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(54) **Ventilated toilet bowl**

(57) A deodorization closetool includes a closetool device (10) comprising a closetool body (11), a deodorization device (20) disposed in the closetool body (11), and a power switch device (30) disposed in the closetool body (11). The deodorization device (20) includes an air pumping device (25) which inspires from an inspiration hole (21) through an exhaust pipe (22). The inspiration hole (21) is defined in a proper position of the closetool body (11). The power switch device (20) is connected with the air pumping device (25) for controlling the air pumping device to turn on and off. The deodorization closetool employs the air pumping device (25) disposed in the closetool and the exhaust pipe (22) communicating with the drainage pipe to inhale and expel peculiar smell for preventing the peculiar smell from spilling whereby a washroom can be full of clear air.

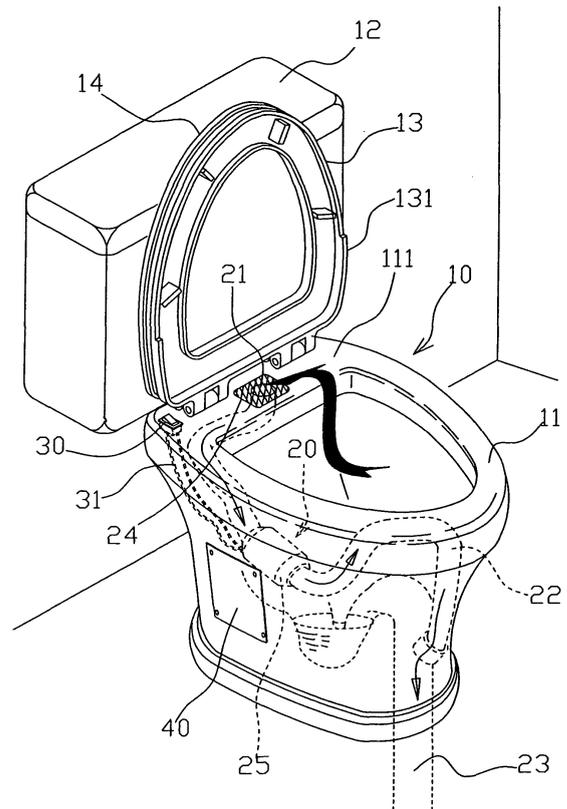


FIG.1

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Description**BACKGROUND OF THE INVENTION****(a) Field of the Invention**

[0001] The present invention relates to a deodorization closetool, and particularly to a deodorization closetool which employs a deodorization device disposed in the closetool to effectively eliminate the foul odor of excrement in the closetool for improving the air quality of a washroom.

(b) Description of the Invention

[0002] It is a necessary physiological activity for everyone to go to the washroom at daily living. An excrement naturally has peculiar smell, foul odor and even unacceptable smell due to some kinds of food. The uncomfortable smell not only remains in a closetool, but also spills in the washroom, which is embarrassed or uncomfortable to users.

[0003] Nowadays, aromatizes are often disposed in a washroom to produce aroma for mixing with and covering the foul odor produced by the excrement. However, the washroom is still full of the foul odor and so the foul odor is not completely eliminated. Furthermore, it is required to replace the aromatizes to keep the aroma in the washroom when the aromatizes are used up. Therefore, it is high cost. In another way, a deodorizer is dropped in a closetool before and after using the closetool for neutralizing the foul odor produced by the excrement with the deodorizer thereby eliminating the foul odor. However, it is inconvenient to use and also high cost.

[0004] In addition, a fan is disposed at a wall of the washroom for removing the foul odor to the outside of the washroom. However, since the fan is quite far away from the closetool, the removing effect of the fan is limited. Furthermore, the washroom is full of foul odor during using the closetool and so the effect of the fan to remove the foul odor is poor. Another manner is to employ a pipe to connect between the fan disposed at the wall and a back seat of the closetool. However, it requires to additionally dispose a pipe and so it is also inconvenient to use.

SUMMARY OF THE INVENTION

[0005] An object of the present invention is to provide a deodorization closetool which employs an air pumping device disposed in the closetool and an exhaust pipe communicating with a drainage pipe to inhale and expel peculiar smell for preventing the peculiar smell from spilling whereby a washroom can be full of clear air.

[0006] Another object of the present invention is to provide a deodorization closetool which is integrally formed with an air pumping device and an exhaust pipe being disposed in the closetool.

[0007] A further object of the present invention is to provide a deodorization closetool which disposes a power switch device at the closetool for facilitating a user to control at any moment.

5 [0008] A further object of the present invention is to provide a deodorization closetool which is defined with a maintenance window at a side surface of the closetool for facilitating a user to maintain.

10 [0009] A further object of the present invention is to provide a deodorization closetool which communicates and combines an exhaust pipe and a drainage pipe thereby overcoming the inconvenient installation of pipes of a conventional deodorization closetool and saving space occupied by the pipes.

