

Description

[0001] The present invention relates to a perfected sealing system for a shower booth.

[0002] It is an object of the present invention to provide for troublefree assembly of the seal forming part of the perfected sealing system.

[0003] The basin normally comprises a number of feet equal to the number of posts, and each of which, to erect the shower booth, must be fitted to the corresponding post. The regions between the feet and posts are particularly permeable to water, which tends to seep from the user-occupied space defined by the booth onto the bathroom floor. Another region requiring particular attention in terms of sealing is the connection between the walls and the supporting structure of the booth.

[0004] It is therefore the first object of the present invention to provide an optimum solution to the problem of sealing the space defined by the booth by providing a sealing system for effectively sealing both the connections between the posts and the basin feet, and the connections between the walls and the respective grooves on the supporting structure.

[0005] One of the main advantages of the present invention therefore lies in the fitter no longer having to use silicone or other similar substances to seal the booth, thus considerably reducing assembly time, while at the same time preventing soiling of the walls or other parts of the booth by the sealing substance (silicone, etc.).

[0006] According to the present invention, there is provided a shower booth comprising a sealing system; the shower booth comprising supporting means on a basin from which extends vertically at least one post for supporting at least one fixed lateral wall; the sealing system comprising, in use, a first seal between the at least one post and the supporting means; the at least one post and the supporting means having each a respective groove for receiving a second seal; and at least one portion of the second seal being designed, in use, to at least partly cover one end of the first seal.

[0007] Furthermore, using currently marketed seals, the fitter is unable to determine accurately whether the seal is positioned correctly inside the groove on the supporting structure of the shower booth.

[0008] It is therefore a further object of the present invention to provide a seal which can be fitted easily and with a minimum amount of error to a shower booth in accordance with the invention.

[0009] According to the present invention, there is also provided a shower booth comprising a sealing system; the sealing system comprising a seal made of transparent material and having at least one catch which engages a recess formed inside at least one groove formed in a supporting structure of the shower booth; a coloured member being provided at the catch, and, when invisible by a fitter, following insertion of the seal inside the groove, indicating to the fitter that the catch is correctly engaged in said recess and, hence, the seal

is correctly inserted inside the groove.

[0010] A number of non-limiting embodiments of the present invention will be described by way of example with reference to the accompanying drawings, in which:

Figure 1 shows a schematic view in perspective of a shower booth;

Figure 2 shows a partial section of the periphery of the shower booth along line II-II in Figure 1;

Figure 3 shows the same view as in Figure 2, along line III-III in Figure 1;

Figure 4 shows the same view as in Figure 2, along line IV-IV in Figure 1;

Figure 5 shows the same view as in Figure 2, along line V-V in Figure 1;

Figure 6 shows an underside view in perspective of the basin;

Figure 7 shows an enlarged detail of the Figure 6 basin illustrating a device for fastening a lateral wall to the basin;

Figure 8 shows an exploded view of a sealing system, in accordance with the invention, fitted to the connection between a post and a respective foot and at the insertion point of a wall inside the supporting structure of the booth (the tie and connected parts are not shown for the sake of clarity);

Figure 9 shows an axonometric view of the Figure 8 sealing system with the post connected, in use, by a tie to the respective foot;

Figure 10 shows a number of enlarged details of the Figure 8 sealing system;

Figure 11 shows an enlarged cross section of a seal forming part of a shower booth sealing system in accordance with the present invention.

[0011] With reference to Figure 1, a shower booth, indicated as a whole by 10, comprises a basin 11 fitted with fixed walls 12 defining the lateral walls of booth 10; and a frame 13 having a number of vertical posts 14, 14', and a top connecting member 15 designed to support a sliding wall 16 and respective vertical posts 17 defining a door of booth 10.

[0012] As shown in the Figure 2 section of a fixed wall 12, with sliding wall 16 in the open position, respective seats 18, 19 are formed in basin 11 and top connecting member 15 for housing fixed wall 12, which may be secured to the basin and top connecting member by sealing means described later on.

[0013] As shown in the Figure 3 section of sliding wall 16 of booth 10, seats 20 are also formed in basin 11 for housing guide members 21 for the bottom edge of sliding wall 16; which guide members 21 may be defined, for example, by a number of grooved pieces inserted and fixed directly inside seats 20.

[0014] Top member 15 has a built-in rail 22 for supporting in rolling manner wheels 23 fitted to the top end of sliding wall 16. Rail 22 may be made of metal to form a strengthening member of frame 13.

[0015] Basin 11 and top member 15 may advantageously be formed as required - comprising the seats and guides for fixed walls 12 and sliding wall 16 - by injection molding plastic material, with all the benefits such a technique affords.

[0016] More specifically, in the Figure 2 and 3 embodiment, top member 15 is defined by two half-shells 24, 25 connectable, e.g. jointed, to each other extremely simply, after first inserting metal rail 22.

[0017] As shown in the Figure 4 section of one of posts 14 of frame 13, in this case too, basin 11 and top member 15 comprise respective seats 26, 27 formed directly in the basin and top member sections to house the ends of posts 14. In the embodiment shown, the seats are defined by projections projecting from the surfaces of basin 11 and member 15. Depending on requirements, however, seats 26, 27 may of course be defined by cavities formed in the basin and top member sections and for receiving complementary projections on posts 14.

