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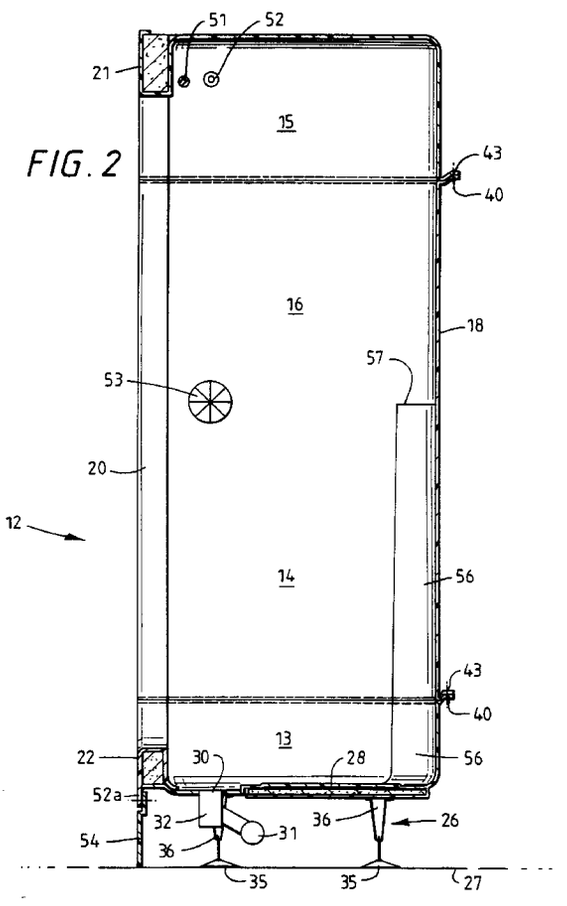
(54) Shower enclosure.

(57) The invention relates to a moulded shower enclosure formed in three parts one above the other, and including a base part (13), a central U-shaped part (14) and a top part (15). The enclosure has a base (25), defining a waste outlet (30), and a back (18) and two side walls (16, 17) and has no vertical joints or seams. Support feet (26) project downwardly from the base for supporting the enclosure on the ground so that waste pipes (31) can be located between the base and the ground (27). The parts (13, 14, 15) are formed at their mating surfaces by connectable and disconnectable fixing means (47, 48), so that the enclosure has its own structural stability.

FIG. 2



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This invention relates to shower enclosures and more particularly to shower enclosures moulded in a plurality of parts which fit together one above the other to define an enclosure having at least a base, a back wall and two side walls without the parts being formed with any vertical seams or joints. The shower enclosures with which the invention is mainly concerned are intended to be free standing in an enclosed space, normally fixed to the enclosure at one or more of the front edges so that they give the appearance of being built into the walls of a room.

Moulded shower enclosures are known without vertical seams or joints and while some are formed in a single piece it is also known to form them from a plurality of parts located one on top of the other so that the parts can be separately manoeuvred into a room and then assembled.

Conventionally all known such moulded shower enclosures, formed in several parts, have had a flat base supported directly on the floor with the waste outlet pipes extending under the floor and with each part being supported on the part below by horizontal mating surfaces resting one on the other without any securing means such as bolts between them. The parts have then been connected to the timber studs or other structural members of the structure around the enclosure along the top and back and front edges of the side and back walls. The enclosure then gets its stability from the large contact area between the base and ground and the securing means connecting the side and back to the surrounding structure.

An object of the present invention is to provide a moulded shower enclosure, formed in a plurality of parts located one above the other, the base of which stands clear of the ground on which it is supported and which has its own structural strength.

Accordingly, the present invention provides a moulded shower enclosure formed in a plurality of parts located one above the other, the enclosure having a base defining a waste outlet, and a back and two side walls and having no vertical joints or seams, characterised by support members projecting downwardly from the base for supporting the enclosure on the ground so that waste pipes can be located between the base and the ground, and characterised in that the parts are formed at their mating surfaces with overlapping flanges secured together by connectable and disconnectable fixing means, so that the enclosure has its own structural stability.

Such an enclosure gives easy access above the ground to the waste pipes and needs no structural support from its surround, except that it will normally be fixed along its front vertical edges to the surround to ensure that it cannot move or overturn as a whole.

Preferably the fixing means will comprise threaded members such as bolts and nuts and the support members will preferably be height adjustable and may include inter-engaging threaded parts.

Preferably the enclosure is formed in three parts, a base part including the base moulded integrally with the lower portions of the side and back walls and with an upstanding front ledge portion, a central U-shaped part extending for the majority of the height of the enclosure and a top part providing a closed top integrally moulded with the top portions of the side and back walls and with a downwardly projecting front ledge. The side walls of all parts will preferably have inwardly projecting side ledges and the top, side and bottom ledges may be filled with foam to provide stiffening webs, the ledges between them defining the opening to the enclosure.

The enclosure may be adapted to be closed by a door but alternatively has a rail bonded or otherwise secured into the top part behind the downwardly extending front ledge, for supporting a shower curtain.

The upper surface of the base part is preferably formed with a pattern of raised pads and generally slopes downwards from all sides towards the waste outlet. The waste outlet is preferably located in the front quarter of the base part and is connected to a waste pipe by means of a conventional trap. A removabe access panel, which may include vents, is designed to be secured at the front of the enclosure below the base to hide the waste pipes, feet and other items below the enclosure.