15 [0010] To achieve the above objects, a deodorization closetool of the present invention includes a closetool body comprising a closetool body, a deodorization device disposed in the closetool body, and a power switch device disposed in the closetool body. The deodorization device includes an air pumping device which inspires from an inspiration hole through an exhaust pipe. The inspiration hole is defined in a proper position of the closetool body. One end of the exhaust pipe communicates a drainage pipe of the closetool body. At least one check valve is disposed between the exhaust pipe and the drainage pipe. The power switch device is connected with the air pumping device for controlling the air pumping device to turn on and off.

20 [0011] These and other embodiments, aspects and features of the invention will be better understood from a detailed description of the preferred embodiments of the invention, which are further described below in conjunction with the accompanying figures.

BRIEF DESCRIPTION OF THE DRAWINGS**[0012]**

35 Fig. 1 is a schematic view of a deodorization closetool in accordance with a first embodiment of the present invention.

40 Fig. 2 is a schematic side view of Fig. 1.

Figs. 3A and 3B are schematic views of an air pumping device of the present invention.

45 Fig. 4 is a schematic view of a deodorization closetool in accordance with a second embodiment of the present invention.

50 Fig. 5 is a schematic view of a deodorization closetool in accordance with a third embodiment of the present invention.

Figs. 6A and 6B are schematic views of a deodorization closetool in accordance with a fourth embodiment of the present invention.

55 Fig. 7 is a schematic view of a deodorization closetool in accordance with a fifth embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0013] Referring to Figs. 1 and 2, a deodorization closetool in accordance with a preferred embodiment of the present invention includes a closetool device 10, a deodorization device 20 and a power switch device 30. The closetool device 10 includes a closetool body 11 and a water tank 12. A cushion 13 and a closetool cover 14 are pivotably disposed at a backseat surface 111 of the closetool body 11. A protruding edge 131 is disposed at a side edge of a rear segment of the cushion 13 for closely connecting with the closetool body 11 thereby enabling the rear segment of the cushion 13 to produce a better negative pressure effect. The deodorization device 20 disposed in the closetool body 11 includes an inspiration hole 21 which is defined in the backseat surface 111 of the closetool body 11 and at the front of the pivoting position of the cushion 13. A sieve 24 is disposed at the inspiration hole 21 for preventing sundries from falling into the inspiration hole 21. The inspiration hole 21 is in communication with an exhaust pipe 22 disposed in the closetool body 11. One end of the exhaust pipe 22 is connected to and in communication with a drainage pipe 23 disposed in the closetool body 11. The exhaust pipe 22 respectively in communication with the inspiration hole 21 and the drainage pipe 23 is connected with an air pumping device 25. The exhaust pipe 22 is slanted with an angle to communicate with the drainage pipe 23 for preventing the excrement in the drainage pipe 23 from entering the exhaust pipe 22. In the preferred embodiment, a check valve is disposed at a connection segment of the exhaust pipe 22 which is bent from a vertex of the exhaust pipe 22 and is connected to the drainage pipe 23 for preventing the excrement from entering the exhaust pipe 22. The air pumping device 25 may be configured to be higher than the height of the maximum water level of the pool of the closetool body 11. For example, the air pumping device 25 is disposed at the rear segment of the closetool body 11 which is properly elevated. The power switch device 30 is disposed in the closetool body 11 and connected to the air pumping device 25 for controlling to turn on or off the air pumping device 25. The power switch device 30 is connected to the air pumping device 25 through a power line 31. A maintenance window 40 is defined in a side surface of the closetool body 11 for facilitating a user to maintain.

[0014] In use, the air pumping device 25 is turned on, and so the inspiration hole 21 is enabled to inspire. The air pumping device 25 includes a fan 251 and a check valve 252 disposed at one end thereof near the drainage pipe 23. Also referring to Figs. 3A and 3B, when the deodorization closetool of the present invention is used, smell of the excrement in the closetool body 11 is inhaled along the exhaust pipe 22 to the air pumping device 25 due to the inhaling force of the inspiration hole 21. The air is inhaled to the fan 251 of the air pumping device 25 and the running fan 251 exhausts the air passing there

through to the check valve 252 to enable the check valve 252 to open to allow the air to pass there through. Then the air flows through the drainage pipe 23 and is expelled. When finishing using the deodorization closetool, the power switch device 30 is turned off, the fan 251 is stopped to run. The check valve 252 returns to a close position. Therefore, the foul odor in the pipe cannot extend through the check valve 252 in a reversed direction. Thus, a user can avoid to smell the odor of the excrement during using the deodorization closetool, and the latter user also can avoid to smell the odor of the excrement of the former user thereby maintaining better quality of air in the washroom.

