a suction motor 20 connected to the air inlet/outlet 45, the suction motor 20 sucking the air into the sewage tank 19 and injecting the compressed air into the sewage tank 19.

[0011]

The excrement treatment device of the present invention is characterized in that a sewage crushing unit 43 is provided on the sewage tank 19 to crush a solid matter in the sewage tank 19.

[0012]

The excrement treatment device of the present invention is characterized in that the suction valve 44 provided on the sewage tank 19 includes: a suction port 44a connected to a pipe 63 for flushing the sewage of a chair-type toilet 9; and a slider 123 for opening and closing the suction port 44a.

[0013]

The excrement treatment device of the present invention is characterized in that the suction valve 44 provided on the sewage tank 19 includes: a suction port 44b connected to a pipe 39 for flushing the sewage in an insertion-type toilet 100; and a slider 123 for opening and closing the suction port 44b.

[0014]

The excrement treatment device of the present invention is characterized in that the suction valve 44 provided on the sewage tank 19 includes: a suction port 44a connected to a pipe 63 for flushing the sewage of a chair-type toilet 9; a suction port 44b connected to a pipe 39 for flushing the sewage in an insertion-type toilet 100; and a slider 123 for selectively opening and closing the suction port 44a and the suction port 44b.

[0015]

The excrement treatment device of the present invention is characterized in that a toilet bowl 12 of the chair-type toilet 9 has a urine sensor 56 and a feces sensor 57.

[0016]

The excrement treatment device of the present invention is characterized in that the suction valve 44 includes: a switching motor 121 having a horizontally swingable

[0023]

According to the invention of claim 2, a step of crushing a solid matter in the sewage tank 19 is added before discharging the stored sewage to the outside from the water discharge valve 46. Accordingly, the sewage stored in the sewage tank can be surely discharged outside.

[0024]

According to the invention of claim 3, an excrement treatment device, comprising: a sewage tank 19; a suction valve 44 provided on the sewage tank 19, the suction valve 44 opening and closing a suction port of a sewage pipe connected to the sewage tank 19; a water discharge valve 46 provided on the sewage tank 19, the water discharge valve 46 discharging the sewage stored in the sewage tank 19 to an outside; an air inlet/outlet 45 provided on the sewage tank 19 for sucking air from the air inlet/outlet 45 to suck the sewage from the sewage pipe connected to the suction port of the suction valve 44 and for injecting a compressed air from the air inlet/outlet 45 to discharge the sewage stored in the sewage tank 19 to the outside; and a suction motor 20 connected to the air inlet/outlet 45, the suction motor 20 sucking the air into the sewage tank 19 and injecting the compressed air into the sewage tank 19. Accordingly, the sewage can be treated without leaking the odor to the outside from the sewage tank and without requiring a disposal process.

[0025]

According to the invention of claim 4, a sewage crushing unit 43 is provided on the sewage tank 19 to crush a solid matter in the sewage tank 19. Accordingly, the excrement can be surely flushed from the sewage tank to the outside.

[0026]

According to the invention of claim 5, the suction valve 44 provided on the sewage tank 19 includes: a suction port 44a connected to a pipe 63 for flushing the sewage of a chair-type toilet 9; and a slider 123 for opening and closing the suction port 44a. Accordingly, the sewage can be automatically treated by connecting the chair-type toilet 9 to the sewage tank 19.

[0027]

According to the invention of claim 6, the suction valve 44 provided on the sewage tank 19 includes: a suction port 44b connected to a pipe 39 for flushing the sewage in an insertion-type toilet 100; and a slider 123 for opening and closing the suction port 44b. Accordingly, the sewage can be automatically treated by connecting the insertion-type toilet 100 to the sewage tank 19.

[0028]

According to the invention of claim 7, the suction valve 44 provided on the sewage tank 19 includes: a suction port 44a connected to a pipe 63 for flushing the sewage of a chair-type toilet 9; a suction port 44b connected to a pipe 39 for flushing the sewage in an insertion-type toilet 100; and a slider 123 for selectively opening and closing the suction port 44a and the suction port 44b. Accordingly, even a user requiring care can defecate or urinate on the chair-type toilet by assistance of a caretaker during daytime and can defecate or urinate without assistance of the caretaker during nighttime. Thus, burden of caretaking can be reduced significantly.

