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(54) **STRUCTURE WITH CISTERN**

(57) The invention relates to a combination of a device and a wall,wherein the device comprises:
- a rectangular frame defining at least a front plane, which rectangular frame comprises supporting means having at least one support surface for supporting the frame against the wall, wherein the at least one support surface is arranged in a back plane parallel to the front plane;
- a cistern arranged in the rectangular frame between the front plane and the back plane, which cistern has a flushpipe arranged at the bottom, which flushpipe debouches at the front plane for connection with the toilet bowl;
- a drain pipe having a first opening for connection with the toilet bowl and a second opening for connection with a sewer system, wherein the first opening debouches at the front plane and wherein the second opening debouches at the back plane; and
wherein the wall comprises:
- a built-in second cistern having a flush opening debouching from the wall;
- an access opening arranged above the flush opening for accessing the second cistern;
- a sewer opening arranged below the flush opening and connected to a drain pipe;
wherein the rectangular frame is arranged in front of the wall with the at least one support surface supported against the wall, such that the back plane coincides with the surface of the wall; and
wherein the second opening of the drain pipe is connected with the sewer opening.

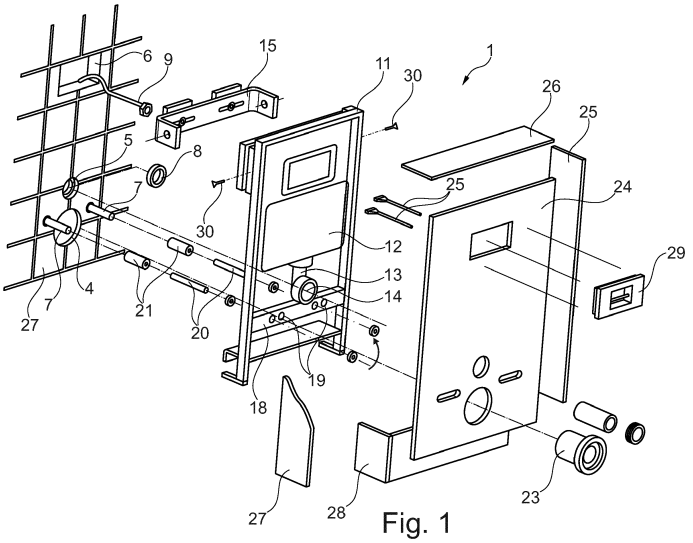

Fig. 1

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Description

[0001] The invention relates to a combination of a wall and a device for arranging for example a floating toilet bowl in front of the wall.

[0002] It is widely known in the field to provide a rectangular frame housing a cistern in front of a structural wall. The floor between the structural wall and the frame is provided with an opening, such that a drain pipe arranged in the frame can be connected with a bend pipe portion via the opening in the floor to a sewer pipe. It also occurs that a sewer pipe runs horizontally along the structural wall. Also in such a case, the drain pipe in the frame is connected to the sewer pipe, typically via a bend pipe portion.

[0003] In front of the frame a pre-wall is arranged. This pre-wall could be made out of cellular concrete blocks or out of plaster boards. This pre-wall could be finished with tiles, after which a toilet bowl is attached to a flushpipe opening and drain pipe opening in the pre-wall. The toilet bowl is fixed by threaded rods, which are fixed into the rectangular frame and provides a floating toilet bowl. Although the most common use is to provide floating toilet bowl, such devices can also be used with toilets standing on the floor and having a drain opening at the back, so called "back-to-wall" toilets.

[0004] Such arrangements are used for decades and parts of the cistern, especially the flush mechanism needs replacement due to wear as well as the water inlet valve. Also, the push plate, which typically controls the flush mechanism might need to be changed to meet the aesthetic demands of the user.

[0005] Replacement of the flush mechanism proves to be difficult, as spare parts are not readily available and difficult to get a hold on. Also new push plates cannot always be mounted as they are designed for current flush mechanisms and dimensions of the push plates, which will typically differ from the old flush mechanisms as well as the water inlet valve. So, a new push plate generally cannot be easily connected to an old flush mechanism.

[0006] Replacing the frame with cistern would require the tearing down of the pre-wall including the tiles arranged on the pre-wall. This results in a serious remodeling and in substantial costs.

[0007] It is an object of the invention to provide a device, with which the above mentioned disadvantages are reduced or even removed.

