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Remarks:

Amended claims in accordance with Rule 137(2) EPC.

(54) **A shower tray, an assembly kit thereof and an installation method for the shower tray itself**

(57) A shower tray (100) comprising a supporting structure (101), a covering plate (110) which covers the supporting structure (101), and waste water drainage devices (103, 104a, 104b). The shower tray (100) comprises a heat-formed plastic material bowl (101) as a sup-

porting structure (101). In turn, the bowl (101) comprises an integral basin (102) adapted to contain a drain (103). The invention further relates to an assembly kit for the shower tray (100) and to an installation method for the shower tray (100) itself.

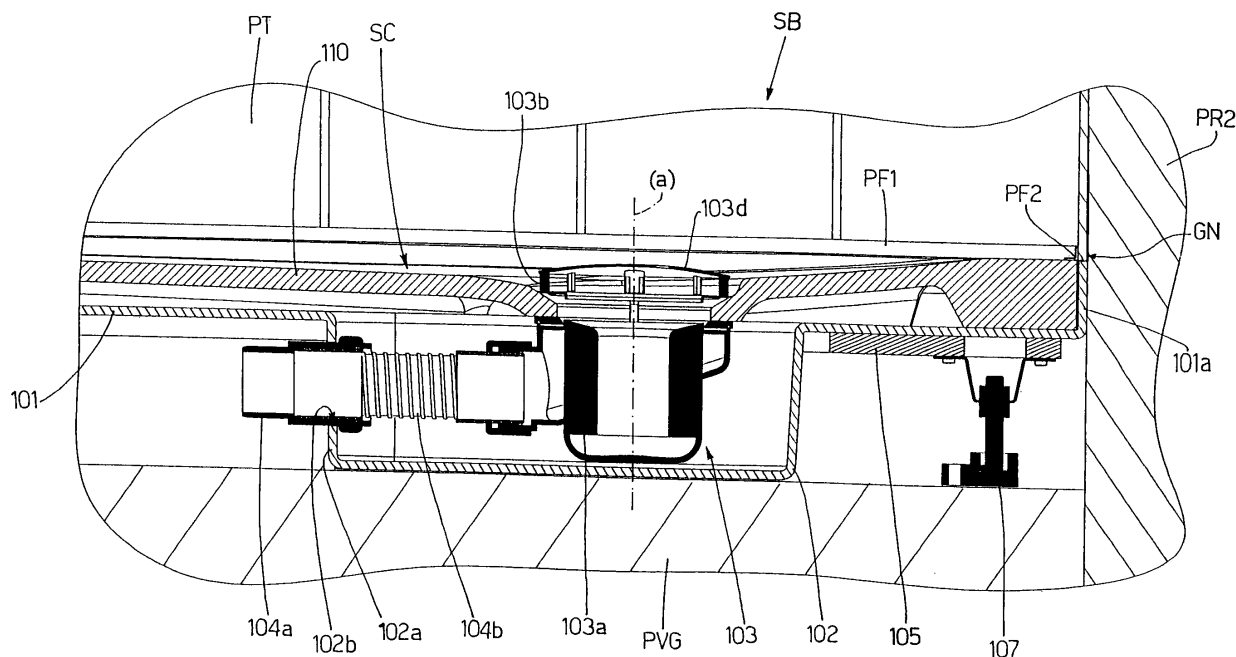


Fig.3

SEZ. A-A  
Sect. A-A

## Description

**[0001]** The present invention relates to a shower tray, to an assembly kit for the shower tray and to an installation method of the shower tray itself flushed with the floor.

**[0002]** The present invention will now be described with reference to the accompanying drawings which illustrate a non-limitative embodiment thereof, in which:

- figure 1 shows an overall view of a detail of a bathroom in which there is a shower tray installed by means of an assembly kit;
- figure 2 shows a cross section of the shower tray in figure 1;
- figure 3 shows enlarged details of the cross section in figure 2;
- figure 4 shows an exploded view of the shower tray assembly kit in figures 1, 2, 3;
- figure 5 shows elements of the shower tray assembly kit according to figures 1, 2, 3;
- figure 6 shows an enlargement of elements belonging to the kit in figure 5; and
- figure 7 shows an enlargement of the shower tray in figures 1, 2, 3.

**[0003]** In figures 1, 2, 3, 7, numeral 100 indicates a shower tray according to the invention accommodated in a bathroom SB.

**[0004]** The bathroom SB comprises a pair of walls PR1, PR2 (which are joined at a corner AN) and a floor PV.

**[0005]** In the embodiment shown in figure 1, the walls PR1, PR2 are covered by wall tiles PT, while the floor PV is covered by floor tiles MT.

**[0006]** Incidentally, the present invention will be explained hereinafter with specific reference to an angular shower tray, such as that shown in the accompanying figures; it is however understood that the teachings of the present invention may apply to any type and shape of shower tray, possibly with the obvious changes.

**[0007]** As shown in the accompanying figures, the shower tray 100 comprises a heat-formed plastic material bowl 101.

**[0008]** The bowl 101, in turn, comprises a heat-formed basin 102 integral with the rest of the bowl 101 itself. As will be seen, the basin 102 is adapted to accommodate a drain 103 therein (see below).

**[0009]** A through hole 102b (figures 2, 3) is made in a wall 102a of the basin 102 through which, as described in greater detail below, passes a union 104a, which hydraulically connects a water drainage system (not shown) to the drain 103 by means of a tube 104b.

**[0010]** As shown in figures 2, 3, 4, the bowl 101 rests on a wooden supporting board 105, the shape of which essentially follows that of the bowl 101 itself. The bowl 101 is fixed to the wooden board 105 with intrinsically known systems (not described).

**[0011]** The wooden supporting board 105 comprises,

in turn, a breaking 106 (figure 4) at the basin 102 and a plurality of adjustable feet 107 the height of which is adjustable with known means (not described).

**[0012]** Furthermore, during installation the bowl 101 is provided with a covering (not shown in the accompanying figures) of the disposable type, e.g. formed by polystyrene foam, provided with a removable area at the basin 102. Such a polystyrene covering protects the bowl 101 from the falling of dust and waste of various type.

