A cleaning and aromatizing apparatus for a urinal is disclosed. The cleaning and aromatizing apparatus comprises a main body having a receiving space, a first opening and a second opening, a container containing a cleaning and aromatizing solution therein and disposed in the receiving space of the main body, and a releasing device having a connecting portion to be communicated with the container and a receiving plate for receiving the cleaning and aromatizing solution. Thereby, the water can flow into the apparatus from the first opening of the main body and carry the cleaning and aromatizing solution released on the receiving plate out of the apparatus through the second opening of the main body, so as to clean and aromatize the urinal.
CLEANING AND AROMATIZING APPARATUS FOR URINAL

FIELD OF THE INVENTION

[0001] The present invention relates to a cleaning and aromatizing apparatus, and more particularly to a cleaning and aromatizing apparatus for a urinal. The present invention also relates to a releasing device for releasing a cleaning and aromatizing solution in a container.

BACKGROUND OF THE INVENTION

[0002] The environmental sanitation is highly concerned with people, especially the toilet and urinal. With the frequent use of these sanitation, it is more and more important to keep them clean. The surface of toilet and urinal is not easy to keep hygiene because of long-term touch with excrements. Moreover, the sanitations get stink once the drains are clogged with excrements. All these make users and sweepers lots of inconvenience. So far, there are several kinds of detergents or cleaning and deodorization apparatuses which are put into the water tank of the toilet, such as the solid detergent or the liquid detergent with the releasing device thereof. While flushing, water with the dissolved or released detergent from the water tank will clean and deodorize the toilet. As to urinals, mothballs or aromatics are usually put on the top of drains at the bottom of the urinal for deodorization. However, with the use of mothballs and aromatics, the lessened one might drop down and get the drains blocked. Also, these aromatics can only deodorize but not clean the urinal. The dirt from urine can’t be removed from the urinal without brushing, but it is waste of time and laboring to brush the urinal every time after using. Furthermore, the water tank of the common urinal is covered in the wall for saving space, only with a flushing sensor outside. Therefore, the detergent or cleaning and deodorization apparatus for toilet can’t be used for this kind of urinal.

[0003] Therefore, the purpose of the present invention is to develop an apparatus for cleaning and aromatizing the urinal to deal with the above problems encountered in the prior art.

SUMMARY OF THE INVENTION

[0004] An object of the present invention is to provide a cleaning and aromatizing apparatus, particularly the one applied to the urinal to clean and aromatize the urinal.

[0005] According to an aspect of the present invention, the cleaning and aromatizing apparatus for a urinal is provided. The apparatus comprises a main body having a receiving space, a first opening and a second opening, a container containing a cleaning and aromatizing solution therein and disposed in the receiving space of said main body, and a releasing device having a connecting portion to be communicated with the container and a receiving plate for receiving the cleaning and aromatizing solution. Thereby, water flows into the apparatus from the first opening of the main body and carries the cleaning and aromatizing solution released on the receiving plate out of the apparatus through the second opening of the main body, so as to clean and aromatize the urinal.

[0006] In an embodiment, the cleaning and aromatizing apparatus further comprises a water-flow plate extended upward from the first opening of the main body, which has check notches on the surface for reducing water pressure.

[0007] In an embodiment, the cleaning and aromatizing apparatus further comprises a water-dispersing plate extended downward from the second opening of the main body. For example, the water-dispersing plate is a cambered plate with a wavy lower edge for staying close to the urinal and increasing the water flow area.

[0008] In an embodiment, the cleaning and aromatizing apparatus further comprises a fixing portion to be fixed on the urinal. For example, the fixing portion is fixed on the urinal by an adhesive material directly or via a hanging piece. The hanging piece has plural dents for bending and is engaged with an engaging hole on the fixing portion.

[0009] In an embodiment, the water-flowing plate, water-dispersing plate, or the hanging piece is made of a soft material.

[0010] In an embodiment, the container has a concavity with plural ribs thereon.