[0015] Referring to Fig. 4, a deodorization closetool in accordance with a second embodiment of the present invention includes a closetool device 10, a deodorization device 50 and a power switch device 30. The closetool device 10 includes a closetool body 11 and a water tank 12. A cushion 13 and a closetool cover 14 are pivotably disposed at a backseat surface 111 of the closetool body 11. A protruding edge 131 is disposed at a side edge of a rear segment of the cushion 13. The deodorization device 50 includes an inspiration hole 512 which is defined in the backseat surface 111 of the closetool body 11. The inspiration hole 512 is in communication with an exhaust pipe 52 disposed in the closetool body 11. The deodorization device 50 disposed in the closetool body 11 includes an inspiration hole 511 which is defined in the backseat surface 111 of the closetool body 11 and at the front of the pivoting position of the cushion 13. The inspiration hole 511 is in communication with an exhaust pipe 52 disposed in the closetool body 11. One end of the exhaust pipe 52 is connected to and communicated with a drainage pipe 53 disposed in the closetool body 11. The exhaust pipe 52 respectively in communication with the inspiration hole 511 and the drainage pipe 53 is connected with an air pumping device 55. The exhaust pipe 52 is slanted with an angle to communicate with the drainage pipe 53 for preventing excrement in the drainage pipe 53 from entering the exhaust pipe 52. The inspiration hole 512 is connected to and communicated with an inspiration pipe 51 disposed at the backseat surface 111 of the closetool body 11. The inspiration pipe 51 is flat with a front end being defined with the inspiration hole 511 for inhaling peculiar smell or foul odor during using the deodorization closetool and exhausting through the pipe. The power switch device 30 is connected to the air pumping device 55 through a power line 31 for controlling to turn on or off the air pumping device 55.

[0016] Referring to Fig. 5, a deodorization closetool in accordance with a third embodiment of the present invention includes a closetool device 10, and a deodorization device 60. The closetool device 10 includes a closetool body 11, a water tank 12, a cushion 13 and a closetool cover 14. A recess 132 is defined in the bottom edge of the rear end of the cushion 13. The deodorization device 60 includes an inspiration pipe 61 which is re-

ceived in the recess 132 of the cushion 13. When the cushion 13 is placed down, the inspiration pipe 61 is located at the backseat surface 111 of the closetool body 11. The inspiration pipe 61 is flat with a front end being defined with an inspiration hole 611 for inhaling peculiar smell or foul odor during using the deodorization closetool. The rear end of the inspiration pipe 61 is disposed with a tube connecter 612. The tube connecter 612 is communicated with an exhaust pipe 62 disposed in the closetool body 11. One end of the exhaust pipe 62 is communicated with a drainage pipe 63 disposed in the closetool body 11. The exhaust pipe 62 respectively communicated with the inspiration hole 611 and the drainage pipe 63 is connected with an air pumping device 65.

[0017] Referring to Figs. 6A and 6B, a deodorization closetool in accordance with a fourth embodiment of the present invention includes a closetool device 10, and a deodorization device 70. The closetool device 10 includes a closetool body 11, a water tank 12, a cushion 13 and a closetool cover 14. A closed segment 130 is disposed at the bottom edge of the rear end of the cushion 13. An inhaling groove opening 134 is defined inside the closed segment 130. A groove hole 133 is defined in the closed segment 130. The deodorization device 70 includes an inspiration pipe 71. The inspiration pipe 71 is a flat tube with a front end being defined with an inspiration hole 711. The inspiration hole 711 is positioned at the groove hole 133 of the cushion 13. When the cushion 13 is placed down, the inspiration hole 711 can inhale peculiar smell or foul odor through the inhaling groove opening 134 of the closed segment 130 during using the deodorization closetool. The rear end of the inspiration pipe 71 is communicated with and connected with an inspiration hole 712 defined in a side surface of the closetool body 11. The inspiration hole 712 is communicated with an exhaust pipe 72 disposed in the closetool body 11. One end of the exhaust pipe 72 is communicated with a drainage pipe 73 disposed in the closetool body 11. The exhaust pipe 72 respectively communicated with the inspiration hole 711 and the drainage pipe 73 is connected with an air pumping device 75.

[0018] Referring to Fig. 7, the air pumping device 25 and the exhaust pipe 22 of the present invention may be disposed at a groove 113 in the edge of the seat surface of the closetool body 11. Therefore, the deodorization closetool of the present invention can vary the configuration thereof in accordance with various demands.

[0019] As described above, the deodorization closetool of the present invention employs an air pumping device disposed in the closetool and an exhaust pipe communicating with a drainage pipe to inhale and expel peculiar smell for preventing the peculiar smell from spilling whereby a washroom can be full of clear air. Furthermore, the present invention employs a power switch device to dispose at the closetool for facilitating a user to control at any moment. In addition, the pipes are integrally

formed with the closetool thereby overcoming the conventional inconvenient installation of the pipes and saving space occupied by the pipes.

[0020] The preferred embodiments, aspects, and features of the invention have been described in detail. It will be apparent to those skilled in the art that numerous variations, modifications, and substitutions may be made without departing from the spirit of the invention as disclosed and further claimed below.

Claims

1. A deodorization closetool comprising:

a closetool device comprising a closetool body;
 a deodorization device disposed in the closetool body, the deodorization device comprising an air pumping device which inspires from an inspiration hole through an exhaust pipe, the inspiration hole being defined in a proper position of the closetool body, one end of the exhaust pipe communicating a drainage pipe of the closetool body, at least one check valve being disposed between the exhaust pipe and the drainage pipe; and
 a power switch device disposed in the closetool body and connecting the air pumping device, the power switch device being adapted for controlling the air pumping device to turn on and off.

2. The deodorization closetool of claim 1, wherein a cushion and a closetool cover are pivotably disposed at the backseat surface of the closetool body.