**[0013]** As shown in figure 6, the bowl 101 comprises a vertical edge 101a of height H1 (with respect to the bottom F of the bowl 101 itself) on a curved side Lo, while on the straight sides L1, L2 of the bowl 101 itself which are found near the walls PR1 and PR2 respectively, the vertical edge 101b presents a greater height H2 than the height H1 (again with respect to bottom F).

**[0014]** Figures 4, 5, 6 show an assembly kit 1000 for installing the shower tray 100. In addition to the constructive elements of the shower tray 100, the kit 1000 comprises three centering strips, one 108 and two 109.

**[0015]** Indeed, as shown in detail in figure 6, the centering strip 108, advantageously formed by a metallic material, e.g. aluminium, of height H3 with respect to the bottom F of the bowl 101, with H3 greater than H1, is rested on the inner wall of the side edge 101a. In other words, as explained in greater detail below, the centering strip 108 protrudes by a height D1 with respect to the edge 101a of the side Lo.

**[0016]** On the other hand, each side L1, L2 is also provided with a similar centering strip 109 having a height H4 greater than H1, H2, H3. The centering strip 109 protrudes by a height D2 with respect to the edge 101b.

**[0017]** As specifically shown in figures 2, 3, 4, once the bowl 101 has been fixed to the floor and a main cup-shaped body 103a of the drain 103 (figure 3) has been centered, the installer only needs to fit a covering plate 110 formed by molten plastic material into the compartment of the bowl 101, according to a method which will be shown in greater detail below.

**[0018]** Furthermore, the covering plate 110 presents an opening 110a at the basin 102.

**[0019]** As specifically shown in figures 3, 4, in addition to the aforesaid main cup-shaped body 103a, the drain 103 comprises a fastening ring 103b, which is fixed in use to the covering plate 110 and to the main cup-shaped body 103a by means of a pair of screws 103c.

**[0020]** The upper surface of the covering plate 110 forms the floor surface SC (figures 1, 2, 3) on which the user may rest during the use of the shower (not shown as a whole).

**[0021]** The installation procedure of the shower tray 100 which is the main object of the present invention is as follows:

- (A) resting the bowl 101 on a rough floor PVG (figure 2), the walls PR1, PR2 of the bathroom SB (figure 1) are only plastered;
- (B) leveling the bowl 101 using a spirit level (not

shown) and adjusting the height of the bowl 101 itself by means of the adjustable feet 107 (figures 2, 3);  
 (C) removing the polystyrene foam covering from the basin 102 of the bowl 101;  
 (D) connecting the union 104a (figure 3) to the rest of the drainage system (not shown);  
 (E) positioning the drain 103 in the basin 102 and connecting such a drain 103 to the union 104a by means of the tube 104b; perfectly centering the drain 103 with respect to the basin 102 by acting on the tube 104b and/or on the union 104a;  
 (F) checking the hydraulic tightness of the waste water drainage system;  
 (G) checking the position of the bowl 101 equally distancing its sides L1, L2 respectively from the walls PR1, PR2;  
 (H) blocking the position of the bowl 101 with quick-setting cement placed on the feet 107, ascertaining that the positions of the sides L1, L2 from the walls PR1, PR2 remain unchanged;  
 (I) casting a cement-bed MS (figure 2) on the rough floor PVG; the cement-bed MS must not exceed the centering strip 108 (figure 6), instead it must leave a thickness so as to be able to reach the upper lip of the edge 101b with the floor tiles MT (see below);  
 (J) installing the floor tiles MT on the side Lo of the bowl 101 by using the outer surface of the centering strip 108 as a reference abutment for cutting floor tiles MT themselves;  
 (K) inserting and gluing an upper vertical portion GN1 of a sheath GN on the walls PR1, PR2; the sheath GN further comprises a horizontal portion GN2 glued onto the crest of the wall-side edges 101b and a lower vertical portion GN3 glued onto the inner wall of the edges 101b of the bowl 101;  
 (L) installing the wall tiles PT on the walls PR1, PR2 by using the wall-side edge 101b as a lower abutment, and the outer surface of the centering strips 109 (figure 6) as a containment;  
 (M) compensating the deviation from perpendicular of the walls PR1, PR2 directly during installation of the wall tiles PT by deliberately by varying the thickness of the fastening glue (not shown);  
 (N) removing the chrome-plated boss 103d and the fastening ring 103b from the main body 103a of the drain 103;  
 (O) removing the strips 109;  
 (P) extracting the remaining part of polystyrene foam covering from the compartment of the bowl 101;  
 (Q) delicately resting the covering plate 110 inside the bowl 101;  
 (R) refitting the fastening ring 103b and the chrome-plated boss 103d thus making the drain 103 integral with the covering plate 110;  
 (S) filling the space between the covering plate 110 and the floor tiles MT, for example with silicone;  
 (T) filling the space between the covering plate 110 and the wall tiles PT, for example with silicone; and

finally

(U) gluing the two L-shaped profiles PF1 and PF2 (figures 1, 2, 3, 7) between the walls PR1, PR2 and the upper surface (floor surface SC) of the covering plate 110.

**[0022]** Evidently, the side walls (not shown) of a shower box are mounted after assembling the shower tray which is the object of the present invention.

**[0023]** The advantages of the shower tray and of the corresponding assembly kit which is the object of the present invention are listed below:

- a simple assembly and the possibility of ensuring a correct centering of the shower tray with respect to the bathroom walls;
- the possibility of using tiles (wall tiles and floor tiles) having different thicknesses;
- effective testing of the waste water drainage system; and
- the easy disassembly of the base with subsequent easy access to the drainage system.

## Claims

1. A shower tray (100) comprising a supporting structure (101), a covering plate (110) which covers the supporting structure (101), and waste water drainage means (103, 104a, 104b); shower tray (100) **characterized in that** it comprises, as a supporting structure (101), a heat-formed plastic material bowl (101), said bowl (101) in turn comprising an integral basin (102) adapted to contain a drain (103).
2. A shower tray (100) according to claim 1, **characterized in that** an opening (110a) is comprised in said covering plate (110) at said basin (102).
3. A shower tray (100) according to any of the preceding claims, **characterized in that** said bowl (101) comprises a vertical edge (101a) of height (H1) with respect to the bottom (F) of said bowl (101) itself on a curved side (Lo) thereof, while on its straight sides (L1, L2) the vertical edge (101b) is of height (H2) greater than said height (H1).
4. A shower tray (100) according to any of the preceding claims, **characterized in that** it contemplates a sheath (GN); said sheath (GN) comprising an upper vertical portion (GN1) to be glued onto two angular walls (PR1, PR2) of a bathroom (SB), a horizontal portion (GN2) glued onto the crests of the wall-side edges (101b) of the bowl (101), and a lower vertical portion (GN3) glued onto the inner wall of the edges (101b) of the bowl (101).
5. A shower box **characterized in that** it comprises a

shower tray (100) according to any of claims 1-4.