[0029]

According to the invention of claim 8, a toilet bowl 12 of the chair-type toilet 9 has a urine sensor 56 and a feces sensor 57. Accordingly, the consumption of the washing water can be changed by detecting the urine or the feces. Thus, a size of the washing water tank can be reduced and the toilet bowl can be adequately treated.

[0030]

According to the invention of claim 9, the suction valve 44 includes: a switching motor 121 having a horizontally swingable motor shaft 121a; a slider support plate 124 provided on a tip of a switching arm 122 connected to the horizontally swingable motor shaft 121a; a slider 123 supported by the slider support plate 124 via an elastic shaft 126, the slider 123 closing both the suction port 44a and the suction port 44b, the slider 123 selectively opening and closing the suction port 44a and the suction port 44b, and a pressing roller 129 for pressing the slider 123 toward the suction port 44a and the suction port 44b via the elastic shaft 126 and a retaining plate 127. Accordingly, clogging

an air inlet/outlet 45 provided on the sewage tank 19 for sucking air from the air inlet/outlet 45 to suck the sewage from the sewage pipe connected to the suction port of the suction valve 44 and for injecting a compressed air from the air inlet/outlet 45 to discharge the sewage stored in the sewage tank 19 to the outside; and

a suction motor 20 connected to the air inlet/outlet 45, the suction motor 20 sucking the air into the sewage tank 19 and injecting the compressed air into the sewage tank 19.

[0040]

It is preferred that a sewage crushing unit 43 is provided on the sewage tank 19 to crush a solid matter in the sewage tank 19.

[0041]

The suction valve 44 provided on the sewage tank 19 includes: a suction port 44a connected to a pipe 63 for flushing the sewage of a chair-type toilet 9 and/or a suction port 44b connected to a pipe 39 for flushing the sewage in an insertion-type toilet 100; and a slider 123 for selectively opening and closing the suction port 44a and the suction port 44b.

[0042]

It is preferred that a toilet bowl 12 of the chair-type toilet 9 has a urine sensor 56 and a feces sensor 57.

[0043]

The suction valve 44 includes: a switching motor 121 having a horizontally swingable motor shaft 121a; a slider support plate 124 provided on a tip of a switching arm 122 connected to the horizontally swingable motor shaft 121a; a slider 123 supported by the slider support plate 124 via an elastic shaft 126, the slider 123 closing both the suction port 44a and the suction port 44b, the slider 123 selectively opening and closing the suction port 44a and the suction port 44b, and a pressing roller 129 for pressing the slider 123 toward the suction port 44a and the suction port 44b via the elastic shaft 126 and a retaining plate 127.

[0044]

CLAIMS

1. An excrement treatment method, comprising:

a step of opening a suction port of a suction valve 44 of a sewage tank 19 and closing a water discharge valve 46 of the sewage tank 19;

a step of sucking air in the sewage tank 19 from an air inlet/outlet 45 of the sewage tank 19 and sucking a sewage from a pipe connected to the suction port of the suction valve 44 to store the sewage;

a step of closing the suction port of the suction valve 44 of the sewage tank 19 and opening the water discharge valve 46 of the sewage tank 19; and

a step of injecting a compressed air into the air inlet/outlet 45 of the sewage tank 19 to discharge the stored sewage to an outside from the water discharge valve 46.

2. The excrement treatment method according to claim 1, wherein

a step of crushing a solid matter in the sewage tank 19 is added before discharging the stored sewage to the outside from the water discharge valve 46.

3. An excrement treatment device, comprising:

a sewage tank 19;

a suction valve 44 provided on the sewage tank 19, the suction valve 44 opening and closing a suction port of a sewage pipe connected to the sewage tank 19;

a water discharge valve 46 provided on the sewage tank 19, the water discharge valve 46 discharging the sewage stored in the sewage tank 19 to an outside;

an air inlet/outlet 45 provided on the sewage tank 19 for sucking air from the air inlet/outlet 45 to suck the sewage from the sewage pipe connected to the suction port of the suction valve 44 and for injecting a compressed air from the air inlet/outlet 45 to discharge the sewage stored in the sewage tank 19 to the outside; and

a suction motor 20 connected to the air inlet/outlet 45, the suction motor 20 sucking the air into the sewage tank 19 and injecting the compressed air into the sewage tank 19.

