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(54) **Mounting plate for a drain bowl**

(57) There is described a mounting plate (1), preferably with square shape, and adapted for use in a floor drain. The floor drain includes a round drain bowl (4) with a rim (5) which is received in a recess (6) in the mounting plate (1). In order to establish a construction that may be easily mounted, the mounting plate (1) is formed by two sections. Each of the sections is provided with a cutout

(3) at an opposing side edge (2). The cutout (3) includes the recess (6) for receiving the rim (5) of the drain bowl (4). Each of the two sections are provided with connecting means (7) for mutual fastening of the two sections around the drain bowl (4) fitted therein. It is preferred that the drain bowl (4) includes an outer bowl and an inner bowl which are mutually telescopically interconnected, such that it is possible to establish a displacement in height.

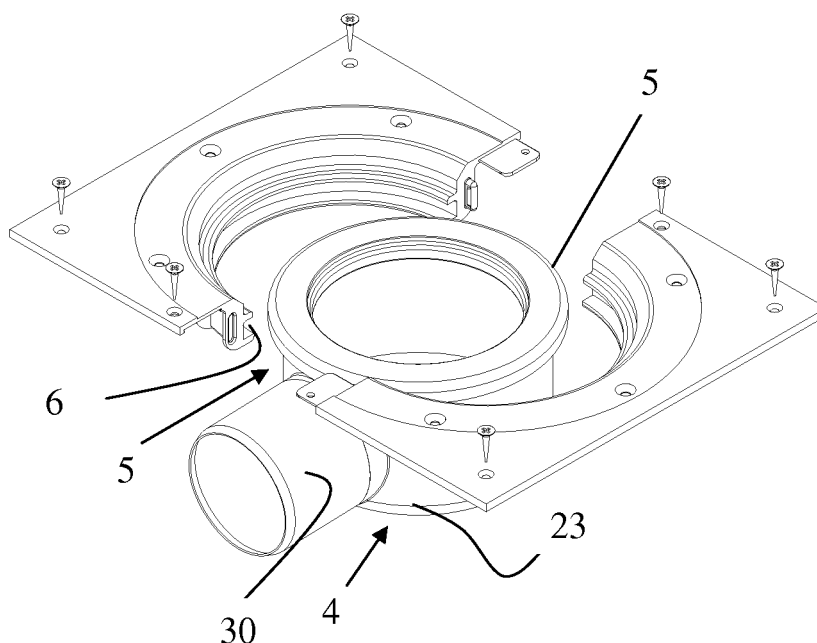


Fig. 8

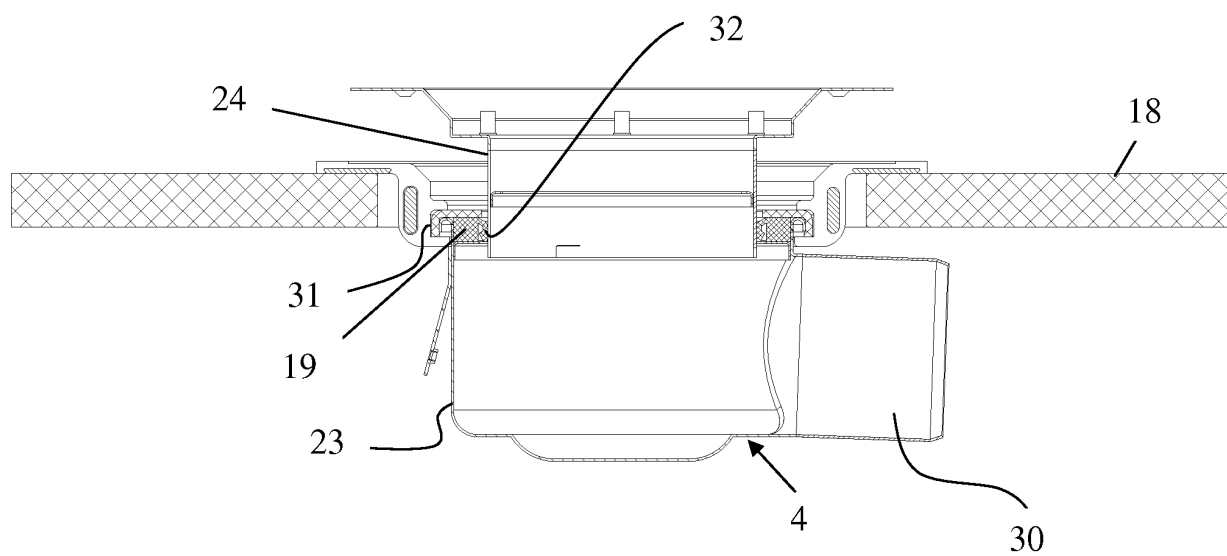


Fig. 14

Description

Field of the Invention

[0001] The present invention concerns a mounting plate adapted for use in a floor drain, including a round drain bowl with a rim which is received in a recess in the mounting plate.

Background of the Invention

[0002] It is prior art to use mounting plates by mounting drains in floor constructions. The mounting plate may have a four-edged cross-section which either may be a rectangular cross-section or a square cross-section, as it is easier hereby to perform the installation in the floor instead for installing round drain bowls. Moreover, the material in the corners will provide a stronger construction.

[0003] The mounting plates are also used in order to perform height adjustment with regard to the floor covering and the height of drain bowls.

[0004] Within the area there will therefore be requirements to a height adjustment such that allowance can be made in the construction for different types of floor covering and different heights of the drain bowl.

[0005] It is known with a four-edged mounting plate with a round hole which is surrounded by a recess. The hole serves to receive the drain bowl which is disposed in the mounting plate with a rim that is received in the recess surrounding the opening. In this construction, adjustment of the height may only be performed by using spacer elements which are disposed under the mounting plate and the base. Thus is used a combination of different spacers, depending on the floor construction provided around the drain.

[0006] A drawback of this construction is that the spacers form holes under the mounting plate into where filler material can penetrate if casting is to be performed on the surrounding floor. Moreover, it is only possible to set it at a few discrete levels, depending on the thickness of the spacers.