6. An assembly kit (1000) for mounting a shower tray (100) according to claims 1-4; the kit (1000) **characterized in that** it comprises all of the component elements of said shower tray (100), and the centering strips (108, 109). 5
7. An assembly kit (1000) according to claim 6, **characterized in that** said centering strip (108) protrudes by a height (D1) with respect to the edge (101a) of the side (Lo). 10
8. An assembly kit (1000) according to claim 6, **characterized in that** said centering strip (109) protrudes by a height (D2) with respect to the edge (101b) of the side (L1). 15
9. An assembly kit (1000) according to claims 7, 8, **characterized in that** said centering strip (109) has a height (H4) greater than the height (H3) of said centering strip (108). 20
10. An assembly kit (1000) according to any of claims 6-9, **characterized in that** it comprises a polystyrene foam covering plate of the same shape as the cavity of the bowl (101), provided with a removable area at the basin 102. 25
11. An installation procedure of a shower tray comprising the following steps: 30
  - (A) resting a bowl (101) on a rough floor (PVG), the walls (PR1, PR2) of the bathroom (SB) only being plastered; 35
  - (B) leveling the bowl (101) by adjusting its height by means of adjustable feet (107);
  - (C) removing a polystyrene foam covering from a basin (102) of the bowl (101);
  - (D) connecting a union (104a) to a drainage system; 40
  - (E) positioning a drain (103) in the basin (102) and connecting such a drain (103) to the union (104a) by means of a tube (104b); centering the drain (103) with respect to the basin (103) by acting on the tube (104b) and/or on the union (104a); 45
  - (F) checking the hydraulic tightness of the waste water drainage system;
  - (G) checking the position of the bowl (101) equally distancing the sides (L1, L2) of such a bowl (101) respectively from the walls (PR1, PR2); 50
  - (H) blocking the position of the bowl (101) with quick-setting cement placed on the adjustable feet (107), ascertaining that the positions of the sides (L1, L2) from the walls (PR1, PR2) remain unchanged; 55

(I) casting a cement-bed (MS) on the rough floor (PVG); the cement-bed (MS) not exceeding a centering strip (108);  
 (J) installing the floor tiles (MT) on one side (Lo) of the bowl (101) by using the outer surface of the centering strip (108) as a reference abutment for cutting the floor tiles (MT) themselves;  
 (K) inserting and gluing an upper vertical portion (GN1) of a sheath (GN) onto the walls (PR1, PR2); the sheath (GN) further comprising a horizontal portion (GN2) glued onto the crest of wall-side edges (101b), and a lower vertical portion (GN3) glued onto the inner wall of the edges (101b) of the bowl (101);  
 (L) installing the wall tiles (PT) on the walls (PR1, PR2) by using the wall-side edge (101b) as a lower abutment, and the outer surface of the centering strips (109) as a containment;  
 (M) compensating the deviation from perpendicular of the walls (PR1, PR2) directly during installation of the wall tiles (PT) by deliberately varying the thickness of the fastening glue;  
 (N) removing a chrome-plated boss (103d) and a fastening ring (103b) from the main body (103a) of the drain (103);  
 (O) removing the strips (109);  
 (P) extracting the remaining part of polystyrene foam covering from the bowl (101);  
 (Q) resting a covering plate (110) inside the bowl (101);  
 (R) refitting the fastening ring (103b) and the chrome-plated boss (103d) thus making the drain (103) integral with the covering plate (110);  
 (S) filling the space between the covering plate (110) and the floor tiles (MT), for example with silicone;  
 (T) filling the space between the covering plate (110) and the wall tiles (PT), for example with silicone; and  
 (U) gluing the two L-shaped profiles (PF1, PF2) between the walls (PR1, PR2) and the upper surface (floor surface SC) of the covering plate (110).

#### **Amended claims in accordance with Rule 137(2) EPC.**

1. A shower tray (100) comprising a supporting structure (101), a covering plate (110) which covers the supporting structure (101), and waste water drainage means (103, 104a, 104b); wherein said shower tray (100) comprises, as a supporting structure (101), a heat-formed plastic material bowl (101), said bowl (101) in turn comprising an integral basin (102) adapted to contain a separate drain (103);  
 shower tray (100) **characterized in that** said sepa-

rate drain (103) comprises a main cup-shaped body (103a) and fastenings means (103b; 103c) for fixing said main cup-shaped body (103a) to said covering plate (110).

2. A shower tray (100) according to Claim 1, **characterized in that** it comprises a union (104a) which hydraulically connects a water drainage system to said separate drain (103), said union (104a) passing through a hole (102b) made in a wall (102a) of said basin (102).

3. A shower tray (100) according to any of the preceding, **characterized in that** an opening (110a) is comprised in said covering plate (110) at said basin (102).

4. A shower tray (100) according to any of the preceding claims, **characterized in that** said bowl (101) comprises a vertical edge (101a) of height (H1) with respect to the bottom (F) of said bowl (101) itself on a curved side (Lo) thereof, while on its straight sides (L1, L2) the vertical edge (101b) is of height (H2) greater than said height (H1).

5. A shower tray (100) according to any of the preceding claims, **characterized in that** it contemplates a sheath (GN); said sheath (GN) comprising an upper vertical portion (GN1) to be glued onto two angular walls (PR1, PR2) of a bathroom (SB), a horizontal portion (GN2) glued onto the crests of the wall-side edges (101b) of the bowl (101), and a lower vertical portion (GN3) glued onto the inner wall of the edges (101b) of the bowl (101).

6. A shower box **characterized in that** it comprises a shower tray (100) according to any of claims 1-5.

7. An assembly kit (1000) for mounting a shower tray (100) according to claims 1-5; the kit (1000) **characterized in that** it comprises all of the component elements of said shower tray (100), and the centering strips (108, 109).