[0008] This object is achieved according to the invention with a combination of a device and a wall,wherein the device comprises:

- a rectangular frame defining at least a front plane, which rectangular frame comprises supporting means having at least one support surface for supporting the frame against the wall, wherein the at least one support surface is arranged in a back plane parallel to the front plane;
- a cistern arranged in the rectangular frame between the front plane and the back plane, which cistern has a flushpipe arranged at the bottom, which flushpipe debouches at the front plane for connection with the toilet bowl;
- a drain pipe having a first opening for connection with the toilet bowl and a second opening for connection with a sewer system, wherein the first opening debouches at the front plane and wherein the second opening debouches at the back plane; and

wherein the wall comprises:

- a built-in second cistern having a flush opening debouching from the wall;
- an access opening arranged above the flush opening for accessing the second cistern;
- a sewer opening arranged below the flush opening and connected to a drain pipe;

wherein the rectangular frame is arranged in front of the wall with the at least one support surface supported against the wall, such that the back plane coincides with the surface of the wall; and
wherein the second opening of the drain pipe is connected with the sewer opening.

[0009] With the invention the toilet bowl is removed of the existing pre-wall, the waterline of the existing cistern is disconnected and the opening of the flushpipe of the existing cistern is preferably closed off.

[0010] Then the device of the combination according to the invention is positioned in front of the pre-wall with the support surface against the wall. The waterline is connected to the cistern of the device. Furthermore, the drain pipe is connected with the second opening to the drain opening in the wall. Finally, a second pre-wall or housing is arranged in front or around the frame and the toilet bowl can be attached to the device.

[0011] Thus, with the device according to the invention, a new cistern can easily be provided, without the need of removal of the old frame with cistern.

[0012] In a preferred embodiment of the combination according to the invention a first waterline is provided in the wall and is accessible via the access opening and wherein a second waterline, for example a tube, is arranged between the first waterline and the cistern of the device.

[0013] In a further preferred embodiment of the combination according to the invention the device further comprises mounting means for mounting the frame to the wall, wherein the mounting means comprise at least one hook shaped element for insertion into a hole in the wall and for clamping the wall between the frame and the at least one hook shaped element.

[0014] Typically, an access opening is present behind the push plate arranged on the pre-wall for controlling the flush mechanism in the pre-wall. When installing a device according to the invention, the old push plate is removed. The mounting means of device can then be

inserted into the access opening, to attach the device to the old frame behind the pre-wall.

[0015] According to this embodiment, the hook shaped element is inserted into the access opening and hooked behind the edge of the access opening.

[0016] Preferably, the at least one hook shaped element comprises a threaded rod extending perpendicular from the back plane and a clamp element provided with a thread for engagement on the threaded rod extending perpendicular from the threaded rod.

[0017] With this embodiment, the at least one hook shaped element is hooked behind the edge of the access opening and by rotating the threaded rod, the clamp element can be pulled against the back of the pre-wall, preferably behind the old frame, to clamp the rectangular frame of the device of the invention against the wall.

[0018] In another embodiment of the combination according to the invention the rectangular frame of the device comprises a cross beam arranged between the flushpipe and the first opening, wherein the cross beam comprises at least two through holes for passage of mounting rods extending through the toilet bowl and into the wall.

[0019] When using mounting rods, which extend from the toilet bowl along the device according to the invention into the wall, the weight of the toilet bowl could result in bending of the mounting rods due to their substantial length. By providing the cross beam in the device, the mounting rods are supported in the middle, such that the toilet bowl can be kept in place even when the toilet bowl supports a substantial load, such as a user of the toilet.

[0020] Preferably, the combination according to the invention further comprises a housing arranged around the rectangular frame.

[0021] The invention further relates to a device of the combination according to invention.

[0022] These and other features of the invention will be elucidated in conjunction with the accompanying drawings.

Figure 1 shows an exploded perspective view of an embodiment of the combination according to the invention.

Figure 2 shows a top cross-sectional view of the embodiment of figure 1.

Figure 3 shows a side cross-sectional view of the embodiment of figure 1.

[0023] Figure 1 shows a combination 1 according to the invention in exploded view. The combination 1 has a wall 2, behind which an old cistern 3 (see figure 3) is arranged. A sewer opening 4, a flush opening 5 and an access opening 6 are arranged in the wall 2. Mounting rods 7 extend from the wall, to which in the old situation a toilet bowl was attached.