[0018] Figure 5 shows an end post 14' connected to basin 11 and to top member 15 by inserting the post inside seats 26', 27'.

[0019] As shown schematically in Figure 4, posts 14 may house appropriate ties 38 for better securing posts 14 to basin 11 and to top connecting member 15.

[0020] The structure as a whole of booth 10 is far more stable as compared to other booths having a number of separate fastening members interposed between basin 11 and walls 12, 16.

[0021] Being injection molded, basin 11 may be relatively thin, and the outer surface of the basin 11, as of top member 15, may be shaped easily to effectively blend the various sections required to form the above connections between walls 12, 16, posts 14 and the connecting members.

[0022] Generally speaking, being injection molded, shower booth 10 may be produced with a far better finish as compared to booths manufactured using other techniques.

[0023] For greater rigidity, the basin may be formed - as shown schematically by 28 in Figure 2, and in Figures 6 and 7 - with underside strengthening recesses or ribs. Seats 39 may advantageously be molded on the underside of basin 11 to house a metal strengthening frame 40, which may be fitted, e.g. jointed, inside seats 39 in any known manner.

[0024] Basin 11 may also comprise, formed in one piece with the basin 11, part of a fastening device 29 by which to secure a lateral panel 30 of the basin to finish the bottom of booth 10.

[0025] As shown in the Figure 7 detail, which also shows lateral panel 30, fastening device 29 comprises a plate 31 projecting from the bottom of basin 11 and having a seat or hole 32 for housing a pin 33 projecting laterally from panel 30 inwards of booth 10.

[0026] In the Figure 7 embodiment, pin 33 comprises two rigid top and bottom members 35, 34 for supporting

the weight of panel 30; and two elastic lateral members 36, 37 which click inside seat 32 in plate 31.

[0027] The shape and size of the seats in posts 14 depend on the shape and size of posts 14 themselves and therefore on the particular characteristics of walls 12, 16 of booth 10; and posts 14 may, for example, be glued or jointed to basin 11 and to top member 15, with an appropriate configuration of the seats in each case.

[0028] In the Figure 8 embodiment, booth 10 comprises basin 11, from which extend vertically posts 14 (only one shown) for supporting lateral walls 12 made of transparent material. Basin 11 comprises a frame 42 formed in one piece, e.g. by means of an injection process, with the rest of basin 11; frame 42 is injection molded in one piece, and comprises an integral foot 43 for each post 14; feet 43 project upwards from frame 42 and each incorporate fastening means aligned with the base of a respective post 14; feet 43 are advantageously connected to frame 42 by curved surfaces with no sharp edges which might accumulate dirt; and the fastening means between post 14 and foot 43 may be defined by the threaded tie 38 shown in Figure 4 and extending longitudinally inside post 14.

[0029] Frame 42 may be formed in one piece, e.g. in the shape of an L or U, depending on how many sides of basin 11 are to be fitted with walls 12; and frame 42 of basin 11 may also be provided with seats 18 for housing the edges of walls 12.

[0030] Figures 8-11 show a sealing system 100, in accordance with the invention, fitted to shower booth 10 as described above.

[0031] In addition to projecting members 44, 45, 46 for assisting connection of foot 43 to respective post 14 (see below), the top surface 43a (Figure 8) of foot 43 also comprises a seat 47 shaped to receive a seal 48, which may advantageously, though not necessarily, be of a vertical thickness slightly greater than the height of seat 47 for the purpose explained later on.

[0032] Post 14 comprises a substantially vertical groove 49, the ideal continuation of which is represented by groove 18 in frame 42; which groove 18 has the same transverse dimensions as groove 49 in post 14.

[0033] In the Figure 8 embodiment, seat 47 is substantially straight and substantially perpendicular to groove 49; grooves 49 and 18 are so formed as to receive, in use, the same seal 50 (Figures 9-11) having a catch 50a (Figure 5) for engaging a recess 51 inside grooves 49, 18; and seal 50 also has an inner lip 50b, an outer surface 50c, and an outer lip 50e (Figure 11).

[0034] As shown in Figures 8 and 9, in actual use, after inserting seal 48 inside seat 47, the fitter rests post 14 on surface 43a of foot 43 so that members 44, 45, 46 fit inside corresponding seats (not shown) on the bottom end of post 14, and so that post 14 may be connected to respective foot 43 in the usual way by means of threaded tie 38 (Figure 4).

[0035] By virtue of the squeezing effect produced by post 14 tightened to foot 43 by tie 38, and by virtue of

the vertical thickness of seal 48 being slightly greater than the height of seat 47, one end 48a of seal 48, which is made of deformable material, projects slightly from surface S, inside booth 10, of post 14 and frame 42.

[0036] In actual use, once the fitter engages catch 50a inside recess 51 in grooves 49, 18 (Figure 11), a portion 50d of inner lip 50b of seal 50 rests on surface S - as stated, inside booth 10 - of post 14 or frame 42.