8. An assembly kit (1000) according to claim 7, **characterized in that** said centering strip (108) protrudes by a height (D1) with respect to the edge (101a) of the side (Lo).

9. An assembly kit (1000) according to claim 7, **characterized in that** said centering strip (109) protrudes by a height (D2) with respect to the edge (101b) of the side (L1).

10. An assembly kit (1000) according to claims 8, 9, **characterized in that** said centering strip (109) has a height (H4) greater than the height (H3) of said centering strip (108).

11. An assembly kit (1000) according to any of claims 7-10, **characterized in that** it comprises a polystyrene foam covering plate of the same shape as the cavity of the bowl (101), provided with a removable area at the basin 102.

12. An installation procedure of a shower tray comprising the following steps:

(A) resting a bowl (101) on a rough floor (PVG), the walls (PR1, PR2) of the bathroom (SB) only being plastered;

(B) leveling the bowl (101) by adjusting its height by means of adjustable feet (107);

(C) removing a polystyrene foam covering from a basin (102) of the bowl (101);

(D) connecting a union (104a) to a drainage system;

(E) positioning a drain (103) in the basin (102) and connecting such a drain (103) to the union (104a) by means of a tube (104b); centering the drain (103) with respect to the basin (103) by acting on the tube (104b) and/or on the union (104a);

(F) checking the hydraulic tightness of the waste water drainage system;

(G) checking the position of the bowl (101) equally distancing the sides (L1, L2) of such a bowl (101) respectively from the walls (PR1, PR2);

(H) blocking the position of the bowl (101) with quick-setting cement placed on the adjustable feet (107), ascertaining that the positions of the sides (L1, L2) from the walls (PR1, PR2) remain unchanged;

(I) casting a cement-bed (MS) on the rough floor (PVG); the cement-bed (MS) not exceeding a centering strip (108);

(J) installing the floor tiles (MT) on one side (Lo) of the bowl (101) by using the outer surface of the centering strip (108) as a reference abutment for cutting the floor tiles (MT) themselves;

(K) inserting and gluing an upper vertical portion (GN1) of a sheath (GN) onto the walls (PR1, PR2); the sheath (GN) further comprising a horizontal portion (GN2) glued onto the crest of wall-side edges (101b), and a lower vertical portion (GN3) glued onto the inner wall of the edges (101b) of the bowl (101);

(L) installing the wall tiles (PT) on the walls (PR1, PR2) by using the wall-side edge (101b) as a lower abutment, and the outer surface of the centering strips (109) as a containment;

(M) compensating the deviation from perpendicular of the walls (PR1, PR2) directly during installation of the wall tiles (PT) by deliberately varying the thickness of the fastening glue;

(N) removing a chrome-plated boss (103d) and

a fastening ring (103b) from the main body (103a) of the drain (103);  
 (O) removing the strips (109);  
 (P) extracting the remaining part of polystyrene foam covering from the bowl (101); 5  
 (Q) resting a covering plate (110) inside the bowl (101);  
 (R) refitting the fastening ring (103b) and the chrome-plated boss (103d) thus making the drain (103) integral with the covering plate (110); 10  
 (S) filling the space between the covering plate (110) and the floor tiles (MT), for example with silicone;  
 (T) filling the space between the covering plate (110) and the wall tiles (PT), for example with silicone; and 15  
 (U) gluing the two L-shaped profiles (PF1, PF2) between the walls (PR1, PR2) and the upper surface (floor surface SC) of the covering plate (110). 20

cutting and stripping electric cables (CV1, CV2) having a sheath of insulating material; the machine comprising a cutting and stripping head (100) for cutting and stripping said electric cables (CV1, CV2), and control means (1000) for controlling the devices forming part of said machine (10); 25  
 wherein said head (100) in turn comprises at least one cutting device (102) for cutting said cable (CV1, CV2); and comprising at least a first stripping device (107) and a second stripping device (108) for stripping the ends (CP1; CP2; CP3; CP4) of said cable (CV1, CV2); 30  
 and wherein said first stripping device (107) is located on the opposite side of said cutting device (102) to said second stripping device (108); 35  
 the machine (10) being **characterized in that** said first stripping device (107) is able to produce a respective waste piece of sheath (114) presenting an equal or a different length of a waste piece of sheath (115) produced by said second stripping device (108). 40

