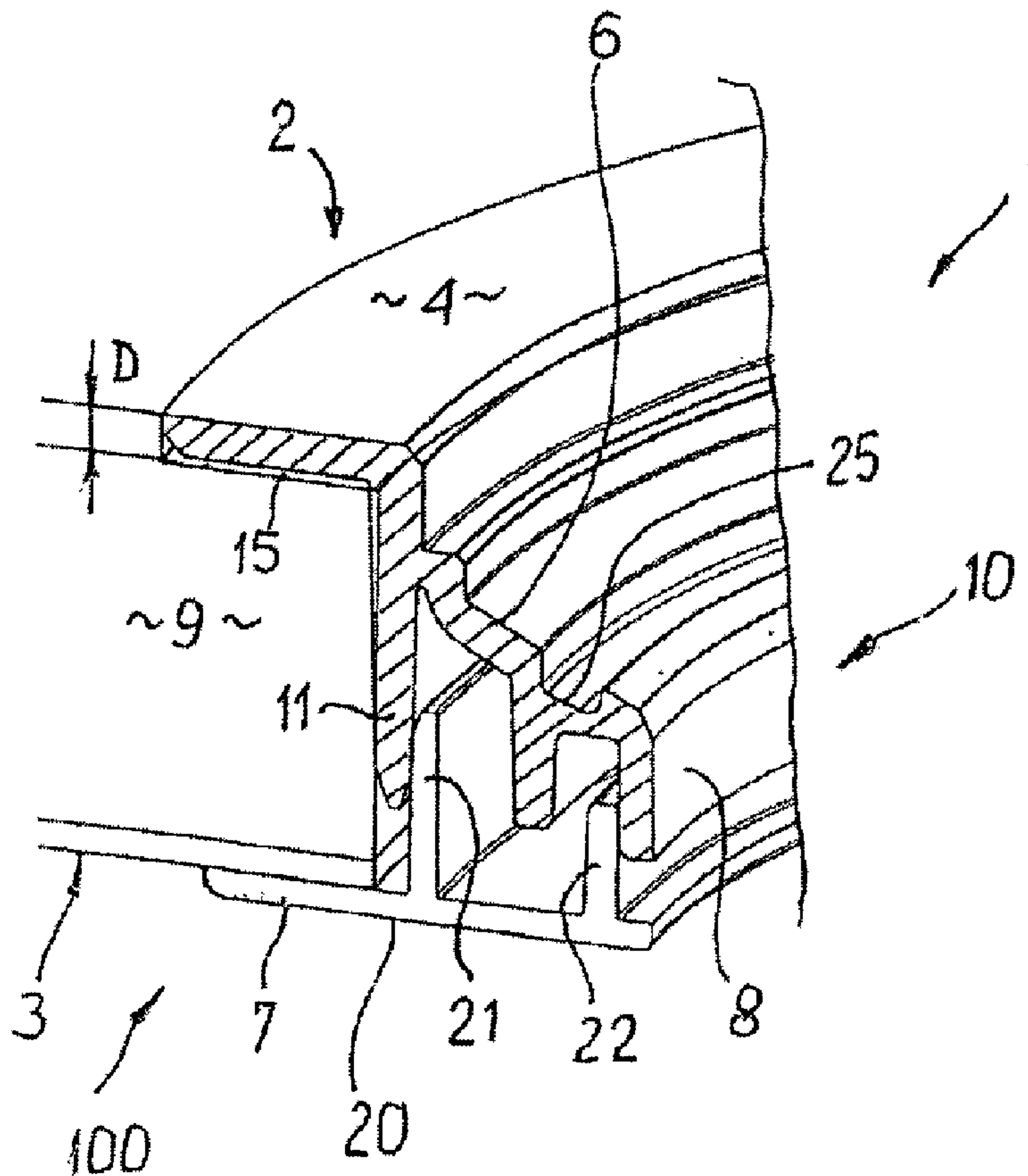




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(54) Titre : ELEMENT DE RECEPTION DESTINE A ETRE INSERE DANS UNE OUVERTURE DE PRISE DE SORTIE  
D~UN PANNEAU DE PLANCHER DE DOUCHE, ET MODULE DE PANNEAU DE PLANCHER DE DOUCHE  
(54) Title: RECEIVING ELEMENT FOR INSERTION INTO AN OUTLET OPENING OF A SHOWER FLOOR PANEL, AND  
SHOWER FLOOR PANEL MODULE