[0011] In an embodiment, the releasing plate of the releasing device is a movable plate for adjusting the releasing quantity of the cleaning and aromatizing solution. The releasing plate further comprises a shallow groove and a narrow-to-wide passage.

[0012] In an embodiment, the releasing device further comprises a support for securing the container thereonto.

[0013] According to another aspect of the present invention, a releasing device for releasing a cleaning and aromatizing solution in a container is provided. The releasing device comprises a support for securing the container, a connecting portion disposed inside the support and having an opening to be communicated with the container, a hole located at a bottom of the connecting portion, and a receiving plate for receiving the cleaning and aromatizing solution. Thereby the cleaning and aromatizing solution flows into the releasing device through the connecting portion and is released to the releasing plate through the hole.

[0014] In an embodiment, the releasing plate is a movable plate for adjusting the releasing quantity of the cleaning and aromatizing solution. The releasing plate further comprises a shallow groove and a narrow-to-wide passage.

[0015] The above objects and advantages of the present invention will become more readily apparent to those ordinarily skilled in the art after reviewing the following detailed description and accompanying drawings, in which:

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] FIG. 1 is a schematic diagram showing a cleaning and aromatizing apparatus applied to the urinal according to a preferred embodiment of the present invention;

[0017] FIG. 2 is a schematic diagram showing the structure of the cleaning and aromatizing apparatus according to a preferred embodiment of the present invention;

[0018] FIG. 3 is a schematic diagram of the cleaning and aromatizing apparatus according to a preferred embodiment of the present invention;

[0019] FIG. 4 is a schematic diagram showing the detailed structure of the releasing device of the cleaning and aromatizing apparatus according to a preferred embodiment of the present invention.
DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0020] The present invention will now be described more specifically with reference to the following embodiments. It is to be noted that the following descriptions of preferred embodiments of this invention are presented herein for purpose of illustration and description only; it is not intended to be exhaustive or to be limited to the precise form disclosed.

[0021] Please refer to FIG. 1, which is a schematic diagram showing a cleaning and aromatizing apparatus applied to the urinal according to a preferred embodiment of the present invention. As shown in FIG. 1, the cleaning and aromatizing apparatus 1 is disposed on the wall of the urinal 2. After the urinal 2 is used by the user, the flushing sensor 3 reacts and water flushes into the cleaning and aromatizing apparatus 1 and takes out the cleaning and aromatizing solution to clean and deodorize the urinal 2. The structure of this cleaning and aromatizing apparatus 1 is described particularly thereafter.

[0022] Please refer to FIG. 2, which is a schematic diagram showing the structure of the cleaning and aromatizing apparatus according to a preferred embodiment of the present invention. As shown in FIG. 2, the cleaning and aromatizing apparatus 1 comprises a main body 11, a container 12 with the cleaning and aromatizing solution therein, and a releasing device 13. The main body 11 includes a receiving space 111, a first opening 112 as the water entry, and a second opening 113 as the water exit. The container 12 is assembled with the releasing device 13 and then disposed into the receiving space 111 of the main body 11 through the first opening 112 (as shown in FIG. 3).

[0023] Please refer to FIG. 2 again. The container 12 contains the liquid solution having cleaning and aromatizing effects. This solution is released from the outlet 121 at the bottom of the container 12 and flows into the releasing device 13. The container 12 has a concavity 112 and plural ribs 123 are disposed on the concavity 122 for cushioning and directing the water entering the main body 11. Further, when the cleaning and aromatizing solution is exhausted, the container 12 can be disposed and replaced with a new one.

[0024] Please refer to FIG. 3, which is a schematic diagram showing the partial assembling structure of the cleaning and aromatizing apparatus according to a preferred embodiment of the present invention. As shown in FIG. 3, for enabling the water to smoothly flow into the main body 11 through the first opening 112, the main body 11 comprises a water-flowing plate 114 extended upward from the first opening 112 with an angle to lean against the wall of the urinal. Besides, there are check notches 1141 on the surface of the water-flowing plate 114 to reduce the pressure of water, and the cleaning and aromatizing solution can be diluted and mixed well with water instead of being flushed out of the main body 11 suddenly and violently. The main body 11 further comprises a water-dispersing plate 115 extended downward from the second opening 113. The water-dispersing plate 115 is a cambered plate with a wavy lower edge for staying close to the wall of the urinal and increasing the water flow area.