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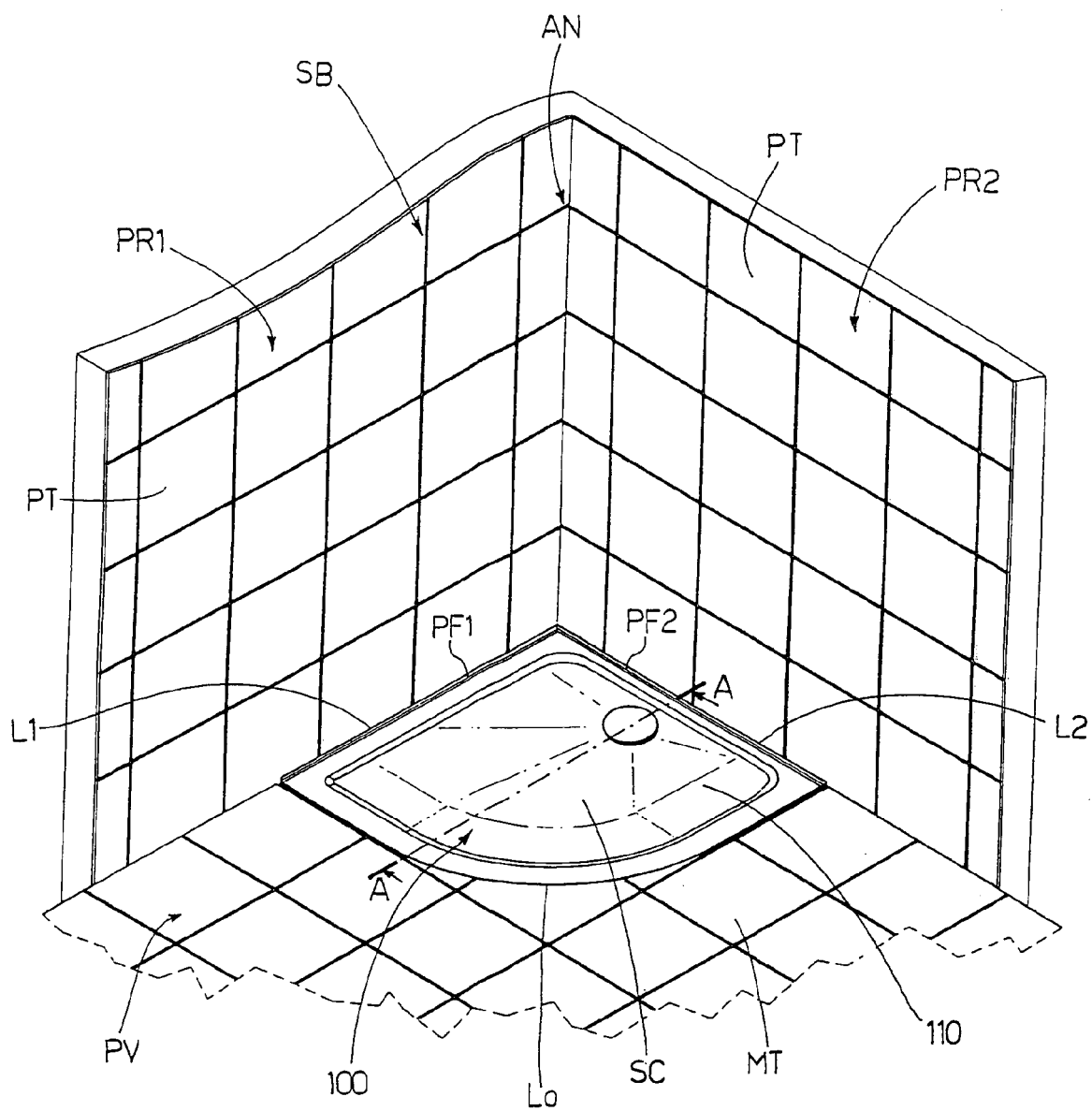