[0037] Portion 50d of lip 50b therefore also rests, at least partly, on end 48a of seal 48 (Figure 10), thus achieving the desired sealing effect by creating a sealed barrier between post 14 and respective foot 43 of frame 42, together with a secondary sealing effect by portion 50d of lip 50b resting on end 48a of seal 48.

[0038] Once seals 48 and 50 are fitted respectively inside seat 47 and grooves 49, 18, the fitter inserts wall 12 between outer surface 50c and outer lip 50e of seal 50 on one side, and an inner surface 49a, 18a of groove 49, 18 on the other.

[0039] The shower water flows along surface S and an inner surface 12a (Figure 11) of booth 10, and sealing system 100 prevents any water leakage by means of seals 48 and 50 connected to each other as described above.

[0040] At the curved portion of groove 18, correct insertion of seal 50 so that catch 50a perfectly engages recess 51 may prove difficult, in which case, some of the shower water may work its way into groove 18 and overflow onto the bathroom floor. To prevent this from happening, provision is made at the curve in groove 18 for a drain hole 52 sloping towards basin 11 and closed by a plug 53 having a small through drain hole 53a through which any water accidentally entering said region is drained back into the space defined by booth 10, thus preventing flooding of the bathroom floor.

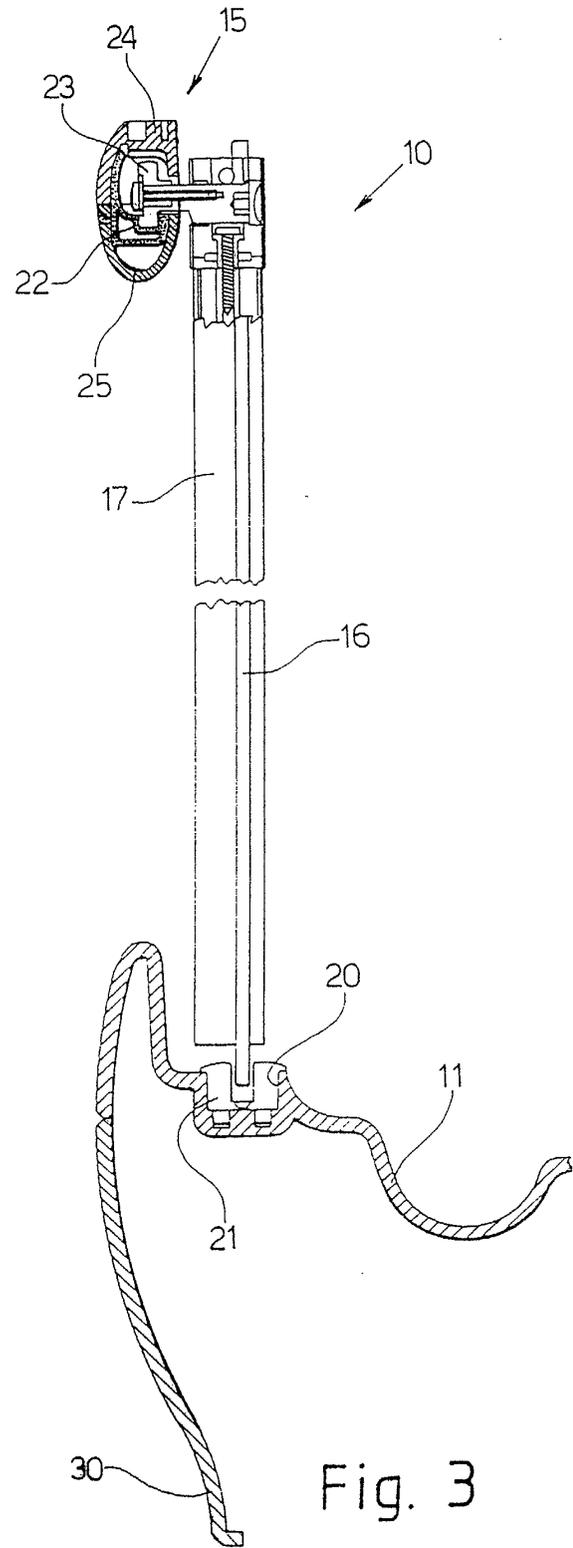
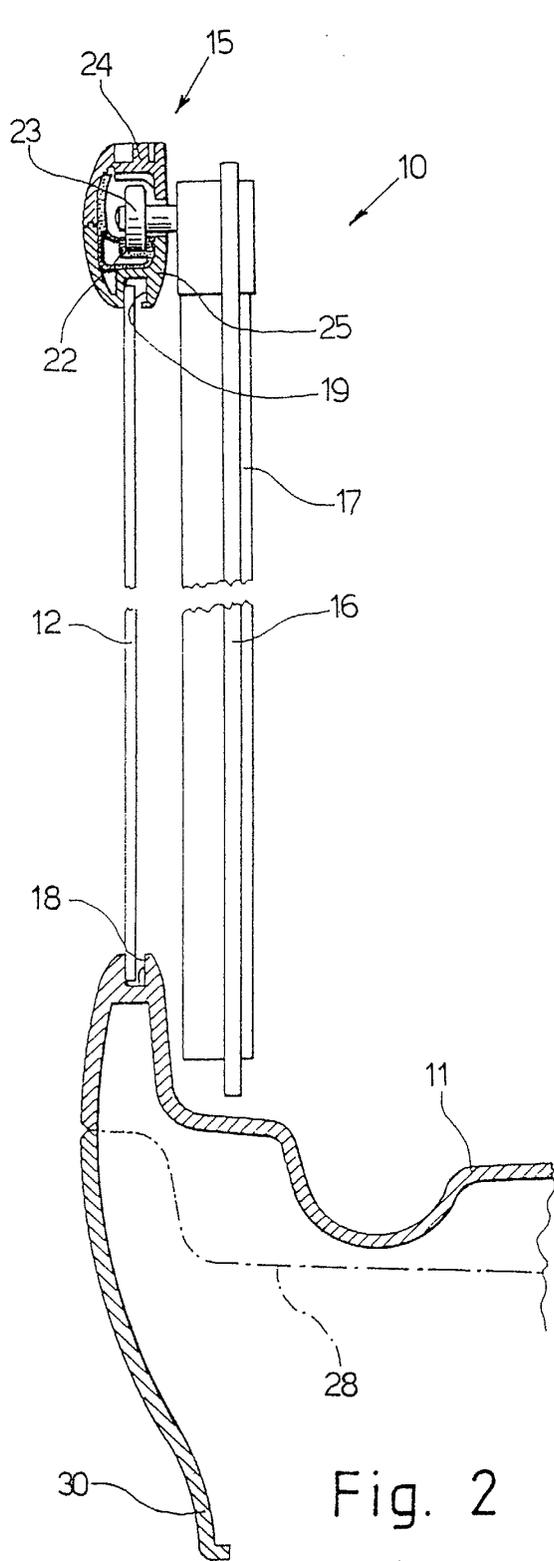
[0041] Moreover, as shown in Figure 11, to enable the fitter to determine immediately whether seal 50 is inserted correctly inside groove 49 or 18, a coloured member 54 is provided at catch 50a. If seal 50 is inserted correctly inside groove 49 or 18, and hence catch 50a engaged correctly inside respective recess 51, coloured member 54 cannot be seen by the fitter looking in the direction of arrow V. In which case, in fact, coloured (e. g. red) member 54 inserted inside seal 50 is covered by edge 14a or 42a of post 14 or frame 42 respectively, and by inner lip 50b of seal 50. It should be noted that inner lip 50b, like the whole of seal 50, a further object of the invention, is made of transparent material, so that concealment from the fitter of coloured member 54 can only mean catch 50a is inserted properly inside respective recess 51. Conversely, i.e. in the event of improper insertion of seal 50 inside groove 49 or 18, coloured member 54 is not concealed by opaque edge 14a or 42a of post 14 or frame 42, and is therefore visible by the fitter looking, as stated, in the direction of arrow V, thus enabling the fitter to correct the defect by correctly engaging catch 50a in recess 51.