3. The deodorization closetool of claim 1, wherein the inspiration hole is communicated with the exhaust pipe disposed in the closetool body.

4. The deodorization closetool of claim 1, wherein the height of the air pumping device is higher than that of maximum water level of the pool of the closetool body.

5. The deodorization closetool of claim 2, wherein a protruding edge is disposed at the side edge of the rear segment of the cushion.

6. The deodorization closetool of claim 2, wherein a recess is defined in the bottom edge of the rear end of the cushion for positioning an inspiration pipe.

7. The deodorization closetool of claim 2, wherein a through groove is defined in the bottom edge of the rear end of the cushion for positioning an inspiration pipe.

8. The deodorization closetool of claim 1, wherein the power switch device is connected with the air pumping device through a power line.
9. The deodorization closetool of claim 1, wherein the exhaust pipe is slanted with an angle to communicate with the drainage pipe for preventing excrement in the drainage pipe from entering the exhaust pipe. 5
10. The deodorization closetool of claim 1, wherein the air pumping device includes a fan and a check valve disposed at one end thereof near the drainage pipe. 10

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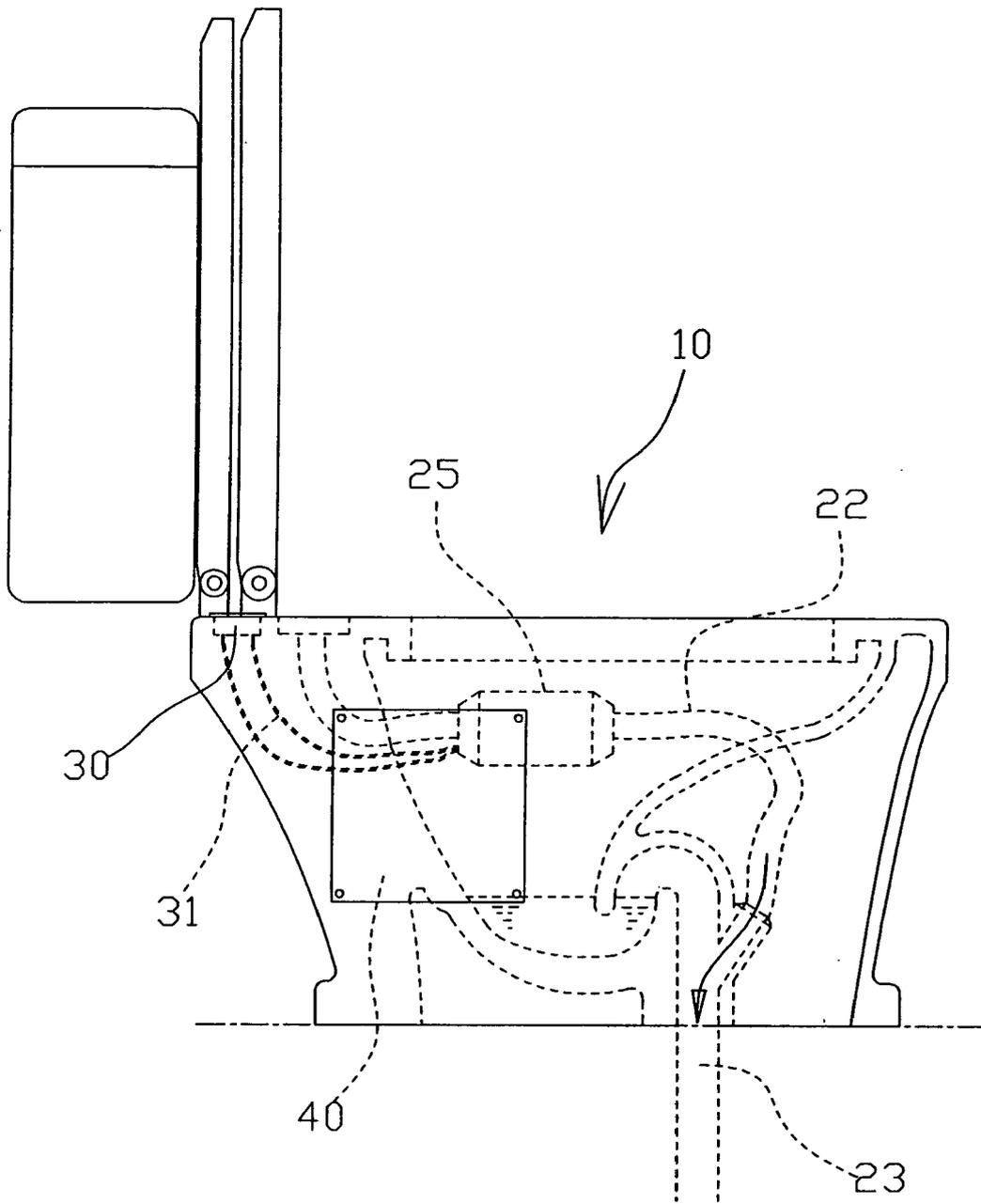


