

FRAME FOR TOILET BOWL

Technical Field

The present invention relates, in general, to a frame for a toilet bowl and, more particularly, to a frame for a toilet bowl, which is installed to be embedded
5 in the floor of a toilet so that, upon malfunction or breakage of the toilet bowl, repair or replacement of the toilet bowl can be implemented in a convenient manner.

Background Art

As well known to those skilled in the art, when installing a toilet bowl in
10 the floor of a building, a water pipe and a soil pipe are connected to the toilet bowl, and then, concrete prepared by mixing cement with sand is placed around the toilet bowl so that the toilet bowl is supported by the concrete after the concrete is cured. The concrete placed around the toilet bowl serves as a frame for fastening the toilet bowl.

15 However, in the conventional toilet bowl, problems are caused in that, when malfunction or breakage of the toilet bowl occurs, in order to repair or replace the toilet bowl, the concrete placed around the toilet bowl to fasten it must be removed. Also, while removing the concrete, the probability of the toilet bowl, water pipe and/or soil pipe to be damaged is increased.

20 To cope with these problems, Korean Utility Model Laid-open Publication No. 1991-2721 (corresponding to Korean Utility Model Application No. 1989-10850) discloses a toilet bowl. In this document, the toilet bowl is positioned on the floor of a toilet to extend upward from the floor, and a pair of foot supports are arranged at both sides of the toilet bowl, respectively.

25 Nevertheless, this type of toilet bowl is encountered with drawbacks in that, since the toilet bowl is positioned on the floor of the toilet to extend upward,

it is not easy to clean the floor of the toilet. Also, when it is necessary to relieve oneself, because a user must step on the foot supports which are at a level higher than the ground, user convenience is degraded. In particular, in the case of old and feeble persons, a safety issue may be roused in connection with the use of the toilet bowl.

Disclosure of the Invention

Accordingly, the present invention has been made keeping in mind the above problems occurring in the prior art, and an object of the present invention is to provide a frame for a toilet bowl, which is installed to be embedded in the floor of a toilet and allows the toilet bowl to be seated thereon, so that, upon malfunction or breakage of the toilet bowl, repair or replacement of the toilet bowl can be implemented in a convenient manner.

In order to achieve the above object, according to one aspect of the present invention, there is provided a frame for a toilet bowl, wherein the frame has a height greater than that of the toilet bowl and possesses a box-shaped configuration or other various configurations; the frame is formed, on an upper wall thereof, with a toilet bowl seating part which is defined with a first opening of a size capable of allowing at least three sides of a flange portion formed on an outer surface of the toilet bowl to be seated on the toilet bowl seating part; a water pipe connection port is provided through one end wall of the frame so that a water pipe is connected to the water pipe connection port; and a soil pipe connection port is formed through a bottom wall of the frame so that a soil pipe is connected to the soil pipe connection port to be communicated with a soil outlet of the toilet bowl.

In the case that the toilet bowl seating part is defined with the first opening having a size capable of allowing only the three sides of the flange portion of the toilet bowl to be seated on the toilet bowl seating part, since the remaining one side of the flange portion is exposed to the first opening, if force is

downwardly applied to the toilet bowl, the toilet bowl may be displaced from its original position. Therefore, it is preferred that the first opening defined in the toilet bowl seating part has a size capable of allowing the entire four sides of the flange portion formed on the outer surface of the toilet bowl to be seated on the toilet bowl seating part.

In the case that the first opening is defined to allow the four sides of the flange portion to be seated on the toilet bowl seating part, it is preferred that a second opening is additionally defined in the upper wall of the frame in front of the first opening so that piping work can be performed through the second opening.

In the case that the first opening is defined to allow the three sides of the flange portion to be seated on the toilet bowl seating part, in order to prevent displacement of the toilet bowl, it is preferred that a cover is provided to close a portion of the first opening which portion is not closed by the toilet bowl seated on the toilet bowl seating part.

