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(54) **DEVICE FOR ARRANGING A SLOPE IN A FLOOR FOR POURING, AND METHOD THEREFOR**

(57) The present invention relates to a device for arranging a slope in a floor for pouring, and method therefor. The device comprises:
- a drain forming part configured to be placed on a ground surface and/or drain, wherein in use of the device the drain forming part is at least partially in contact with the ground surface and/or drain on which and/or around which the floor for pouring can be arranged; and
- a slope forming part provided with a number of slope walls which are connected to a slope end of the drain forming part and wherein the number of slope walls extend from the slope end at a drain angle to a first direction of the drain forming part, and wherein in use of the device one or more of the number of slope walls extend at a ground angle to the ground surface.

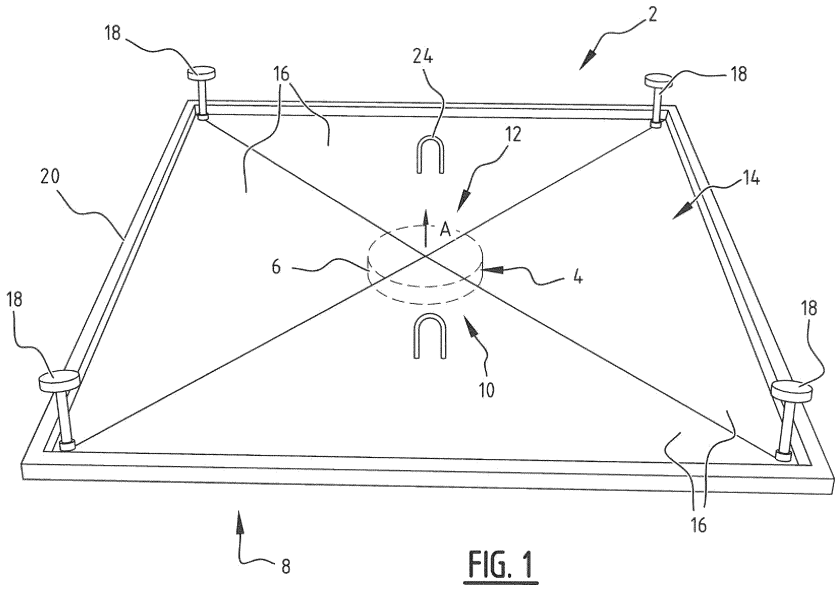

FIG. 1

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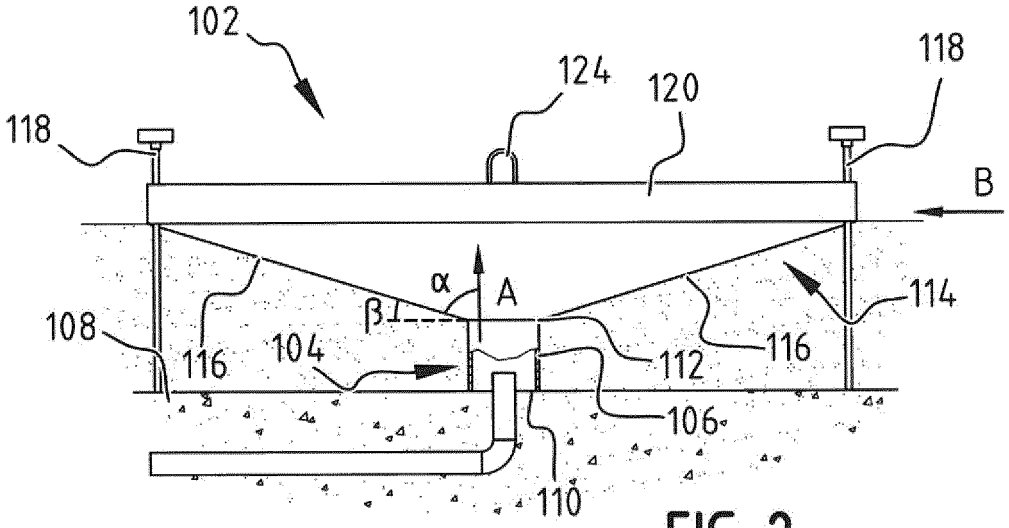


FIG. 2

Description

[0001] The present invention relates to a device for arranging a slope in a floor for pouring. The invention also relates to a method for arranging a slope in floor for pouring.

[0002] Known in practice are methods for making a slope in a floor. In the present invention slope relates to an incline in a (cast) floor, such as a floor of pouring mortar, which is arranged on a ground surface. A slope is for instance arranged in bathrooms close to a drain, so that the water automatically flows toward the drain during showering. Arranging a slope during construction of a house or when placing new bathrooms is currently (very) labour-intensive. A first step in this process is for the (traditional) concrete to be poured onto the ground surface, after which a person arranges the slope by displacing the concrete with tools. The arranging usually takes place in an ergonomically less suitable posture, which will often cause back and/or other physical complaints at a later age for the people arranging the slope. In addition, arranging a slope using this method is a time-consuming job, entailing additional costs. This is mainly the result of the fact that concrete has a longer drying time (of several days).

[0003] Using cement-bonded pouring mortar, or alternatively sand cement, considerably reduces the drying time of the concrete, whereby the floor in question can be delivered faster. The use of cement-bonded pouring mortar however does not obviate the labour-intensive nature of the forming process. What's more, forming a slope in such cement-bonded pouring mortar is almost impossible, since it is liquid.

[0004] The present invention has for its object to provide a device whereby the above stated problems are obviated or at least reduced. It can be a particular object of the invention to provide a device which makes arranging of a slope less labour-intensive and/or time-consuming.

[0005] This object is achieved with a device for arranging a slope in a floor for pouring, such as a concrete floor of cement-bonded pouring mortar, comprising:

- a drain forming part provided with a slope end and configured to be placed on a ground surface and/or drain, wherein in use of the device the drain forming part is at least partially in contact with the ground surface and/or drain on which and/or around which the floor for pouring can be arranged; and
- a slope forming part which is connected or can be connected to the slope end and is provided with a number of slope walls, wherein in use of the device one or more of the number of slope walls extend at a ground angle to the ground surface.

[0006] The number of slope walls extend from the drain forming part, away from the slope end, at a drain angle to a first direction. In the present invention drain angle is also understood to mean angle of slope, and these terms are also used interchangeably.

[0007] An advantage of the device according to the invention is that it makes arranging a slope simpler, less labour-intensive, less time-consuming and/or cheaper. This is realized particularly by the fact that the device forms a preformed 'mould' which realizes the desired form of the slope. Because the slope walls extend at a ground angle to the ground surface in use of the device, a slope is obtained in simple manner. By using the device according to the invention the only operations necessary for arranging a slope are placing the device and pouring the concrete floor. Owing to the design of the device, the poured floor spreads out such that a slope is obtained when the poured floor has cured and the device is removed. A number of slope walls is for instance understood to mean one, two, three or four slope walls.