[0007] Consequently, for a number of years, there has been a need in the area for a mounting plate which facilitates mounting, and which in a simple way enables secure mounting, where there is no risk that casting mass penetrates in under the mounting plate when casting of the surrounding floor is performed.

Object of the Invention

[0008] It is thus the purpose of the present invention to indicate a mounting plate of the type mentioned in the introduction which facilitates mounting and enables secure mounting in a simple mounting, as well as a combination of a mounting plate and a drain bowl relieving these drawbacks, including also enablement of a more flexible height adjustment.

Description of the Invention

[0009] According to the present invention, this is achieved by a mounting plate of the type specified in the introduction, which is peculiar in that the mounting plate is formed by two sections, each having a cutout including the recess at an opposing side edge for receiving the rim of the drain bowl and which is provided with connecting means for mutual fastening of the two sections around the drain bowl mounted therein.

[0010] According to the invention, a combination of a mounting plate and a round drain bowl will be peculiar in that the drain bowl includes an outer bowl and an inner bowl which are mutually telescopically interconnected.

[0011] By the invention it is thus possible to assemble the mounting plate around the drain bowl in a very simple way.

[0012] By the mounting it is possible to turn the mounting plate such that it is oriented correctly according to the surrounding floor, irrespective of the orientation of the round drain bowl. As there are provided cutouts in the two sections of the mounting plate together forming a recess in which the rim of the drain bowl is received, it will be possible to make a permanent and tight connection. When the mounting plate is placed against a wooden floor which is subsequently to be provided with a casting layer with regard to a slope in the floor, it will thus be possible to get a tight construction towards the wooden floor, such that there is no risk that casting mass runs down under the mounting plate. In that way there is ensured a correct height of the mounting plate.

[0013] Moreover, it will be possible to assemble the mounting plate around a drain bowl and then positioning it in a milled recess in a wooden floor. Thus there may be established a completely plane floor surface which is ready for application of membrane and/or floor vinyl. The floor vinyl/the membrane may be drawn in over the mounting plate, and the drain bowl may in a known way be of a type which is intended for use together with the floor vinyl/membrane. By using a mounting set which is fitted on the top part/inner part, there may also be established a connection which is suited for use in establishing an epoxy floor, tile floor, concrete floor or other floor types.