Preferably there are four feet arranged symmetrically spaced from one another and adjacent the corners of the base, each of the feet being supported from a bracket structure which extends at an angle to the sides and back, preferably an angle of 45° but this may be in the range 30 to 60°. This provides greater stability.

In one form the inter-connecting flanges between the parts extend outwardly substantially horizontally and the fixing means extend vertically through the mating horizontal portions at spaced intervals. The channel between the flanges may initially extend upwardly and outwardly from the interior of the enclosure or the lower flange of a mating pair may turn upwardly beyond the upper flange of a pair at the joint.

In another form, the upper portion of the wall of the lower of two parts to be connected is kinked outwardly by substantially the thickness of the lower portion of the wall of the upper part being connected so that the respective inner and outer surfaces of the parts abut, and the lower portions have fixing means moulded therein or fixed thereto and projecting substantially horizontally, outwardly therefrom. The upper portions of the lower part may then have slot means for receiving the projecting fixing parts which are preferably threaded to receive nuts.

There may, for example, be four spaced fixing means along each side and the back but two may be sufficient.

One embodiment of shower enclosure, with alternative arrangements of flanges, will now be descri-

bed, by way of example only, with reference to the accompanying drawings of which:-

Figure 1 is a front view of the shower enclosure,

Figure 2 is a section on the Line II-II of Figure 1,

Figure 3 is a section on the Line III-III of Figure 4,

Figure 4 is a section through the centre part of the enclosure on an enlarged scale but not showing the connecting flanges,

Figure 5 is a plan view of the base part of the enclosure,

Figure 6 is a detail of one form of flange connection on an enlarged scale,

Figures 7 and 8 are a section and front view respectively through an alternative form of flange connection on an enlarged scale,

Figure 9 is an enlarged view of one support structure on an enlarged scale, and

Figures 10 and 11 show alternative flange formations.

The shower enclosure 12 as seen in the Figures is moulded from plastics material, for example glass reinforced plastics made in the same way as yacht hulls but with the inner surface of the enclosure having a smooth finish. The enclosure is moulded in three parts, a base part 13, a central part 14 and a top part 15, locatable one on top of the other to provide substantially continuous side walls 16 and 17 and a back wall 18. The front edges of the side walls, the front edge of the top and the front edge of the base part respectively project inwardly, downwardly and upwardly and are of U-section filled with foam to provide stiffened webs. Other material may be used in place of the foam, such as softwood battens or battens combined with foam. This would allow the frame of a shower door to be screwed to the webs. The webs form side, top and bottom ledges 20, 21, 22 defining a front opening 23 to the enclosure. The outer edges of the side ledges 20 project outwardly beyond the side walls 16, 17 as lips 24.

The base part 13 has a base 25 supported on four spaced support structures 26 so that its lower surface is located above the ground or floor 27 on which it is supported. The upper surface of the base is formed with a pattern of raised pads 28 and the surface generally slopes downwards slightly from all directions at about 1° towards a waste opening 30, the bottom surface in area 29 around this opening being flat. The waste opening 30 is located centrally in the front quarter of the base. In this embodiment, for example with a shower enclosure having outer dimensions of 750 to 850 millimetres, the centre of the opening lies 100 millimetres behind the front ledge 22. The waste opening 30 is connected to a waste pipe 31 via a conventional trap 32, all of which are located above the ground level where they are easily accessible.

There are four support structures 26 arranged symmetrically, adjacent but spaced inwardly from the corners of the base. Each of the support structures, best seen in Figure 9, comprises a height adjustable, ball jointed foot 35, connected by a screw threaded shank 35A, nut 35B and captive nut 35C to the base of a flat bottomed V-shaped bracket structure 36 formed from strip material. The horizontal upper ends of the arms of the structure 36 are secured to the threaded downwardly projecting ends 37 of threaded fixings (Figure 3) moulded into the base part. The plane of each of the V-shaped structures 36 extends at an angle of 45° to the side and back walls as indicated in Figure 5. The threads on shanks 35A allow height adjustment of the feet.

The upper edges of the portions of the walls 16, 17 and 18 of the base part 13 are formed with flanges 40 having an inner part 41 extending upwardly and outwardly and an outer part 42 extending substantially horizontally outwardly as seen in Figure 6. The lower ends of walls 16, 17, 18 of the central part 14 end in a flange 43 having a thickened outwardly projecting part 44, an upwardly and outwardly projecting part 45 and a horizontally and outwardly extending part 46. As seen in Figure 6, when the wall portions are in line with the central part 14 located on the base part 13, the flange part 46 engages the flange part 42 and the two flange parts are then connected along their lengths at spaced intervals by fixing means in the form of bolts 47 and nuts 48. For example, there may be four fixing means along each of the two sides and four along the back. At their inner edges the flange parts define between them an upwardly and outwardly inclined channel 49 which may be filled with a sealant if desired.

The upper edge of the central part 14 is formed with a flange similar to the flange 40 and the lower edge of the top part 15 is formed with a flange similar to the flange 43 so that the top part and central part may be bolted together with an arrangement similar to that described above and as seen in Figure 6.

