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(54) Shower tray, mold and installation method thereof

(57) Shower tray comprising at least one trap body (1) coupled to at least one drain body (11), which trap body (1) is embedded in mortar (6). The shower tray comprises a conduit (22) situated on the top section of the mortar (6), surrounding the draining body (11) in such a way as to make the entire shower tray (21) even. The invention further consists of a mold and a method for installing the aforementioned shower tray.

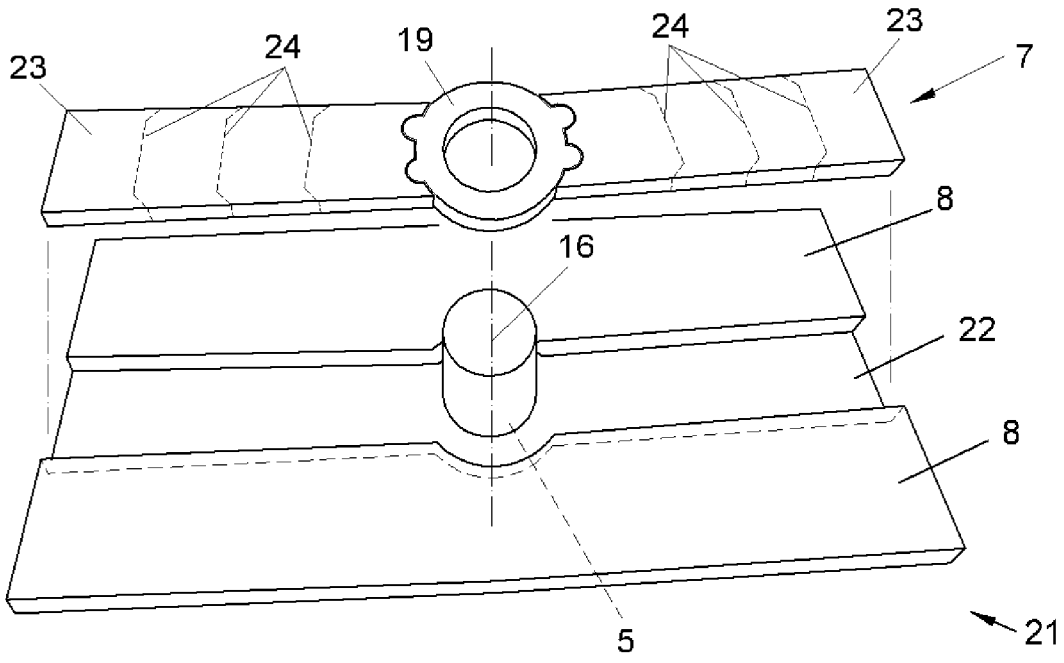

FIG. 2

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Description

Subject matter of the invention

[0001] The subject matter of the present invention relates to a new shower tray, to a mold, and to a method for installing said shower tray.

[0002] The shower tray includes a novel conduit, making it possible to give the entire shower tray a totally levelled surface in the draining area, so as to give the effect of a horizontal surface, and to place a strainer at the level of the flooring.

[0003] Said conduit is produced using the novel mold of the invention and the method for installing the shower tray, resulting in a shower tray which is totally even in appearance.

Background of the invention

[0004] Built-in shower trays are well known in the state of the art, both individual ones for domestic use, or collective ones which collect used sanitary water and direct it towards the drain and the drain pipe.

[0005] On the current shower tray market, it is common to use extremely thin flooring materials typical of new materials such as microcement, fine porcelain tiling, or sheets of natural stone, which today have been developed to provide coverings with thicknesses of just tenths of a millimeter. Usually, built-in shower tray installation systems are not capable of forming a level surface with covering thicknesses of less than the 4 mm of vitrified and enmeshed enamels such as gresite.

[0006] As such, the state of the art has not yielded a built-in shower tray or installation method thereof enabling the placement of a strainer, covered with the same material as the shower tray itself or not, such that it is levelled with the flooring, regardless of its thickness. Said installation provides an even appearance across the whole uncovered face of the shower tray.

Description of the invention

[0007] The invention has developed a built-in shower tray comprising at least one trap body with at least one main draining point coupled to a draining body, which trap body is embedded in mortar. The invention is characterized by the fact that it comprises a conduit formed by mortar ramps arranged on top of the mortar, and which surround the draining body, in such a way as to make the entire shower tray even.

[0008] The conduit has a shape selected among rectangular, quadrangular and circular, and is provided with a circular central hole arranged in correspondence with the mouth of the main draining point of the trap body, into which the outlet tube of the draining body is inserted.

[0009] The shower tray further comprises a water-proof sheet placed on the surface of the mortar ramps, and which covers the conduit, such that it is arranged between said conduit and the drain body.

[0010] The water-proof sheet comprises a connector held in the mouth of the main draining point of the trap body, and into which the outlet tube of the draining body fits. The water-proof sheet is affixed to the surface of the set of mortar ramps, and over the conduit, with an adhesive that is a C2 type cement glue.

[0011] The invention is characterized by a strainer support piece, onto which a strainer covering is affixed, located on the draining body, such that the strainer covering is flush with a flooring of the shower tray.

[0012] In one embodiment of the invention, it is forseen that it comprises at least one secondary draining channel for draining the water filtered through a flooring of the shower tray over the water-proof sheet.

[0013] In a preferred embodiment, the secondary draining channel starts at several holes provided in the surface of the connector, and runs through the connector until opening onto the main draining point. It is further forseen that the draining channel may comprise at least one piece per hole that floats in the water, such that when the drain overflows, said pieces that float in the water move upwards as the water level rises, until blocking the inlet holes of the secondary draining channel, carrying out an anti-backflow function. When the main draining flow has ceased and the water level falls, the pieces floating in the water go back down, unplugging the draining holes and enabling the secondary draining.

[0014] The subject matter of the invention is likewise a mold for installing the above described shower tray. Said mold is characterized by a central piece with a hole for inserting a protective cover arranged at the main draining point, as it will be described further on.