[0008] By providing a slope forming part provided with a number of slope walls the cement-bonded pouring mortar is poured into a determined shape during pouring of the concrete floor. The slope forming part is connected to the slope end of the drain forming part and extends at an angle of slope to the first direction. In an embodiment the slope forming part and the drain forming part can be manufactured in integrated manner. This is an alternative to manufacturing the device from two or more separate parts.

[0009] By providing the device according to the invention the number of activities required for providing a slope in a poured floor is greatly reduced. Such a slope can hereby be arranged in cost-effective manner. With the invention the slope is additionally arranged in controlled manner, whereby a higher quality is provided. The activities are also less difficult, which improves working conditions when arranging a slope in a poured floor.

[0010] In an embodiment according to the invention the drain forming part comprises a substantially flat part which extends substantially parallel to the ground surface in use.

[0011] In this embodiment the first direction extends substantially perpendicularly of the flat part of the drain forming part.

[0012] Owing to the flat part of the drain forming part, the drain forming part can be placed on the ground surface and/or drain in simple manner. A further advantages is also that removal of the device when the concrete floor has cured is facilitated.

[0013] In an embodiment according to the invention the drain forming part comprises at least one side wall.

[0014] In this embodiment the first direction extends from the slope end to a floor end of the drain forming part.

[0015] By providing a drain forming part with a side wall, wherein in use the floor end is at least partially in contact with a ground surface and/or a drain, the drain forming part can be placed on an outlet pipe for (waste) water which is placed in the ground surface. In use the drain forming part is placed at least partially on the ground surface and/or drain, after which the floor for pouring,

preferably a concrete floor of cement-bonded pouring mortar, is poured onto the ground surface. After being poured, the concrete floor spreads out over the ground surface, wherein an area where the concrete floor will not spread is obtained at the position of the drain forming part. When the floor for pouring has cured and the device is removed, this area can form the drain. Alternatively or additionally, the drain forming part prevents the cement-bonded pouring mortar from making its way into the outlet pipe.

[0016] In an embodiment according to the invention the floor end is configured to co-act with a drain cover which is placed over an outlet pipe.

[0017] Configuring the floor end such that it co-acts with a drain cover further reduces the chance of fouling of the outlet pipe by the cement-bonded pouring mortar. Diverse embodiments are possible for realizing such co-action with the drain cover. The drain cover can thus for instance comprise an edge to which the floor end can be connected. When the drain cover is placed on the outlet pipe, the floor end can be placed in the edge, whereby a clean drain is obtained in simple manner. Alternatively, it is possible, especially if an outer end of the outlet pipe in the ground surface protrudes above the ground surface, to opt for the drain cover which is placed over the protruding part, after which the drain forming part of the device is then placed over the drain cover. The drain forming part and the drain preferably have the same and/or complimentary shapes. This imparts a self-locating function to the drain forming part. In the embodiment wherein the drain forming part has a flat part, the flat part can also co-act with a drain cover, for instance by means of an upright edge arranged on the drain cover, such that the flat part can be connected to the drain cover in stable manner. A good positioning of the device is hereby obtained.

[0018] In an embodiment according to the invention a viewing opening for assessing the position of the device relative to the ground surface and/or drain is arranged in the device.

[0019] During placing of the device, particularly of the drain forming part on the ground surface and/or drain, the viewing opening can be used to see exactly where the device is situated relative to the ground surface and/or the drain. The viewing opening can be embodied as an opening as such, although it is also possible to provide transparent material at the position of the viewing opening. The viewing opening in any case makes it possible to see from the upper side of the device through the device, such that the ground surface and/or drain under the device is visible. The viewing opening reduces the chance of incorrect placing of the device. This increases the reliability of the device.

[0020] In an embodiment according to the invention the device is further provided with a number of supports configured to support the device on the ground surface.

[0021] By providing a number of supports additional supports are obtained for the device, in addition to the drain forming part supporting at least partially on the ground surface. The additional supports have the advantage that the device is positioned more stably on the ground surface, which reduces the chance of the slope being arranged incorrectly. The supports extend substantially parallel to the first direction and/or substantially perpendicularly relative to the ground surface.

[0022] In a further embodiment according to the invention the supports are height-adjustable.

[0023] Providing height-adjustable supports enables the supports to be adjusted to the ground surface. When the ground surface is for instance not wholly flat, the device can be adjusted correctly with the supports so that the desired slope is obtained. These supports can for instance be embodied as adjustable legs which are positioned in the slope wall with screw thread. Another option is a snap system with different positions. Other options for arranging such adjustable supports are however also possible for this invention.

[0024] In an embodiment according to the invention the supports are placeable through support openings provided in the slope forming part, wherein the supports are removable from the support openings.

[0025] The supports being removable from the support openings prevents the supports from remaining behind in the concrete floor, whereby the supports can be reused. This reduces the costs of use of the device. It is prevented, also depending on the materials used, that a possible cold bridge or other undesired effect can arise.

[0026] In an embodiment according to the invention the device comprises at least one handle which is arranged in the slope forming part for the purpose of taking hold of the device.

[0027] The handle can for instance be embodied as an opening provided in an upper side of a slope wall, wherein the opening extends at least partially in a direction parallel to the slope wall. The fingers of a user can hereby grip inside the opening, and the device can be displaced and/or lifted in simple manner. Alternatively, the handle can be embodied as a bracket attached on an upper side of a slope wall. Particularly in combination with the embodiment of the invention with a viewing opening, a device is obtained which is easily placeable at the desired location relative to the ground surface and/or drain. This further increases inter alia the convenience of use of the device according to the invention.

[0028] For the drain cover use is preferably made of a standard drain cover which is known in practice for covering a drain end in or close to a ground surface. It is possible to envisage here a drain cover with a diameter of 110, 125 or 160 mm.

[0029] In a further embodiment according to the invention the device is manufactured from a substantially rigid material, preferably stainless steel, plastic, synthetic fibre, glass fibre, wood and/or aluminium.

[0030] An advantage of providing the device manufactured from a rigid material is that the device is not pressed upward and/or deformed during pouring of the concrete

floor. Choosing the type and/or the thickness of the material such that deformation of the material during use is prevented ensures that the angle of inclination of the slope is realized according to specifications.

[0031] Another advantage is that providing a device of rigid material gives the device sufficient weight to remain with the drain forming part on the outlet pipe when the concrete floor is poured, whereby a clean and open drain is obtained.

[0032] In a further embodiment according to the invention the slope forming part comprises two slope walls, wherein in use one or both slope walls extend at a ground angle to the ground surface.

[0033] In this embodiment the one or both slope walls extend at an angle of slope to the first direction.

[0034] Because one or both slope walls extend in use at a ground angle to the ground surface, a slope is obtained whereby the water flows from the slope to the drain. In an embodiment with two slope forming parts the drain forming part can be placed both in the centre of the device and close to an outer edge of the slope forming part.

[0035] An advantage of such an embodiment is that it can also be applied to realize a slope in combination with for instance a gutter-like (design) drain.