(57) Abrégé/Abstract:

The invention relates to a receiving element (100, 200, 300, 400) for a screw-type shower tray valve, for insertion into a continuous outlet opening of a shower floor panel (9), which has a first plane or concave flat side (2; 3) and a second flat side (3; 2) directed



(57) **Abrégé(suite)/Abstract(continued):**

away from the first one, comprising: - an annular body (10) which can be inserted from the first flat side (2; 3) into the outlet opening of the shower floor panel (9) and which bears with its bearing collar (4) on the first flat side (2; 3) of the shower floor panel (9), wherein the bearing collar (4) merges into an inclined profiled wall (6) of the annular body (10) and runs out into a cylindrical inner wall (8), - and a support flange (20) which can be inserted from the second flat side (3; 2) of the shower floor panel (9) into the outlet opening thereof and which bears with its bearing collar (7) on the second flat side (3; 2) of the shower floor panel (9). According to the invention, the wall (6) of the annular body (10) has at least one circumferential rib (11, 12, 26), which is arranged vertically or at a slight inclination to the bearing collar (4) of the annular body (10). The support flange (20) likewise has at least one circumferential rib (21, 22, 28) which is directed substantially perpendicular to the bearing collar (7) of the support flange (20), wherein the ribs (11, 12, 26) of the annular body (10) and the ribs (21, 22, 28) of the support flange (20) are directed toward each other in the assembled state, and wherein at least one of the ribs (11, 12) of the annular body (10) at least partially meshes with at least one rib (21, 22) of the support flange (20) in the assembled state.

**Abstract:**

The invention relates to a receiving element (100, 200, 300, 400) for a screw-type shower tray valve, for insertion into a continuous outlet opening of a shower floor panel (9), which has a first plane or concave flat side (2; 3) and a second flat side (3; 2) directed away from the first one, comprising:

- an annular body (10) which can be inserted from the first flat side (2; 3) into the outlet opening of the shower floor panel (9) and which bears with its bearing collar (4) on the first flat side (2; 3) of the shower floor panel (9), wherein the bearing collar (4) merges into an inclined profiled wall (6) of the annular body (10) and runs out into a cylindrical inner wall (8),
- and a support flange (20) which can be inserted from the second flat side (3; 2) of the shower floor panel (9) into the outlet opening thereof and which bears with its bearing collar (7) on the second flat side (3; 2) of the shower floor panel (9).

According to the invention, the wall (6) of the annular body (10) has at least one circumferential rib (11, 12, 26), which is arranged vertically or at a slight inclination to the bearing collar (4) of the annular body (10).

The support flange (20) likewise has at least one circumferential rib (21, 22, 28) which is directed substantially perpendicular to the bearing collar (7) of the support flange (20), wherein the ribs (11, 12, 26) of the annular body (10) and the ribs (21, 22, 28) of the support flange (20) are directed toward each other in the assembled state, and wherein at least one of the ribs (11, 12) of the annular body (10) at least partially meshes with at least one rib (21, 22) of the support flange (20) in the assembled state.

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**Receiving element for insertion into an outlet opening  
of a shower floor panel, and shower floor panel module**

The invention relates to a receiving element for a  
5 screw-type shower tray valve, for 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 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.

10

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.

15 A two-part receiving element of the aforementioned type  
and a shower floor panel module are commercially  
available from the applicant under the product name  
"wedi Fundo Ablauf senkrecht" (two-part receiving  
element) and "wedi Fundo" (shower floor panel module).  
20 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.

25 This object is achieved by a two-part receiving element  
according to the preamble, by virtue of the fact that

- 2 -

- 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,
  - 5 - the support flange likewise has at least one circumferential rib which is directed substantially perpendicular to the bearing collar of the support flange,
- 10 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  
20 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.

25 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, a form fit and/or a cohesive fit, if at least one rib is elastically deformable and/or an adhesive is used. The  
30 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 by a combined  
35 connection, 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 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.

10

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.

20 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.

25 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.

30

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

35

In a plan view of its flat side, the shower floor panel can be polygonal, in particular rectangular, or round,

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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,

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,

fig. 6 shows a cross section of the shower floor panel module as per fig. 4, with an adhesive filler indicated, and

figs 7 and 8 show other illustrative 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,

- 5 -

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.

- 6 -

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 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 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 a 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.