In the case that the second opening is defined to allow the piping work to be performed therethrough, since foreign substances can fall into the second opening and a user could be injured, it is preferred that a cover is provided to close the second opening.

In order to prevent release or fluctuation of the toilet bowl, it is preferred that the bottom wall of the frame is formed with a support part which faces a siphon part of the toilet bowl.

It is to be noted that at least one of the upper and bottom walls, both side walls and both one and the other end walls of the frame is formed of concrete.

In order to ensure sufficient supply of component elements and airtight connections when installing the toilet bowl on the frame, it is preferred that the frame further comprises a communication tube for communicating the water pipe and a water inlet of the toilet bowl with each other, a first packing interposed between the flange portion of the toilet bowl and the toilet bowl seating part, and a second packing interposed between the soil outlet and the soil pipe.

It is preferred that the communication tube has a predetermined level of flexibility for the sake of convenience when performing piping work, and the first and second packings are made of rubber having excellent sealing properties.

Brief Description of the Drawings

5 The above and other objects, features and other advantages of the present invention will be more clearly understood from the following detailed description when taken in conjunction with the accompanying drawings, in which:

Fig. 1 is an exploded perspective view illustrating a frame for a toilet bowl in accordance with a first embodiment of the present invention;

10 Fig. 2 is an exploded perspective view illustrating a frame for a toilet bowl in accordance with a second embodiment of the present invention;

Fig. 3 is an exploded perspective view illustrating a frame for a toilet bowl in accordance with a third embodiment of the present invention; and

15 Fig. 4 is an exploded perspective view illustrating a frame for a toilet bowl in accordance with a fourth embodiment of the present invention.

Best Mode for Carrying Out the Invention

Reference will now be made in greater detail to a preferred embodiment of the invention, an example of which is illustrated in the accompanying drawings. Wherever possible, the same reference numerals will be used throughout the drawings and the description to refer to the same or like parts.

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[Embodiment 1]

Fig. 1 is an exploded perspective view illustrating a frame for a toilet bowl in accordance with a first embodiment of the present invention. Referring to Fig. 1, a toilet bowl 10 is formed, around an outer surface thereof, with a flange portion 14. A water inlet 12 is formed below the front end side of the flange

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portion 14. Also, a siphon part 16 and a soil outlet 18 are formed on a bottom of the toilet bowl 10 so that they are convexed downward.

5 A frame on which the toilet bowl 10 is installed has a box-shaped configuration and has a height greater than that of the toilet bowl 10. The frame is formed on an upper wall thereof with a toilet bowl seating part 22, defined on a front wall thereof with a water pipe connection port 30, and on a bottom wall thereof with a soil pipe connection port 40. The toilet bowl seating part 22 is defined with a first opening 20.

10 While it is preferred that the frame has a box-shaped (that is, hexahedral) configuration, the bottom wall of the frame may be bent or rounded in a variety of ways to render aesthetic appearance of the frame through simple design changes. In this regard, it is preferred that the upper wall of the frame is made flat.

15 The first opening 20 of the toilet bowl seating part 22 is defined to have a size capable of allowing all four sides of the flange portion 14 to be seated on the toilet bowl seating part 22. At this time, a first rubber packing 22 is interposed between the flange portion 14 of the toilet bowl 10 and the toilet bowl seating part 22 of the frame, to minimize friction generated therebetween, prevent an offensive odor from leaking to the outside, and keep the toilet bowl 10 from being fluctuated.

20 A water pipe 32 is connected to the water pipe connection port 30. In front of the toilet bowl seating part 22 (that is, adjacent to a left end of the frame), the upper wall of the frame is defined with a second opening 50 for allowing piping work to be performed therethrough. The second opening 50 serves as a space in which piping work for communicating the water pipe 32 and the water inlet 12 with each other is performed using a communication tube 34 after the toilet bowl 10 is seated on the toilet bowl seating part 22. While the communication tube 34 may comprise a conventional pipe, it can be envisaged that the communication tube 34 comprises a tube formed of a flexible material (flexible tube) to allow the piping work to be performed in a convenient manner.

