

(19) **DANMARK**

(10) **DK/EP 2995232 T3**



(12) **Oversættelse af  
europæisk patentskrift**

Patent- og  
Varemærkestyrelsen

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- (51) Int.Cl.: **A 47 K 3/40 (2006.01)** **E 03 C 1/20 (2006.01)** **E 03 F 5/04 (2006.01)**
- (45) Oversættelsen bekendtgjort den: **2018-01-22**
- (80) Dato for Den Europæiske Patentmyndigheds bekendtgørelse om meddelelse af patentet: **2017-11-08**
- (86) Europæisk ansøgning nr.: **15002602.9**
- (86) Europæisk indleveringsdag: **2015-09-04**
- (87) Den europæiske ansøgnings publiceringsdag: **2016-03-16**
- (30) Prioritet: **2014-09-11 DE 102014113096**
- (84) Designerede stater: **AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR**
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- (54) Benævnelse: **Optagelseelement til indføring i en afløbsåbning i en brusebadsgulvplade og brusebadsgulvplademodul**
- (56) Fremdragne publikationer:  
**WO-A1-2008/009874**  
**DE-A1-102004 036 652**



## Description

The invention relates to a receiving element for a screw-type shower tray valve, for  
5 insertion into a continuous outlet opening of a shower floor panel, which has a first plane  
or concave flat side and a second flat side directed away from the first one, comprising:

- an annular body which can be inserted from the first flat side into the outlet opening  
of the shower floor panel and which bears with its bearing collar on the first flat side  
of the shower floor panel, wherein the bearing collar merges into an inclined profiled  
10 wall of the annular body and wherein the inclined wall runs out into a cylindrical inner  
wall,
- and a support flange which can be inserted from the second flat side of the shower  
floor panel into the outlet opening thereof and which bears with its bearing collar on  
the second flat side of the shower floor panel.

15 The invention further relates to a shower floor panel module composed of the shower floor  
panel and of the receiving element built into the latter.

Known from DE 10 2004 036 652 A1 is a shower floor element which has a receiving  
element for a screw-type shower tray valve for insertion into a continuous outlet opening  
of a shower floor panel. The receiving element has an outlet upper part 3 configured as  
20 an insert component 22 which is inserted in the shower floor plate from the one side, as  
well as a hard component 7 which is inserted from the other side. The support between  
the insert component 22 and the hard component 7 is created by adhesive bonding, or  
alternatively, by further outlet components which are screwed together, thus clamping the  
insert component 22 and the hard component 7 firmly together. Regardless of what type  
25 of connection is chosen, the insert component 22 and the hard component 7 must first be  
positioned with respect to the shower floor plate. Following this, this position is fixed by  
the curing of any employed glue or by the screw mounting of the other outlet components.

Also known is a two-part receiving element of the aforementioned type and a shower floor  
panel module, which are manufactured by and commercially available from the applicant  
30 under the product name "wedi Fundo Ablauf senkrecht" (two-part receiving element) and  
"wedi Fundo" (shower floor panel module). Although said products have proven very  
popular on the German market and abroad, there is a need to further develop them in  
order to improve their design and to extend the range of products offered by the company.

The object of the invention is therefore to propose a two-part receiving element which can be easily attached to the shower floor panel in the desired positioning and secured there in a dependable manner.

This object is achieved by a two-part receiving element having the features of claim 1.

5 This object is further achieved by a shower floor panel module having the features of claim 2.

The two-part receiving element comprises an annular body and a support flange, wherein

- the wall of the annular body has at least one circumferential rib, which is arranged vertically or at a slight inclination to the bearing collar of the annular body,
- 10 - the support flange likewise has at least one circumferential rib which is directed substantially perpendicular to the bearing collar of the support flange,

wherein the ribs of the annular body and the ribs of the support flange are directed toward each other in the assembled state, and wherein at least one of the ribs of the annular body at least partially meshes with at least one rib of the support flange in the assembled  
15 state.

