



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
09.12.2009 Bulletin 2009/50

(51) Int Cl.:
E03C 1/30 (2006.01) **E03D 1/00** (2006.01)
E03D 1/012 (2006.01)

(21) Application number: **09162214.2**

(22) Date of filing: **08.06.2009**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK TR

(30) Priority: **06.06.2008 NL 2001655**
09.04.2009 EP 09157785

(71) Applicants:
• **Van Meer, Melle**
3297 WP Puttershoek (NL)
• **Van Gool, Michael**
3297 CT Puttershoek (NL)

(72) Inventors:
• **Van Meer, Melle**
3297 WP Puttershoek (NL)
• **Van Gool, Michael**
3297 CT Puttershoek (NL)

(74) Representative: **Hatzmann, Martin**
Vereenigde
Johan de Wittlaan 7
2517 JR Den Haag (NL)

(54) **Toilet installation, toilet tank and method of unclogging**

(57) A toilet installation is provided with a toilet bowl, a control panel for a flush water supply to the toilet bowl and a sewer pipe which is coupled to the toilet bowl. The installation is provided with a bypass pipe which runs from a mouth behind the control panel to the sewer pipe

and forms a bypass along the toilet bowl. This makes it possible to gain access to the sewer pipe in a simple manner without the toilet bowl being possibly damaged or needing to be removed. This may, for instance, be used for unclogging.

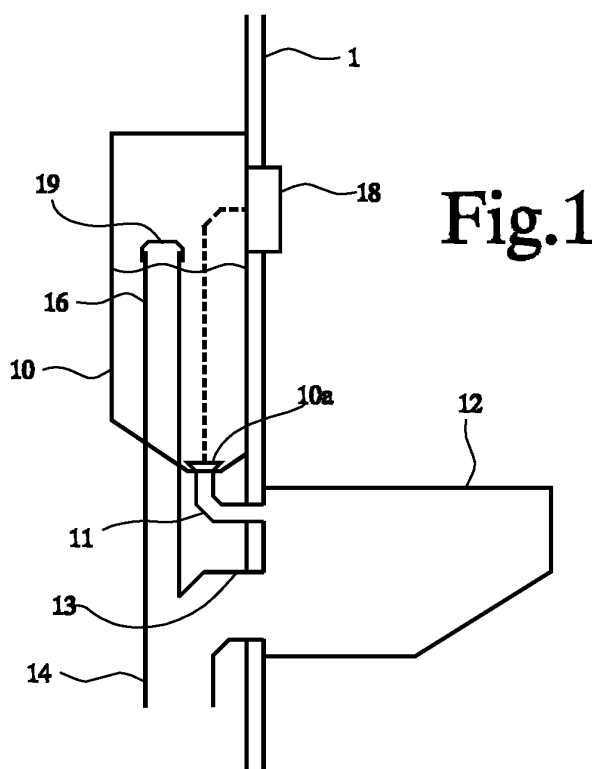


Fig.1

Description

[0001] The invention relates to a toilet installation.

[0002] Providing access to the drain of a toilet installation, for instance for unclogging the drain, can require laborious measures. It is often necessary to remove the toilet bowl to thus gain access to the drain pipe to the sewer. While it is possible to gain access to the drain pipe via the toilet bowl, this involves a real risk of undesired visible damage to the toilet bowl. Similar problems occur with other types of toilet installations such as urinals and when the toilet is part of a water closet combination.

[0003] Different solutions have been proposed to make removal of the toilet bowl unnecessary. For instance, Irish patent application No. 20030417 describes the possibility of installing a fixed hand pump on the drain of the toilet. With this, the air pressure in the drain can be increased to push away obstructions.

[0004] Also, vacuum toilet systems are known with which material can be suctioned from the toilet to the sewer. These systems are provided with a fixed pump installation which is not directed to incidental clogging. US Patent No. 6,243,887 describes such a system, where a blower is provided near the toilet bowl, which blows air to a sewer pipe during use of the toilet. The drain of the toilet terminates in the sewer pipe. To this drain, an ejector is mounted which responds to the increased pressure in the sewer pipe by reducing the pressure in the drain. Thus, material is suctioned away from the toilet through the drain.

[0005] Such facilities make the toilet per se more complicated. Moreover, they are useful only for "minor" obstructions, which can be removed with limited pressure differences.