[0014] By the combination of the mounting plate and the telescoping floor drain is achieved the possibility of a very flexible height adjustment which may be performed steplessly. This telescoping displacement enables using one and the same floor drain for different types of floor covering and for casting layer with different thicknesses and slope towards the floor drain.

[0015] After the mounting plate with the floor drain fitted therein has been placed in a milled recess in the wooden floor, it is possible to place a top part on it. Such a top part may e.g. be ring which is intended for securing floor vinyl or it may be another top part required for floor covering that is desired in connection with the floor drain. It is noted that a milled recess in the wooden floor is

optional, as the mounting plate may lie on top of the floor.

[0016] According to a particular embodiment, the mounting plate according to the present invention is peculiar in that the recess is made as channel-shaped groove. In that way, a collar on the drain bowl may fit into the channel-shaped groove and be clamped or be loosely received therein. Hereby is achieved securing of the drain bowl in the mounting plate without use of further fastening means, such as glue, screws or the like. The drain bowl may thus be mounted and secured in a simple way in the mounting plate alone in that a collar on the rim of the drain bowl is received in the channel-shaped groove.

[0017] According to a further embodiment, the mounting plate according to the present invention is peculiar in that the two sections are identical. This provides a particularly simple design of the mounting plate. Moreover, this is suitable for fitters as they only need to have a single type of element for use in the mounting.

[0018] According to a particular embodiment, the two sections are made of plastic and can thus be made in one and the same mould.

[0019] According to a further embodiment, the mounting plate according to the present invention is peculiar in that the connecting means include corresponding tongues and cutouts on the two sections. Such a design with projecting tongues and cutouts for the two sections is a particularly simple embodiment, since it enables easy sliding together of the two sections around a drain bowl.

[0020] According to a further embodiment, the mounting plate according to the present invention is peculiar in that the connecting means include snap locks. Hereby is achieved a particularly rapid and simple mounting. The two sections may thus be provided with tongues which are resilient and which may act as snap means. Alternatively, there may be provided separate snap means that establish the engagement when tongues and cutouts are brought into mutual engagement. The mounting plate is hereby secured around the drain bowl before mounting in the floor. In the finished construction, for safety reasons there will most often be provided a screwing together of the elements in the mounting plate and/or the wooden floor where it is fitted.

[0021] According to a further embodiment, the mounting plate according to the present invention is peculiar in that the recess is designed for receiving the rim of the drain bowl in a loose fit that allows mutual rotation. As mentioned previously, hereby is enabled adjusting the orientation of the drain bowl after having positioned and embedded the mounting plate in a floor construction.

[0022] If the mounting plate is used in combination with a round drain bowl which has a bottom part and a top part in the shape of an outer and an inner bowl, which are mutually telescopically interconnected, it will be possible to perform a stepless and very flexible height adjustment of the drain bowl by displacing the inner and the outer bowl. Hereby, the mounting is facilitated.

[0023] According to a particular embodiment, the combination of mounting plate and drain bowl is peculiar in

that there is provided a rim on the outer bowl for interacting with the recess for receiving the rim of the drain bowl. In this situation, the rim on the drain bowl may interact with a recess that preferably can be channel-shaped. The outer bowl of the drain bowl will hereby be retained in the recess, after which the inner bowl may easily be displaced up and down in the outer bowl. It may be regarded as a telescoping connection between inner bowl and outer bowl with packings provided there between. By a proper choice of packing between the two bowls, there may furthermore be established a fine adjustment of the position of the inner bowl in relation to the retained outer bowl. This is important with regard to sealing between the edge of the inner bowl and floor covering.

Description of the Drawing

[0024] The invention will now be explained more closely with reference to the accompanying drawing, where:

- Fig. 1 shows a view of a section for a mounting plate, as seen from below;
- Fig. 2 shows a side view of the section shown in Fig. 1;
- Fig. 3 shows a view of the section shown in Fig. 1 as seen from above;
- Fig. 4 shows a perspective view of the section shown in Figs. 1 - 3;
- Fig. 5 shows a sectional view through a combination of two sections to a mounting plate and a drain bowl provided there between;
- Fig. 6 is a side view corresponding to the sectional view shown in Fig. 5;
- Fig. 7 shows a view of the combination shown in Figs. 5 and 6, as seen from above;
- Fig. 8 shows a perspective view of the combination shown in Figs. 5 - 7;
- Fig. 9 shows a sectional view through a combination of a mounting plate assembled of two sections around a drain bowl in a condition mounted in a floor construction;
- Fig. 10 shows a plan view of the combination shown in Fig. 9;
- Fig. 11 shows a side view of the combination shown in Figs. 9 and 10;
- Fig. 12 shows a perspective view of the combination shown in Figs. 9 - 11;
- Fig. 13 shows a sectional view corresponding to Fig. 9 through a combination and where there is mounted an inner bowl in the outer bowl; and
- Fig. 14 shows the combination illustrated in Fig. 13 with two bowls in extended position.

Detailed Description of the Invention

[0025] In the following, identical or corresponding elements are denoted with the same reference number in

the Figures of the drawing, and no specific explanation will therefore be given in connection with each Figure.

[0026] Fig. 1 - 4 shows a section 1 for forming a four-edged mounting plate which in the shown embodiment is square. This is effected in that two sections 1, as shown in each of Figs. 5-14, respectively, are assembled for forming the mounting plate.

[0027] A section is provided a cutout 3 at a side edge 2, which together with a corresponding cutout forms a round opening for receiving a drain bowl 4. When two sections 1 are assembled, the cutout 3 will be disposed at opposing side edges. A recess 6 for receiving a rim 5 (see Fig. 8) of the drain bowl 4 is provided in the cutout 3. In Figs. 1 - 4, the drain bowl 4 is shown as a unit. In practice, the drain bowl 4 is formed by an outer bowl and an inner bowl which are mutually displaceable, such as explained later and as shown in Figs. 13 and 14.

[0028] In the shown embodiment, the recess 6 is formed as a channel-shaped groove.

[0029] Each of the sections 1 include connecting means in the form of a tongue 7 and cutout 8. The tongue 7 will interact with a corresponding cutout when the two elements are interconnected. In the tongue and the cutout, respectively, there is provided a screw hole 9, 10 for fastening a screw 11, 12 (see Fig. 10) for additional safeguarding of the mutual retention of the two section around the drain bowl 4.

[0030] Each section is furthermore provided with a snap-acting projection 13 which interacts with a corresponding notch 14.

[0031] Moreover it is seen that each section is provided with a number of countersunk screw holes 15 that may be used by mounting a top part, as e.g. a ring above the drain bowl 4. Thus is formed a recess around each of the countersunk screw holes 15. In these recesses, the downwards directed offsets around screw holes in such a top part/ring are accommodated such that the top part/ring can be brought into tight contact against the mounting plate.

[0032] Moreover, each mounting plate is provided with a number of screw holes 16 for use in mounting screws 17 for fastening the mounting plate to an underlying wooden floor 18 (see e.g. Fig. 9).

[0033] The shown section 1 is made from plastic, preferably by injection moulding. Alternatively, the section 1 can be made from other materials and/or by other manufacturing methods.

[0034] In Figs. 5-8 is seen a situation where two sections 1 are about to be assembled around a round drain bowl 4. The drain bowl has a lateral outlet 30. At its upper side, the drain bowl 4 is provided with a rim 5 which is received in the recess 6.

[0035] At the rim 5 are provided a packing 19 and a ring 31 (see Fig. 5) which ensure tightness between the mounting plate and the outer bowl 23 of the drain bowl 4.

[0036] In order to strengthen the mounting plate, each section 1 is provided at the underside with a number of ribs 20 which reinforce the mounting plate, as they are

provided in contact with the underside of the flange 26 of the mounting plate and with side edges on a bushing-like projections 21 in which the recess 6 is formed.

[0037] Figs. 9-12 show how the four-edged mounting plate is formed by the two sections 1 which are connected to each other with the drain bowl 4 secured there between, as the drain bowl extends through an opening 25 formed in the wooden floor 18.

[0038] As it particularly appear from Figs. 9 and 11, the flange 26 of the mounting plate will extend around the opening 25 wherein the drain is fitted. The flange 26 is provided with a recess 27 towards the surface of the wooden floor 18. Hereby, it will only be the outermost rim area 28 of the flange which is in contact with the wooden floor 18. A possible casting layer which is poured on the wooden floor 18 up to the side edge 29 of the mounting plate will thus not be able to penetrate in under the mounting plate.