The top part 15 has a closed top moulded integrally with the top portions of the back and side walls and the downwardly extending ledge 21. A rail 51 is bonded into or otherwise joined to the top part 15 between its side walls immediately behind the downwardly extending ledge 21. The upper part is also formed with a fixed or adjustable shower head 52 and the central part is formed with an opening accommodating a shower control valve 53. The openings for the head and valve may be formed during moulding or drilled on site at selection positions.

Because the shower is formed in three parts it can be manoeuvred through a standard door opening even though the overall outside dimensions of the shower may be greater than the width of the door opening. Because of the bolted connection between the parts the whole enclosure, once assembled and bolted together, is extremely structurally stable without requiring connection to outside supports, despite

being supported only on spaced feet having a small contact area with the ground. The enclosure is however normally screwed to a surround along the front vertical edges only to ensure that it cannot overturn as a whole.

As seen in Figures 1 and 2, the bottom of the front edge of the base is provided with a downward extension 52A behind which the upper edge of an access panel 54 is located and secured. This panel is provided with vents 55, is of pleasing appearance and can be easily removed for access to the waste pipes.

The base part 13 and the lower portion of the central part 14 are provided with solid back corners 56 ending in substantially horizontal (but slightly sloped forwards so that water drains off them) surfaces 57 providing soap dishes or supports for shampoo or the like.

Once assembled, the shower enclosure is intended to be located with its front lip 24 aligned with and connected to a wall of a room so that the sides and back outside surfaces of the shower enclosure are hidden from view. The rest of the enclosure is free standing and not connected to any other structure except that it is restrained along the front vertical edges.

The top part could be omitted altogether if desired.

An alternative flanged connection between adjacent shower enclosure parts is shown in Figures 7 and 8, also to provide a structurally stable shower enclosure. In this arrangement, the lower portion of the side and back walls 63 of an upper part is substantially straight but has moulded therein fixing means such as threaded fixings 64 having threaded outwardly horizontally projecting shanks 65. The upper portions of the side and back walls of a lower part 66 are kinked outwardly at 67 by approximately the thickness of the wall part 63 to provide an upwardly extending flange 68 the inner surface of which abuts the outer surface of the part 63. At positions corresponding to the fixing means 64, the flanges 68 are provided with upwardly opening, downwardly extending slots 70 to receive the shanks 65. A nut 71 is then used to secure the parts firmly together, with sealant if required. Again, the inner end of the channel between the connecting flanges extends initially upwardly and outwardly as seen at 72.

Two alternative, simple flange and fixing constructions are shown in Figures 10 and 11. Here the flanges 75 are horizontal with the lower flange of the pair in Figure 11 having an upturned edge 76.

Claims

1. A moulded shower enclosure (12) formed in a plurality of parts (13, 14, 15) located one above the other, the enclosure having a base (25) defining a waste outlet (30), and a back (18) and two side (16, 17) walls and having no vertical joints or seams, characterised by support members (26) projecting downwardly from the base for supporting the enclosure on the ground so that waste pipes (31) can be located between the base and the ground, and characterised in that the parts are are formed at their mating surfaces with overlapping flanges (40, 43, 75) secured together by connectable and disconnectable fixing means (47, 48), so that the enclosure has its own structural stability.

2. A shower enclosure according to claim 1 characterised in that the support members (26) are height adjustable and include a plurality of spaced feet (35).

3. An enclosure according to claim 1 or claim 2 characterised in that each support member (26) includes a structure (36) which extends at an angle to both the back and side walls of the enclosure.

4. An enclosure according to claim 2 or claim 3 characterised in that the support members (26) comprise four feet (35) arranged adjacent the corners and each attached to a bracket structure (36) extending at an angle of substantially 45° to the side and back walls.

5. An enclosure according to any of claims 1 to 4 characterised by a removable panel (54) extending between the base and ground (27) at the front of the enclosure to provide access, on removal, to the waste pipes (31).

6. An enclosure according to any of claims 1 to 5 characterised by a base part (13) including the base (25) moulded integrally with the lower portions of the side and back walls (16 - 18) and having an upstanding front ledge portion (22), and a U-shaped part (14) extending for the majority of the height of the enclosure and including the majority of the back and side walls (16 - 18).

7. An enclosure according to claim 6 characterised in that the U-shaped part is a central part (14), and including a top part (15) providing a closed top integrally moulded with the top parts of the side and back walls (16 -18) and having a downwardly projecting front ledge (21).

8. An enclosure according to claim 6 or claim 7 characterised in that the side walls of all parts are provided with inwardly projecting side ledges (20) and the bottom ledge (22), side ledges (20) and top ledge (21) when provided, define the opening (23) to the enclosure, and in which the ledges are provided with stiffening means.

9. An enclosure according to any of claims 1 to 8 characterised in that the upper surface of the base is formed with a pattern of raised pads (28) and slopes from all sides downwardly towards the waste outlet (30).

10. An enclosure according to any of claims 1 to 9 characterised in that at least portions of the interconnecting flanges (75) between the parts extend outwardly substantially horizontally and the fixing means (47, 48) extend vertically through the mating horizontal portions at spaced intervals.