[0015] The central piece may take different shapes depending on the conduit to be performed; for example it may be rectangular, quadrangular, circular, or have a quadrangular-base profile with rounded edges, comprising a cylindrical central section aligned with the main draining point, and which continues in a staggered cross-section in the shape of an inverted pyramid providing different mortar screed level marks, based on the thickness of the flooring to be used.

[0016] In one embodiment of the invention, the central piece comprises rectangular side wings which comprise perforated lines, in such a way that the side wings may be trimmed down to the size required by the draining body. The thickness of said mold provides the level to which the mortar should be flush.

[0017] It is forseen that the central piece may be detachable from said rectangular side wings of the mold, for instance by means of perforated lines.

[0018] The subject matter of the invention is moreover a method for installing the above described shower tray. The method comprises a stage of calculating the height or depth necessary for placing the shower tray, a stage of installing the trap body, on the mouth of which a protective cover is arranged such that it is centered around the main draining point, and a stage in which the mortar

is made flush up to the upper section of the trap body, with the protective cover protruding.

[0019] The method is characterized by a stage in which a mold as above described is placed, fitting it to the size of a draining body. Subsequently, mortar is again poured until forming mortar ramps, which are made flush with the top surface of the mold.

[0020] Subsequently, the mold is removed, forming a channel, whereupon a water-proof sheet is placed on the surface of the mortar ramps and over this conduit. Once the water-proof sheet has been placed, a draining body is installed so that it is centered in the main draining point, and a strainer support piece is arranged on the draining body.

[0021] In the preferred embodiment, a strainer cover is affixed on the surface of the strainer piece and a flooring is affixed upon the water-proof sheet, such that it is flush with the strainer cover.

[0022] The invention forsees spacers to be arranged at the sides of the strainer cover and the installed flooring that is flush with the strainer cover, such that upon subsequent removal of the spacers, draining slots are formed between the strainer cover and the flooring.

[0023] In order to install the outlet tube of the conduit in the mouth of the trap body of the main draining point, a connector provided in the water-proof sheet is used, which is held in the mouth of the trap body, and the draining body fitting inside of it.

[0024] With the embodiment of the invention performed,standards for an even appearance are reached, and a totally levelled surface in the main draining area is provided, so as to give the effect of a horizontal surface and to place a strainer at the level of the shower tray flooring.

Description of the drawings

[0025] To complete the description, and for the purpose of helping to better understanding the features of the invention, the present specification is accompanied by a set of figures constituting an integral part of the same which, by way of illustration and not limitating, represent the following:

Figures 1a-1h are elevation views of the shower tray that is the subject matter of the invention, showing the phases in the method for installing said shower tray.

Figure 2 is an exploded view of the shower tray that is the subject matter of the invention, showing a perspective view of the conduit and the mold constituting the novelty of the invention.

Figures 3.1, 3.2, 3.3 and 3.4 are plan views of different embodiments of the shower tray mold that is the subject matter of the invention.

Figure 4 is an elevation view of the shower tray that is the subject matter of the invention, showing an embodiment of the invention that comprises a detail view of secondary draining channels provided in the connector of the water-proof sheet.

Figure 5 is a plan view of the connector of the water-proof sheet, showing one possible distribution of the inlet holes of the secondary drainage channels.

[0026] Following is a list of the different elements shown in the figures that are included in the invention:

1 = Trap body
2 = Trap outlet
3 = Draining tube
4 = Sliding sleeve
5 = Main draining point
6 = Mortar
7 = Mold
8 = Mortar ramps
9 = Bedding mortar
10 = Flashing trough
11 = Draining body
12 = Connector
13 = Water-proof sheet
14 = Strainer cover
15 = Flooring
16 = Protective cover
17 = Spacers
18 = Strainer support piece
19 = Central piece
20 = Drainage slots
21 = Shower tray
22 = Conduit
23 = Side wings
24 = Perforated lines
25 = Seal
26 = Secondary draining channel
27 = Holes
28 = Fastening elements

Detailed description of the invention

[0027] In line with the above mentioned, and following the numbering adopted in the figures, the shower tray that is the subject matter of the invention is represented, along with the method for installing said shower tray, and the mold employed thereof.

[0028] Figure 2 represents a shower tray (21) which has the special feature that, in a preferred embodiment of the invention, the main draining point (5) is placed in the central section of said shower tray (21). For the purpose of providing the shower tray (21) with an even appearance, a conduit (22) is included in the draining area of said shower tray (21), which helps to convey the water from the shower to the main draining point (5). Placing this novel conduit (22) makes it possible to give the entire

shower tray (21) a totally levelled surface in the draining area, so as to give the effect of a horizontal surface, with a very slight slope, so that the surface of the strainer of the shower tray (21) may be made of the same material as the shower (21) tray itself. This entails homogeneity across the entire horizontal plane of the shower tray (21) without a single piece, frame, or other element which might not be aesthetical, left visible.

[0029] Figures 1a-1h show the method for installing the shower tray (21). Figure 1 shows the placement of the trap body (1) at the main draining point (5). Prior to installing the shower tray (21, the shower area must be prepared. It is necessary to know in advance the height or depth required in order to arrange the stipulated slope of at least 1.5 % from the edges of the shower tray (21) to the main draining point (5), so as to make it possible for the water to circulate toward said main drainage point (5). A height or depth of at least 94 mm is required, plus the thickness of the flooring (15) and its adhesive at said main draining point (5).

[0030] In figure 1 the placement of a trap body (1) is depicted, the mouth of which should be centered around the main draining point (5); the trap outlet (2) thereof should be duly oriented toward a draining tube (3). The draining tube (3) should have a stipulated slope of at least 1.5 % towards the wastewater system. Subsequently, the mouth of the trap body (1) is covered with a hollow cylindrical body which fulfills the function of a protective cover (16) to keep materials from entering the trap body (1) during installation.

[0031] The trap outlet (2) and the draining tube (3) are connected by means of a sliding sleeve (4). Lubricants such as soapy water are used to help insert the draining tube (3) into the sliding sleeve (4). The sliding sleeve (4) slides to the end of the draining tube (3), the draining tube (3) is matched up with the trap outlet (2) and the sliding sleeve (4) is slid backwards as far as it will go.