[0039] In Figs. 13 and 14, the combination of the mounting plate and the drain bowl is shown in sectional views for illustrating the inner bowl 24 and outer bowl 23 of the drain bowl 4. The drain bowl 4 is formed by the outer bowl 23 and the inner bowl 24. The inner bowl 24 is disposed inside the outer bowl 23 in a telescoping way with a slide packing 32 there between. The rim 5 will thus be provided on the outer bowl 23. In this way, the inner bowl 24 may be displaced in relation to the mounting plate and the outer bowl 23 retained therein when the two sections 1 are interconnected.

[0040] In Fig. 13, the inner bowl 24 is seen in a position where it is inserted in the outer bowl 23. In Fig. 14, the inner bowl 24 is seen in a position where it is displaced out from the outer bowl 23. This telescoping displacement enables using one and the same floor drain for different types of floor covering and for casting layers with different thicknesses and slope towards the floor drain.

[0041] After disposing the mounting plate permanently on the wooden floor 18, it is thus possible to adjust the height of the inner bowl 24 and to some degree also angular orientation of the inner bowl 24 in relation to the wooden floor 18. This is effected just by displacing the inner bowl 24 in relation to the outer bowl 23 when the latter has been mounted in the wooden floor. Hereby, adaptation for connecting floor covering to the floor drain is facilitated.

Claims

1. A mounting plate adapted for use in a floor drain, including a round drain bowl (4) with a rim (5) which is received in a recess (6) in the mounting plate, **characterised in that** the mounting plate is formed by two sections (1), each having a cutout (3) including the recess (6) at an opposing side edge (2) for receiving the rim (5) of the drain bowl and which is provided with connecting means for mutual fastening of the two sections (1) around the drain bowl (4)

mounted therein.

2. Mounting plate according to claim 1, **characterised in that** it has a four-edged shape. 5
3. Mounting plate according to claim 1 or 2, **characterised in that** the recess (6) designed as a channel-shaped groove. 10
4. Mounting plate according to any preceding claim, **characterised in that** the two sections (1) are identical. 15
5. Mounting plate according to any preceding claim, **characterised in that** the connecting means include corresponding tongues (7) and cutouts (8) on the two sections (1). 20
6. Mounting plate according to any preceding claim, **characterised in that** the connecting means comprise snap locks (13, 14). 25
7. Mounting plate according to any preceding claim, **characterised in that** it is made of plastic. 30
8. Mounting plate according to any preceding claim, **characterised in that** the recess (6) is designed to receive the rim (5) of the drain bowl in a loose fit allowing mutual rotation. 35
9. A combination of a mounting plate according to any preceding claim and a round drain bowl (4), **characterised in that** the drain bowl (4) includes an outer bowl (23) and an inner bowl (24) which are mutually telescopingly interconnected. 40
10. Combination of mounting plate and drain bowl according to claim 9, **characterised in that** a rim (5) is provided on the outer bowl (23) for interacting with the recess (6) for receiving the rim (5) of the drain bowl. 45

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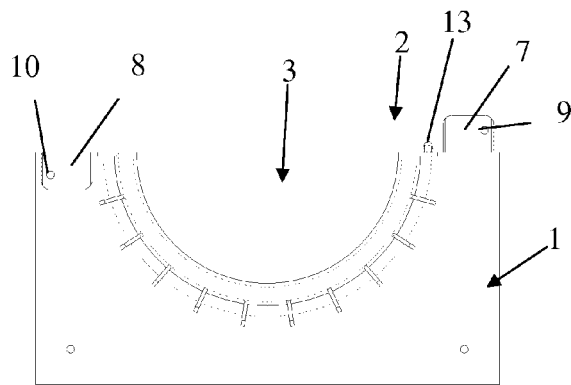