[0042] The coloured member 54 could be a coloured

thread, or wire, 54 extending along the whole of the catch 50a.

5 Claims

1. A shower booth (10) comprising a sealing system (100); said sealing system (100) comprising a seal (50) having a lip (50b) and a catch (50a) which engages a recess (51) formed inside at least one groove (49, 18) provided in a supporting structure of said shower booth (10).
2. A shower booth (10) as claimed in Claim 1, wherein said supporting structure of said shower booth (10) is a basin (11) formed by injection molding plastic material.
3. A shower booth (10) as claimed in any one of the foregoing Claims, a shower booth (10) comprising a sealing system (100); said sealing system (100) comprising, in its turn, a seal (50) made of transparent material and having at least one catch (50a) which engages a recess (51) formed inside at least one groove (49, 18) formed in a supporting structure of said shower booth (10); a coloured member (54) being provided at said catch (50a), and, when invisible by a fitter, following insertion of said seal (50) inside said at least one groove (49, 18), indicating to the fitter that said catch (50a) is correctly engaged in said recess (51) and, hence, said seal (50) is correctly inserted inside said at least one groove (49, 18).
4. A shower booth (10) as claimed in Claim 3, wherein said seal (50) ensures sealing of at least one fixed lateral wall (12).
5. A shower booth (10) as claimed in Claim 3 or 4, wherein said seal (50) comprises an inner lip (50b) which rests on an opaque edge (14a, 42a) of said supporting structure of said shower booth (10); and an outer lip (50e) which rests on an inner surface (12a) of said at least one fixed lateral wall (12).
6. A shower booth as claimed in any one of Claims 3 to 5, wherein said coloured member (54) is a coloured thread, or wire, (54) extending along the whole of said catch (50a).