4. The excrement treatment device according to claim 3, wherein

a sewage crushing unit 43 is provided on the sewage tank 19 to crush a solid matter in the sewage tank 19.

5. The excrement treatment device according to claim 3 or 4, wherein

the suction valve 44 provided on the sewage tank 19 includes:

a suction port 44a connected to a pipe 63 for flushing the sewage of a chair-type toilet 9; and

a slider 123 for opening and closing the suction port 44a.

6. The excrement treatment device according to claim 3 or 4, wherein

the suction valve 44 provided on the sewage tank 19 includes:

a suction port 44b connected to a pipe 39 for flushing the sewage in an insertion-type toilet 100; and

a slider 123 for opening and closing the suction port 44b.

7. The excrement treatment device according to claim 3 or 4, wherein

the suction valve 44 provided on the sewage tank 19 includes:

a suction port 44a connected to a pipe 63 for flushing the sewage of a chair-type toilet 9;

a suction port 44b connected to a second pipe 39 for flushing the sewage in an insertion-type toilet 100; and

a slider 123 for selectively opening and closing the suction port 44a and the suction port 44b.

8. The excrement treatment device according to claim 5, wherein

a toilet bowl 12 of the chair-type toilet 9 has a urine sensor 56 and a feces sensor 57.

9. The excrement treatment device according to any one of claims 5 to 7, wherein

the suction valve 44 includes:

a switching motor 121 having a horizontally swingable motor shaft 121a;

a slider support plate 124 provided on a tip of a switching arm 122 connected to the horizontally swingable motor shaft 121a;

the slider 123 supported by the slider support plate 124 via an elastic shaft 126, the slider 123 closing both the suction port 44a and the suction port 44b, the slider 123 selectively opening and closing the suction port 44a and the suction port 44b; and

a pressing roller 129 for pressing the slider 123 toward the suction port 44a and the suction port 44b via the elastic shaft 126 and a retaining plate 127.

10. The excrement treatment device according to claim 5, further comprising:

a booster tank 22 connected to a toilet bowl 12 of the chair-type toilet 9, the booster tank 22 storing a washing water required for one time flushing, wherein

the suction motor 20 supplies air pressure to the booster tank 22 to deliver the washing water stored in the booster tank 22 to a washing water jet port 17 of the toilet bowl 12.

11. The excrement treatment device according to claim 10, wherein

a washing water bag 33 having a soft property is provided inside an outer container 62 of the booster tank 22, an inlet side of the washing water bag 33 is connected to a washing water tank 18 via a water pump 27, an outlet side of the washing water bag 33 is connected to the washing water jet port 17 of the toilet bowl 12, and the

outer container 62 is connected to the suction motor 20 which feeds the compressed air for compressing the washing water bag 33 to pressure-feed the washing water.

12. The excrement treatment device according to claim 11, wherein

the washing water bag 33 is separated into a plurality of independent bags and the independent bags are respectively connected to washing water jet ports 17 of the toilet bowl 12.

13. The excrement treatment device according to claim 7, further comprising:

a switching valve 53 which is exposed to an air suction port and an air discharge port of the suction motor 20 to switch modes between A mode; AB mode and B mode, wherein

in the A mode of the switching valve 53, the air suction port and the sewage tank 19 are connected with each other and the sewage is sucked from the chair-type toilet 9 and the insertion-type toilet 100 to the sewage tank 19,

in the AB mode, an outside air is sucked from the air suction port to blow the outside air into a booster tank 22 and the insertion-type toilet 100, and

in the B mode, the outside air is sucked from the air suction port and pressure-fed to the sewage tank 19 to discharge the sewage to the outside.

14. The excrement treatment device according to claim 5, wherein

odor-absorbing holes 99 having a long narrow shape are formed on left and right side of a toilet bowl end 13 of the toilet bowl 12 of the chair-type toilet 9,

suction boxes 119 are attached to outer sides of the odor-absorbing holes 99 so as to be exposed to the odor-absorbing holes 99, and

the suction boxes 119 are connected to a deodorization filter 21 by a suction hose 120 via a deodorization fan 60.