[0036] In a further embodiment according to the invention the slope forming part comprises three slope walls, wherein in use each of the slope walls extends at a ground angle to the ground surface.

[0037] In this embodiment each of the slope walls extends at an angle of slope to the first direction.

[0038] Because each of the slope walls extends in use at a ground angle to the ground surface, a slope is obtained whereby the water flows from the slope to the drain.

[0039] In a further embodiment according to the invention the slope forming part comprises four slope walls, wherein in use each of the slope walls extends at a ground angle to the ground surface.

[0040] In this embodiment each of the slope walls extends at an angle of slope to the ground surface.

[0041] Because each of the slope walls extends in use at a ground angle to the ground surface, a slope is obtained whereby the water flows from the slope to the drain. In an embodiment with four slope forming parts the drain forming part can be placed both in the centre of the device and close to an outer edge of the slope forming part.

[0042] In a further embodiment according to the invention the drain forming part preferably has substantially one of the following geometric forms: beam-shaped, triangular, octagonal and most preferably cylindrical.

[0043] By providing a geometric form the drain forming part can be produced in simple manner. This has the advantage that production costs can be reduced. The drain forming part is most preferably cylindrical, so that the drain transitions easily to the outlet pipe, which is usually also cylindrical. In the case of a gutter-like (design) drain the use of a rectangular and/or beam-shaped drain forming part is preferably opted for.

[0044] In a further embodiment according to the invention at least one slope wall is plate-like.

[0045] Because at least one slope wall is plate-like, the slope is provided with a substantially flat upper profile. The advantage hereof is that floor parts and/or tiles can be placed on the slope in simpler manner later on. In addition, plate material is relatively easy to process, whereby the manufacturing costs of the device remain relatively low.

[0046] It is also the case that the plate-like material, as long as a suitable thickness thereof has been opted for, is also resistant to deformation during transport and use of the device.

[0047] In a further embodiment according to the invention the device further comprises an upright edge positioned at an outer edge of the number of slope walls.

[0048] Providing an upright edge imparts extra strength to the plate-like slope walls. The upright edge can for instance be a tubular profile. By placing an upright edge on all outer sides of each slope wall the plate-like slope walls are connected to each other, which imparts extra strength to the slope walls. This prevents undesired bending of the slope walls. The rigid structure of the device is hereby increased considerably further.

[0049] In a further embodiment according to the invention the ground angle lies in the range of 0°-20°, preferably between 1°-10°, and is most preferably about 5°.

[0050] By providing an above stated ground angle the obtained slope will have the effect in use that the water will run toward the drain, for instance during showering. The above stated ground angles also ensure that it is still comfortable to stand on during showering.

[0051] In a further embodiment according to the invention the angle of slope lies in the range of 0°-90°, preferably between 60°-90°, and most preferably amounts to about 85°.

[0052] By providing said angles of slope the device obtains the desired slope.

[0053] In a further embodiment according to the invention the drain forming part is positioned substantially in the centre of the device.

[0054] By providing the drain forming part in the centre of the device the water runs towards the drain during use. A 'shower tray' is hereby in fact arranged in the cement-bonded pouring mortar in rapid and simple manner, wherein the throughput time of the realization can be reduced to a maximum of one day (and in some cases several hours).

[0055] In a further embodiment according to the invention the slope forming part is funnel-shaped as seen in a cross-section in the first direction.

[0056] Owing to the funnel shape of the slope forming part, the water flows from the slope to the drain, wherein the position of the slope contributes to the discharge of (waste) water.

[0057] In a further embodiment according to the inven-

tion the slope forming part is rectangular as seen in a cross-section in a second direction.

[0058] In practice a bathing area is often made rectangular, whereby a device with a rectangular cross-section as seen in a second direction can be used for most bathing areas. It is noted here that said second direction is a direction running substantially perpendicularly of the first direction.

[0059] In a further embodiment according to the invention the distance between the floor end and the drain end lies between 0.5-5 cm, the distance preferably lies between 1-3 cm, and the distance is most preferably 2 cm.

[0060] By providing said distance sufficient space is created to pour the cement-bonded pouring mortar under the device. A sufficient slope can hereby be obtained.

[0061] In a further embodiment according to the invention the drain forming part is hollow.

[0062] Providing a hollow drain forming part reduces the production costs of the device according to the invention because less material is needed to manufacture the device. Additionally or alternatively, with a hollow drain forming part the device is less heavy, which makes placing of the device less labour-intensive and therefore simpler.

[0063] In a further embodiment according to the invention the drain forming part is solid.

[0064] Providing a solid drain forming part lowers the centre of gravity of the device when the device is placed on the ground surface. This has the advantage that during pouring of the cast floor the device therefor is disposed more stably.

[0065] In a further embodiment according to the invention the device comprises at least one connecting element positioned on a part of the slope wall remote from the ground surface for the purpose of being connected to positioning elements.

[0066] Providing a connecting element enables the device to be connected to positioning elements for easy placing of the device. The connecting element can for instance be a hook, a T-hook or a ring. A rope can for instance be attached thereto as positioning element, this facilitating displacing and positioning of the device.

[0067] The present invention further relates to a system for arranging a slope on a ground surface, the system comprising:

- a device according to any one of the foregoing claims; and
- a spacer element configured to co-act with the device for the purpose of determining a distance from the drain forming part to a wall positioned on the ground surface.

[0068] The spacer element can for instance be an element which indicates a standard distance from a wall to the drain. The spacer element can be embodied as a stick or slat. The spacer element is optionally configured to be connected to the drain forming part of the device. An advantage of the system is that it is ensured that a correct distance from a wall, for instance a wall of a shower, to the drain is obtained. The floor can further be arranged at a desired slope in effective manner.

[0069] The present invention further also relates to a method for arranging a slope, the method comprising the steps of:

- placing a device or system according to any one of the foregoing claims at a desired location;
- pouring a cast floor, preferably cement-bonded pouring mortar, at the desired location;
- allowing the cast floor to cure; and
- removing the device.

[0070] Such a method provides the same effects and advantages as those stated in respect of the device and/or the system.

[0071] In an embodiment according to the method according to the invention the method further comprises the steps of arranging a drain cover on a drain end situated in or protruding partially from a ground surface for working, and placing and/or connecting the device, particularly the drain forming part of the device, to the drain cover.

[0072] In a further embodiment according to the method according to the invention it further comprises the step of arranging floor parts and/or tiles on the cured cast floor.

[0073] By providing floor parts and/or tiles a usable ground surface is obtained, so that the water is guided by means of the slope to the drain.

[0074] Further features, advantages and details of the invention are described on the basis of embodiments thereof, wherein reference is made to the accompanying drawings, in which:

- Figure 1 is a perspective view of an example of a device according to the invention;
- Figure 2 is a side view of the device according to figure 1;
- Figure 3 is a bottom view of the device according to figure 1;
- Figure 4 is a side view of a second example of a device according to the invention;
- Figure 5 is a bottom view of the device according to figure 4;
- Figure 6 is a side view of a further example of the device according to the invention;
- Figure 7 is a bottom view of the example of the device according to figure 6;
- Figures 8A-C show respectively a top view, bottom view and side view of an example of a device according to the invention; and
- Figure 9 shows an alternative example of a device according to the invention.