[0006] From WO 2008/020262, a toilet installation is known with which malodors can be extracted from a toilet bowl. The installation comprises a pump in the sewer system with which air is extracted from the toilet bowl. One of the embodiments uses an extraction path for this which runs from the sewer system through an extraction pipe through the toilet tank to the space above the water in the toilet tank. From there, an overflow pipe runs to the toilet bowl. When the pump pumps air to the sewer system, then air is thus extracted from the toilet bowl to the sewer system via the overflow pipe and the extraction pipe through the toilet tank.

[0007] It goes without saying that in such an installation an airtight sealing of the space above the toilet bowl is needed. This is because otherwise hardly any air would flow through the overflow pipe. The document shows no control panel, but only a projecting control lever which apparently enables flushing of the toilet by rotation of a shaft through the wall of the toilet tank. With such a shaft, sufficient airtight sealing is to be expected. Use of a control panel which opens into the space above the water in the toilet tank where the pipe to the sewer system terminates in such an installation instead of a lever on a shaft is, by contrast, undesired because the control panel can

allow much more air to pass so that the extraction of odors from the toilet bowl becomes ineffective. Further, with such an installation, it is of course not in order to fit a sealing means on the pipe from the space above the water in the toilet bowl to the sewer. This is because this would completely block the extraction.

[0008] It is *inter alia* an object of the invention to provide a toilet installation which offers the possibility to gain access to the drain of a toilet installation in a simplified manner, for instance for unclogging, without extra facilities visible to the user being needed.

[0009] A toilet installation according to claim 1 is provided. Here, a bypass pipe, whose mouth is located behind the control panel of the toilet installation, and which forms a bypass along the toilet bowl, provides access to the sewer pipe which is coupled to the toilet bowl. This makes access to the sewer pipe possible without damaging the toilet bowl. In one embodiment, this involves a control panel fitted in a wall. Especially a wall-fitted control panel offers ample space for access to such a mouth. The bypass pipe may be an unclogging pipe.

[0010] In one embodiment, the pipe is used for unclogging according to claim 9, with the control panel being removed to gain access to the mouth of the pipe which runs through the toilet tank to the sewer pipe.

[0011] These and other advantages and aspects of the invention will become clear on the basis of exemplary embodiments, which will be described with reference to the following Figures.

Figure 1 shows a toilet installation.

Figure 2 shows a toilet tank.

[0012] Figure 1 shows a wall-recessed toilet installation with a toilet tank 10, a toilet bowl 12, and a sewer pipe 14, with connections 11, 13 between the toilet bowl 12 on the one side and toilet tank 10 and sewer pipe 14 on the other side. Between toilet tank 10 and connection 11, there is a controllable shutoff 10a. Toilet tank 10 is located in the wall 1 of the toilet room, and is provided with a control panel 18 in wall 1, above toilet tank 10 for control of shutoff 10a (the presence of a control connection is schematically shown with a dotted line).

[0013] The installation further contains a bypass pipe 16, which runs through toilet tank 10 to sewer pipe 14 in a bypass along toilet bowl 12. Bypass pipe 16 will further be referred to as unclogging pipe, referring to a possible use of this pipe. On one side, unclogging pipe 16 terminates behind the control panel 18, above the maximum water level in toilet tank 10. On this side, unclogging pipe 16 is provided with a sealing means 19. In toilet tank 10, unclogging pipe 16 can run along the wall of toilet tank 10, or right through it, so that it is surrounded by water. The other side of unclogging pipe 16 terminates in sewer pipe 14. Therebetween, unclogging pipe 16 runs through the bottom of toilet tank 10, next to the connection with toilet bowl 12. Viewed from the toilet bowl, unclogging pipe 16 can run next to or behind the connection to the

toilet bowl through the bottom of toilet tank 10. Figure 2 shows a toilet tank in which unclogging pipe 16 runs next to the connection to the toilet bowl through the bottom of the toilet tank 10. At the bottom of toilet tank 10, unclogging pipe 16 may terminate in a connection for an intermediate pipe for mounting to sewer pipe 14, or, in a ready-made installation, unclogging pipe 16 may continue to run in its entirety to sewer pipe 14. Although an embodiment with a completely separate unclogging pipe is shown, of course a part of the wall of the unclogging pipe may be formed by the wall of toilet tank 10, so that the unclogging pipe is formed by partitioning of a part of toilet tank 10. In an embodiment, pipe 16 can run alongside toilet tank 10 instead of through it. A pipe 16 through toilet tank 10 has the advantage that it requires less room for the installation and that one can always start from a standard size built-in toilet tank. But if there is room next to toilet tank 10, pipe 16 can also run alongside toilet tank 10. If desired, pipe 16 may then be attached to toilet tank 10.