[0032] In figure 1b the placement of mortar (6) is depicted until it is flush with the top portion of the trap body (1), which becomes embedded in the mortar (6). Once the mortar (6) is flush, a mold (7) is placed, as depicted in figure 1c, which should adjust to the size of a draining body (11) that will be placed subsequently, as depicted in figure 1 e. Said mold (7) should duly fit around the protective cover (16). To this end, the mold (7) comprises a central piece (19) with a circular hole into which the protective cover is inserted, and which comprises two rectangular side wings (23), as seen in figure 2. Each side wing (23) of said mold (7) may be trimmed down in order to adapt them to the size of the drain body (11), based on the placement of the main drainage point (5), since in other embodiments of the invention said main draining point (5) may be placed anywhere in the shower tray (21). The side wings (23) comprise perforated lines (24) for the purpose of being trimmed down, which are situated at different distances from the central piece (19), as desired. In addition, the side wings (23) may be detachable from the central piece (19), for example by means of perforated lines as well, so as to form just a drain body with the shape of the central piece (19) when necessary, depending on the intended shower tray, as is explained further on.

[0033] After placing the mold (7), mortar is poured again until flush with the height of the mold (7), forming mortar ramps (8), as may be observed in figure 1d, thus forming the slopes that are necessary in order for the water to flow to the main draining point (5).

[0034] Once the mortar ramps (8) have set, the mold (7) and the protective cover (16) over the mouth of the trap body (1) are removed, leaving a conduit (22) with the shape of the mold (7), as may be observed in figure 2. Subsequently, a water-proof sheet (13) is coupled by means of a connector (12), which comes attached to the water-proof sheet itself (13), as may be seen in figure 1e. The water-proof sheet (13) is unfolded, and the connector (12) is pressed into the mouth of the trap body (1) and held there. This insertion takes place through the hole that was left once the protective cover (16) was removed. Once the water-proof sheet (13) has been placed, it is affixed, preferably with an adhesive that is a C2 type cement glue, over the surface of the mortar ramps (8), and over the surface of the conduit (22).

[0035] Subsequently, the drain body (11) is placed in the conduit (22) such that its side walls (10) fit loosely into the side walls of the conduit (22), in such a way that the outlet tube of said conduit (22) is inserted and held inside the connector (12) by means of fastening elements (28), as is shown in the detail in figure 4, with the help of lubricant, which may be something like soapy water, so that the outlet tube of the drain body (11) remains thus inserted into the main draining point (5). Between the side walls (10) of the draining body (11) and the water-proof sheet (13), bedding mortar (9) is applied to each side, in order to bed the drain body (11), until it is flush with the height of the water-proof sheet (13).

[0036] Lastly, a strainer cover (14) and a flooring (15) are placed. For this purpose, there is a strainer support piece (18), and the strainer cover (14) is cut beforehand from the same material as the flooring (15), with the right size to cover the strainer support piece (18). The preferred embodiment of the strainer cover (14) has a size of 2 mm in width, plus the width of the strainer support piece (18), and a length equal to that of the draining body (11). As depicted in figure 1f, the strainer support (18) is placed on the drain body (11), and the cover piece (14) is arranged thereupon, not being affixed, and spacers (17) are inserted in order to form draining slots (20), thus setting their width. Once the spacers (17) have been installed, the flooring (15) is then installed, as seen in figure 1g. The flooring (15) is affixed into place on the water-proof sheet (13) with an adhesive that is preferably a C2 type cement glue. After placing the flooring, the strainer is then covered. To do so, adhesive is applied over the top layer of the strainer support piece (18), which is a rough layer, and the strainer cover (14) is affixed, being centered with the help of the spacers (17), and being

careful to make it flush with the flooring. Preferably, the same adhesive used with the flooring (15) is used, in order to obtain a layer with the same thickness.

[0037] Lastly, as may be observed in figure 1h, the spacers (17) are removed, thus freeing up the draining slots (20).

[0038] In another embodiment of the invention, as depicted in figure 3.1, the central piece (19) of the mold (7) constitutes the mold itself (7), i.e. it does not have side wings (23), and it has a quadrangular shape with rounded edges, comprising a central hole aligned with the main drainage point (5). In another embodiment of the invention, as depicted in figure 3.2, the central piece (19) that constitutes the mold (7) has a rectangular shape with rounded edges, likewise comprising a central hole aligned with the main draining point (5).

[0039] In a further embodiment of the invention, as observed in figures 3.3 and 3.4, the central piece (19) of the mold (7) is shaped exactly the same as the draining body (11), and has a quadrangular shape with rounded edges, comprising a cylindrical central section aligned with the main draining point, and has a staggered cross-section profile in the shape of an upside-down pyramid providing different mortar screed level marks, based on the thickness of the flooring to be used.

[0040] The molds (7) may be placed in different areas in the shower tray (21), depending on the dimensions of said main drainage point (5) and the best area for placing the main draining point (5). In a preferred embodiment of the invention, the molds (7) are placed so that they are centered in the shower tray (21), with the center of the shower tray (21) occupying the main draining point (5). In this embodiment of the invention, the shower tray (21) shall have 4 sloping sides if the mold (7) has a quadrangular or rectangular shape. The shower tray (21) shall have 4 or 2 sloping sides if the mold (7) has a long shape that runs length-wise to the shower tray (21). Lastly, the shower tray (21) shall have 2 sloping sides if the mold (7) has a long shape that runs cross-wise to the shower tray (21).

[0041] In a further embodiment of the invention, the molds (7) are placed so that they are adjoining to one side of the shower tray (21). In this embodiment of the invention, the shower tray (21) shall have just one slope if the mold (7) has a long shape.

[0042] Lastly, in a further embodiment of the invention, the molds (7) are placed in the shower tray and near one side of one tray of the shower tray (21), preferably at a distance of 5 cm to 15 cm. In this embodiment of the invention, the shower tray (21) shall have one slope and one counter-sloped base.