FIG. 1

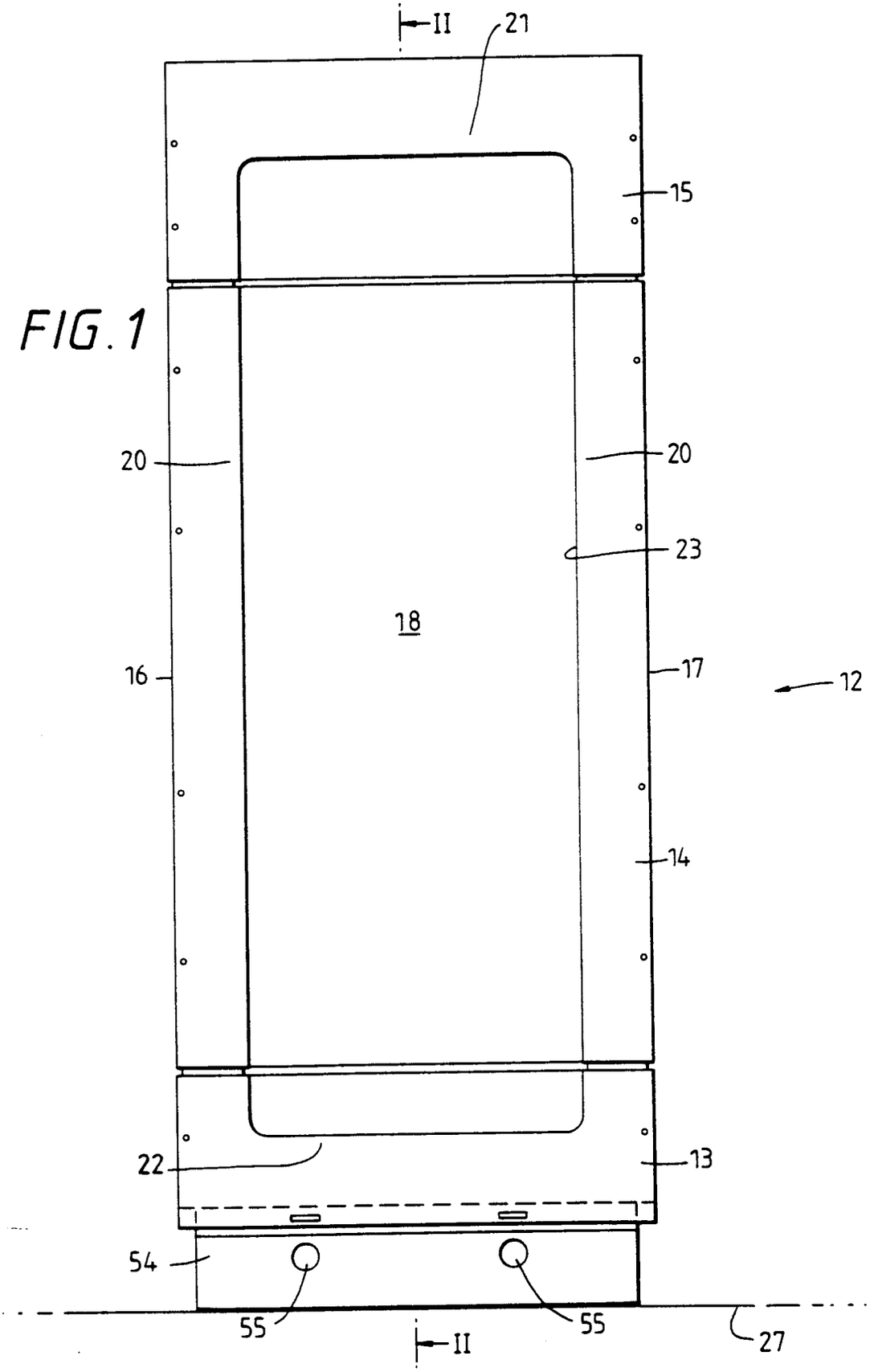

FIG. 2

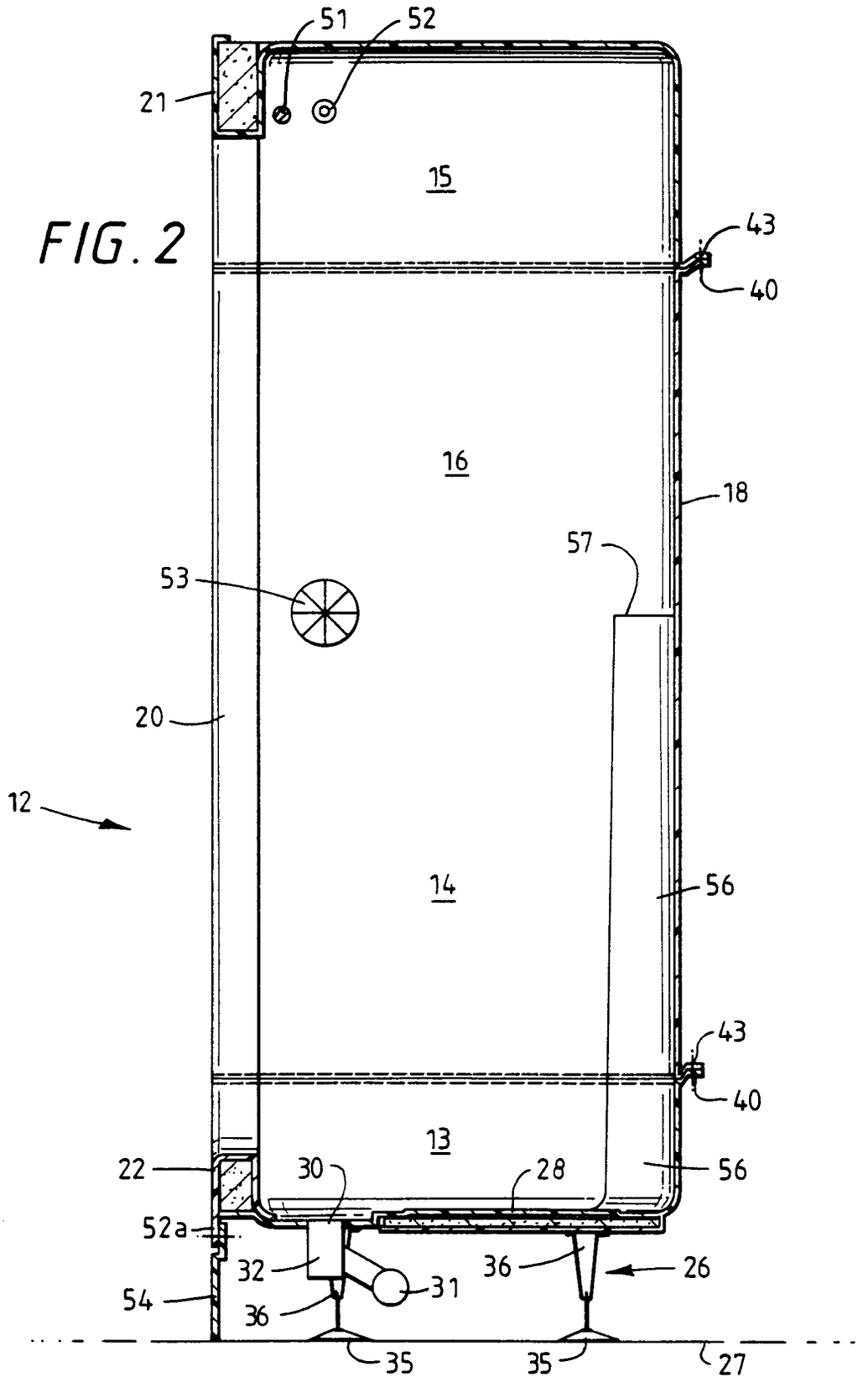
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FIG. 3