[0014] In normal operation, toilet tank 10, toilet bowl 12, and sewer pipe 14 operate as already known. Toilet tank 10 is filled up to a maximum level from a connection to the water supply (not shown). The user of the toilet controls the shutoff 10a between toilet tank 10 and connection 11 by pressing a button on control panel 18. The button has, for instance, the form of a tiltably suspended surface in the control panel which is connected with shutoff 10a, without forming an airtight seal of the space behind the control panel. Other control constructions for shutoff 10a may be used as well without these forming an airtight seal of the space behind the control panel. By opening the shutoff 10a, the water flows out of toilet tank 10 to toilet bowl 12 and from there to sewer pipe 14. Here, toilet tank 10 serves as a flush water supply.

[0015] Unclogging pipe 16 is available to gain access to sewer pipe 14 in the case of clogging. The repairman then removes control panel 18 and removes sealing means 19. Via unclogging pipe 16, then, for instance, a snake with an unclogging brush thereto can be pushed to sewer pipe 14 to unclog sewer pipe 14. Also, the mouth of an unclogging installation for providing underpressure and/or overpressure can be connected to unclogging pipe 16. After removal of the obstruction, sealing means 19 is mounted on unclogging pipe 16 again and control panel 18 is placed back. Thus, it is not needed to remove toilet bowl 12 for unclogging, or to move unclogging equipment through toilet bowl 12 to the sewer pipe.

[0016] This installation is particularly advantageous with a wall-recessed toilet tank, because in that case, no visible facilities accessible to unqualified persons are needed in the toilet room. However, the unclogging pipe 16 may also be used in toilet tanks which are not wall-recessed, with a mouth under a lid of the toilet tank. In this case, unclogging pipe 16 also simplifies unclogging without the toilet bowl 12 needing to be removed.

[0017] Sealing means 19 may, for instance, be a rubber shut-off sleeve which catches or clamps onto unc-

logging pipe 16, or a screw cap on unclogging pipe 16. Any other type of detachable airtight sealing means 19 may be used. In order to make the sealing means better accessible, the upper end of the unclogging pipe 16 may be provided with a ninety-degree bend with a mouth directed to control panel 18, and over which sealing means 19 can be provided. A bend with a different angle is also possible. Mounting and demounting of the sealing means are simplified as long as the bend at least partly directs the mouth to the control panel. Sealing means 19 is not strictly necessary. An advantage of the sealing means is that sewer odor is stopped when control panel 18 does not do this. In one embodiment, sealing means 19 is provided with an aerator, which only allows air to pass when the pressure in unclogging pipe 16 compared to the pressure of the ambient air is more than a threshold value lower, and a vent, which only allows air to pass when the pressure in unclogging pipe 16 compared to the pressure of the ambient air is more than a threshold value higher. Also, a combination of a vent and an aerator can be used, which only allows air to pass when the pressure in unclogging pipe 16 compared to the pressure of the ambient air is more than a threshold value higher, or compared to the pressure of the ambient air is more than a threshold value lower, respectively, or both. This helps to prevent clogging. This pipe can also be used for venting/aerating, which prevents air from being removed elsewhere from the installation so that a communication with the sewer is created (odor nuisance).

[0018] Unclogging pipe 16 preferably terminates above the maximum water level of toilet tank 10. This reduces the risk of contamination of the water supply by contact with the sewer. However, if no stringent requirements are imposed thereon, a lower mouth can be used as well. However, in that case, it may be needed to first (partly) empty the toilet tank before sealing means 19 is removed. The mouth of unclogging pipe 16 is preferably located below the drinking water connection to toilet tank 10, so that the sewer water flows through the overflow and does not return into the tap water installation. In one embodiment, behind the control panel, unclogging pipe 16 may be provided with a T-section with a connection to a drain pipe to, for instance, discharge water from a condenser or flush system in the ceiling of the toilet room via the drain pipe, the T-section and unclogging pipe 16 to the sewer. This saves extra connections.