The meshing involves a reciprocal arrangement of the circumferential ribs which are at least partially engaged with one another or touch one another. The rib of the annular body can also be arranged contact-free between two ribs of the support flange or, conversely, the rib of the support flange can be arranged between the ribs of the annular body.

20 In this way, the ribs of the annular body and the ribs of the support flange, in the assembled state, can be connected to each other with a force fit, wherein at least one rib is elastically deformable. Here the cylindrical inner wall of the annular body can likewise function as a rib.

The two-part receiving element can be secured in the opening of the shower floor panel  
25 by a combined connection (unclaimed), for example via a clamped and adhesively bonded connection.

It is also possible for the annular body and/or the support flange to be cohesively connected to the shower floor panel, for example by means of a layer of adhesive. The adhesive connection ensures a uniform stress distribution and force transmission across  
30 the whole adhesion surface and is able to withstand greater static and dynamic loads. Moreover, the adhesive connection is able to assume a sealing function that is desired in shower floor panel modules.

At least one of the ribs of the annular body and/or of the support flange can be segmented. Segmentation means that the rib has, at its periphery, at least two interruptions lying at equal or unequal distances from each other, which divide the rib into two or more spreading elements. In this way, the force applied during assembly can be uniformly distributed and the rib reacts more flexibly to elastic deformation.

The described rib arrangement permits manual, mechanical or robot-assisted assembly of the two parts, i.e. the annular body and the support flange, to form a unit built into the prefabricated shower floor panel.

Accordingly, the present invention also claims a shower floor panel module, which is composed of the prefabricated shower floor panel and of the two-part receiving element built into the shower floor panel. The shower floor panel module can be packaged and offered for sale in this form.

The shower floor panel can be made from solid plastic, fibre-reinforced plastic, such as synthetic resin, or from a body of raw foam covered on both sides with a reinforcement layer.

In a plan view of its flat side, the shower floor panel can be polygonal, in particular rectangular, or round, for example circular, oval, arc-shaped, kidney-shaped or snail-shaped.

As materials for producing the annular body and the support flange, it is possible to use thermoplastics such as HDPE or polycarbonate, thermosets or metals.

Further features and advantages of the invention are explained on the basis of a number of illustrative embodiments and with reference to the drawing, in which:

- Fig. 1 shows a simplified schematic cross section of a shower floor panel before installation of the receiving element,
- 25 Fig. 2 shows an annular body in a perspective view,
- Fig. 3 shows a support flange in a perspective view,
- Fig. 4 shows a cross section of a shower floor panel module composed of the shower floor panel as per Fig. 1 and of a built-in receiving element,
- Fig. 5 shows a perspective view of the shower floor panel module as per Fig. 4,
- 30 Fig. 6 shows a cross section of the shower floor panel module as per Fig. 4, with an unclaimed adhesive filler indicated, and

Figs. 7 and 8 show other unclaimed exemplary embodiments of the shower panel module, in each case in cross section.

Fig. 1 shows a shower floor panel 9 comprising a raw foam body 30 made of HCFC-free, water-impermeable and thermally insulating extruded rigid polystyrene foam, which is affixed on both sides to a reinforced layer 18, 18' of synthetic mortar (synthetically modified coating mortar) in a permanent manner such that the join cannot be undone without being destroyed. The shower floor panel 9 has a slightly concave upper flat side 2, which runs toward a circular outlet opening 5, and a plane lower flat side 3. The outlet opening 5 has a cylindrical inner face 14. Fig. 1 also shows an annular shallow recess 31 whose depth T corresponds to a thickness D of the layer 18 of synthetic mortar or exceeds this thickness. Reference sign G indicates a gradient. The installed shower floor panel 9 is also tiled.

The terms "upper", "lower", "top", "bottom", "above" etc. relate to the usual arrangement of the floor panel in a shower, for example as can be seen from Figures 4 and 5.