FIG.2

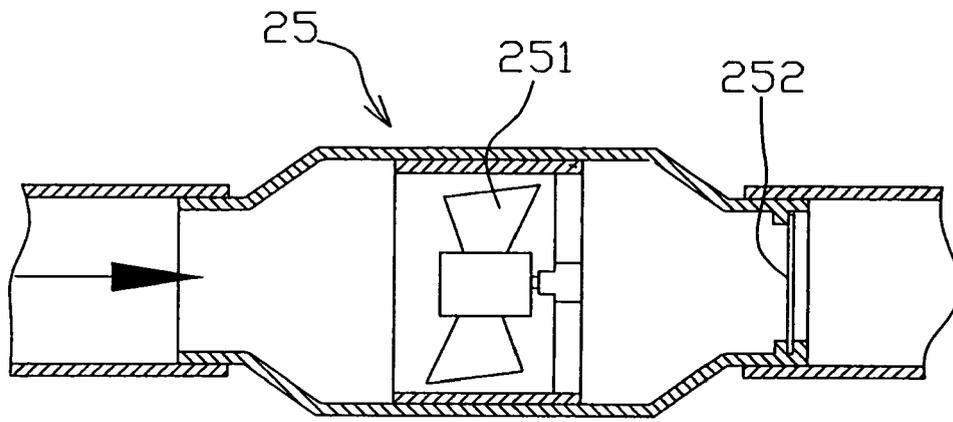


FIG.3A

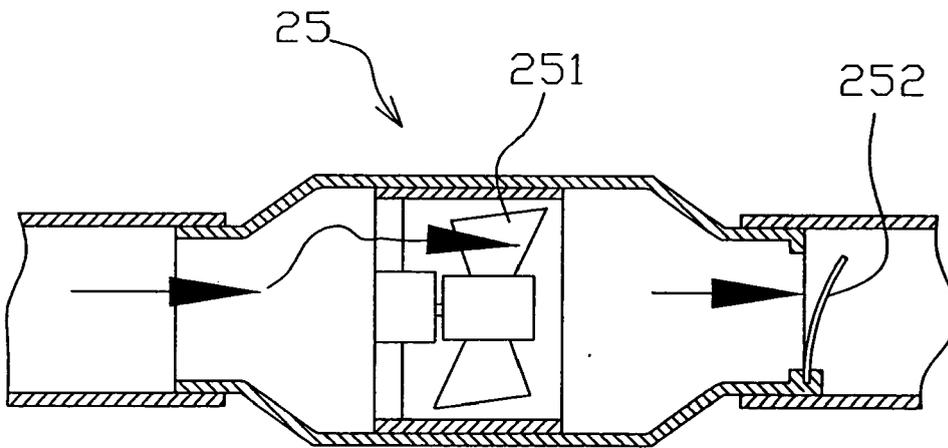


FIG.3B

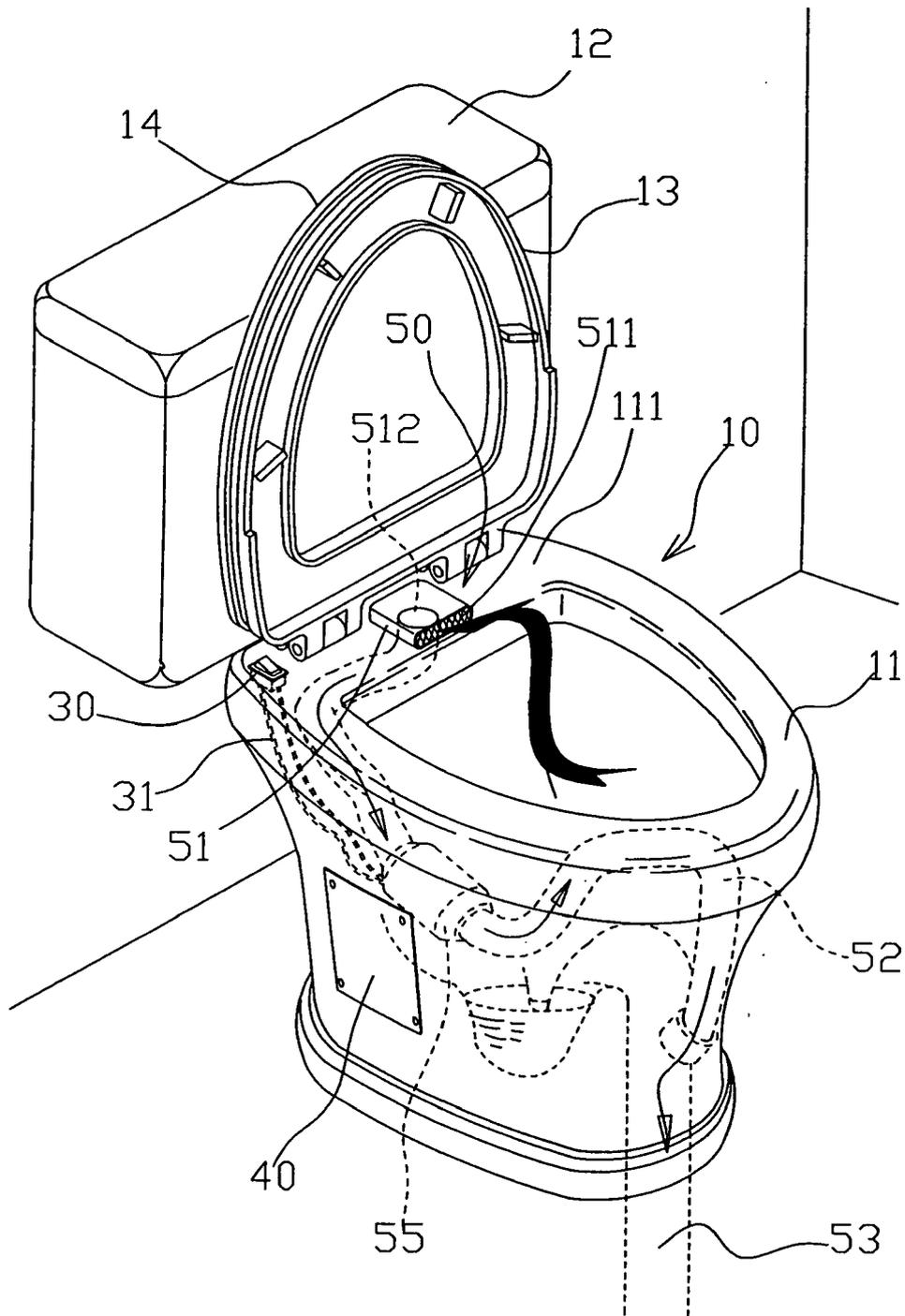


FIG. 4

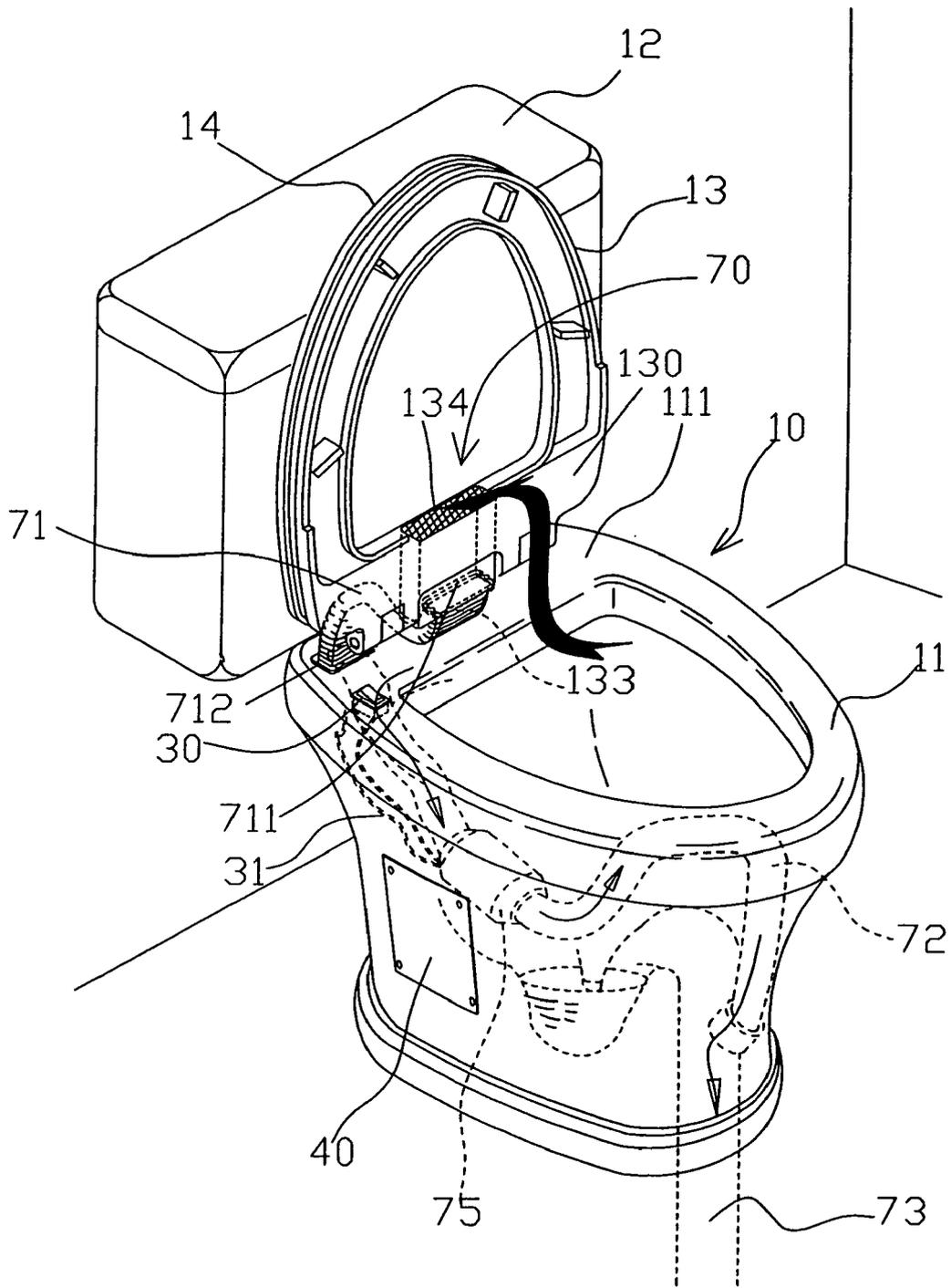


FIG.6A

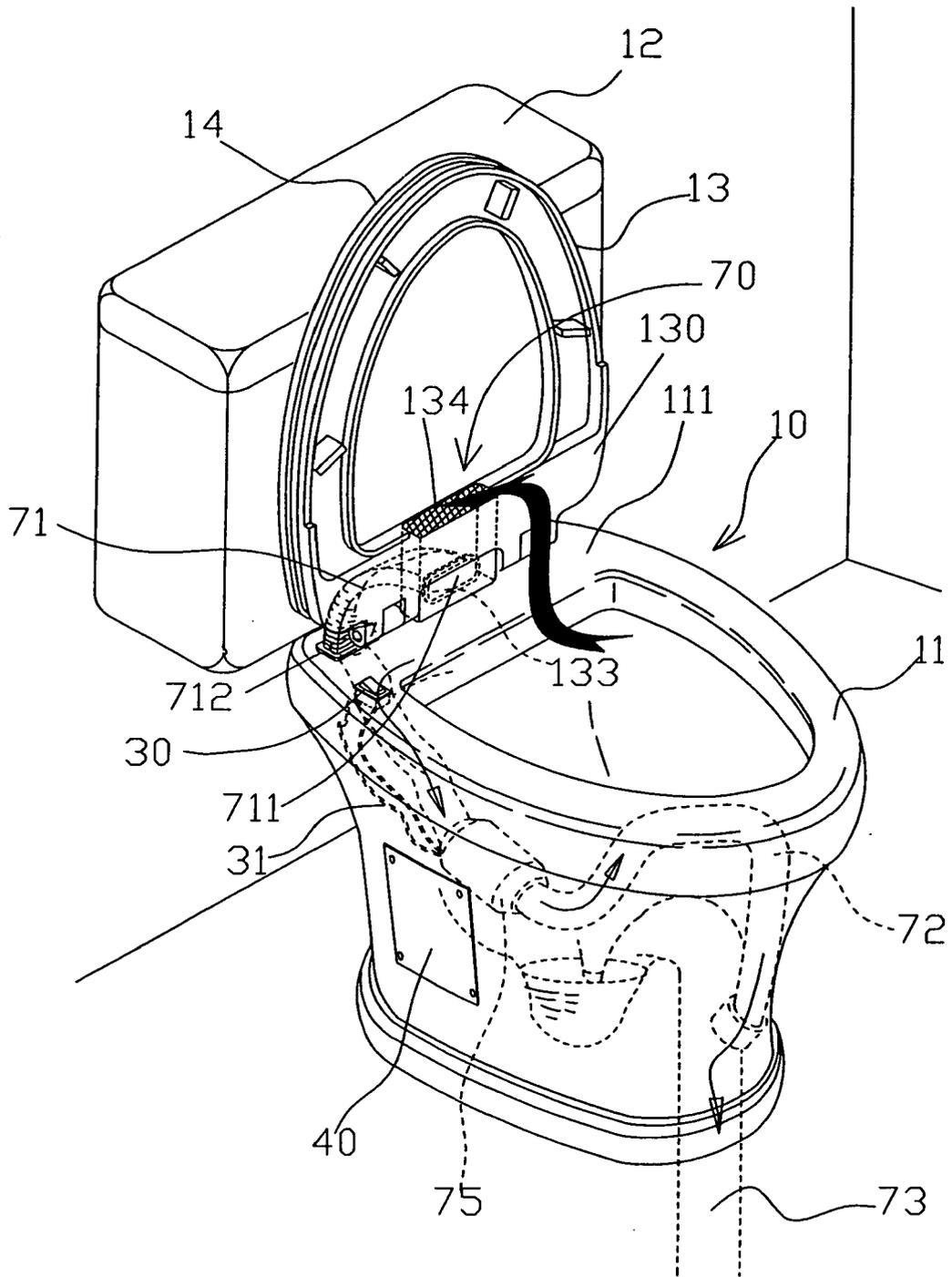


FIG.6B

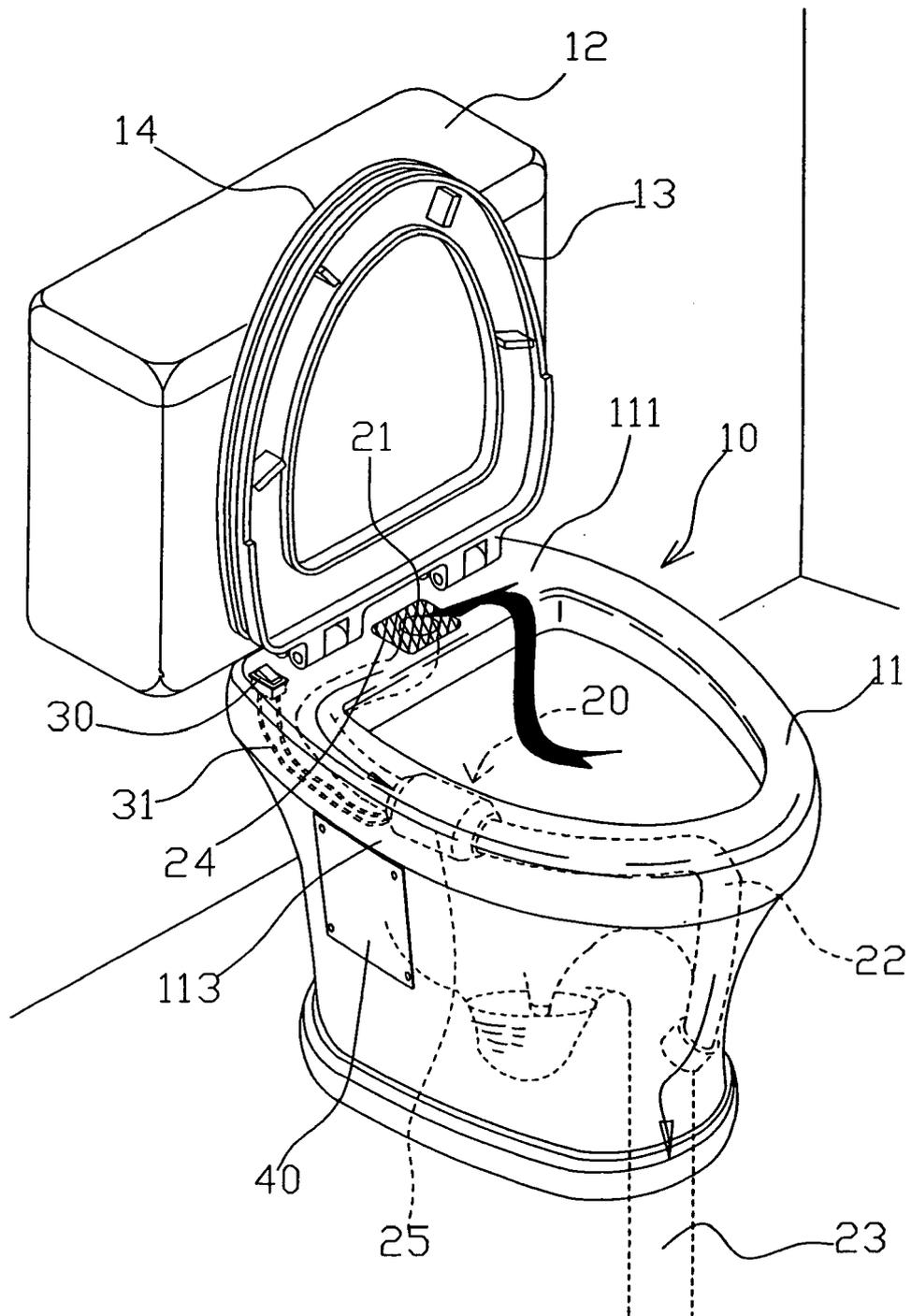


FIG.7



European Patent Office

PARTIAL EUROPEAN SEARCH REPORT

Application Number

which under Rule 45 of the European Patent Convention EP 05 02 8749 shall be considered, for the purposes of subsequent proceedings, as the European search report