[0075] Device 2 (figure 1) comprises drain forming part 4 and slope forming part 14. Drain forming part 4 com-

prises side wall 6 which extends from floor end 10 to slope end 12 in a first direction A (see also figure 2). Slope forming part 14 further comprises four slope walls 16. Upright edge 20 is placed on the outer side of slope walls 16 for the purpose of strengthening slope walls 16. In this example upright edge 20 is embodied as a tubular profile situated on the plate-like slope walls 16. Supports 18 are positioned at the corners of device 2 for the purpose of supporting device 2 on ground surface 8. In this embodiment angle of slope α between first direction A and slope wall 16 of slope forming part 14 is about 85°. In this embodiment ground angle β between ground surface 8 and slope wall 16 of slope forming part 14 is 5°. Together, angle α and angle β preferably form 90°. Two connecting elements 24 are placed on the upper side of slope walls 16. Connecting elements 24 can be used for simpler placing and removal of device 2. Second direction B is further shown.

[0076] Device 102 (figures 2 and 3) comprises drain forming part 104 and slope forming part 114 placed on ground surface 108. Supports 118 are height-adjustable, whereby device 102 can be set to the correct height when ground surface 108 is not completely flat. Figure 2 shows device 102 from second direction B, whereby the funnel shape of device 102 is visible. Figure 3 shows device 102 from first direction A in a bottom view, whereby the rectangular form of device 102 is visible. In this embodiment drain forming part 104 is cylindrical and extends from floor end 110 to slope end 112 in first direction A.

[0077] In an alternative embodiment device 202 (figures 4 and 5) comprises drain forming part 204, which is of rectangular form. Slope forming part 214 further comprises three slope walls 216. Drain forming part 204 is also placed close to an outer edge of device 202.

[0078] In a further alternative embodiment according to the invention device 302 (figures 6 and 7) comprises drain forming part 304 which is of rectangular form over the whole width of slope wall 316 of slope forming part 314. Device 302 further comprises only one slope wall 316. This embodiment is particularly interesting for arranging of a gutter-like (design) drain, wherein the gutter is incorporated at least partially in the cast floor to be arranged.

[0079] Device 402 (figure 8A) comprises adjusting legs 418 which are provided at the corners of device 402. Arranged in the centre of device 402 is a viewing opening 430, so that the position of adjusting device 402 relative to the ground surface and/or drain can be determined in simple manner. Arranged symmetrically round viewing opening 430 are spaces 432. Spaces 432 ensure that less material is necessary for manufacture, which has the advantage that the production costs of device 402 are reduced. A further advantage of spaces 432 is that the weight of device 402 is reduced, whereby device 402 is easier to use. Further arranged on upper side 436 of device 402 are handles 438, so that device 402 can be lifted in simple manner. Handles 438 are preferably placed opposite each other, close to side walls 406 of device 402. Placed around drain forming part 404 (figure 8B) in the shown embodiment are four slope walls 416 of slope forming part 414. Drain forming part 404 (figure 8C) has a flat part 415 which extends in use in a direction B parallel to ground surface 408. Drain forming part 404 can hereby be removed from outlet pipe 440 again in simple manner after pouring of the floor. It is further shown that handles 438 preferably extend at least partially in direction B.

[0080] Device 502 (figure 9) shows an alternative drain forming part 504. Drain forming part 504 has a side wall 506 and flat parts 515. This ensures an advantageous placing of drain forming part 504 on a drain with a self-locating function.

[0081] During use of device 2, device 2 is placed on ground surface 8, preferably using connecting elements 24. It is the case here that placing of the drain forming part is embodied such that the drain forming part is placed on and/or over the drain in the ground surface. Supports 18, embodied here as screw legs, are then set to the correct height if necessary. The desired angle of slope α between the first direction (perpendicularly of ground surface 8) and slope wall 16 can hereby also be achieved.

[0082] After this, the floor for pouring, for instance cement-bonded pouring mortar, is poured onto ground surface 8. Because the floor for pouring is relatively liquid, the floor for pouring shapes itself round side wall 6 of drain forming part 4 and against slope walls 16 of slope forming part 14. After a determined period of time, the floor for pouring has cured and device 2 can be removed. After removal of device 2 the floor is provided with a drain and a slope extending close to this drain (and inclining downward in the direction thereof). After this, floor parts and/or tiles can optionally be placed on the slope, after which the floor can be taken into use. Following removal, device 2 can be reused to create a subsequent slope.

[0083] The present invention is by no means limited to the above described examples thereof. The rights sought are defined by the following claims, within the scope of which many modifications can be envisaged.

Claims

1. Device for arranging a slope in a floor for pouring, such as a concrete floor of cement-bonded pouring mortar, comprising:

   - a drain forming part provided with a slope end and configured to be placed on a ground surface and/or drain, wherein in use of the device the drain forming part is at least partially in contact with the ground surface and/or drain on which and/or around which the floor for pouring can be arranged; and
   - a slope forming part which is connected or can be connected to the slope end and is provided with a number of slope walls, wherein in use of

the device one or more of the number of slope walls extend at a ground angle to the ground surface.

2. Device according to claim 1, wherein the drain forming part comprises a substantially flat part which extends substantially parallel to the ground surface in use.

3. Device according to claim 1 or 2, wherein the drain forming part comprises at least one side wall, wherein the floor end is preferably configured to co-act with a drain cover which is placed over an outlet pipe.

4. Device according to any one of the foregoing claims, wherein a viewing opening for assessing the position of the device relative to the ground surface and/or drain is arranged in the device.

5. Device according to any one of the foregoing claims, wherein the device is further provided with a number of supports configured to support the device on the ground surface, wherein the supports are preferably height-adjustable and wherein the supports are preferably placeable through support openings provided in the slope forming part, and wherein the supports are removable from the support openings.

6. Device according to any one of the foregoing claims, wherein the device comprises at least one handle which is arranged in the slope forming part for the purpose of taking hold of the device.

7. Device according to any one of the foregoing claims, wherein the device is manufactured from a substantially rigid material, preferably stainless steel, plastic, synthetic fibre, glass fibre, wood and/or aluminium.

8. Device according to any one of the foregoing claims, wherein the slope forming part comprises two slope walls, wherein in use one or both slope walls extend at a ground angle to the ground surface, or wherein the slope forming part comprises three or four slope walls, wherein in use each of the slope walls extends at a ground angle to the ground surface.

9. Device according to any one of the foregoing claims, wherein the drain forming part preferably has substantially one of the following geometric forms: beam-shaped, triangular, octagonal and most preferably cylindrical, and/or wherein at least one slope wall is plate-like, and/or wherein the device further comprises an upright edge positioned at an outer edge of the number of slope walls.