An annular body 10 shown in figures 2, 4 and 5, and produced from a material section, has a bearing collar 4, an inclined profiled wall 6, which runs out into a cylindrical, downwardly directed inner wall 8, and two circumferential and likewise downwardly pointing ribs 11, 12, wherein the rib 11 can be designated as an outer rib and the rib 12 can be designated as a central rib. The central rib 12 is arranged coaxially between the inner wall 8 and the outer rib 11. Circumferential annular spaces 23, 24 can be seen between the ribs 11, 12 and the inner wall 8. Moreover, the profiled wall 6 has a circumferential groove 25 for receiving an elastomeric sealing element (not shown).

In an advantageous configuration, the outer rib 11 has a plurality of more or less U-shaped interruptions 16 formed on its periphery 19, which divide the rib into elastically deformable spreading elements 17.

Fig. 3 shows a ring-shaped support flange 20 which has a bearing collar 7 and two upwardly protruding ribs 21, 22, which are dimensioned such that, in the assembled state, they engage in the aforementioned spaces 23, 24 (cf. Figures 4 and 5).

Figures 4 and 5 show a receiving element 100 which is composed of the annular body 10 and the support flange 20 and which is placed in the outlet opening 5. The annular body 10 rests with its bearing collar 4 on the shallow recess 31, flush with the flat side 2 of the shower tray panel 9, and is adhesively bonded there to the raw foam body 30. However, it is also possible that the upper face of the bearing collar 4 is arranged offset with respect

to the flat side 2 of the shower floor panel 9, such that a height offset exists between the flat side 2 and the upper face of the bearing collar. However, the thickness of the bearing collar 4 is less than the depth T of the shallow recess 31. Furthermore, the depth T can be made such that it includes a free space for a slight adhesive gap 15, which space has a size of 0.5 mm for example. In the present case, a hotmelt is used as the adhesive. As an alternative to a hotmelt adhesive, it is also possible to use other adhesives.

When the two parts of the receiving element 100 are pressed together, the segmented rib 11 yields slightly on account of the pressure force exerted by the upwardly directed rib 21 and presses against the inner face 14 of the outlet opening 5 (cf. Fig. 5). The rib 22 of the support flange 20 comes into planar contact with the downwardly pointing inner wall 8 of the annular body 10 and presses against it. The lower bearing collar 7 bears on the underside (flat side 3) of the shower floor panel 9. It is also possible for the lower bearing collar 7 to be arranged flush with the flat side 3.

A similar unclaimed receiving element (reference number 200) is shown in Fig. 6. The same reference signs designate the same parts. The difference between the receiving elements 100 and 200 is that the space 24 between the inner wall 8 and the rib 12 of the annular body 10 is narrower, such that it can be filled with a liquid adhesive or suitable sealing material.

Another unclaimed receiving element 300, designed as per Fig. 7, is characterized by another rib arrangement. Three downwardly pointing ribs 11, 12, 26, instead of two, are arranged on the annular body 10, wherein the outer rib 11 lies remote from the inner face 14 (in the installed state) of the outlet opening. The rib 21 of the support flange 20 engages between the downwardly directed ribs 11, 12 and is clamped there by frictional force. The second rib (reference number 22) of the support flange 20 engages in a space 27 which is filled with a liquid adhesive or with suitable sealing material and which is delimited by the inner wall 8 and the rib 26. It is also possible, for example, for a double-sided adhesive film 13 to be placed in a circular shape in the adhesive gap 15 under the bearing collar 4.

Fig. 8 shows an unclaimed receiving element 400, of which the annular body 10 has two downwardly directed ribs 11 and 12, whereas the support flange 20 has three ribs 21, 22 and 28. The ribs 22 and 28 of the support flange 20 are filled with a liquid adhesive or suitable sealing material, into which the rib 12 of the annular body 10 engages in the assembled state, such that a corresponding connection is obtained there. The outer ribs

11 and 21 are directed toward each other and rest on the inner face 14 of the outlet opening 5. The two outer ribs 11 and 12 can be segmented.

Together with the inserted receiving element 100; 200; 300; 400, the shower floor panel 9 forms a shower panel module 1.