[0043] As we can see in figure 4, in one embodiment of the invention it comprises at least one secondary draining channel (26) provided in the connector (12) for the purpose of circulating and draining the water that filters through the flooring (15) over the water-proof sheet (13). The draining channel (26) starts at several holes (27) provided in the surface of the connector (12), and runs through the connector (12) until opening onto the main drainage point, as shown in figure 4. The drainage channel (26) comprises at least one preferably elastic piece that floats in water (25) per hole (27), such that, should the drain overflow, said pieces that float in water (25) float up, thus blocking the inlet holes (27) of the secondary draining channel (26), carrying out an anti-backflow function, since when the main draining flow has ceased and the water level falls, the pieces that float in water (25) go back down, unplugging the draining holes (27) and enabling the secondary draining.

[0044] In the example in figure 4, the draining body (11) has a circular shape and the draining channel (26) comprises holes (27) arranged in the perimeter of the connector (12), through which the water filtering between the water-proof sheet (13) and the flooring (15) can collect. The piece that floats in water (25) is constituted by an anti-backflow washer so that, should the main (central) drain overflow with water, the latter causes said anti-backflow washer to float up and block the perimeter holes (27).

[0045] The present invention is not intended to be limited to the embodiments described herein. Other arrangements may be carried out by those skilled in the art based on the present description. As such, the scope of the invention is defined by the following claims.

[0046] The material for manufacturing the various polymer elements making up the technical embodiments considered in the present invention may be supplemented with biocidal compounds offering an additional technical advantage, and thus providing added value to the invention.

Claims

1. Shower tray (21) comprising at least one trap body (1) with at least one main draining point (5) coupled to a draining body (11), wherein the trap body (1) is embedded in mortar (6), **characterized in that** it comprises a conduit (22) situated on the top section of the mortar (6), surrounding the draining body (11).

2. Shower tray according to claim 1, **characterized in that** the conduit (22) is formed by mortar ramps (8) arranged on top of the mortar (6), which surround the draining body (11).

3. Shower tray according to the claims 1 or 2, **characterized in that** the conduit (22) has a shape selected between rectangular, quadrangular and circular, provided with a circular central hole arranged in correspondence with the mouth of the main draining point (5) of the trap body (1), into which the outlet tube of the drain body (11) is inserted.

4. Shower tray according to claim 2, **characterized in that** it comprises a water-proof sheet (13) placed on

the surface of the mortar ramps (8) and over the conduit (22); wherein the water-proof sheet (13) comprises a connector (12) held in the mouth of the main drainage point (5) of the trap body (1), and into which the outlet tube of the drain body (11) fits; wherein the water-proof sheet is affixed to the surface of the set of mortar ramps (8), and over the conduit (22), with an adhesive that is a C2 type cement glue.

5. Shower tray according to claim 1, **characterized in that** it comprises a strainer support piece (18), upon which it comprises an affixed strainer cover (14), located on the draining body (11), such that the strainer cover (14) is flush with a flooring (15) of the shower tray.

6. Shower tray according to claim 4, **characterized in that** the connector (12) comprises at least one secondary draining channel (26) for draining the water that filters through a flooring (15) of the shower tray over the water-proof sheet (13).

7. Shower tray according to claim 6, **characterized in that** the secondary draining channel (26) starts at several holes (27) provided in the surface of the connector (12), and runs through the connector (12) until opening onto the main drainage point (5); wherein the draining channel (26) comprises at least one piece that floats in water (25) per hole (27), to block the inlet holes (27) of the secondary draining channel (26), when the main drain (5) overflows.

8. Mold (7) for installing shower trays according to the preceding claims, **characterized in that** it comprises a central piece (19) with a hole for inserting a protective cover (16) arranged at the main draining point (5).

9. Mold (7) for installing shower trays according to claim 8, **characterized in that** the central piece (19) comprises a shape selected between being rectangular, quadrangular, circular, and having a quadrangular-base profile with rounded edges, comprising a cylindrical central section aligned with the main draining point, and which continues in a staggered cross-section in the shape of an inverted pyramid providing different mortar screed level marks, based on the thickness of the flooring to be used.

10. Mold (7) for installing shower trays according to claim 9, **characterized in that** the central piece (19) comprises rectangular side wings (23) that may be separated from the central piece (19) by means of perforated lines; wherein the rectangular side wings (23) belonging to the mold (7) comprise perforated lines (24) so that they can be trimmed down to the required conduit size (22).

11. Mold (7) for installing shower trays according to any of the claims 7 to 10, **characterized in that** it comprises a thickness that establishes the lower level of the mortar platforms (8).

12. Method for installing shower trays according to the preceding claims, comprising:

calculating the height or depth necessary for placing the shower tray (21),
installing the trap body (1), the mouth of which is covered with a protective cover (16) centered around the main draining point (5),
pouring the mortar (6) until it is flush with the top portion of the trap body (1);
characterized in that it further comprises placing a mold (7), described in the claims 8 to 13, on the mortar (6) which is adjusted to the size of a drain body (11),
pouring mortar so as to be made flush with the top surface of the mold (7), forming mortar ramps (8) on top of the layer of mortar (6), surrounding the mold (7),
removal of the mold (7), forming a channel (22), and placement of a water-proof sheet (13) on the top portion of the mortar ramps (8) and over the at least part of the conduit (22),
installing a drain body (11) in the conduit (22) having an outlet tube that couples to the mouth of the trap body (1) of the main draining point (5),
installing a strainer support piece (18) on the draining body (11).

13. Method for installing shower trays according to claim 12, **characterized in that** a strainer cover (14) is affixed on the surface of the strainer piece (18), and a flooring (15) is affixed upon the water-proof sheet, such that it is flush with the strainer covering (14).

14. Method for installing shower trays according to claim 13, **characterized in that** it comprises arranging spacers (17) at the sides of the strainer cover (14) and installing the flooring (15) so that it is flush with the strainer covering (14), subsequently removing the spacers (17) to form drainage slots (20) between the strainer covering (14) and the flooring (15).

