination between the materials.

13. The dispensing device as claimed in Claim 1, wherein the cleaning agent is in a liquid state.

14. The dispensing device as claimed in Claim 1, wherein the cleaning agent is in a solid state.

15. A dispensing device adapted to dispense a predetermined amount of cleaning agent into a toilet tank wherein the cleaning agent is flushed into a toilet bowl with water that is received in the toilet tank, the dispensing device comprising:

   a receiver provided externally to the toilet tank, wherein said receiver has a bottom side and an open upper side, wherein said bottom side is provided with a spike protruding upwardly and a portion adapted to pass through a wall of the toilet tank;

   a passage extending through said spike and through said portion passing through the wall of the toilet tank;

   at least one of a plurality of disposable containers, wherein said container is provided with a resilient closure corresponding to said spike so that when said at least one of a plurality of disposable containers is placed on said bottom side of said receiver, said spike
tears said resilient closure so that the disposable container is fluidically connected to said passage;

a dozer provided in the toilet tank wherein said dozer is fluidically communicating with said passage;

a float adapted to float on the water in the toilet tank, wherein the float is connected to said dozer and moves between two extreme positions, an upper most position in which said passage is fluidically communicating with said dozer and a lower position in which said dozer is fluidically communicating with the toilet tank;

whereby in the upper most position, a portion of the cleaning agent is received in said dozer, and in the lower position, the portion dispenses into the toilet tank so that when water enter the toilet tank, they mix with cleaning agent, ready to be flushes into the toilet bowl.

An improved toilet tank provided with a dispensing device adapted to dispense a predetermined amount of cleaning agent into the improved toilet tank wherein the cleaning agent is flushed into a toilet bowl with water that is received in the improved toilet tank, the improved toilet tank comprising:

a toilet tank provided with a bore on a side wall;

a container having a bottom side and an upper side, said container is provided with a first opening in the upper side that is adapted to receive the cleaning agent and a second opening in the bottom side that is adapted to dispense the cleaning agent, wherein the container is adapted to be mounted on said toilet tank so that the first opening is positioned externally to said toilet tank and the second opening is positioned inside the toilet tank and wherein a portion of the container passes through said bore;

a float provided with a passage having a third opening and a fourth opening, said float is adapted to float on the water in said toilet tank, wherein the float moves between two extreme positions, an upper most position in which said third opening is fluidically connected to said second opening, and a lower position
in which a portion of the float blocks said second opening and said fourth opening is fluidically connected to the toilet tank;

a shutter provided opposite said second opening, said shutter blocks said fourth opening when said float is in the upper most position;

whereby in the upper most position, a portion of the cleaning agent is received in said passage, and in the lower position, the portion dispenses into the toilet tank so that when water enters the toilet tank, it mixes with cleaning agent, ready to be flushed into the toilet bowl.

17. A dispensing device adapted to dispense a predetermined amount of cleaning agent into a toilet tank through a bore that is provided on the side of the toilet tank, wherein the cleaning agent is flushed into a toilet bowl with water that is received in the toilet tank, the dispensing device comprising:

a container having a bottom side and an upper side, said container is provide with a first opening in the upper side that is adapted to receive the cleaning agent and a second opening in the bottom side that is adapted to dispense the cleaning agent;

a housing provided with a resilient element and a piston wherein said piston is partially accommodated in said housing and wherein said piston can move between two extreme positions, a first position in which the piston is pressed against said resilient element and a second position in which the piston is pushes by the bouncing force of the resilient element;

two openings are provided in said housing, a third opening joins second opening of said container and a fourth opening joins the bore in the toilet tank;

a passage is provided in said piston;

whereby in the second position, a portion of cleaning agent from the container is received in said passage, and in the first position, the portion dispenses into the toilet tank through said bore so that the
cleaning agent is mixed with the water, ready to be flushed into the toilet bowl.

18. The dispensing device as claimed in Claim 17, wherein said resilient element is a spring.

19. The dispensing device adapted to dispense a predetermined amount of cleaning agent into a toilet tank wherein the cleaning agent is flushed into a toilet bowl with water that is received in the toilet tank substantially as described in the above specification, attached Figures and appending Claims.

20. An improved toilet tank provided with a dispensing device adapted to dispense a predetermined a mount of cleaning agent into the improved toilet tank wherein the cleaning agent is flushed into a toilet bowl with water that is received in the improved toilet tank substantially as described in the above specification, attached Figures and appending Claims.