## Patentkrav

1. Optagelseselement (100) til en brusekar-skrueventil, til indføring i en gennemgående afløbsåbning (5) i en brusebadsgulvplade (9), der omfatter en første plan eller konkav flad side (2; 3) og en anden flad side (3; 2), der vender bort fra den første, omfattende:

5 - et ringkorpus (10), der fra den første flade side (2; 3) kan lægges i afløbsåbningen (5) af brusebadsgulvpladen (9), og som med sin bærekra-  
væ (4) støtter på den første flade side (2; 3) af brusebadsgulvpladen (9), hvor bærekra-  
væ (4) går over i en hældende væg (6) af ringkorpuset (10), og hvor  
10 ringkorpuset (10) omfatter mindst en omløbende ribbe (11, 12, 26), der er  
anbragt vinkelret eller let hældende i forhold til ringkorpussets (10) bærekra-  
ve (4),

- og en støtteflange (20), der fra den anden flade side (3; 2) af brusebadsgulvpladen (9) kan lægges i dens afløbsåbning (5), og som med sin bærekra-  
15 væ (7) ligger på den anden flade side (3; 2) af brusebadsgulvpladen (9),  
og hvor støtteflangen (20) ligeledes omfatter mindst en omløbende ribbe (21,  
22, 28), der er orienteret i det væsentlige vinkelret på støtteflangens (20) bæ-  
rekra-ve (7),

hvor ringkorpussets (10) ribber (11, 12, 26) og støtteflangens (20) ribber (21,  
20 22, 28) er orienteret mod hinanden i sammenføjet tilstand, og hvor mindst en  
af ringkorpussets (10) ribber (11, 12, 26) i det mindste delvist går fortandet i  
indgreb med mindst en ribbe (21, 22, 28) af støtteflangen (20) i sammenføjet  
tilstand,

### **kendetegnet ved, at**

25 - den hældende væg (6) omfatter mindst en omløbende ribbe (11, 12, 26) og  
en profilering og løber ud i en cylindrisk indervæg (8),

- ringkorpussets (10) ribber (11, 12, 26) og støtteflangens (20) ribber (21, 22,  
28) i sammenføjet tilstand er forbundet kraftssluttende med hinanden,

30 - mindst en ribbe (11) af ringkorpuset (10) eller (21) af støtteflangen (20) er  
segmenteret ved sin omkreds (19),

således at den segmenterede ribbe (11), når optagelseselementets (100) to  
dele presses sammen, som følge af en trykkraft, der udøves af ribben (21),  
giver lidt efter for at kunne presse mod en indvendig flade (14) af afløbsåb-  
ningen (5).

2. Brusebadsgulvplademodul (1), omfattende en præfabrikeret brusebadsgulvplade (9) og et optagelseselement (100) ifølge krav 1, der er indbygget i brusebadsgulvpladen (9).

5           **3.** Brusebadsgulvplademodul (1) ifølge krav 2, **kendetegnet ved, at**  
- der på den plane eller konkave flade side (2; 3) af brusebadsgulvpladen (9) i området ved afløbsåbningen (5) er indarbejdet en ringformet flad udsparring (31), der rækker ind i materialet af brusebadsgulvpladens (9) råskumslegeme (30);  
10          - bærekraften (4) støtter på råskumslegemet (30) i området ved den flade udsparring (31) og flugter med den flade side (2; 3) af brusebadsgulvpladen (9).

15           **4.** Brusebadsgulvplademodul (1) ifølge krav 2, **kendetegnet ved, at** ringkorpussets (10) ribbe (11) i sammenføjjet tilstand er klemt ind mellem støtteflangens (20) ribbe (21) og en indvendig flade (14) af brusebadsgulvpladens (9) afløbsåbning (5).

20           **5.** Brusebadsgulvplademodul (1) ifølge krav 2, **kendetegnet ved, at** ringkorpussets (10) ribbe (11) og støtteflangens (20) ribbe (21) i sammenføjjet tilstand begge to, liggende over for hinanden, presser mod en indvendig flade (14) af brusebadsgulvpladens (9) afløbsåbning (5).