Fig. 1

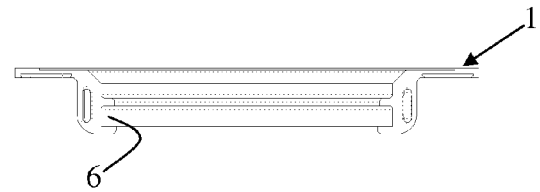


Fig. 2

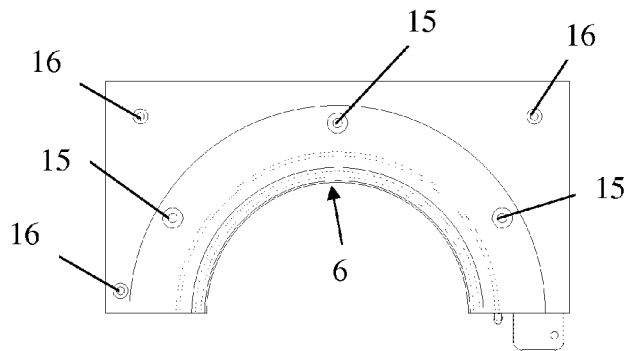


Fig. 3

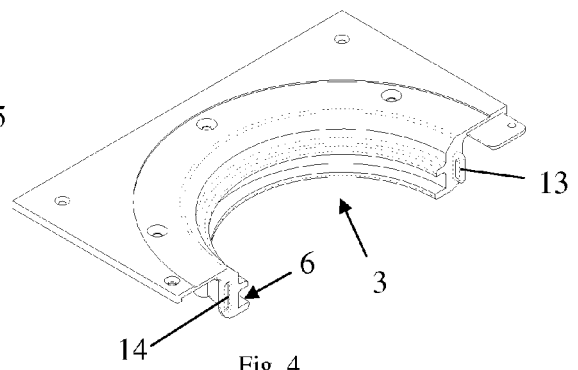


Fig. 4