15. Method for installing shower trays according to claim 14, **characterized in that** the installation of the outlet tube of the conduit (22), coupled to the mouth of the trap body (1) of the main draining point (5), is carried out by means of a connector (12) provided in the water-proof sheet (13), which is held in the mouth of the trap body (1), and which the drain body (11) fits inside of.

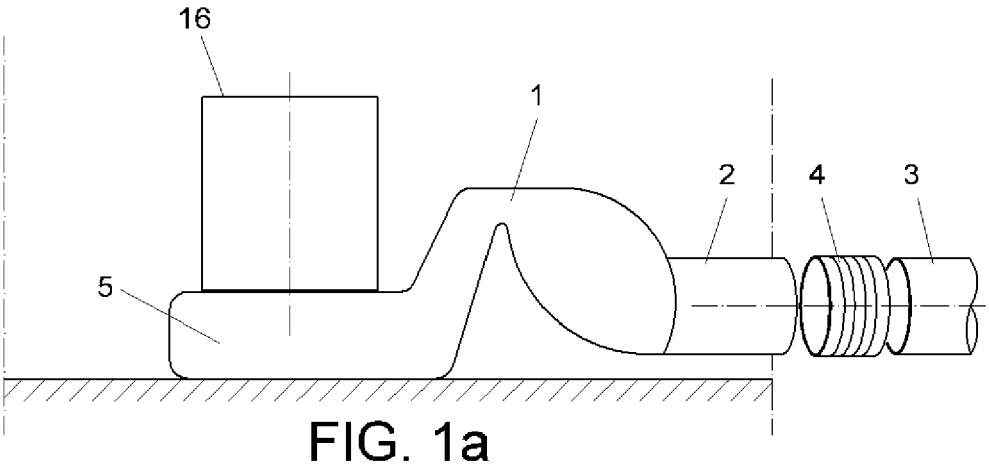

FIG. 1a