[0019] The installation shown makes it possible to already provide for unclogging in the manufacture of the toilet tank. By building in an unclogging pipe 16 in the toilet tank 10 in manufacture, with a connection for connecting to a sewer pipe separate from the normal connection for toilet bowl 12, the installation of unclogging facilities is simplified considerably.

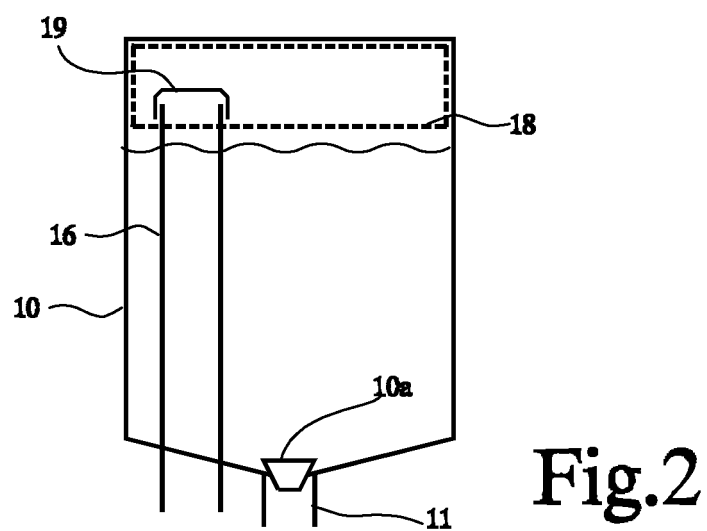
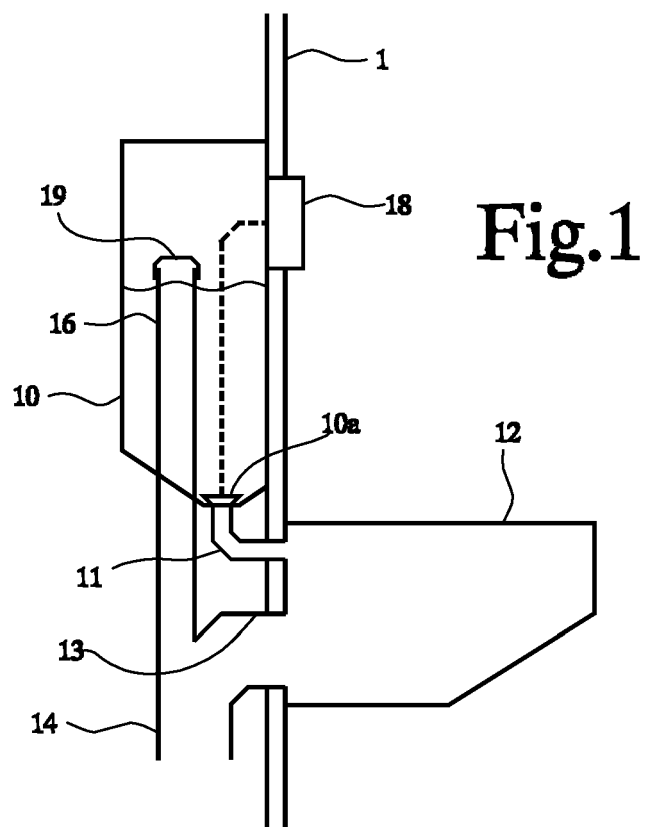
[0020] In addition to (or instead of) for unclogging, the unclogging pipe may also be used for other operations with toilet installations, for instance to gain access to the sewer pipe for inspection or flushing. Venting and aeration and expansion of the installation from the space be-

hind the control panel are also possible.

[0021] Also in toilet installations without a toilet tank, a bypass pipe can be used which runs from a mouth behind the control panel for the flush water supply to the sewer pipe, such as, for instance, in urinals. In this type of toilet installations, the flush water supply may, for instance, be a connection for the water supply system, while the control panel controls a valve between the flush water supply and the toilet bowl.