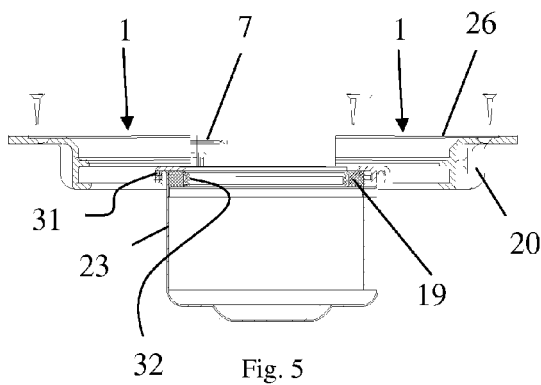


Fig. 5

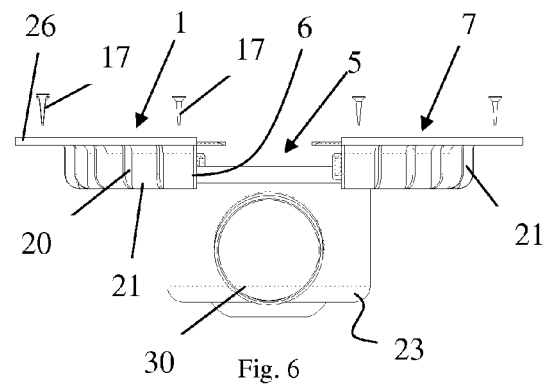
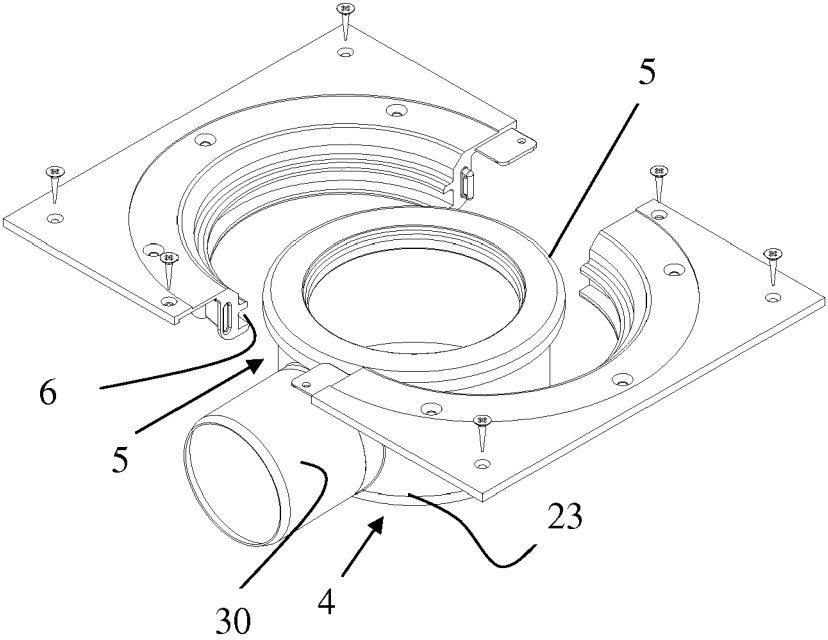
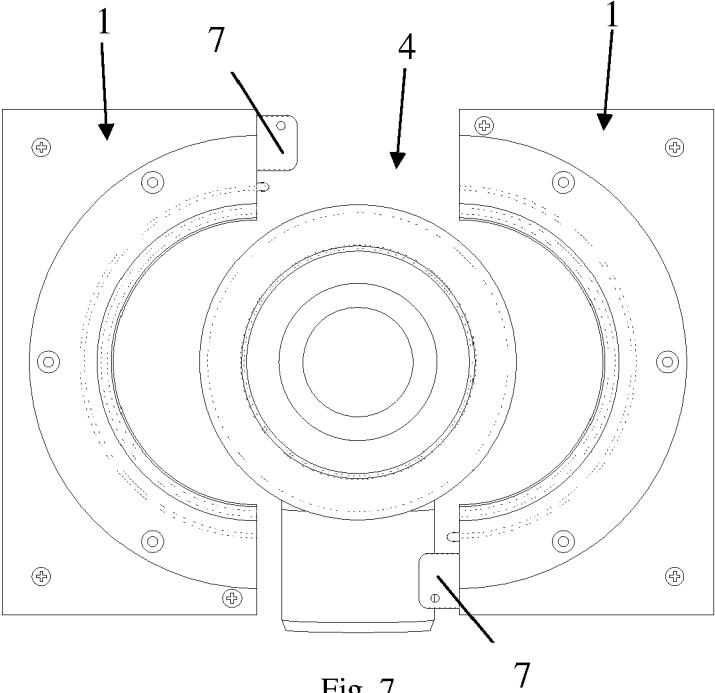