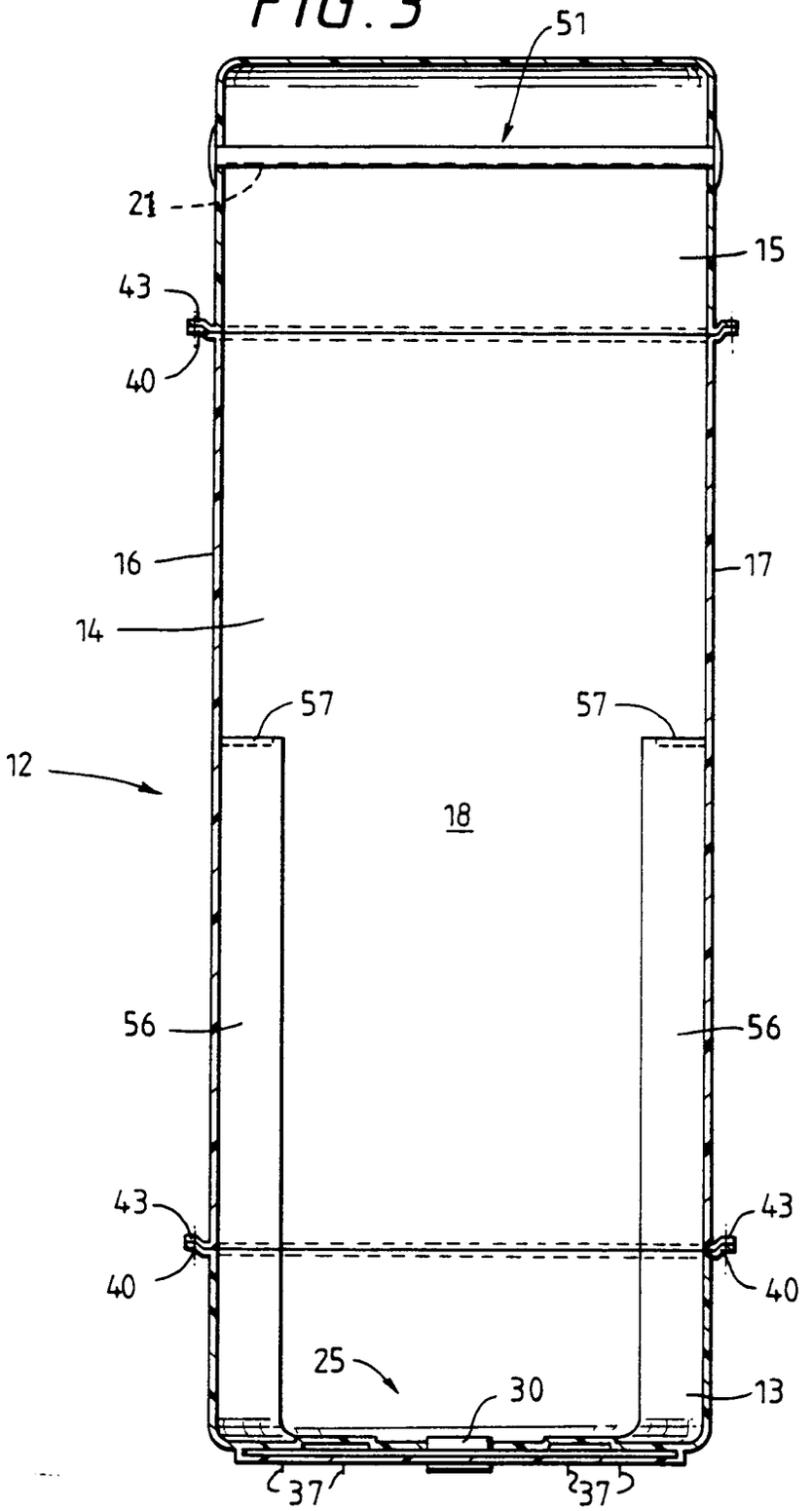


FIG. 4