[0025] In the above-mentioned embodiments, the water-flowing plate 114 and the water-dispersing plate 115 are detachably disposed on the main body 11 or can be formed integrally with the main body 11. The water-flowing plate 114 and the water-dispersing plate 115 are preferably made of soft materials for a better contact with the wall of the urinal.

[0026] Please refer to FIG. 4, which is a schematic diagram showing the detailed structure of the releasing device of the cleaning and aromatizing apparatus according to a preferred embodiment of the present invention. As shown in FIG. 4, the releasing device 13 comprises a support 131 and a receiving plate 132 which can be received into the bottom space of the support 131 (as shown in FIG. 2). The shape of the support 131 is designed to match the shape of the container 12 for well securing to the container 12 thereon. The releasing device 13 also includes a connecting portion 133 to connect tightly with the outlet 121 of the container 12 to avoid the spill of the cleaning and aromatizing solution. With the connection of the releasing device 13 and the container 12, the cleaning and aromatizing solution flows out of the container 12 to the releasing device 13 through the outlet 121 and the connecting portion 133 and is released to the receiving plate 132 through a hole 134 located at the bottom of the connecting portion 133.

[0027] As shown in FIG. 4, to receive the cleaning and aromatizing solution therein, the receiving plate 132 comprises barricades 1321 at three sides of the exposed region. While the receiving plate 132 is received into the bottom space of the support 131, a shallow groove 135 is formed (as shown in FIG. 2). When the cleaning and aromatizing solution is released from the hole 134, it is kept in the shallow groove 135 due to surface tension. Therefore, the solution will be released again only after the original one in the receiving plate 132 is carried away with the water; hence the use of cleaning and aromatizing solution is economized.

[0028] Please refer to FIG. 4. The receiving plate 132 of the releasing device 13 comprises a narrow-to-wide passage 1322 close to the hole 134 and plural sub-passages 1323 branched as a sector from the narrow-to-wide passage 1322 to the edge of the receiving plate 132. Therefore, the cleaning and aromatizing solution can flow smoothly and evenly along the narrow-to-wide passage 1322 and sub-passages 1323 on the receiving plate 132. Besides, the receiving plate 132 of the releasing device 13 is filled again with the cleaning and aromatizing solution quickly after each flush, and thus, even when the urinal is frequently used, it won't be cleaned incompletely due to the bad releasing efficiency of the cleaning and aromatizing solution. In addition, the receiving plate 132 is movable. The releasing quantity of the cleaning and aromatizing solution depends on the capacity of the shallow groove 135 of the receiving plate 132, so a larger quantity of the solution is released while the receiving plate 132 is pulled out, and vice versa. Moreover, the releasing device 13 is disposable and replaceable if the hole 134 or the narrow-to-wide passage 1322 and sub-passages 1323 are blocked.

[0029] Please refer to FIG. 2 again. The main body 11 of the cleaning and aromatizing apparatus further comprises a fixing portion 116 to be fixed on the urinal. It can be fixed on the urinal via an adhesive material, or as shown in FIG. 2, fixed on the urinal via a hanging piece 117. The hanging piece 117 has hooks 1171 at the side opposite to the fixing portion 116 to be engaged with corresponding engaging
holes 1161 on the fixing portion 116 and the backside of the hanging piece 117 can be provided with any adhesive material such as water-proof twin adhesive to fix the cleaning and aromatizing apparatus on the urinal. In addition, the hanging piece 117 is preferably made of a soft material and has plural dents 1172 thereon for bending and making a radian to match the wall of urinal perfectly.