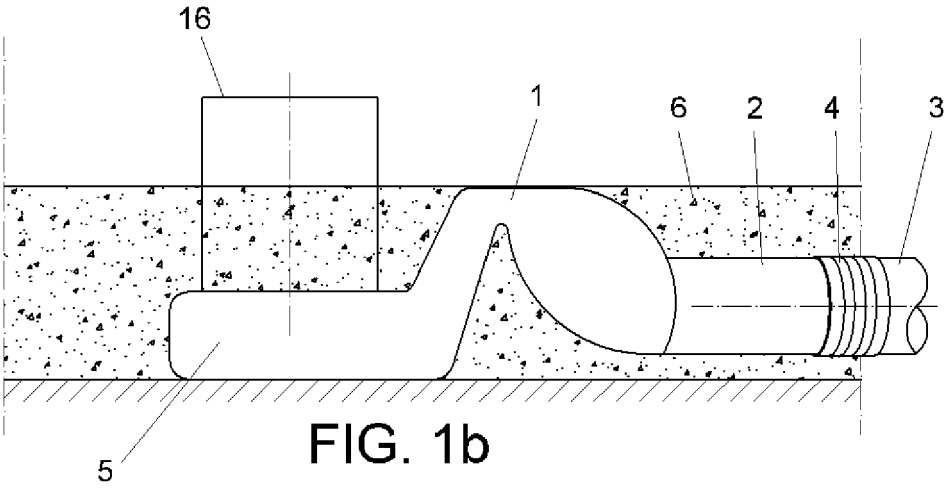

FIG. 1b

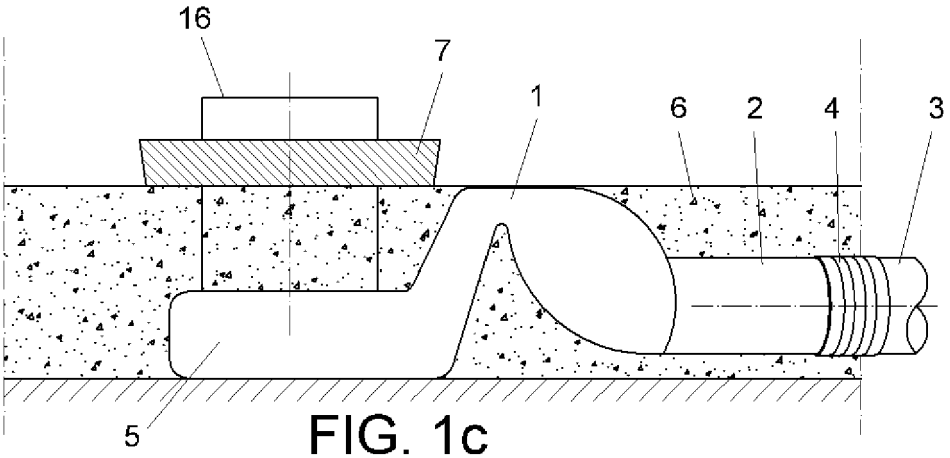

FIG. 1c

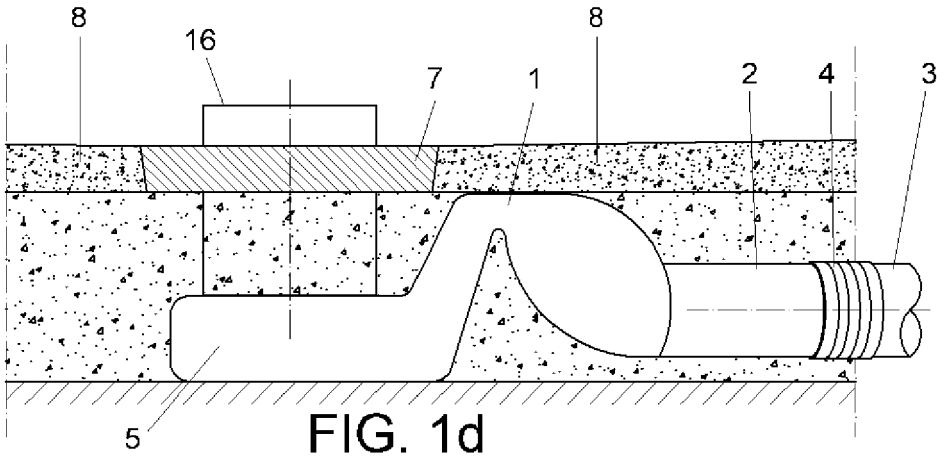

FIG. 1d

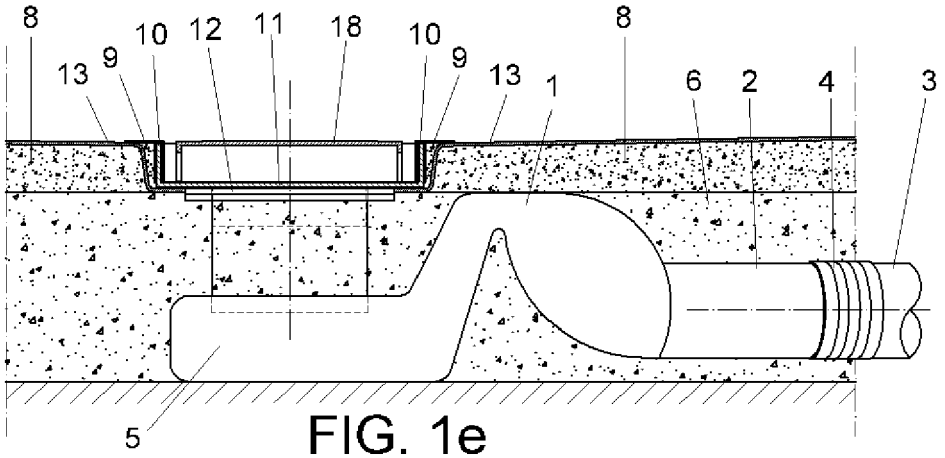

FIG. 1e

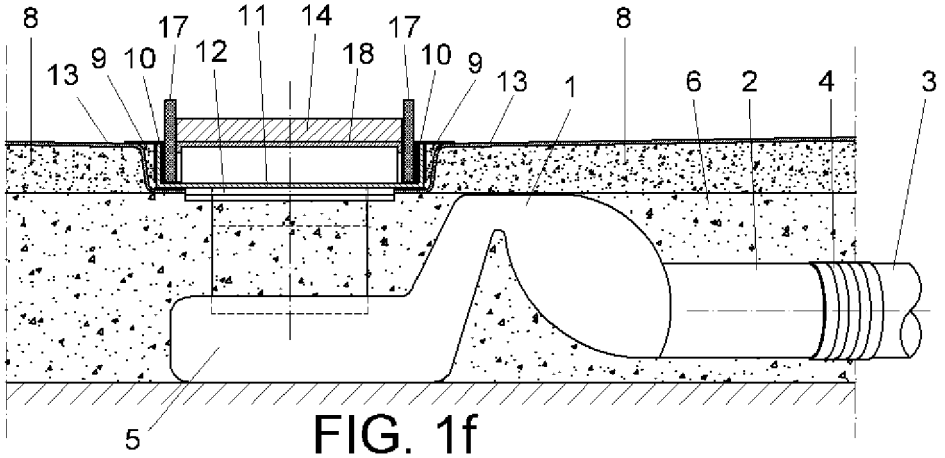

FIG. 1f

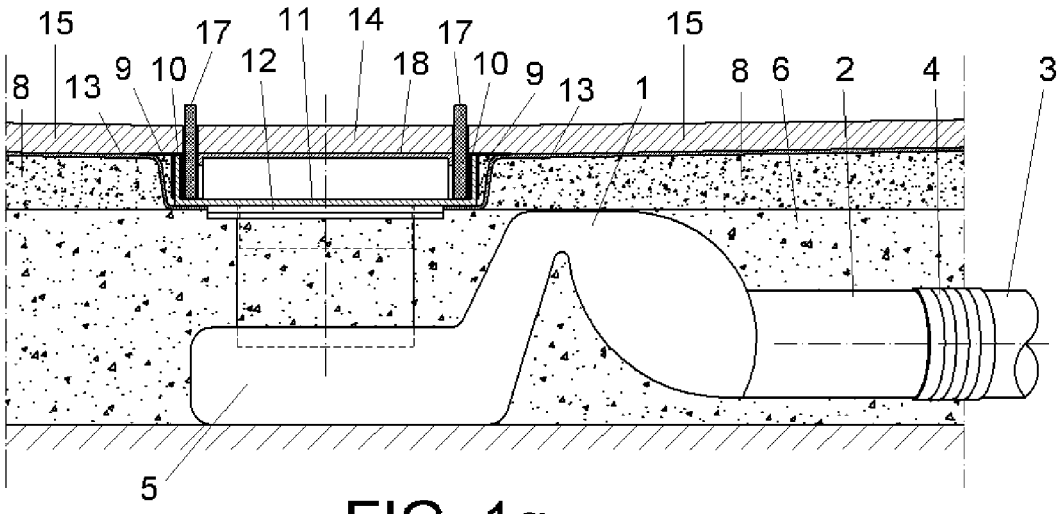
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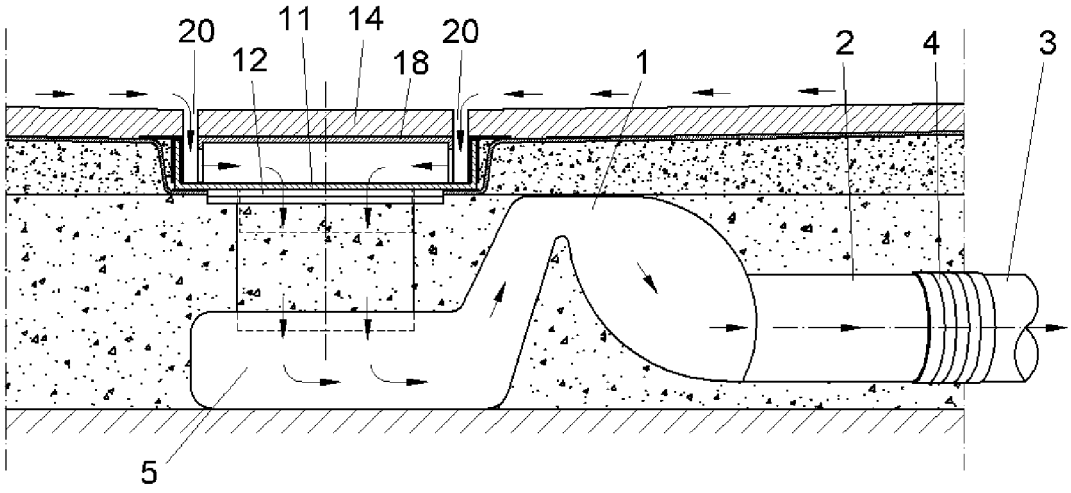
FIG. 1g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5