25           **6.** Brusebadsgulvplademodul (1) ifølge et af kravene 2 til 5, **kendetegnet ved, at** bærekraften (4) er klæbet sammen med råskumslegemet (30) i området ved den flade udsparring (31).

30           **7.** Brusebadsgulvplademodul (1) ifølge krav 6, **kendetegnet ved, at** bærekraften (4) er forbundet med råskumslegemet (30) via en dobbeltklæbende folie (13), der er lagt ringformet.

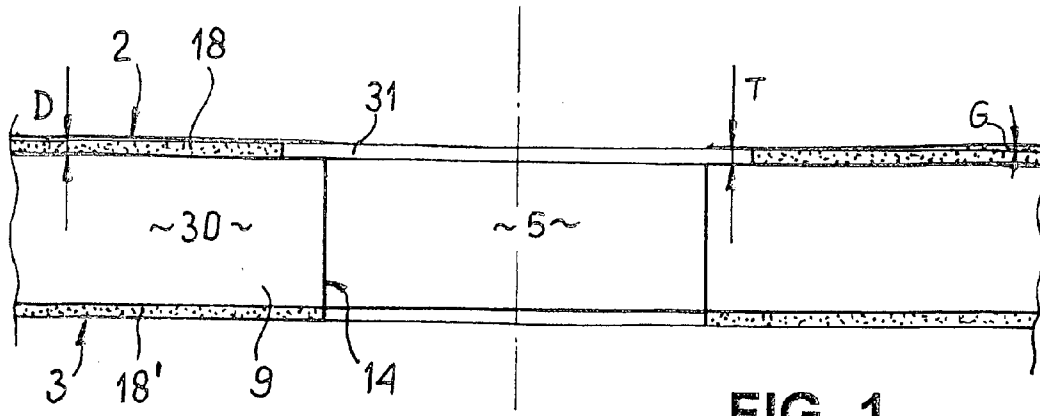


FIG. 1

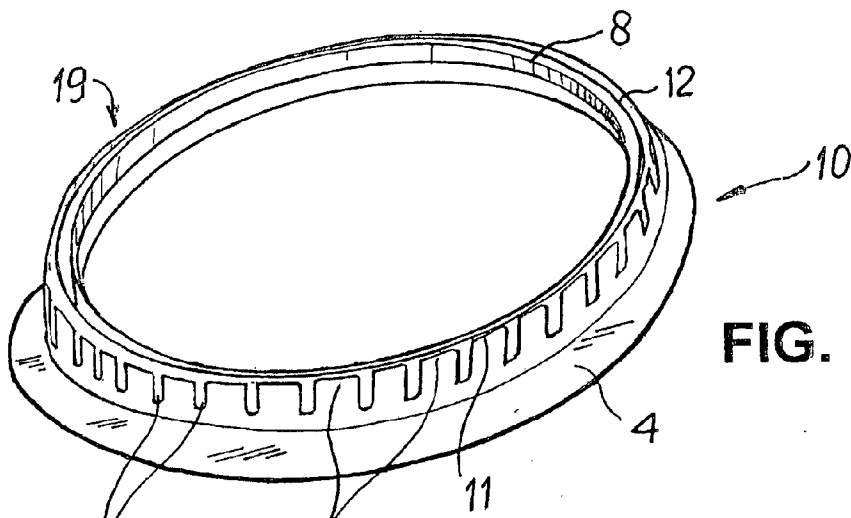
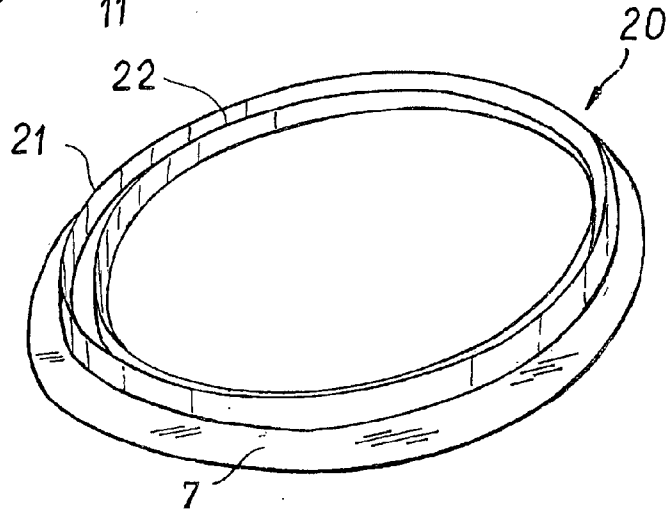
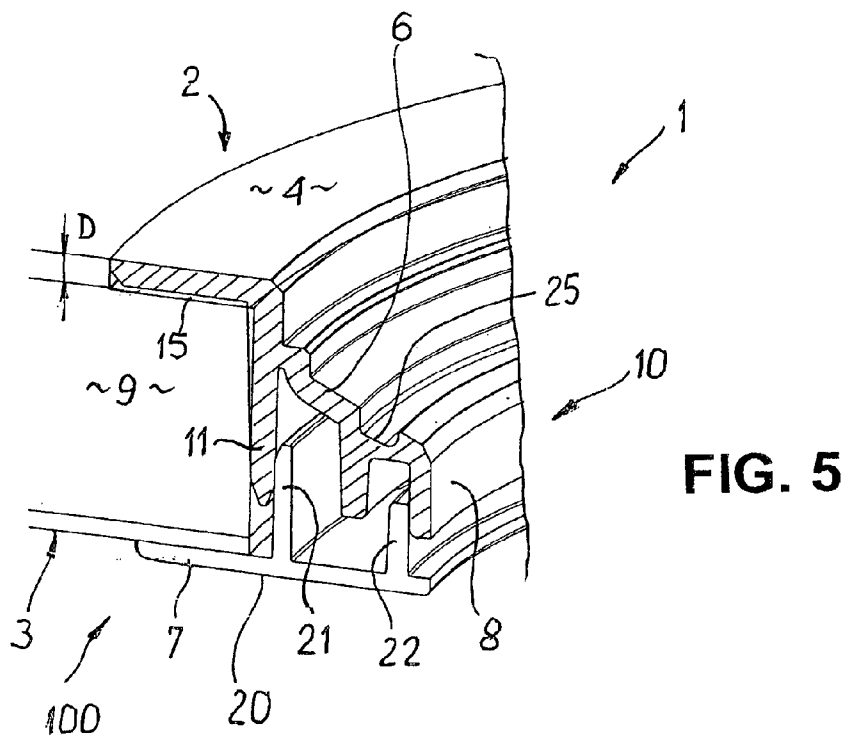
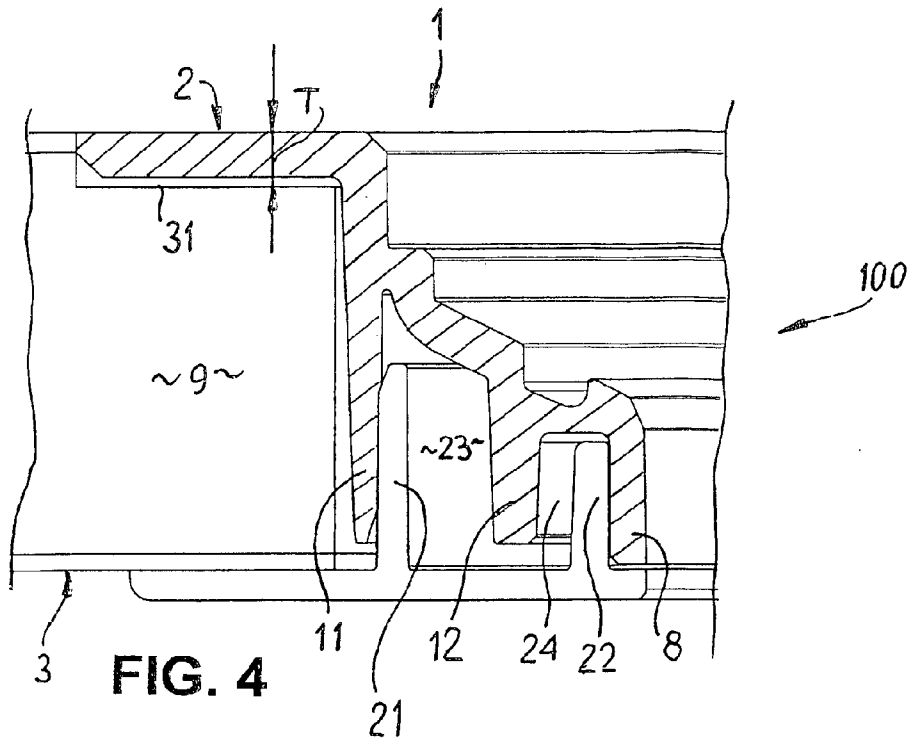