Fig.1

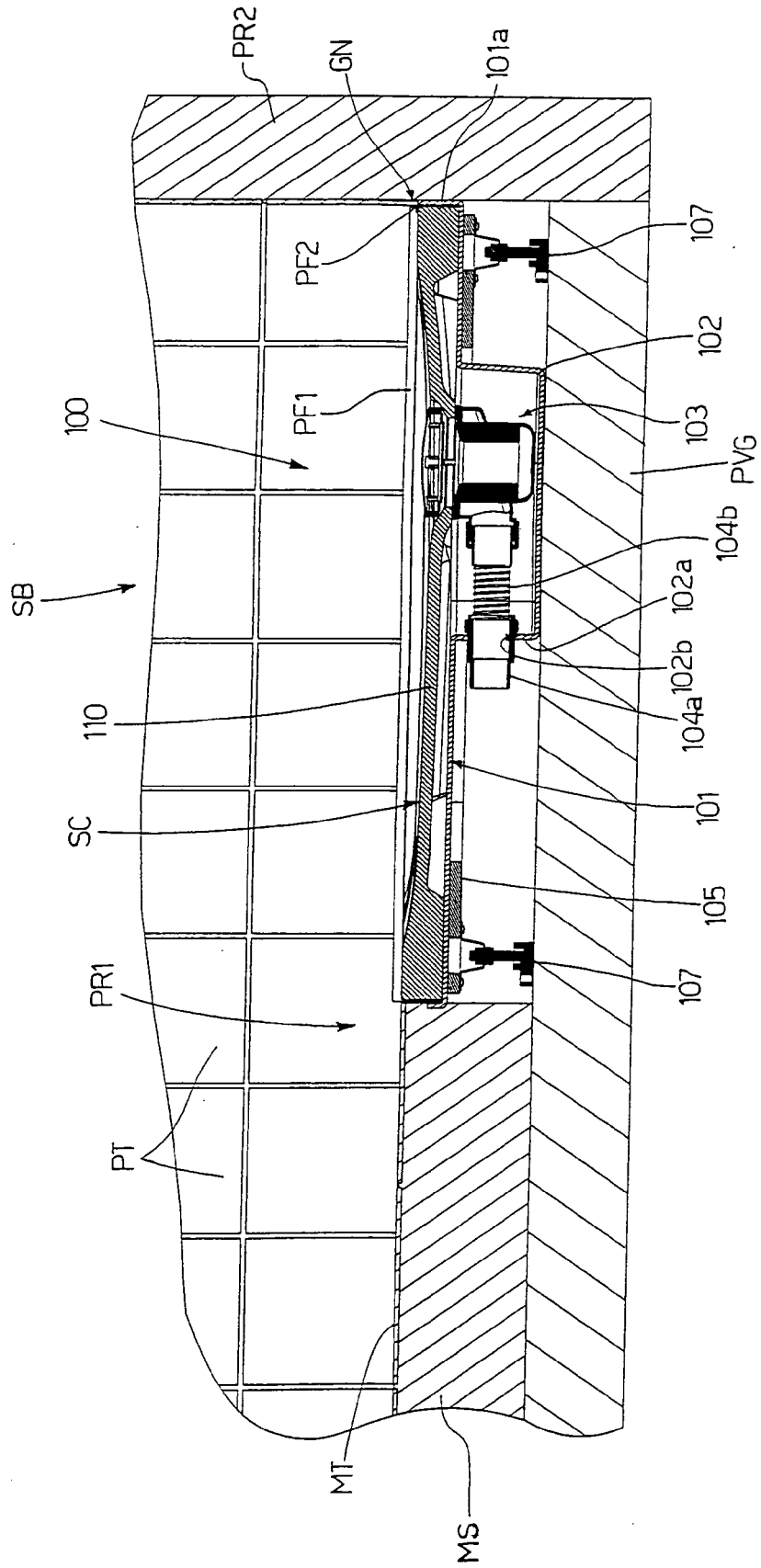
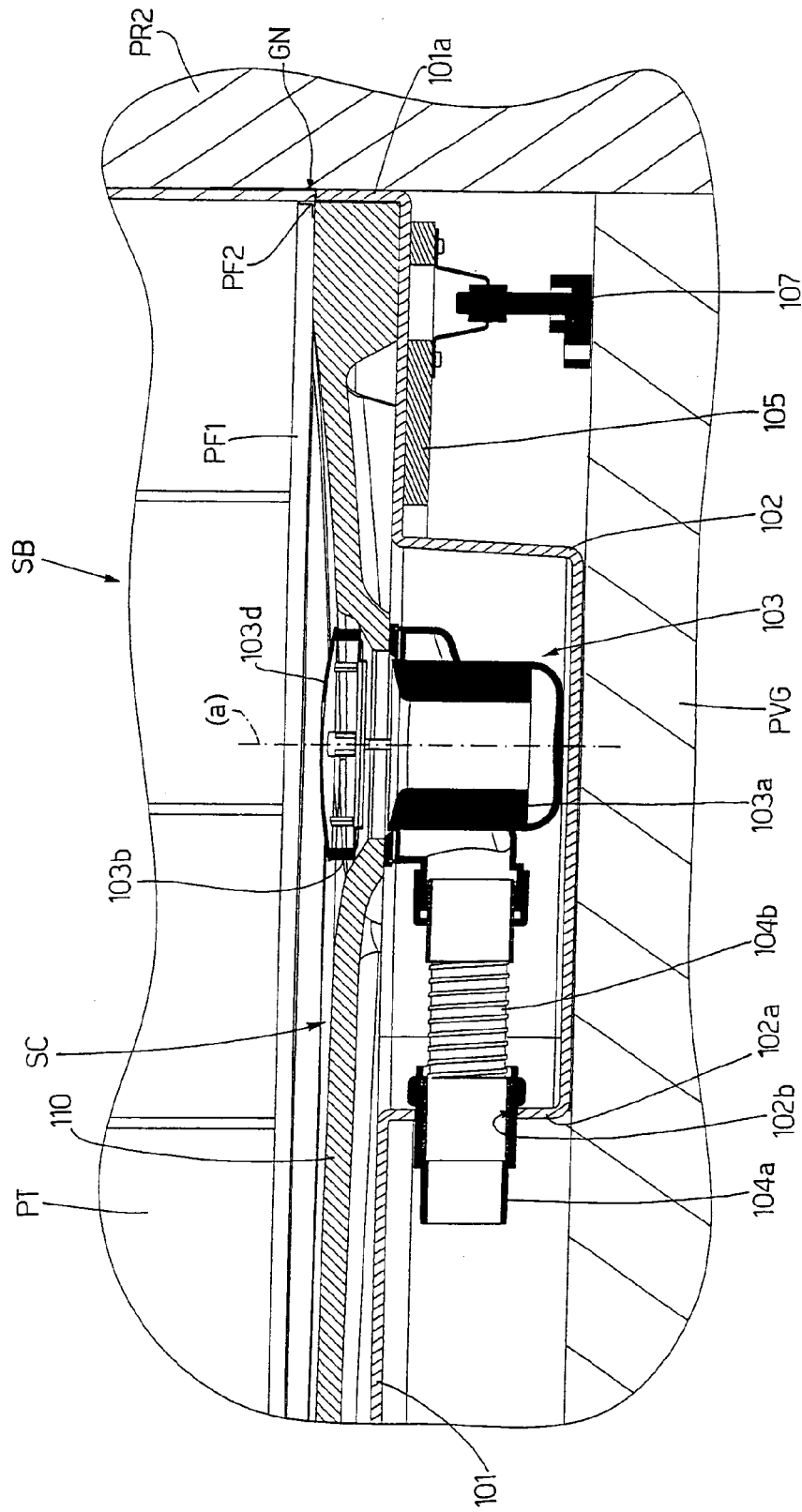