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	WO 03/000998 A (LI, JUN) 3 January 2003 (2003-01-03) * abstract *	1-3,8-10	INV. E03D9/052
X	WO 2005/124038 A (DUNCAN, MALCOLM) 29 December 2005 (2005-12-29) * paragraph [0026] - paragraph [0027]; figures 1,2 *	1-3,6,8, 9	
X	DE 100 33 930 A1 (LIBAL, GERHARD; LIBAL, MARCO) 4 October 2001 (2001-10-04) * paragraph [0012] - paragraph [0014] *	1	
X	BE 384 317 A (PELLARIN, LUIGI) 31 December 1931 (1931-12-31) * the whole document *	1,6	
A	FR 2 806 113 A (PINHEIRO SANTOS JOSE MANUEL) 14 September 2001 (2001-09-14) * figure 2 *	5-7	
A	US 1 695 530 A (BRUDER AUGUST J) 18 December 1928 (1928-12-18) * figures 1-4 *	5-7	
			TECHNICAL FIELDS SEARCHED (IPC)
			E03D
INCOMPLETE SEARCH			
The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC to such an extent that a meaningful search into the state of the art cannot be carried out, or can only be carried out partially, for these claims.			
Claims searched completely :			
Claims searched incompletely :			
Claims not searched :			
Reason for the limitation of the search: see sheet C			
1	Place of search Munich	Date of completion of the search 14 June 2006	Examiner Flygare, E
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			

EPO FORM 1503 03.02 (P04C07)



Claim(s) not searched:

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Reason for the limitation of the search (non-patentable invention(s)):

The additional technical features of claim 4 are unclear to that extent that no meaningful search is possible.

Further limitation of the search

Reason for the limitation of the search:

ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.

EP 05 02 8749

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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14-06-2006

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