FIG. 2

FIG. 3





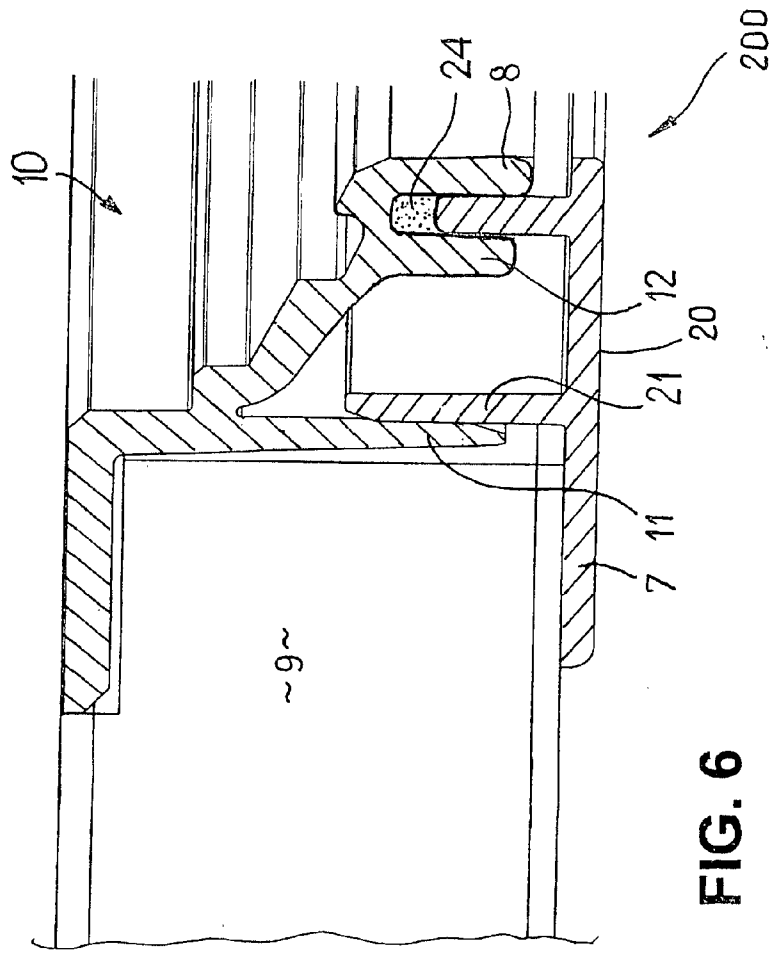


FIG. 6