30 A soil pipe 42 is connected to the soil pipe connection port 40. If the

toilet bowl 10 is seated on the toilet bowl seating part 22, the soil outlet 18 of the toilet bowl 10 is inserted into the soil pipe 42. A second rubber packing 44 is interposed between the soil outlet 18 and the soil pipe 42, to minimize friction generated therebetween and prevent an offensive odor in the soil pipe 42 from leaking to the outside.

Hereafter, a procedure for installing the toilet bowl 10 on the frame constructed as mentioned above will be described.

First, when it is necessary to build a toilet or remodeling the floor of a toilet, the frame according to the present invention is placed in the floor of the toilet, in a manner such that the water pipe 32 and the soil pipe 42 are connected to the water pipe connection port 30 and the soil pipe connection port 40, respectively. Concrete is poured and then cured around the frame. It is preferred that tiles are set on an upper surface of the cured concrete.

Then, the toilet bowl 10 is seated on the toilet bowl seating part 22 in a manner such that the soil outlet 18 is fitted into the soil pipe 42. Next, the water pipe 32 and the water inlet 12 are communicated with each other using the communication tube 34. By closing the second opening 50 using a cover 60, the installation of the toilet bowl 10 on the frame is completed.

When it is necessary to replace or repair the toilet bowl 10 installed in this way, the second cover 60 is opened, and the water pipe 32 and the water inlet 12 are disconnected from each other by removing the communication tube 34. Then, after removing the toilet bowl 10, repair or replacement is implemented, thereafter, reinstallation of the (a) toilet bowl 10 is conducted.

Therefore, repair or replacement of the toilet bowl 10 can be implemented without the need of removing the concrete placed around the toilet bowl 10. Also, while implementing the repair or replacement, the probability of the toilet bowl 10, water pipe 32 and/or soil pipe 42 to be damaged is greatly reduced.

[Embodiment 2]

Fig. 2 is an exploded perspective view illustrating a frame for a toilet bowl in accordance with a second embodiment of the present invention. Differently from the first embodiment, in this second embodiment of the present invention, only one opening 20 is defined in the upper wall of the frame so that
5 only the three sides of the flange portion 14 are seated on the toilet bowl seating part. The cover 60 is formed, at its right end, with a pair of projections 62. Referring to Fig. 2, the right end of the cover 60, including the pair of projections 62, is fitted between the front end side of the flange portion 14 and the upper wall of the frame, to allow the front end side of the flange portion 14 to be seated
10 thereon. Therefore, since the cover 60 functions to support the front end side of the flange portion 14, it is preferred that the cover 60 is made of a rigid material.

[Embodiment 3]

Fig. 3 is an exploded perspective view illustrating a frame for a toilet
15 bowl in accordance with a third embodiment of the present invention. Differently from the first embodiment, in this third embodiment of the present invention, the second opening for allowing piping work to be performed is not defined in the upper wall of the frame.

Accordingly, in this third embodiment, installation and removal of the
20 toilet bowl 10 are conducted in different orders. That is to say, before the toilet bowl 10 is seated on the toilet bowl seating part, the water pipe 32 and the water inlet 12 are communicated with each other using the communication tube 34. Thereupon, in a state wherein the communication tube 34 is placed inside the opening 20, the toilet bowl 10 is seated on the toilet bowl seating part. Since the
25 communication tube 34 may be bent while seating the toilet bowl 10 on the toilet bowl seating part, it is preferred that the communication tube 34 has a predetermined degree of flexibility.

[Embodiment 4]

30 Fig. 4 is an exploded perspective view illustrating a frame for a toilet

bowl in accordance with a fourth embodiment of the present invention. In addition to the first embodiment, in this fourth embodiment of the present invention, a support part 70 is formed on the bottom wall of the frame so that the support part 70 faces the siphon part 16 of the toilet bowl 10. When the toilet bowl 10 is installed on the frame, the siphon part 16 is seated on the support part 70. Thus, in comparison with the first embodiment, the possibility of the toilet bowl 10 to be fluctuated is decreased. The support part 70 bears a part of the weight of the toilet bowl 10.