10. Device according to any one of the foregoing claims, wherein the ground angle lies in the range of 0°-20°, preferably between 1°-10°, and is most preferably about 5°, and/or wherein the angle of slope lies in the range of 0°-90°, preferably between 60°-90°, and most preferably amounts to about 85°.

11. Device according to any one of the foregoing claims, wherein the drain forming part is positioned substantially in the centre of the device, and/or wherein the slope forming part is funnel-shaped or rectangular as seen in a cross-section in a first direction.

12. Device according to any one of the claims 3-11, to the extent dependent on claim 3, wherein the distance between the floor end and a drain end lies between 0.5-5 cm, preferably between 1-3 cm, and is most preferably 2 cm and/or wherein the drain forming part is hollow or solid.

13. Device according to any one of the foregoing claims, further comprising at least one connecting element positioned on a part of the slope wall remote from the ground surface for the purpose of being connected to positioning elements.

14. System for arranging a slope on a ground surface, comprising:

- a device according to any one of the foregoing claims; and
- a spacer element configured to co-act with the device for the purpose of determining a distance from the drain forming part to a wall positioned on the ground surface.

15. Method for arranging a slope, comprising of:

- placing a device or system according to any one of the foregoing claims at a desired location;
- pouring a cast floor, preferably cement-bonded pouring mortar, at the desired location;
- allowing the cast floor to cure; and
- removing the device,

and wherein the method preferably further comprises the step of:

- arranging floor parts and/or tiles on the cured cast floor.

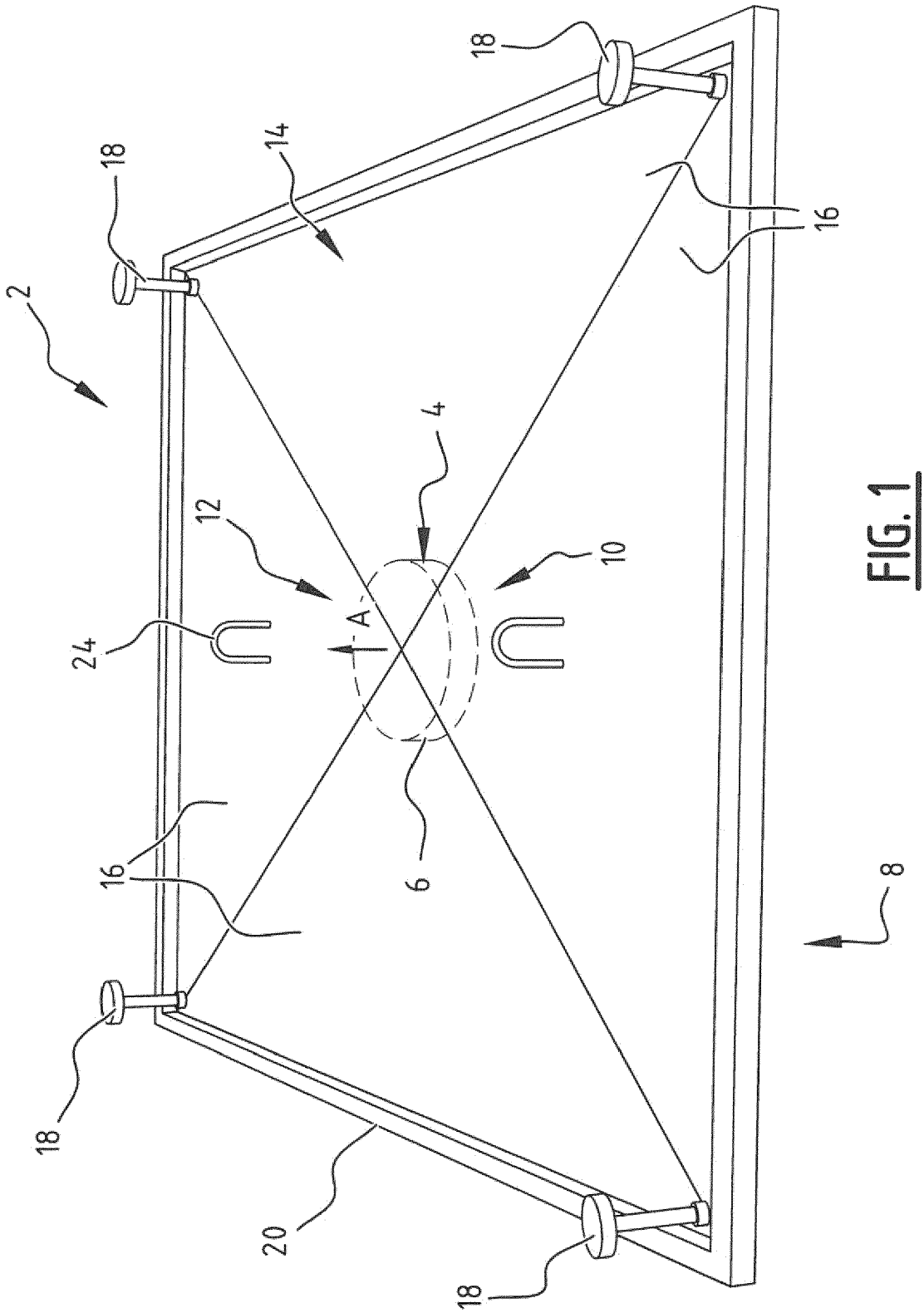
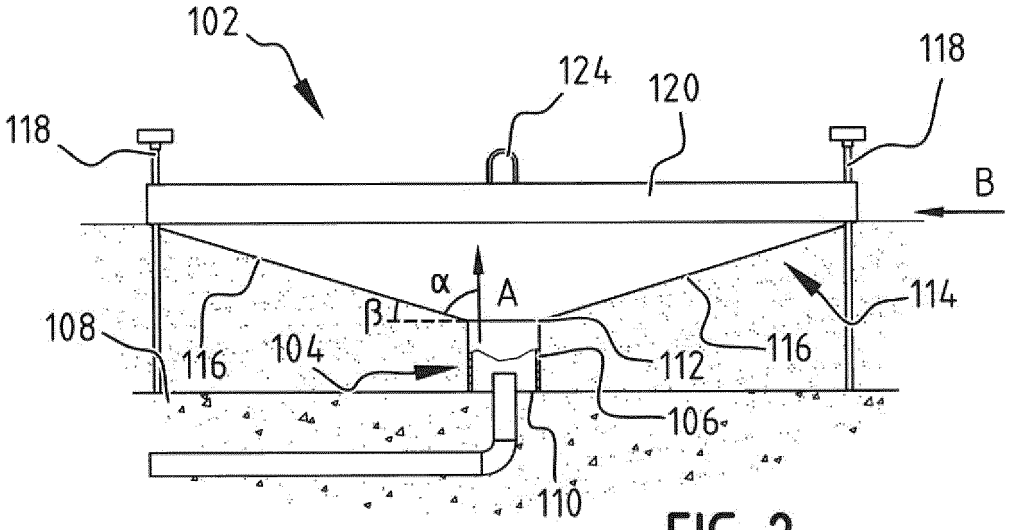