[0024] In the combination according to the invention, the flush opening 5 is closed off by a plug 8 and a flexible hose 9 is attached to a waterline 10, arranged behind the wall 2.

[0025] A rectangular frame 11 is positioned in front of the wall 2. This rectangular frame 11 has a second cistern 12 with a flushpipe 13 with a flush opening 14 debouching at the front plane of the rectangular frame 11.

[0026] At the back of the frame 11, a bracket 15 is mounted, which has two threaded rods 16 to which clamping brackets 17 are arranged (see figure 2). By tightening the threaded rods 16, the clamping brackets 17 are pulled against the back of the wall 2, such that the bracket 15 is pulled against the front of the wall 2. This ensures that the rectangular frame 11 is securely mounted to the wall 2. The frame 11 can be detached from the bracket 15 by removing the screws 30, which facilitates the mounting of the bracket 15 and afterwards mounting of the frame 11.

[0027] The rectangular frame 11 has a cross-beam 18 with two holes 19. Extensions rods 20, attached via extension nuts 21 to the mounting rods 7, extend through the two holes 19, such that a toilet bowl 22 can be arranged to the front of the rectangular frame 11.

[0028] The toilet bowl 22 is furthermore connected to the sewer opening 4 via the drain pipe 23, which is inserted with a first opening, debouching at the front plane of the frame 11, into the toilet bowl 23 and is inserted with the second opening into the sewer opening 4.

[0029] The rectangular frame 11 is enclosed by housing parts 24, 25, 26, 27, 28. A push plate 29 is finally mounted on the front housing part 24 and connected via rods 25 and levers to the flush mechanism of the cistern 12.

Claims

1. Combination of a device and a wall, wherein the device comprises:

    - a rectangular frame defining at least a front plane, which rectangular frame comprises supporting means having at least one support surface for supporting the frame against the wall, wherein the at least one support surface is arranged in a back plane parallel to the front plane;
    - a cistern arranged in the rectangular frame between the front plane and the back plane, which cistern has a flushpipe arranged at the bottom, which flushpipe debouches at the front plane for connection with the toilet bowl;
    - a drain pipe having a first opening for connection with the toilet bowl and a second opening for connection with a sewer system, wherein the first opening debouches at the front plane and wherein the second opening debouches at the back plane; and

    wherein the wall comprises:

- a built-in second cistern having a flush opening debouching from the wall;
- an access opening arranged above the flush opening for accessing the second cistern;
- a sewer opening arranged below the flush opening and connected to a drain pipe;

wherein the rectangular frame is arranged in front of the wall with the at least one support surface supported against the wall, such that the back plane coincides with the surface of the wall; and
wherein the second opening of the drain pipe is connected with the sewer opening.

2. Combination according to claim 1, wherein a first waterline is provided in the wall and is accessible via the access opening and wherein a second waterline, for example a tube, is arranged between the first waterline and the cistern of the device.

3. Combination according to claim 1 or 2, wherein the device further comprises mounting means for mounting the frame to the wall, wherein the mounting means comprise at least one hook shaped element for insertion into a hole in the wall and for clamping the wall between the frame and the at least one hook shaped element.

4. Combination according to any of the preceding claims , wherein the device further comprises mounting means for mounting the frame to the wall, wherein the mounting means comprise at least one hook shaped element inserted into the access opening and clamping the wall between the frame and the at least one hook shaped element.

5. Combination according to claim 4, wherein the at least one hook shaped element comprises a threaded rod extending perpendicular from the back plane and a clamp element provided with a thread for engagement on the threaded rod extending perpendicular from the threaded rod.

6. Combination according to any of the preceding claims, wherein the rectangular frame of the device comprises a cross beam arranged between the flushpipe and the first opening, wherein the cross beam comprises at least two through holes for passage of mounting rods extending through the toilet bowl and into the wall.

7. Combination according to any of the preceding claims, further comprising a housing arranged around the rectangular frame.