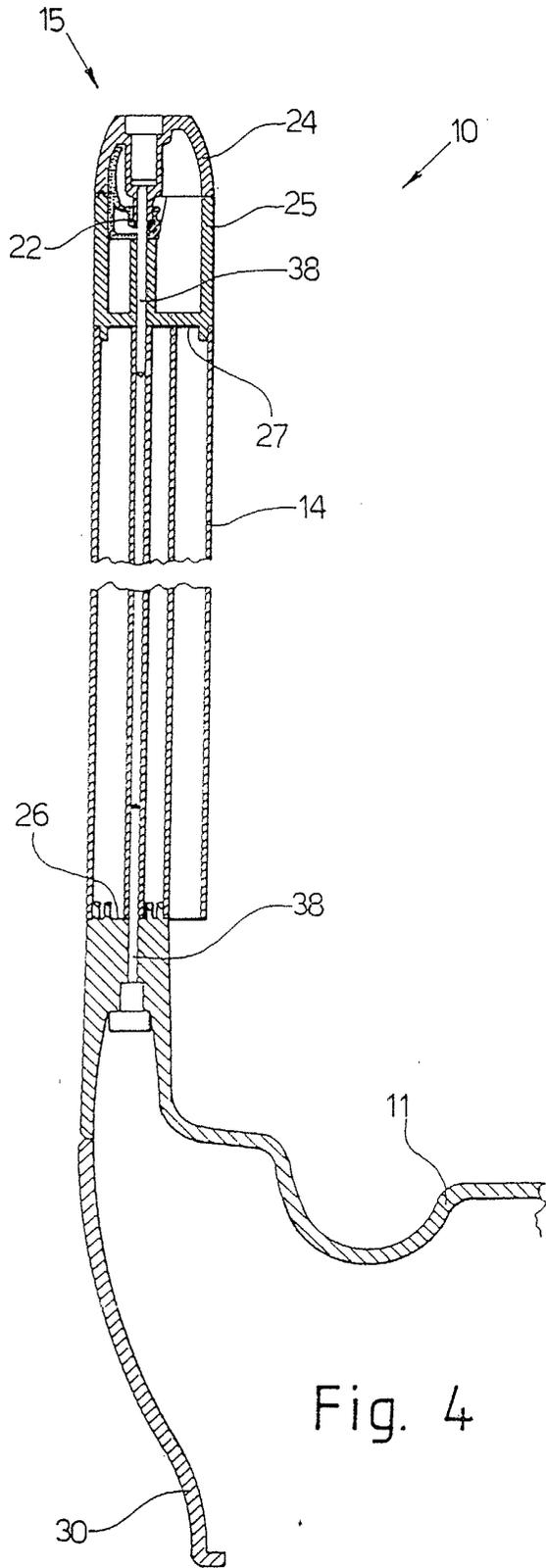


Fig. 4

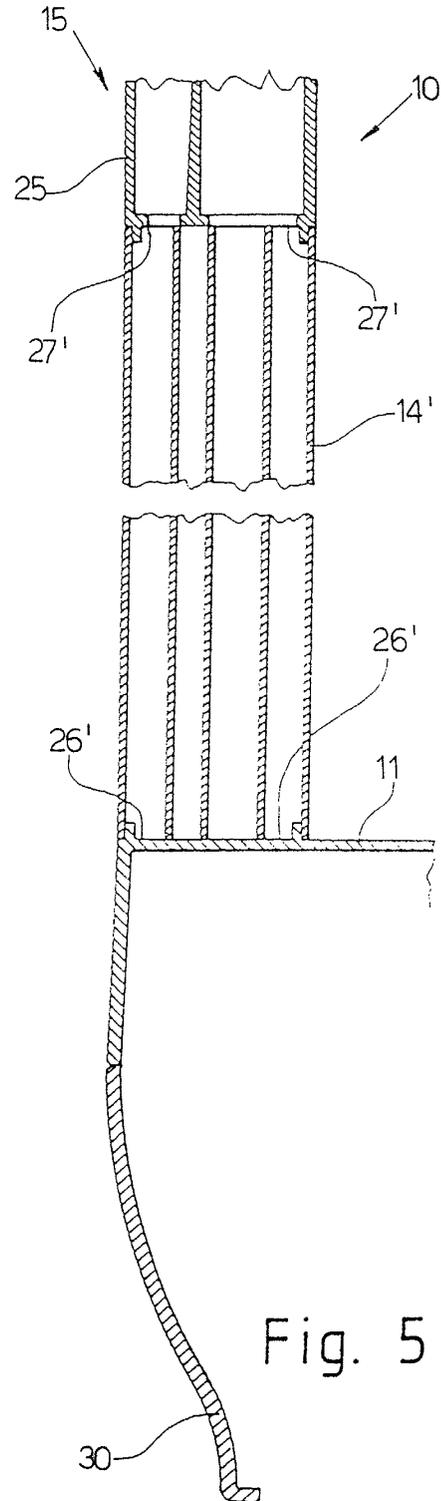