Fig.2



SEZ.A-A  
Sect. A-A

Fig.3

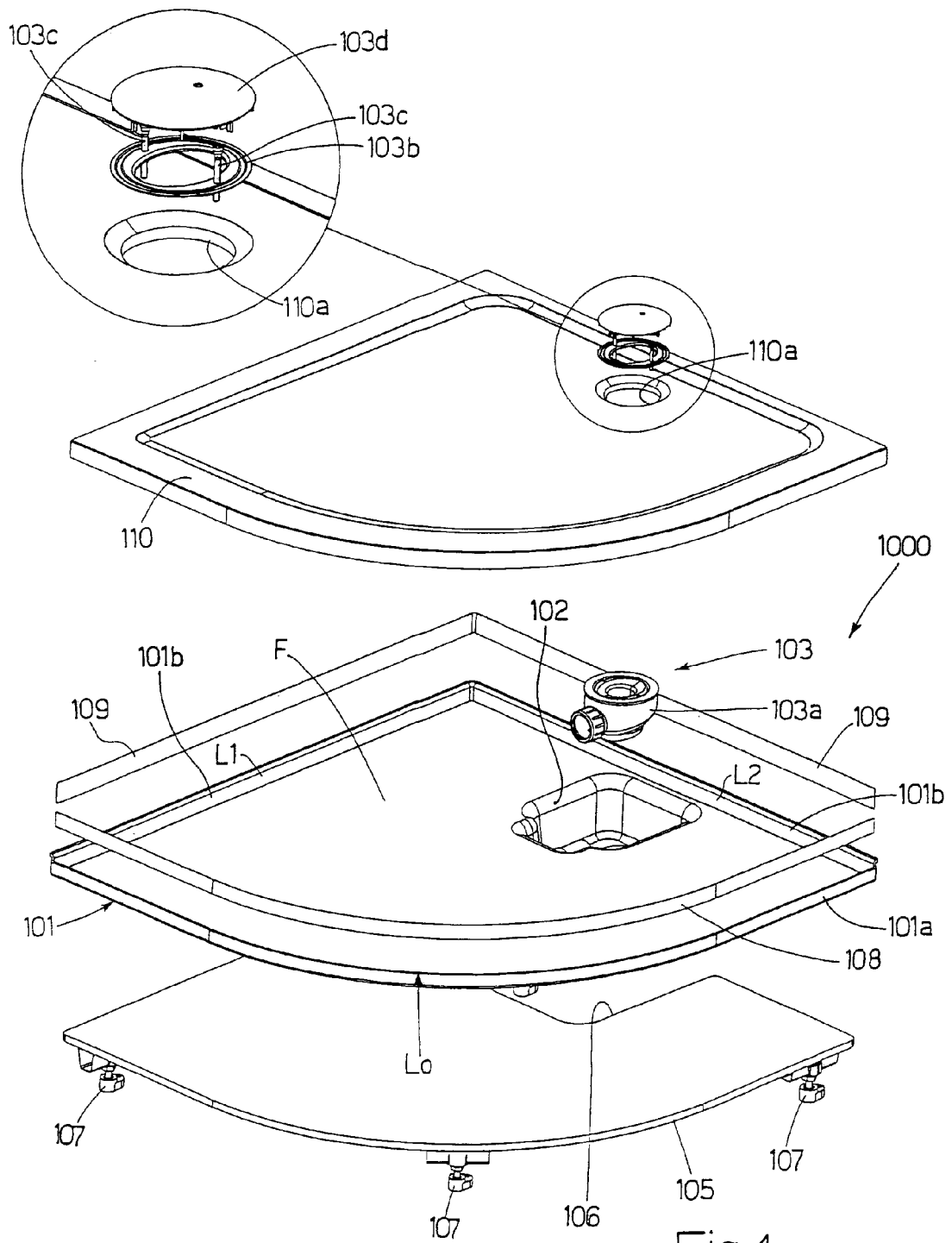
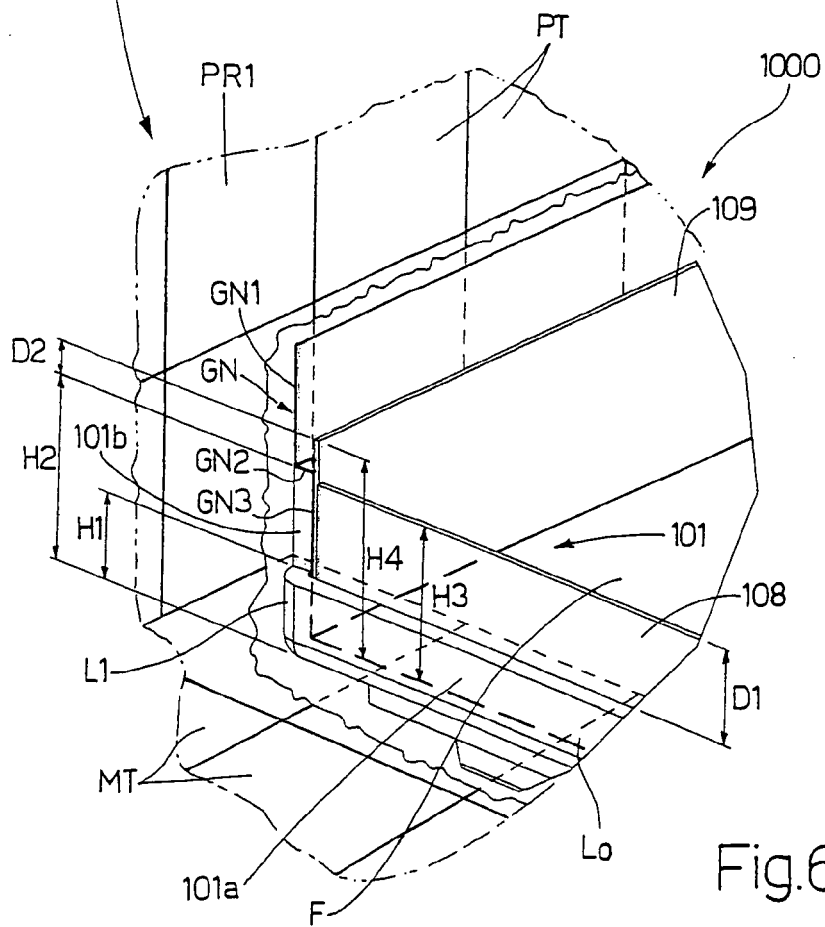
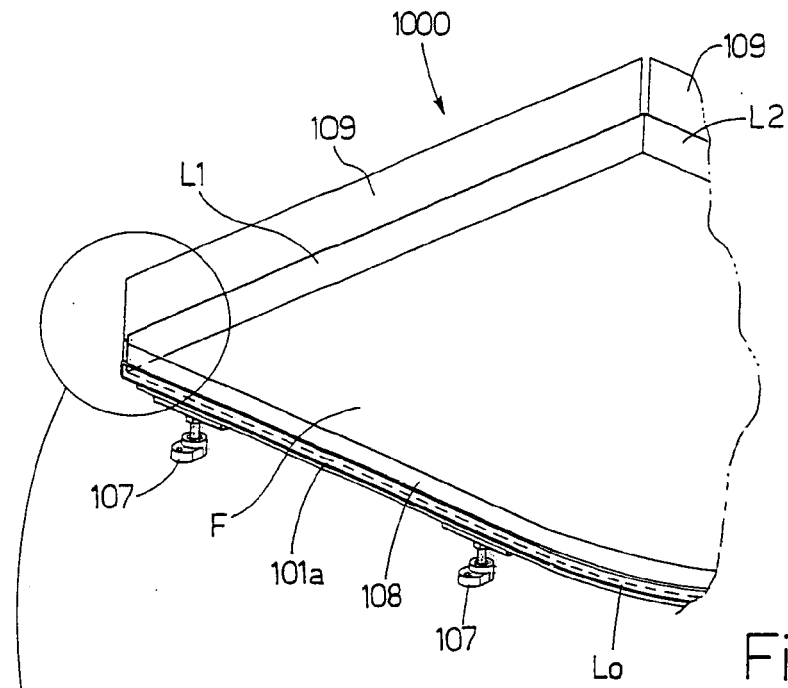