FIG. 1h

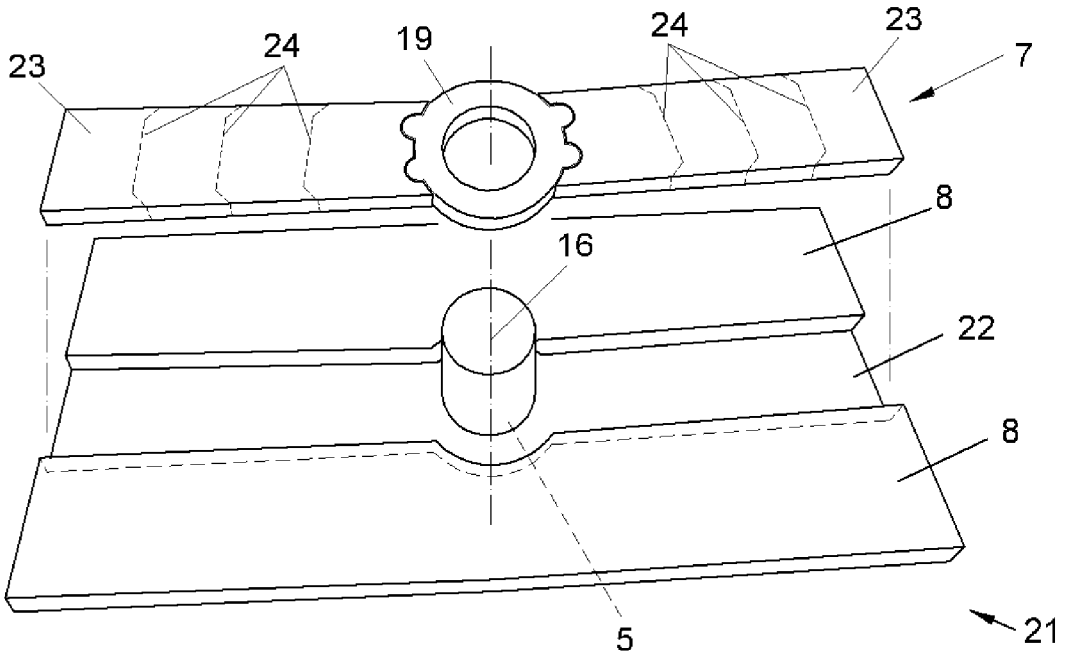

FIG. 2

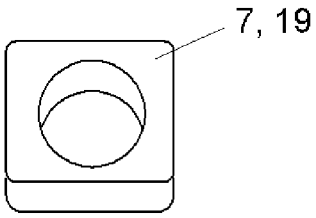

FIG. 3.1

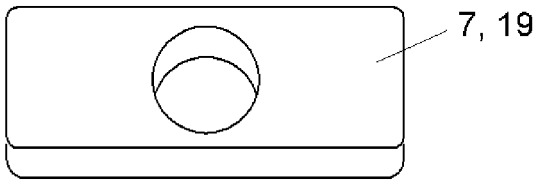

FIG. 3.2

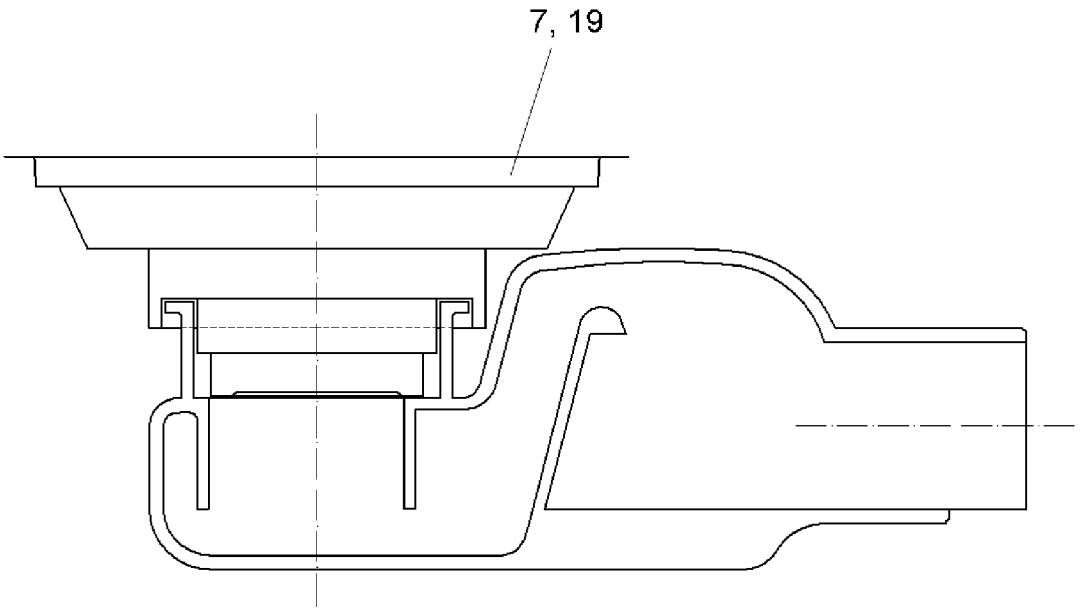

FIG. 3.3

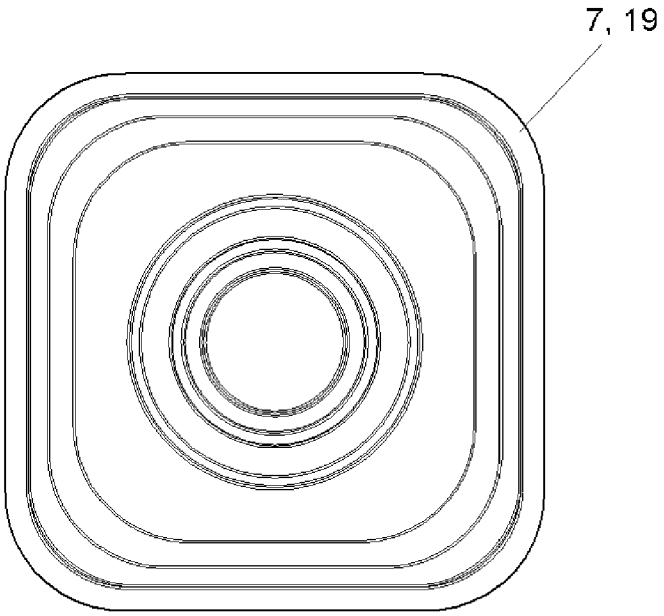

FIG. 3.4

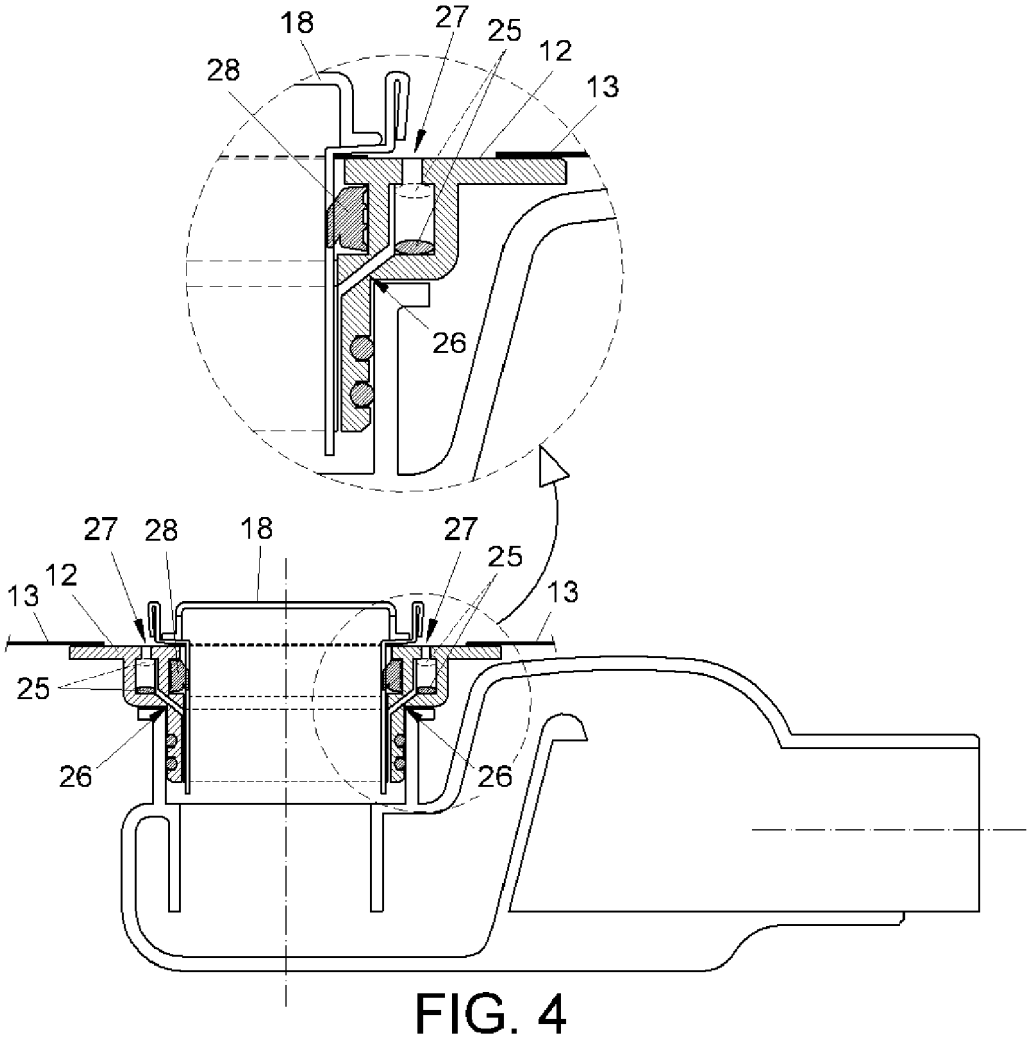

FIG. 4

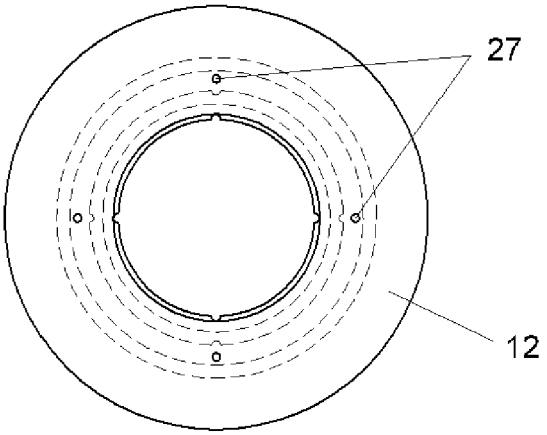

FIG. 5

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EUROPEAN SEARCH REPORT

Application Number
EP 14 16 5836

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 A	EP 2 472 015 A1 (EASY SANITAIRY SOLUTIONS BV [NL]) 4 July 2012 (2012-07-04) * paragraphs [0003], [0006], [0027], [0029] - [0038], [0044] - [0051]; figures 1, 3-5, 8, 9 * -----	1,5-7 8-15	INV. A47K3/40 E03F5/04
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TECHNICAL FIELDS SEARCHED (IPC)
A47K
E03F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	5 September 2014	Urbahn, Stephanie

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05-09-2014

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