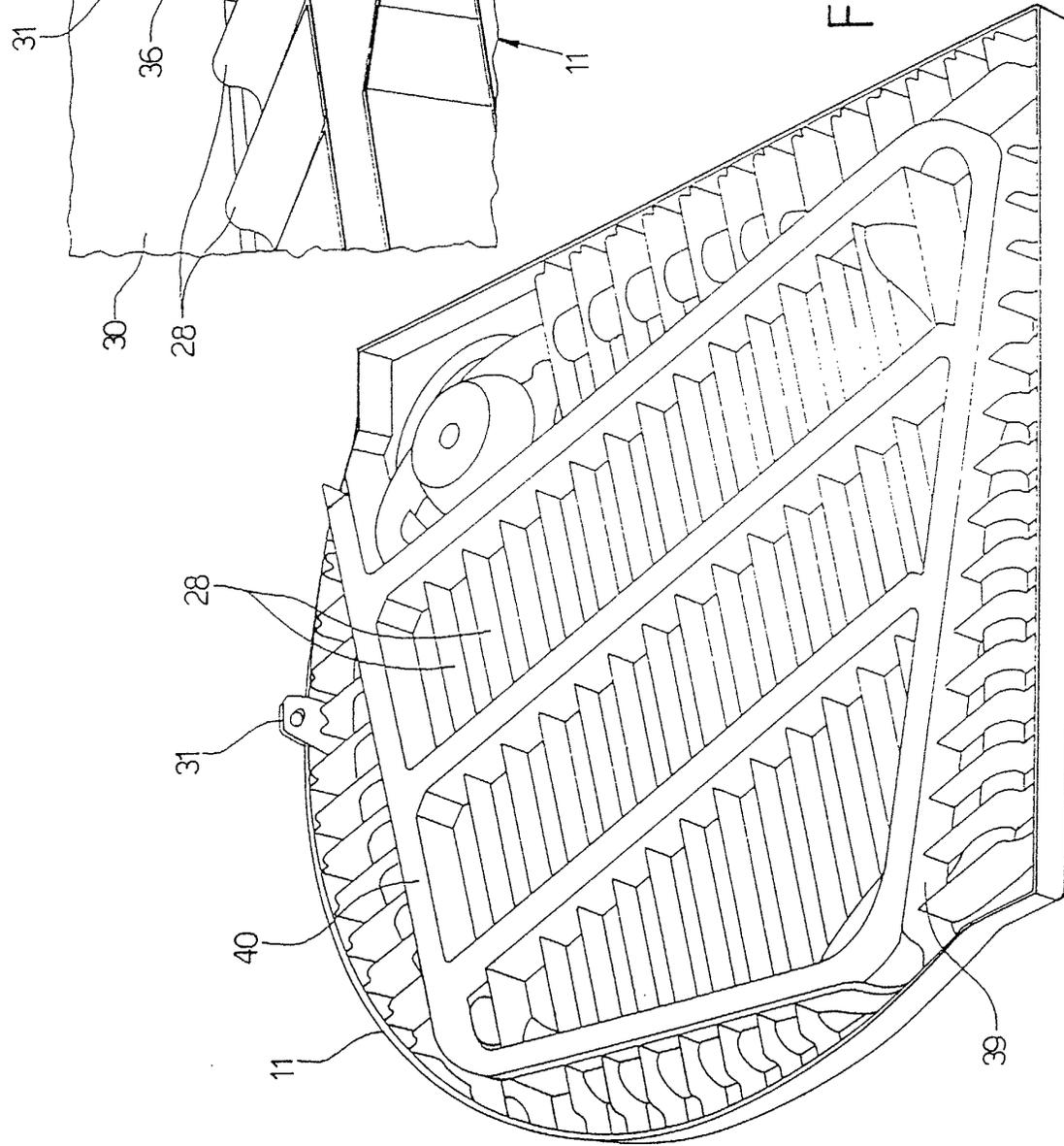
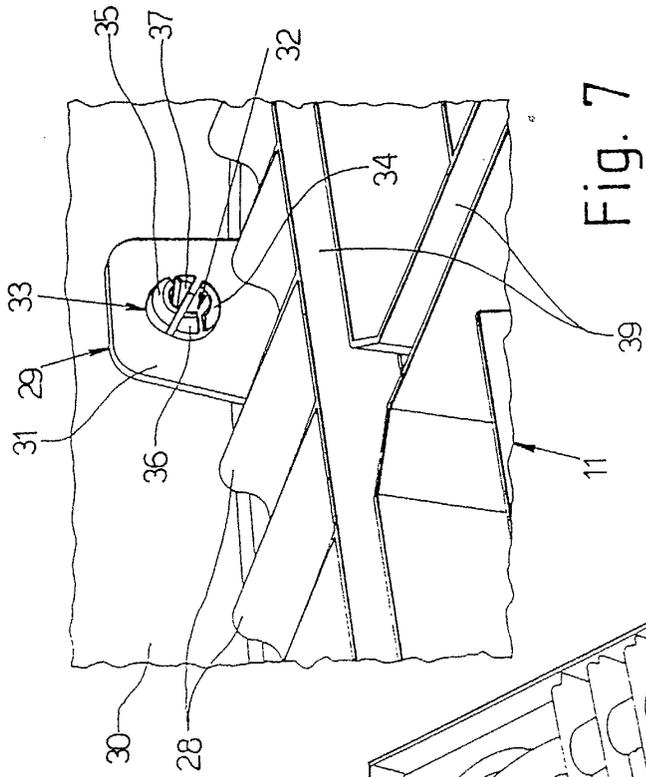