Fig.4



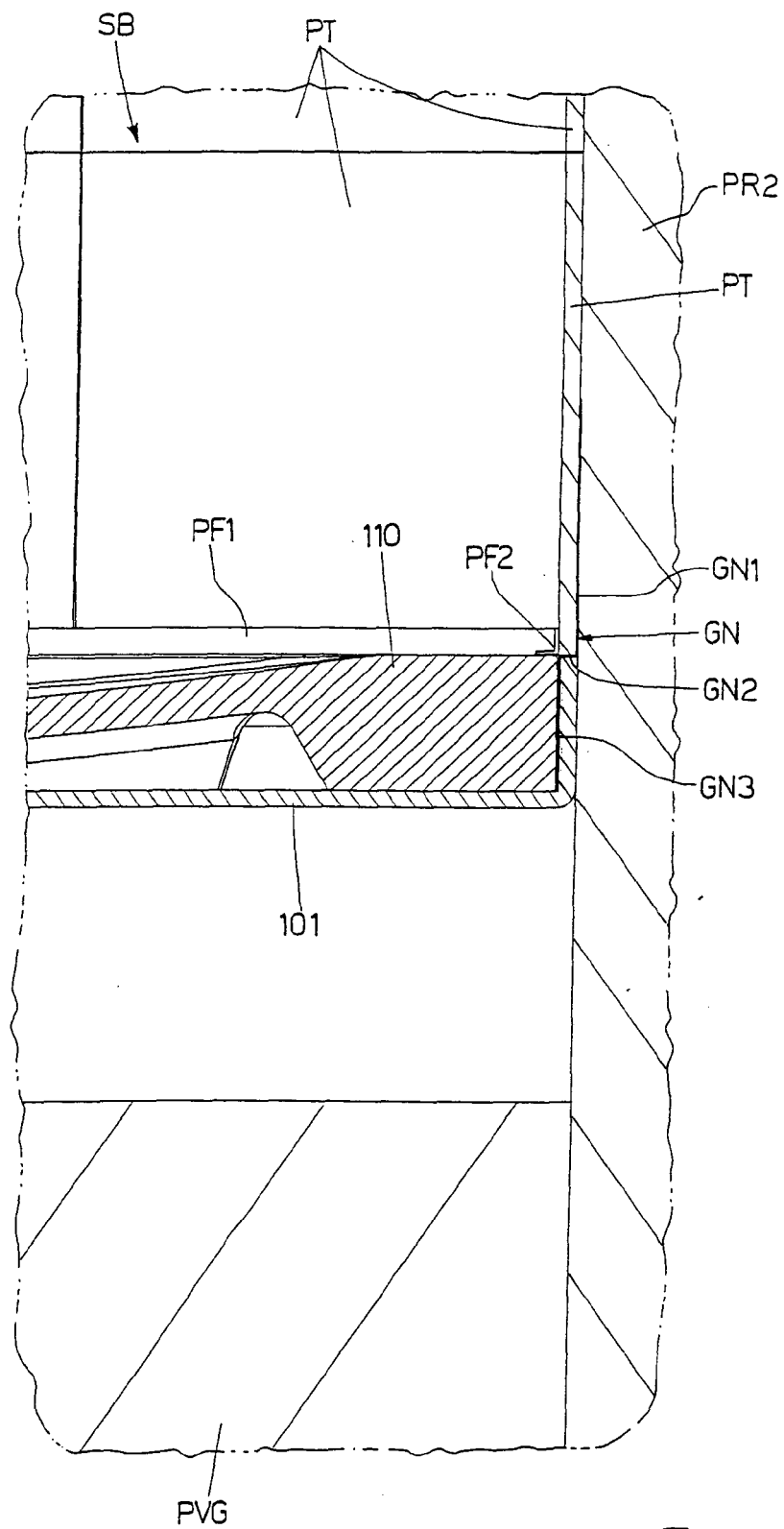


Fig.7



European Patent  
Office

# EUROPEAN SEARCH REPORT

Application Number  
EP 07 42 5413

| 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | DE 103 06 120 A1 (GHETMIRI MEHDI [DE])<br>26 August 2004 (2004-08-26)<br>* paragraph [0016] - paragraph [0021] *<br>* paragraphs [0026], [0027] *<br>-----                                       | 1-11                                                | INV.<br>A47K3/38                                   |
| X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | GB 2 359 484 A (BELDORE LTD [GB])<br>29 August 2001 (2001-08-29)<br>* page 2, line 23 - page 4, line 5;<br>figures 1-4 *<br>-----                                                                | 1,2,5                                               |                                                    |
| X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | EP 1 629 755 A (DEARLOVE STEVEN JAMES [GB]<br>PRO4MA UK LTD [GB])<br>1 March 2006 (2006-03-01)<br>* paragraphs [0017], [0024] *<br>* paragraph [0038] - paragraph [0044];<br>figure 4 *<br>----- | 1,2,5                                               |                                                    |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | WO 01/57117 A (ROEHM GMBH [DE]; SCHOELA<br>EGBERT [AT]; MOLNAR GERALD [AT];<br>SCHWENNINGER) 9 August 2001 (2001-08-09)<br>* page 1, line 5 - page 2, line 1 *<br>-----                          | 1                                                   |                                                    |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | DE 198 47 204 C1 (OBERMILLACHER RICHARD<br>[DE]) 16 March 2000 (2000-03-16)<br>* column 3, line 49 - column 4, line 31;<br>figures 1,3 *<br>-----                                                | 3                                                   |                                                    |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | DE 87 15 121 U1 (WENKO-WENSELAAR GMBH,<br>4010 HILDEN, DE)<br>7 January 1988 (1988-01-07)<br>* claim 1; figure 1 *<br>-----                                                                      | 4                                                   | TECHNICAL FIELDS<br>SEARCHED (IPC)<br>A47K<br>E04F |
| The present search report has been drawn up for all claims                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                  |                                                     |                                                    |
| Place of search<br>The Hague                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                  | Date of completion of the search<br>5 December 2007 | Examiner<br>Porwoll, Hubert                        |
| CATEGORY OF CITED DOCUMENTS<br>X : particularly relevant if taken alone<br>Y : particularly relevant if combined with another document of the same category<br>A : technological background<br>O : non-written disclosure<br>P : intermediate document<br>T : theory or principle underlying the invention<br>E : earlier patent document, but published on, or after the filing date<br>D : document cited in the application<br>L : document cited for other reasons<br>& : member of the same patent family, corresponding document |                                                                                                                                                                                                  |                                                     |                                                    |

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EPO FORM 1503 03/82 (P04/C01)

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

EP 07 42 5413

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on  
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05-12-2007

| Patent document<br>cited in search report | Publication<br>date | Patent family<br>member(s) | Publication<br>date                                                                                                                                                                                                                                        |
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