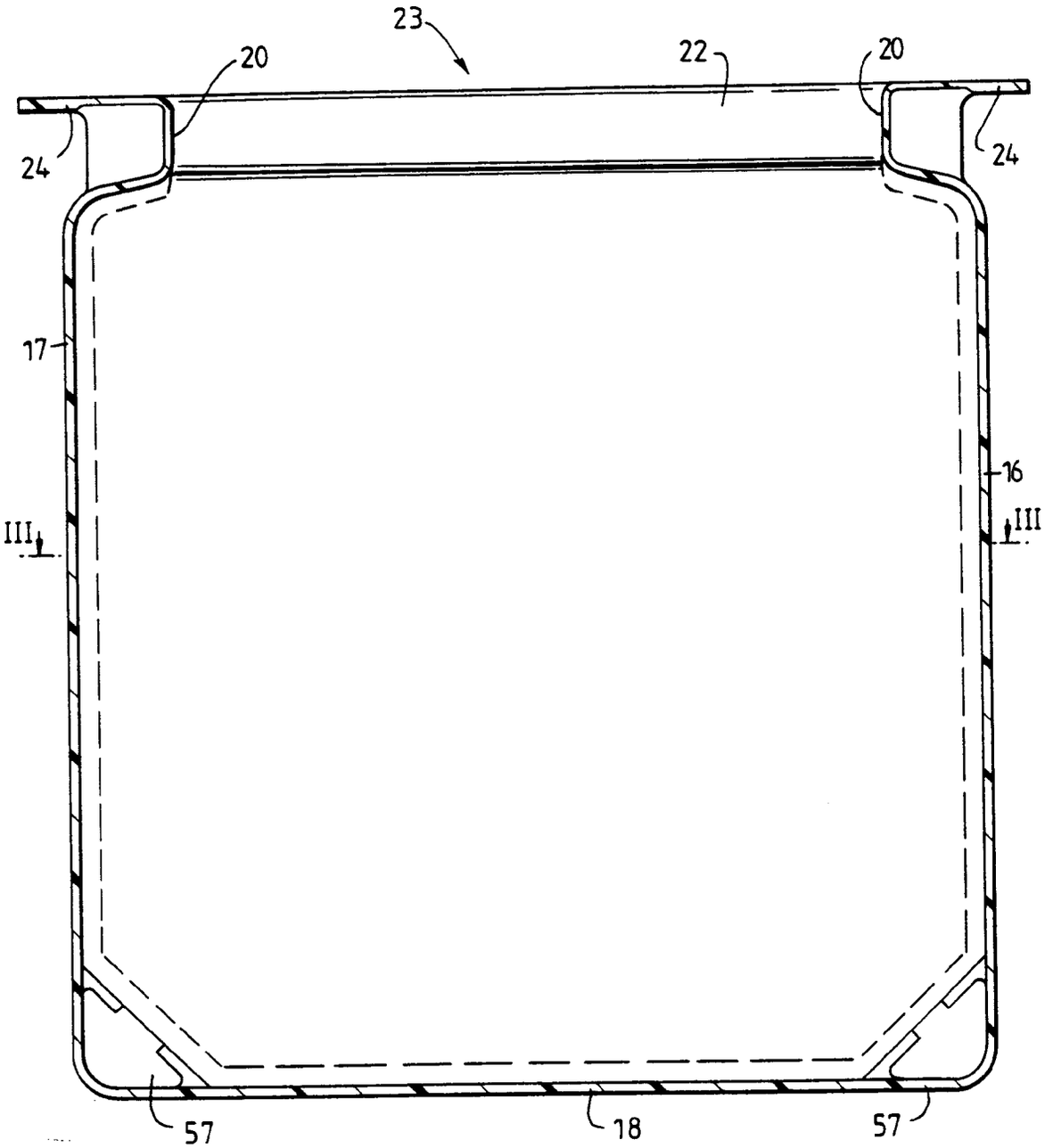
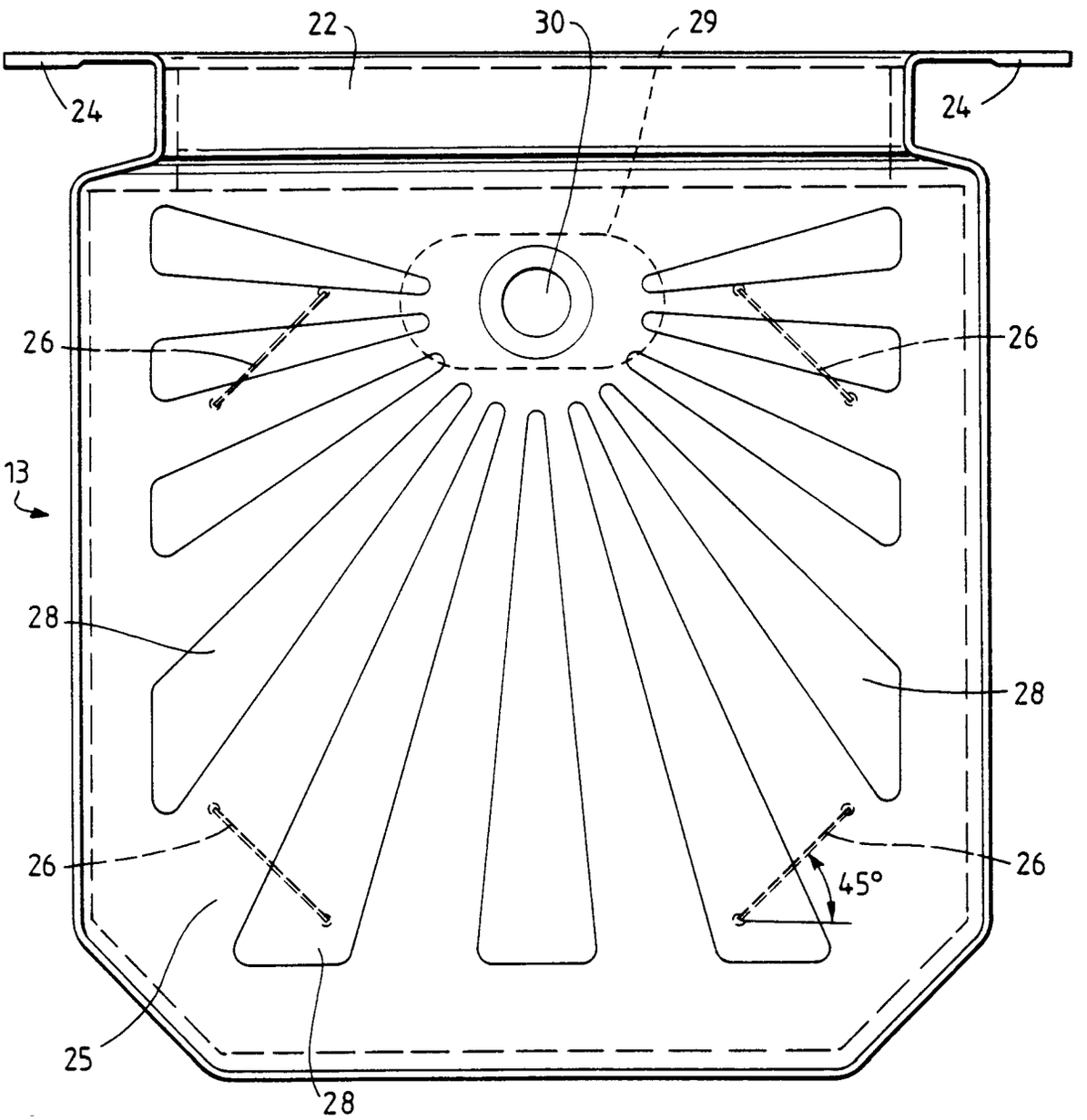