8. Device of the combination according to any of the preceding claims.

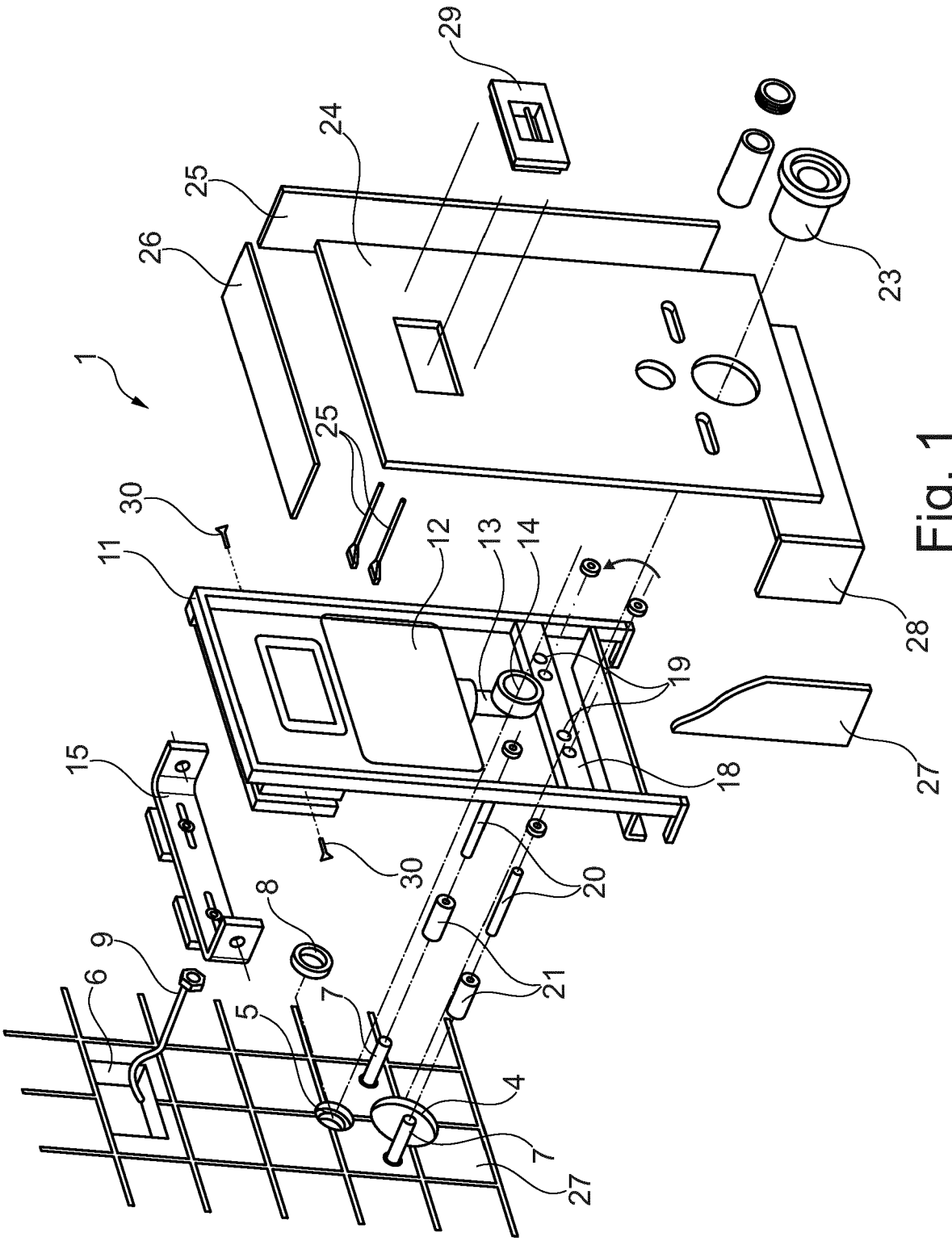

Fig. 1

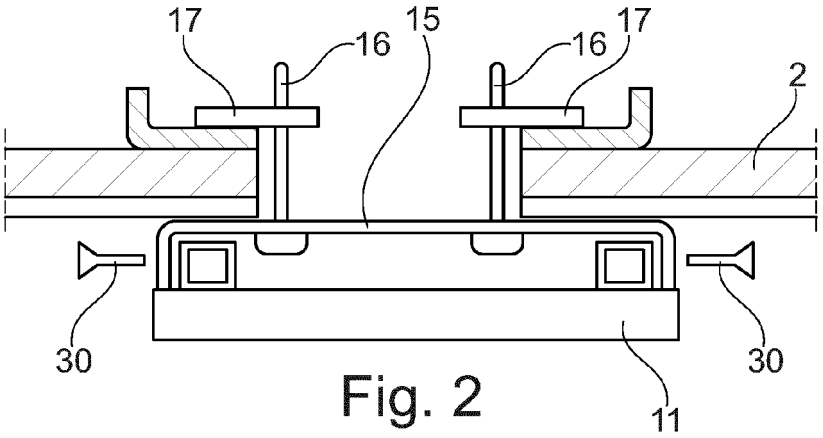

Fig. 2

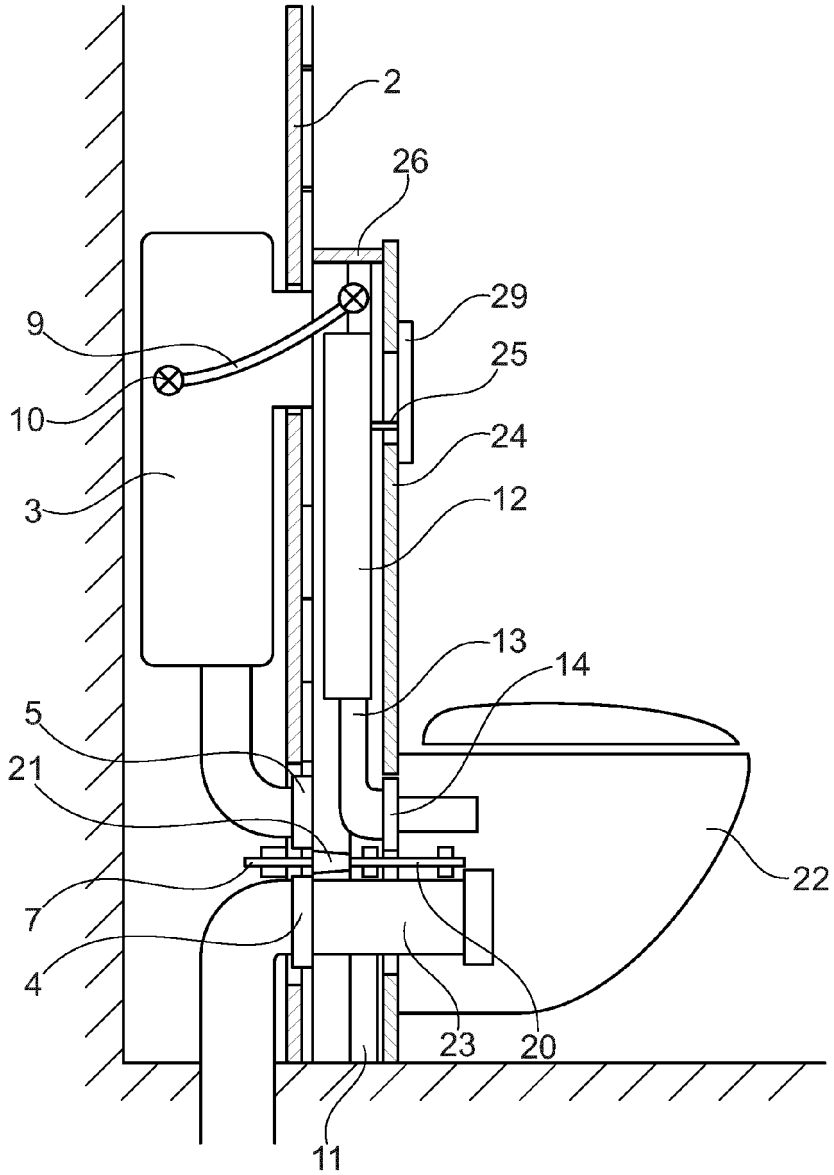

Fig. 3

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EUROPEAN SEARCH REPORT

Application Number
EP 16 16 8979

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	EP 2 166 163 A1 (GEBERIT INT AG [CH]) 24 March 2010 (2010-03-24) * abstract * -----	1-3,7,8	INV. E03D11/14
X	DE 92 08 413 U1 (KARL-HEINZ NEEB) 24 September 1992 (1992-09-24) * figures 2,10 * -----	1-3,7,8	

TECHNICAL FIELDS SEARCHED (IPC)

E03D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	8 November 2016	Flygare, Esa

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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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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08-11-2016

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