This fourth embodiment can also be additionally applied to the third embodiment of the present invention.

Also, it can be deliberated to modify the fourth embodiment so that, in addition to the siphon part 16, other parts of the toilet bowl 10 are supported by their respective appropriate support parts.

In each of the first, second and fourth embodiments, a flush valve may be provided on the cover 60, and, in the third embodiment, the flush valve may be provided on the upper wall of the frame in front of the toilet bowl seating part, so that the flush valve is intervened between the water pipe 32 and the communication tube 34 or between the communication tube 34 and the water inlet 12. Further, it can be envisaged that, before the water pipe 32 is connected to the water pipe connection port 30, the flush valve may be mounted to the water pipe 32. Due to the fact that the flush valve is pressed by the hand or foot of a user, if the flush valve is installed on the cover 60, the cover 60 is likely to be broken. In this consideration, in the present invention, it is preferred that the flush valve is arranged on the concrete placed around the frame.

Industrial Applicability

As apparent from the above description, the frame for a toilet bowl according to the present invention provides advantages in that the toilet bowl having the same or similar configuration as or to the conventional toilet bowl

installed in the floor of a toilet can be simply installed on the frame to allow repair or replacement work for the toilet bowl to be performed in a convenient manner.

5 Although the preferred embodiments of the present invention have been disclosed for illustrative purposes, those skilled in the art will appreciate that various modifications, additions and substitutions are possible, without departing from the scope and spirit of the invention as disclosed in the accompanying claims.

Claims

1. A frame for a toilet bowl, wherein the frame has a height greater than that of the toilet bowl and possesses a box-shaped configuration or other various configurations; the frame is formed, on an upper wall thereof, with a toilet bowl seating part which is defined with a first opening of a size capable of allowing at least three sides of a flange portion formed on an outer surface of the toilet bowl to be seated on the toilet bowl seating part; a water pipe connection port is provided through one end wall of the frame so that a water pipe is connected to the water pipe connection port; and a soil pipe connection port is formed through a bottom wall of the frame so that a soil pipe is connected to the soil pipe connection port to be communicated with a soil outlet of the toilet bowl.

2. The frame for a toilet bowl as set forth in claim 1, wherein the first opening defined in the toilet bowl seating part has a size capable of allowing four sides of the flange portion formed on the outer surface of the toilet bowl to be seated on the toilet bowl seating part.

3. The frame for a toilet bowl as set forth in claim 2, wherein a second opening is defined in the upper wall of the frame so that piping work can be performed through the second opening.

4. The frame for a toilet bowl as set forth in claim 1, wherein a cover is provided to close a portion of the first opening which portion is not closed by the toilet bowl seated on the toilet bowl seating part.

5. The frame for a toilet bowl as set forth in claim 3, wherein a cover is provided to close the second opening through which the piping work can be performed.

6. The frame for a toilet bowl as set forth in any one of the claims 1 to 5, wherein the bottom wall of the frame is formed with a support part which faces a siphon part of the toilet bowl so that, when the toilet bowl is installed on the frame, the siphon part is seated on the support part to prevent fluctuation of the toilet bowl.

7. The frame for a toilet bowl as set forth in any one of the claims 1 to 5, wherein at least one of the upper and bottom walls, both side walls and both one and the other end walls of the frame is formed of concrete.

8. The frame for a toilet bowl as set forth in any one of the claims 1 to 5, further comprising a communication tube for communicating the water pipe and a water inlet of the toilet bowl with each other, a first packing interposed between the flange portion of the toilet bowl and the toilet bowl seating part, and a second packing interposed between the soil outlet and the soil pipe, so that the toilet bowl is installed on the frame using the communication tube, the first packing and the second packing.

9. The frame for a toilet bowl as set forth in claim 7, wherein the communication tube has a predetermined flexibility, and the first and second packings are made of rubber.