FIG. 1


102
124
120
118
118
B
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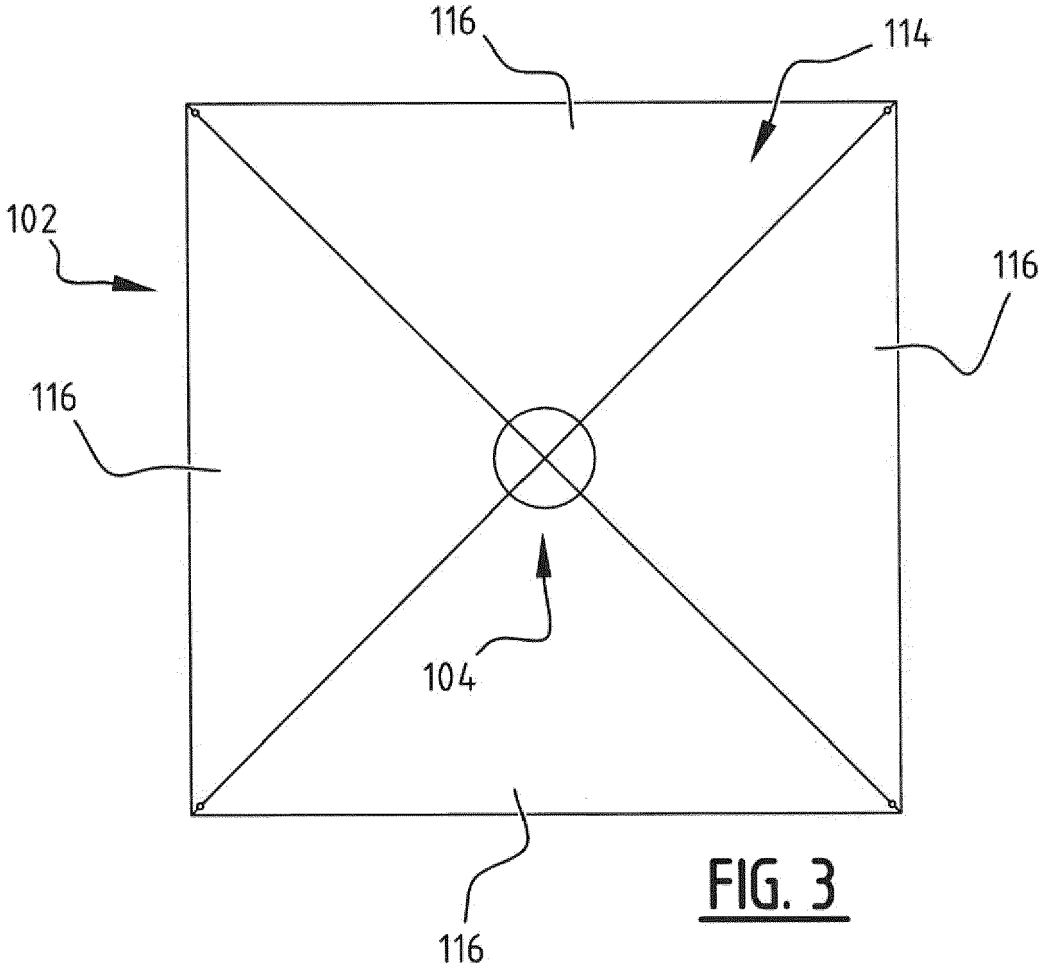
β
108
116
104
112
116
114
106
110