Fig. 5



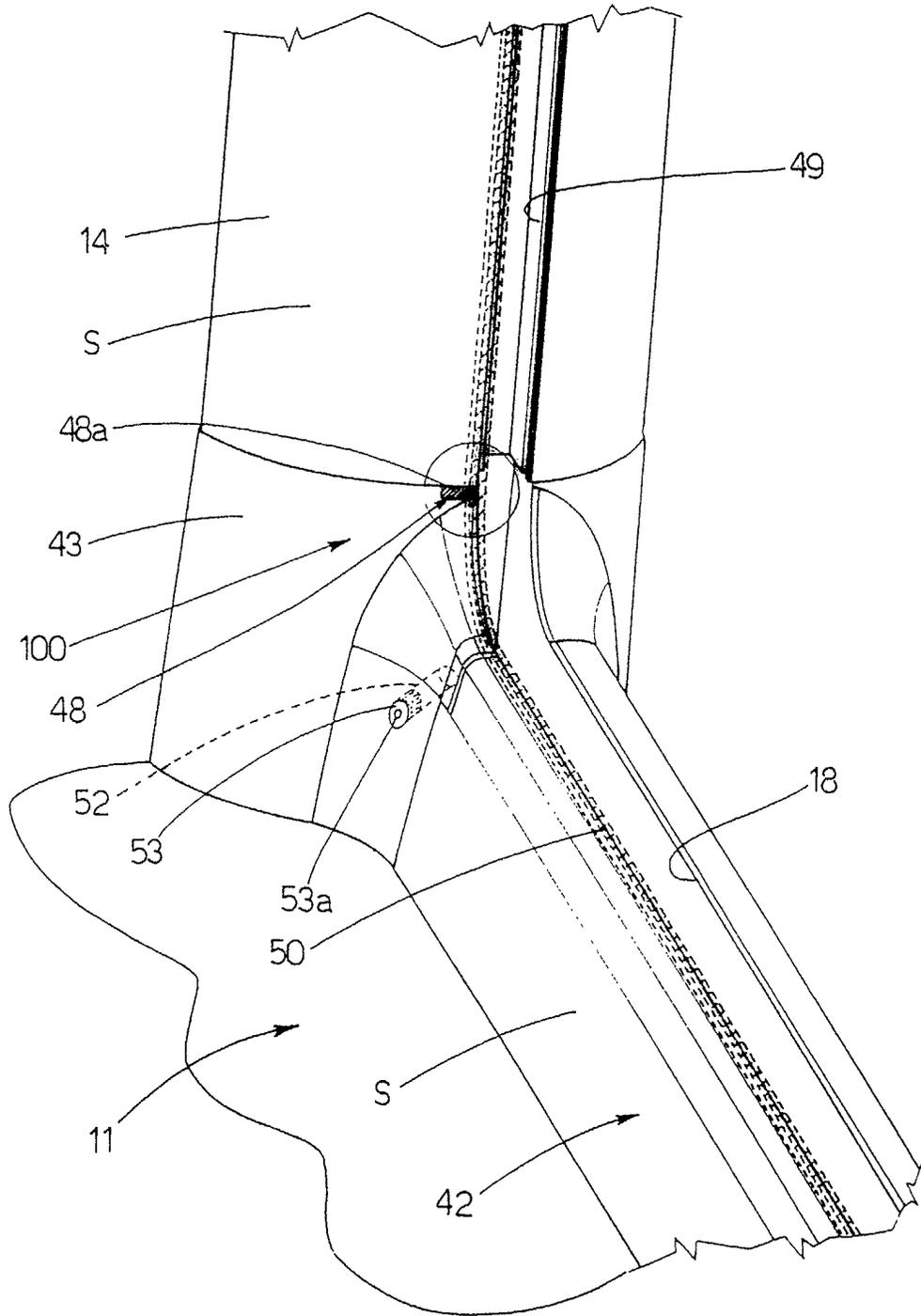
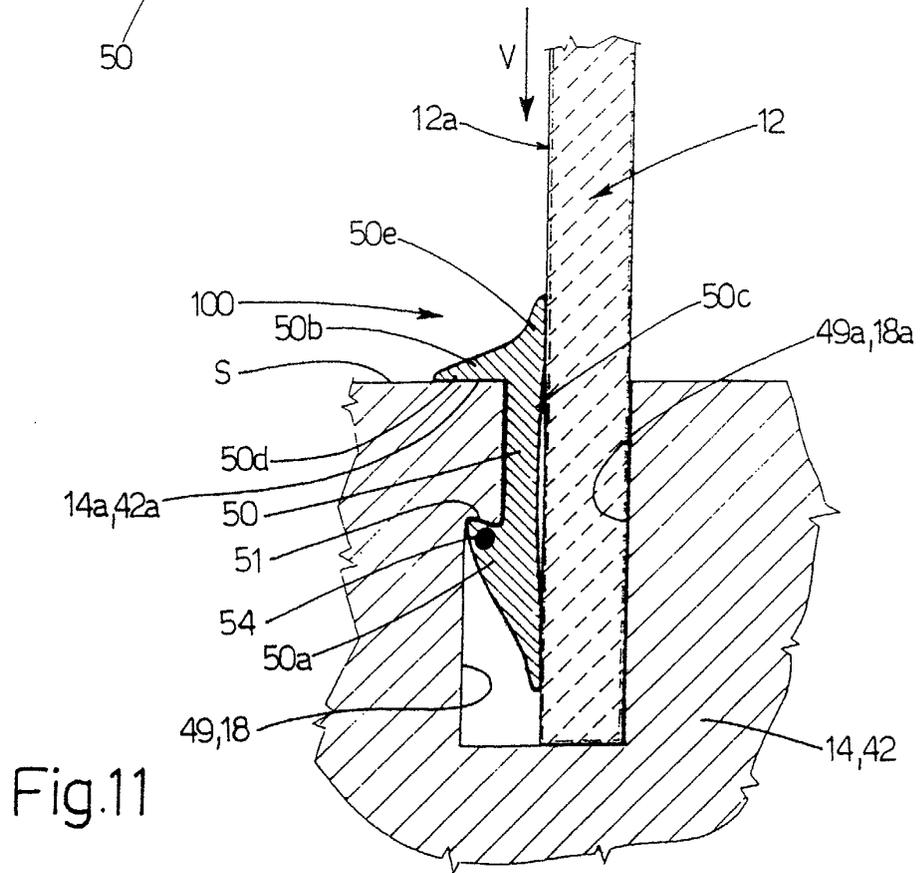
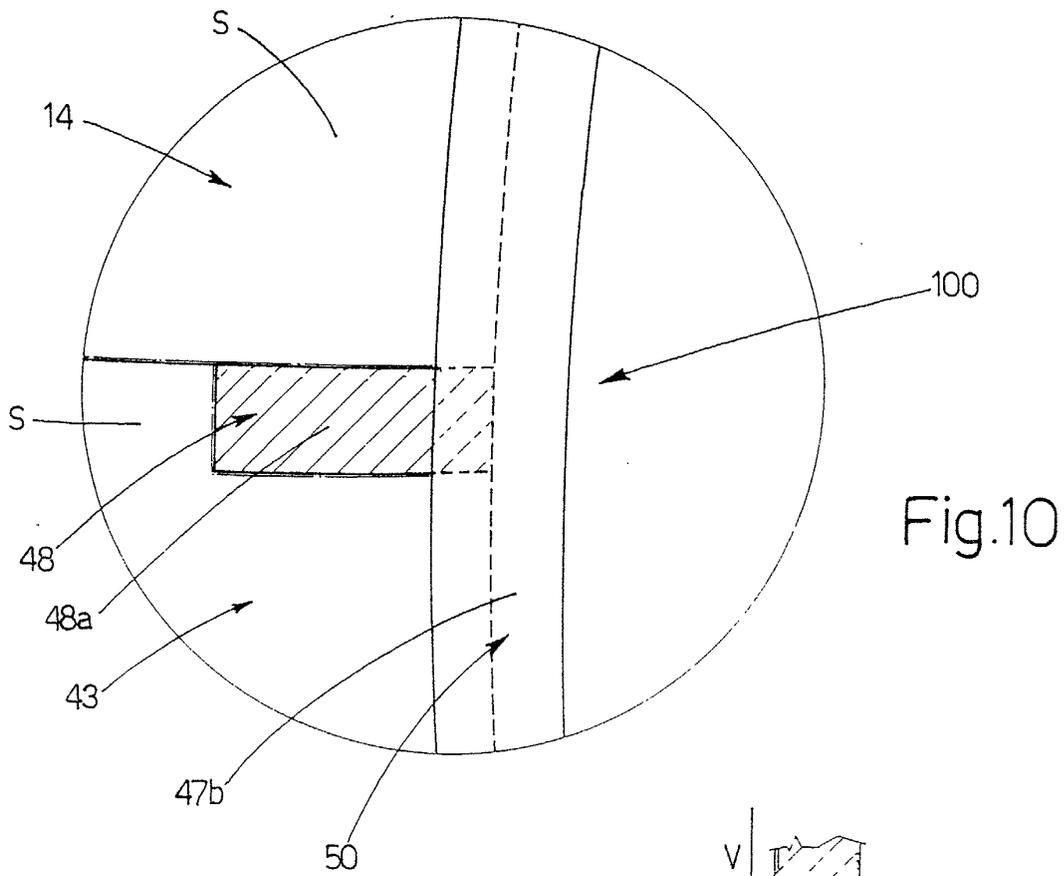


Fig.9





European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 02 01 6741

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	US 3 757 358 A (HICKS C ET AL) 11 September 1973 (1973-09-11) * column 2, line 40 - line 51 * * column 6, line 39 - line 58; figures * ----	1	A47K3/30 E06B7/23 E06B3/72
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A	GB 2 219 336 A (ALUMPLAST LTD) 6 December 1989 (1989-12-06) * page 4, paragraph 1 - page 5, paragraph 5 * -----	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			A47K E06B
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
THE HAGUE		11 September 2002	Fordham, A
CATEGORY OF CITED DOCUMENTS			
X: particularly relevant if taken alone Y: particularly relevant if combined with another document of the same category A: technological background O: non-written disclosure P: intermediate document		T: theory or principle underlying the invention E: earlier patent document, but published on, or after the filing date D: document cited in the application L: document cited for other reasons &: member of the same patent family, corresponding document	

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

EP 02 01 6741

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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11-09-2002

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