FIG. 5



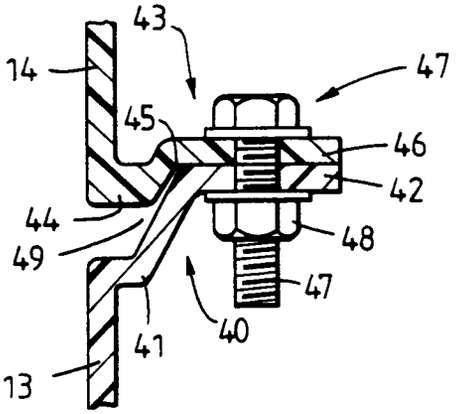


FIG.6

FIG.7

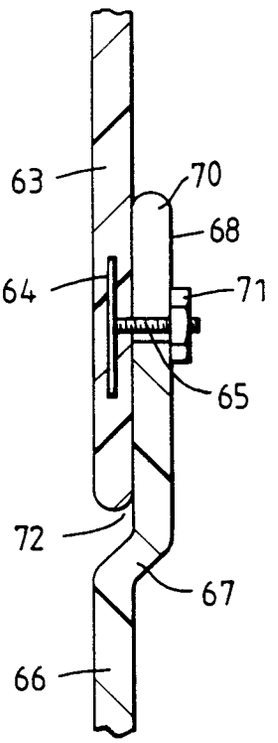
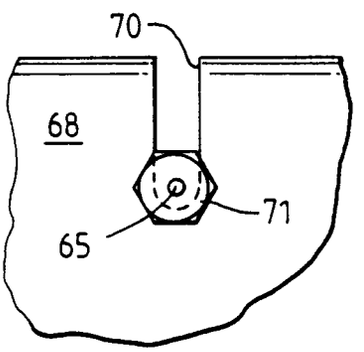