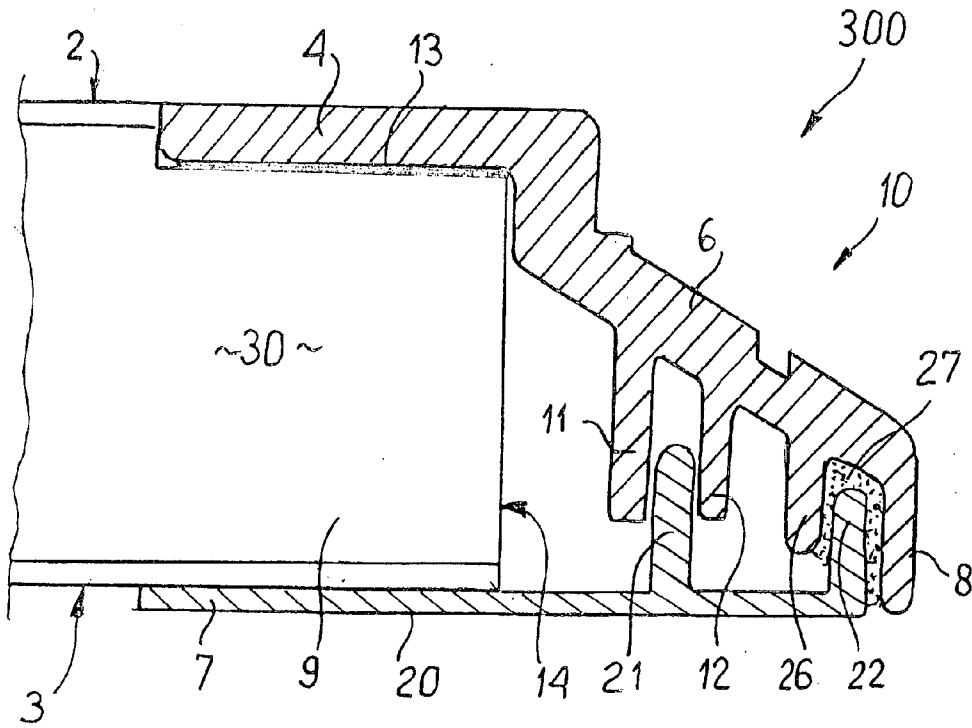


FIG. 7

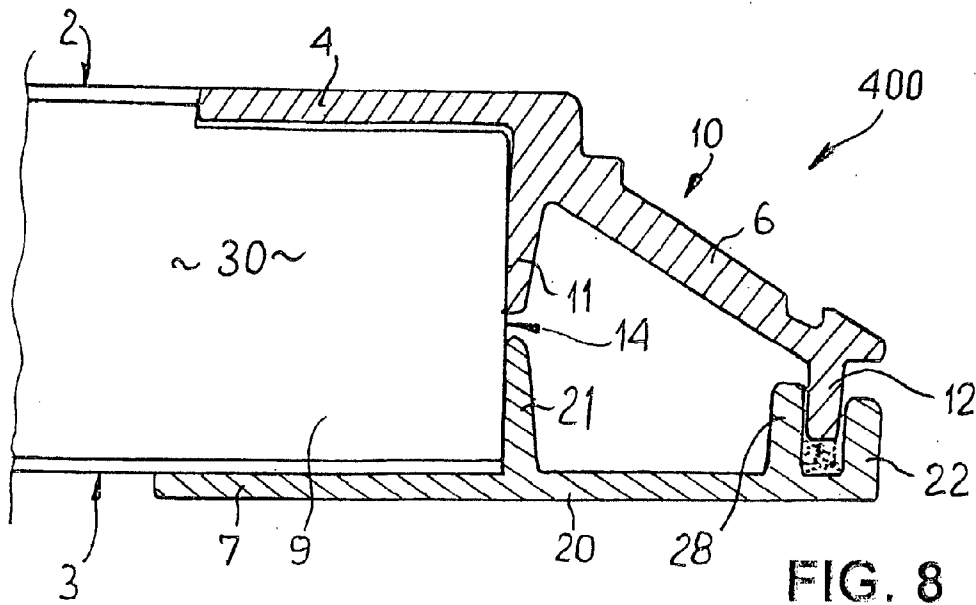


FIG. 8