FIG. 2


116
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116

FIG. 3

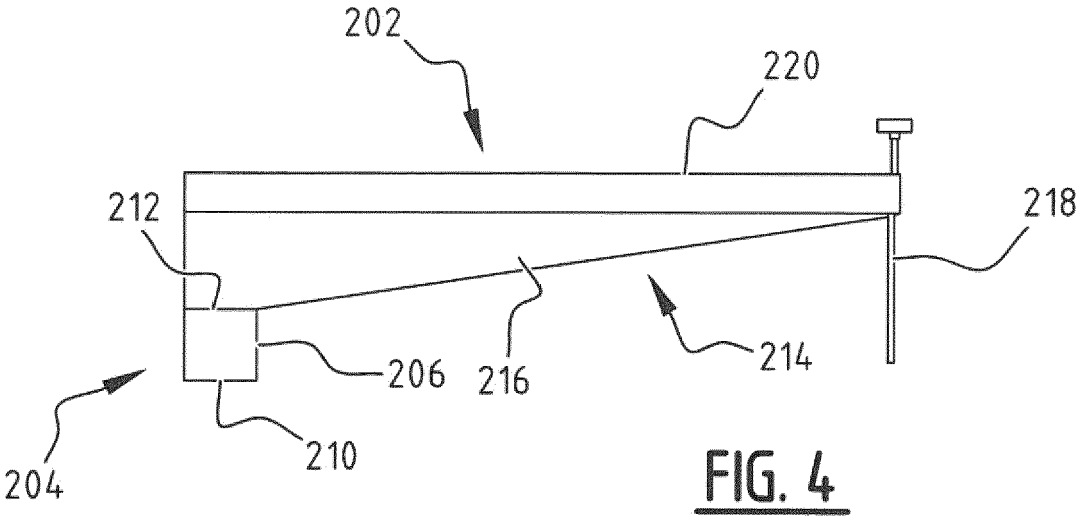

FIG. 4

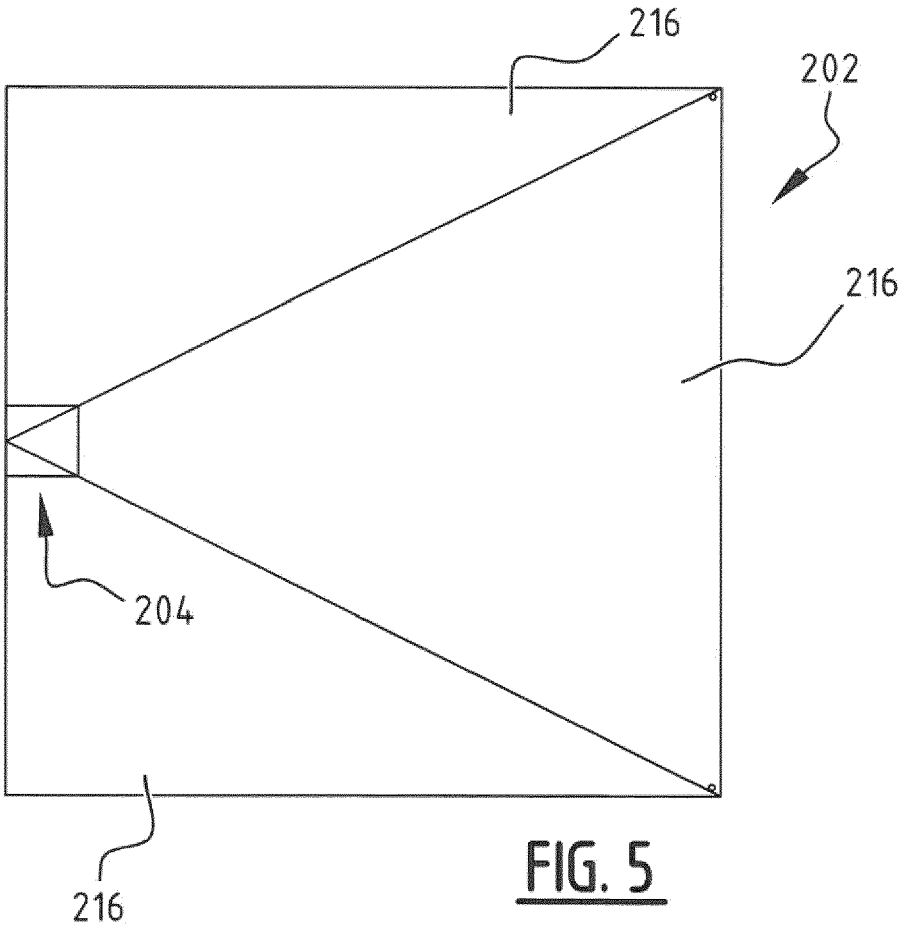

FIG. 5

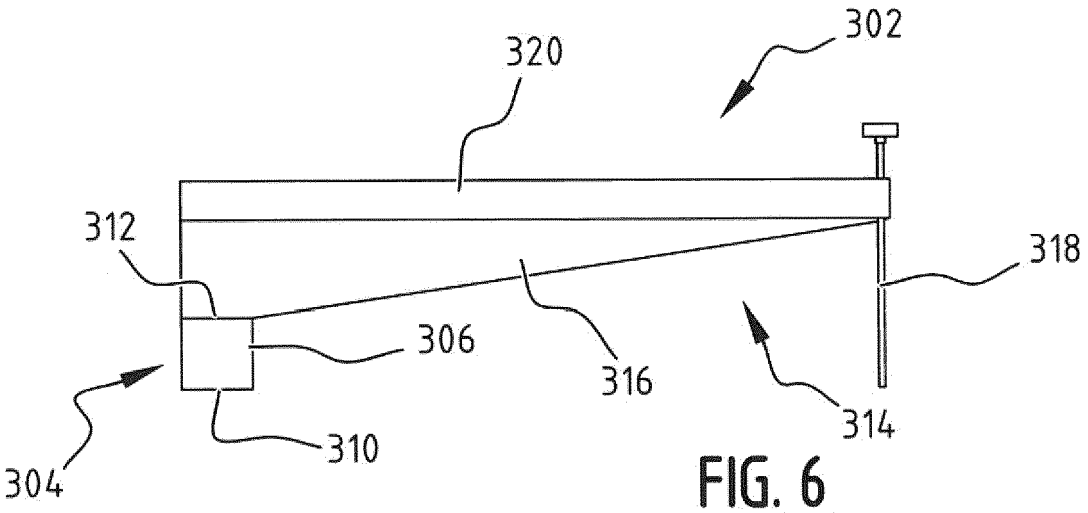

FIG. 6

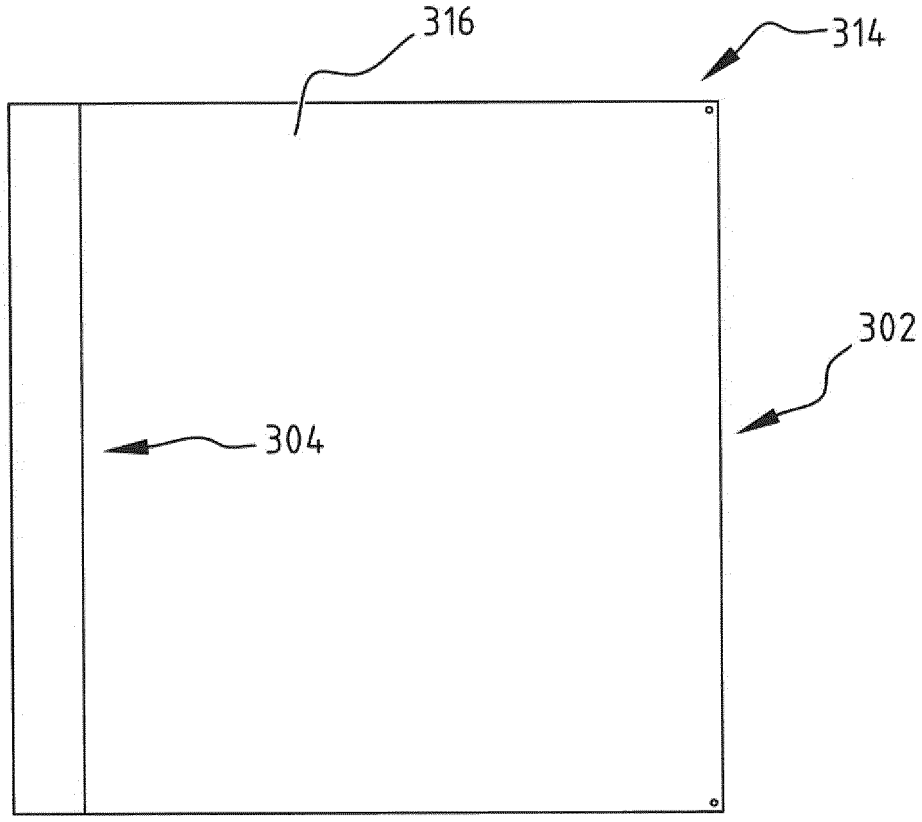

FIG. 7

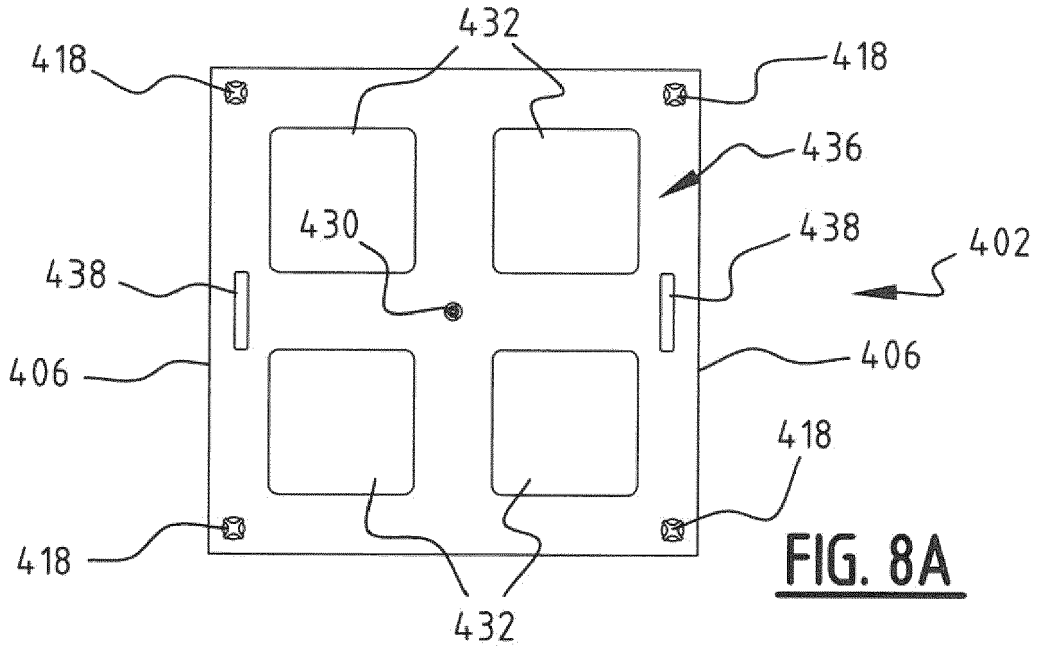

FIG. 8A

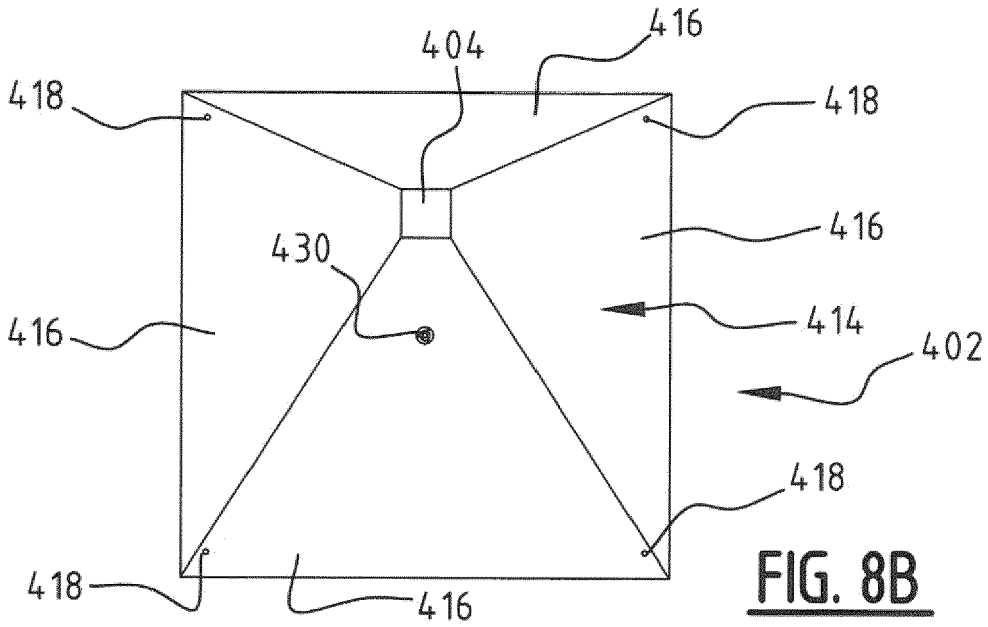

FIG. 8B

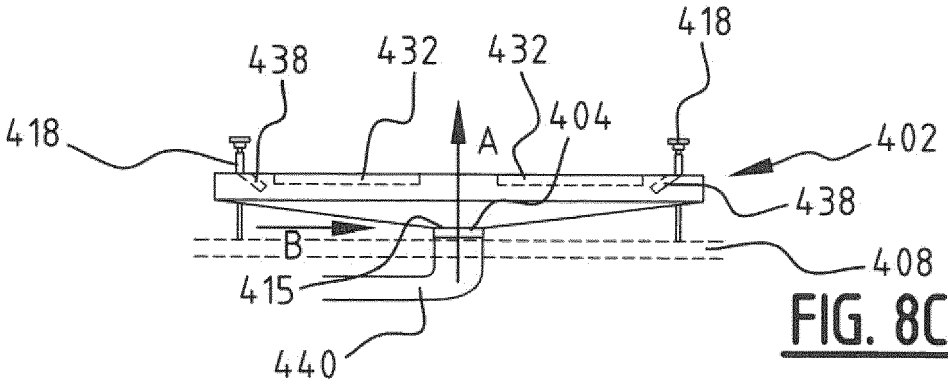

FIG. 8C

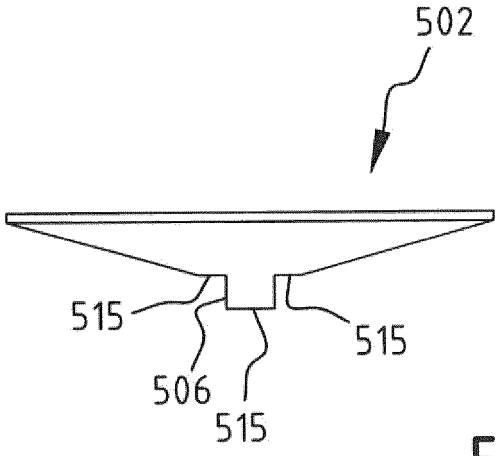

FIG. 9

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EUROPEAN SEARCH REPORT

Application Number
EP 20 17 3487

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 Y	EP 3 215 693 A1 (STJAERNFALL OF SWEDEN AB [SE]) 13 September 2017 (2017-09-13) * paragraphs [0025], [0026], [0028], [0041], [0042] * * figures 1-5 * -----	1-5, 7-12,14, 15 6,13	INV. E04F21/24 A47K3/40
X A	US 2003/037497 A1 (KIRBY MARK E [US]) 27 February 2003 (2003-02-27) * paragraphs [0007], [0039] - [0041], [0051] - [0059] * * figures 1,3,6,7,22,24 * * claims 11,12 * -----	1-3,5,7, 9-12 4,6	
Y	AU 2009 208 105 A1 (DEMETRIOU JAMES [AU]) 25 February 2010 (2010-02-25) * page 5, line 15 - line 29 * * page 7, line 1 - line 6 * * figures 1,5 * -----	6,13	
A	EP 2 905 396 A1 (EASY SANITARY SOLUTIONS BV [NL]) 12 August 2015 (2015-08-12) * paragraph [0022] - paragraph [0026] * * figures 1-5 * -----	1-15	TECHNICAL FIELDS SEARCHED (IPC) E04F A47K E04G

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	1 October 2020	Arsac England, Sally

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01-10-2020

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 3215693 A1	13-09-2017	EP 3215693 A1	13-09-2017
		SE 1400519 A1	01-05-2016
		WO 2016068770 A1	06-05-2016
US 2003037497 A1	27-02-2003	NONE	
AU 2009208105 A1	25-02-2010	NONE	
EP 2905396 A1	12-08-2015	EP 2905396 A1	12-08-2015
		NL 2012216 C2	10-08-2015

EPO FORM P0459

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