FIG.8



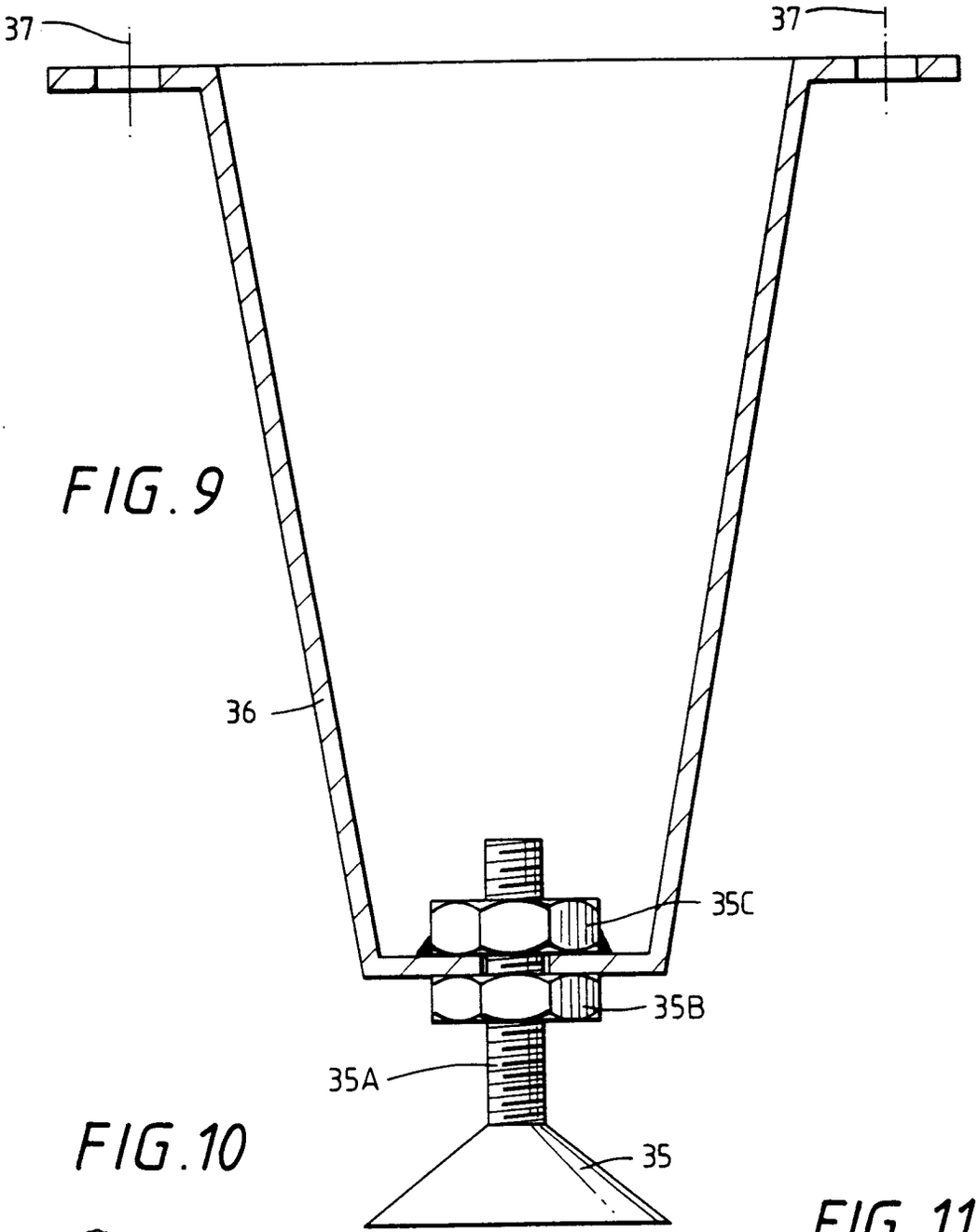


FIG. 9

FIG. 10

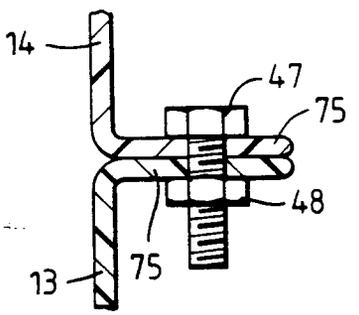
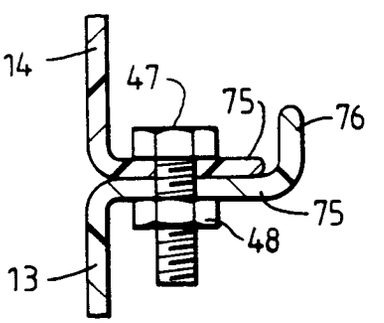


FIG. 11



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EUROPEAN SEARCH REPORT

Application Number
EP 94 30 6006

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.6)
Y	GB-A-1 198 619 (CRANE CANADA LTD.) * page 1, line 67 - page 2, line 20; figures 5,12-14 * * page 2, line 99 - page 3, line 13 * * page 5, line 100 - line 116 * * page 6, line 54 - line 101 *	1,2,5-7, 9,10	A47K4/00 A47K3/22
Y	DE-U-91 02 292 (WORMUTH) * page 5, line 10 - page 7, line 16; figure *	1,2,5,10	
Y	DEUTSCHE BAUZEITSCHRIFT, no.4, 1976 pages 377 - 382 'Bauausrüstung'	6,7,9	

TECHNICAL FIELDS SEARCHED (Int.Cl.6)

A47K

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	3 October 1994	Kergueno, J

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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