Claims

1. A toilet installation provided with a toilet bowl, a control panel for controlling a shutoff between a flush water supply and the toilet bowl, a sewer pipe which is coupled to the toilet bowl and a bypass pipe which runs from the sewer pipe to a mouth of the bypass pipe behind the control panel, so that the mouth of the bypass pipe becomes accessible upon removal of the control panel, wherein the bypass pipe forms a bypass along the toilet bowl. 15
2. A toilet installation according to claim 1, wherein the flush water supply comprises a toilet tank and the bypass pipe runs through the toilet tank from the sewer pipe to the mouth. 25
3. A toilet installation according to claim 2, wherein the toilet tank is a wall-recessed toilet tank with a wall-fitted control panel. 30
4. A toilet installation according to any one of the preceding claims, wherein the control panel is provided with a touch button for control of the shutoff. 35
5. A toilet installation according to any one of the preceding claims, wherein the bypass pipe contains a bend, with which the mouth of the bypass pipe is at least partly directed to the control panel. 40
6. A toilet installation according to any one of the preceding claims, wherein the bypass pipe is provided with a detachable sealing means on the mouth. 45
7. A toilet installation according to claim 6, wherein the sealing means is airtight.
8. A toilet installation according to claim 6, wherein the sealing means contains a vent which only allows air to pass when the pressure in the bypass pipe compared to the pressure of the ambient air is more than a threshold value higher. 50
9. A toilet installation according to claim 6, wherein the sealing means contains an aerator and/or a combination of a vent and aerator. 55
10. A toilet installation according to claim 2, wherein the bypass pipe terminates above a maximum water level of the toilet tank and runs from there through the toilet tank to the sewer pipe.
11. A method for unclogging a sewer pipe which is connected to a toilet bowl, comprising:
 - removing a control panel for flush water supply to the toilet bowl;
 - taking unclogging measures via an unclogging pipe which terminates behind the control panel and runs from the toilet bowl to the sewer pipe in a bypass.
12. A method according to claim 11, wherein the control panel controls flush water supply from a toilet tank to the toilet bowl.
13. A toilet tank for use in a toilet installation according to any of claims 9 and 10, provided with a control panel, a first connection for a toilet bowl and a bypass pipe which has a mouth which terminates behind the control panel and which bypass pipe runs through the toilet tank and terminates in a second connection, parallel to the connection for the toilet bowl, for connection with a sewer pipe in a bypass of the toilet bowl.
14. A toilet tank according to claim 13, wherein the bypass pipe is provided with a detachable sealing means on the mouth.
15. A toilet tank according to claim 13 or 14, wherein the unclogging pipe has a mouth which terminates above a maximum water level of the toilet tank and runs to the second connection via the toilet tank.





EUROPEAN SEARCH REPORT

Application Number
EP 09 16 2214

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	WO 2008/020262 A (TOILETFRIEND INTERNAT PTY LTD [ZA]; TESNER JAN HENDRIK [ZA]) 21 February 2008 (2008-02-21) * abstract * * page 9, line 3 - line 29; figure 4 *	1-10, 13-15	INV. E03C1/30 E03D1/00 E03D1/012
Y	GB 846 060 A (MANUEL PINTO) 24 August 1960 (1960-08-24) * page 1, line 37 - line 60; figures 1-3 *	1-10, 13-15	
Y	GB 2 370 287 A (SMITH DAVID [GB]) 26 June 2002 (2002-06-26) * the whole document *	6-9,14 1,2,13	
A	US 3 936 892 A (MILLER FREDRICK A) 10 February 1976 (1976-02-10) * abstract *	11	
			TECHNICAL FIELDS SEARCHED (IPC)
			E03C E03D
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 11 September 2009	Examiner De Coene, Petrus
CATEGORY OF CITED DOCUMENTS 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 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			

1
EPO FORM 1503 03.82 (P04C01)

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

EP 09 16 2214

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
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

11-09-2009

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2008020262 A	21-02-2008	AU 2006347383 A1 EP 2057320 A1	21-02-2008 13-05-2009
GB 846060 A	24-08-1960	NONE	
GB 2370287 A	26-06-2002	NONE	
US 3936892 A	10-02-1976	NONE	

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- IE 20030417 [0003]
- US 6243887 B [0004]
- WO 2008020262 A [0006]