Fig. 6



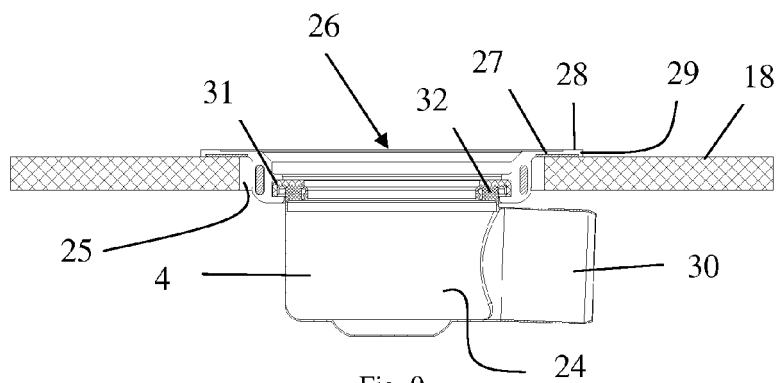


Fig. 9

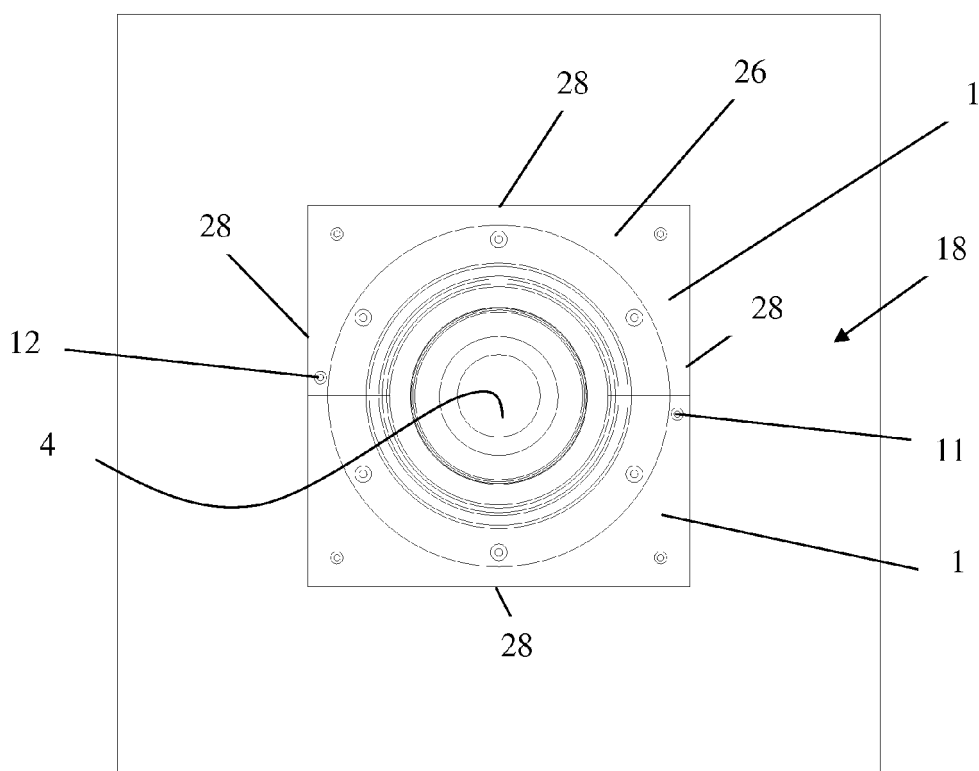


Fig. 10

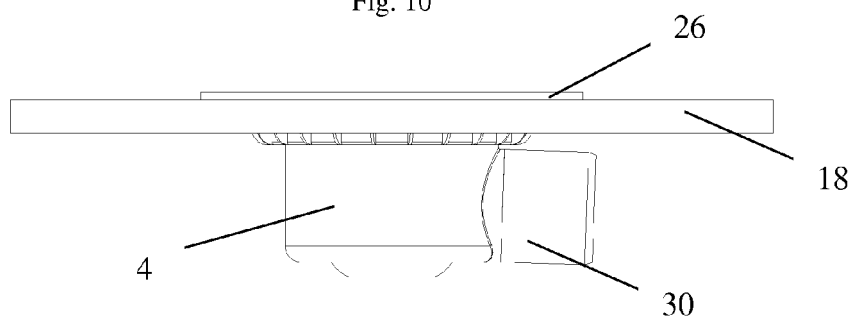


Fig. 11

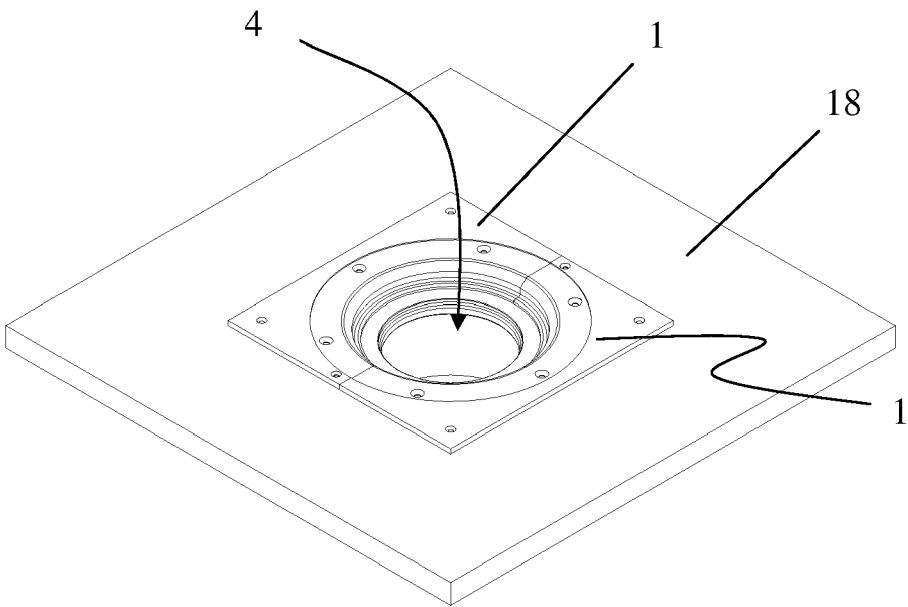


Fig. 12