[0030] To sum up, a cleaning and aromatizing apparatus is provided in this invention. The urinal is cleaned and aromatized with the release of the cleaning and aromatizing solution in this mentioned apparatus. Besides, the solution is smoothly released and well dispersed on the receiving plate of the releasing device within the apparatus. While flushing, the water flushes into the cleaning and aromatizing apparatus along the water-flowing plate through the first opening to the main body and carries out the cleaning and aromatizing solution which is well released on the receiving plate through the second opening, and then flows along the water-dispersing plate to the urinal. Hence, the purposes for cleaning and aromatizing the urinal in an effective way are achieved with the cleaning and aromatizing apparatus provided in the present invention.

[0031] While the invention has been described in terms of what is presently considered to be the most practical and preferred embodiments, it is to be understood that the invention needs not be limited to the disclosed embodiment. On the contrary, it is intended to cover various modifications and similar arrangements included within the spirit and scope of the appended claims which are to be accorded with the broadest interpretation so as to encompass all such modifications and similar structures.

What is claimed is:

1. A cleaning and aromatizing apparatus for a urinal, comprising:
   - a main body having a receiving space, a first opening and a second opening;
   - a container containing a cleaning and aromatizing solution therein and disposed in said receiving space of said main body; and
   - a releasing device having a connecting portion to be communicated with said container and a receiving plate for receiving said cleaning and aromatizing solution;
   thereby, water flows into said apparatus from said first opening of said main body and carries said cleaning and aromatizing solution released on said receiving plate out of said apparatus through said second opening of said main body, so as to clean and aromatize said urinal.
2. The cleaning and aromatizing apparatus according to claim 1 further comprising a water-flowing plate extended upward from said first opening of said main body.
3. The cleaning and aromatizing apparatus according to claim 2 wherein said water-flowing plate has check notches on the surface thereof for reducing water pressure.
4. The cleaning and aromatizing apparatus according to claim 1 further comprising a water-dispersing plate extended downward from said second opening of said main body for increasing water flow area.
5. The cleaning and aromatizing apparatus according to claim 4 wherein said water-dispersing plate is a cambered plate for staying close to said urinal.
6. The cleaning and aromatizing apparatus according to claim 4 wherein said water-dispersing device is wavy at the lower edge thereof.
7. The cleaning and aromatizing apparatus according to claim 1 wherein said main body further comprises a fixing portion to be fixed on said urinal.
8. The cleaning and aromatizing apparatus according to claim 7 wherein said fixing portion is fixed on said urinal via a hanging piece engaged with an engaging hole on said fixing portion.
9. The cleaning and aromatizing apparatus according to claim 8 wherein said hanging piece comprises plural dents for bending said hanging piece.
10. The cleaning and aromatizing apparatus according to claim 8 wherein said hanging piece is fixed on said urinal by an adhesive material.
11. The cleaning and aromatizing apparatus according to claim 1 wherein said container has a concavity with plural ribs thereon.
12. The cleaning and aromatizing apparatus according to claim 1 wherein said receiving plate of said releasing device comprises a shallow groove.
13. The cleaning and aromatizing apparatus according to claim 1 wherein said receiving plate comprises a narrow-to-wide passage.
14. The cleaning and aromatizing apparatus according to claim 1 wherein said receiving plate of said releasing device is a movable plate for adjusting the releasing quantity of said cleaning and aromatizing solution.
15. The cleaning and aromatizing apparatus according to claim 1 wherein said releasing device further comprises a support for securing said container thereonto.
16. A releasing device for releasing a cleaning and aromatizing solution in a container, comprising:
   - a support for securing said container thereon;
   - a connecting portion disposed inside said support and having an opening to be communicated with said container;
   - a hole located at a bottom of said connecting portion; and
   - a receiving plate for receiving said cleaning and aromatizing solution;
   thereby said cleaning and aromatizing solution flows into said releasing device through said connecting portion and is released to said receiving plate through said hole.
17. The releasing device according to claim 16 wherein said receiving plate comprises a shallow groove.
18. The releasing device according to claim 16 wherein said receiving plate comprises a narrow-to-wide passage.
19. The releasing device according to claim 16 wherein said receiving plate is a movable plate for adjusting the releasing quantity of said cleaning and aromatizing solution.

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