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

## List of reference signs:

1	shower floor panel module
2, 3	flat side
4	bearing collar (of 10)
5	outlet opening
6	inclined wall (of 10)
7	bearing collar (of 20)
8	inner wall, cylindrical
9	shower floor panel
10	annular body
11,12	rib
13	double-sided adhesive film
14	inner face
15	adhesive gap
16	interruption
17	spreading element
18, 18'	layer of synthetic mortar
19	periphery
20	support flange
21, 22	rib
23, 24	space
25	groove
26	rib (fig. 7)
27	space
28	rib (fig. 8)
29	-
30	raw foam body
31	shallow recess
G	gradient
D	thickness (of 18)
T	depth (of 31)
100; 200; 300; 400	receiving element

**Claims:**

1. Receiving element (100; 200; 300; 400) for a  
5 screw-type shower tray valve, for insertion into a  
continuous outlet opening (5) of a shower floor  
panel (9), which has a first plane or concave flat  
side (2; 3) and a second flat side (3; 2) directed  
away from the first one, comprising:
- 10 - an annular body (10) which can be inserted from  
the first flat side (2; 3) into the outlet  
opening (5) of the shower floor panel (9) and  
which bears with its bearing collar (4) on the  
15 first flat side (2; 3) of the shower floor  
panel (9), wherein the bearing collar (4)  
merges into an inclined profiled wall (6) of  
the annular body (10) and wherein the inclined  
wall (6) runs out into a cylindrical inner wall  
(8),
- 20 - and a support flange (20) which can be inserted  
from the second flat side (3; 2) of the shower  
floor panel (9) into the outlet opening (5)  
thereof and which bears with its bearing collar  
(7) on the second flat side (3; 2) of the  
25 shower floor panel (9),

characterized in that

- 30 - the inclined wall (6) of the annular body (10)  
has at least one circumferential rib (11, 12,  
26), which is arranged vertically or at a  
slight inclination to the bearing collar (4) of  
the annular body (10),
- 35 - the support flange (20) likewise has at least  
one circumferential rib (21, 22, 28) which is  
directed substantially perpendicular to the  
bearing collar (7) of the support flange (20),

- wherein the ribs (11, 12, 26) of the annular body (10) and the ribs (21, 22, 28) of the support flange (20) are directed toward each other in the assembled state, and wherein at least one of the ribs (11, 12, 26) of the annular body (10) at least partially meshes with at least one rib (21, 22, 28) of the support flange (20) in the assembled state.
- 5
- 10 2. Receiving element (100; 200; 300, 400) according to Claim 1, characterized in that the ribs (11, 12, 26) of the annular body (10) and the ribs (21, 22, 28) of the support flange (20), in the assembled state, are connected to each other at least partially with a force fit, a form fit and/or a cohesive fit.
- 15
3. Receiving element (100; 200; 300, 400) according to Claim 1 or 2, characterized in that at least one of the ribs (11, 12, 26) of the annular body (10) and/or at least one of the ribs (21, 22, 28) of the support flange (20) is segmented on its periphery (19).
- 20
- 25 4. Shower floor panel module (1) comprising a prefabricated shower floor panel (9) and a receiving element (100; 200; 300, 400) as per Claim 1 built into the shower floor panel (9).
- 30 5. Shower floor panel module (1) according to Claim 4, characterized in that
- in the area of the outlet opening (5), a ring-shaped shallow recess (31) that extends into the material of a raw foam body (30) of the shower floor panel (9) is worked into the plane or concave flat side (2; 3) of the shower floor panel (9);
- 35

- 12 -

- the bearing collar (4) bears on the raw foam body (30) in the area of the shallow recess (31) and lies flush with the flat side (2; 3) of the shower floor panel (9).

5

6. Shower floor panel module (1) according to Claim 4, characterized in that the rib (11) of the annular body (10) is clamped, in the assembled state, between the rib (21) of the support flange (20) and an inner face (14) of the outlet opening (5) of the shower floor panel (9).

10

7. Shower floor panel module (1) according to Claim 4, characterized in that the rib (11) of the annular body (10) and the rib (21) of the support flange (20) both press against an inner face (14) of the outlet opening (5) of the shower floor panel (9) in the assembled state.

15

8. Shower floor panel module (1) according to one of Claims 4 to 7, characterized in that the bearing collar (4) is adhesively bonded to the raw foam body (30) in the area of the shallow recess (31).

20

9. Shower floor panel module (1) according to Claim 8, characterized in that the bearing collar (4) is connected to the raw foam body (30) via a double-sided adhesive film (13) applied in a circular shape.

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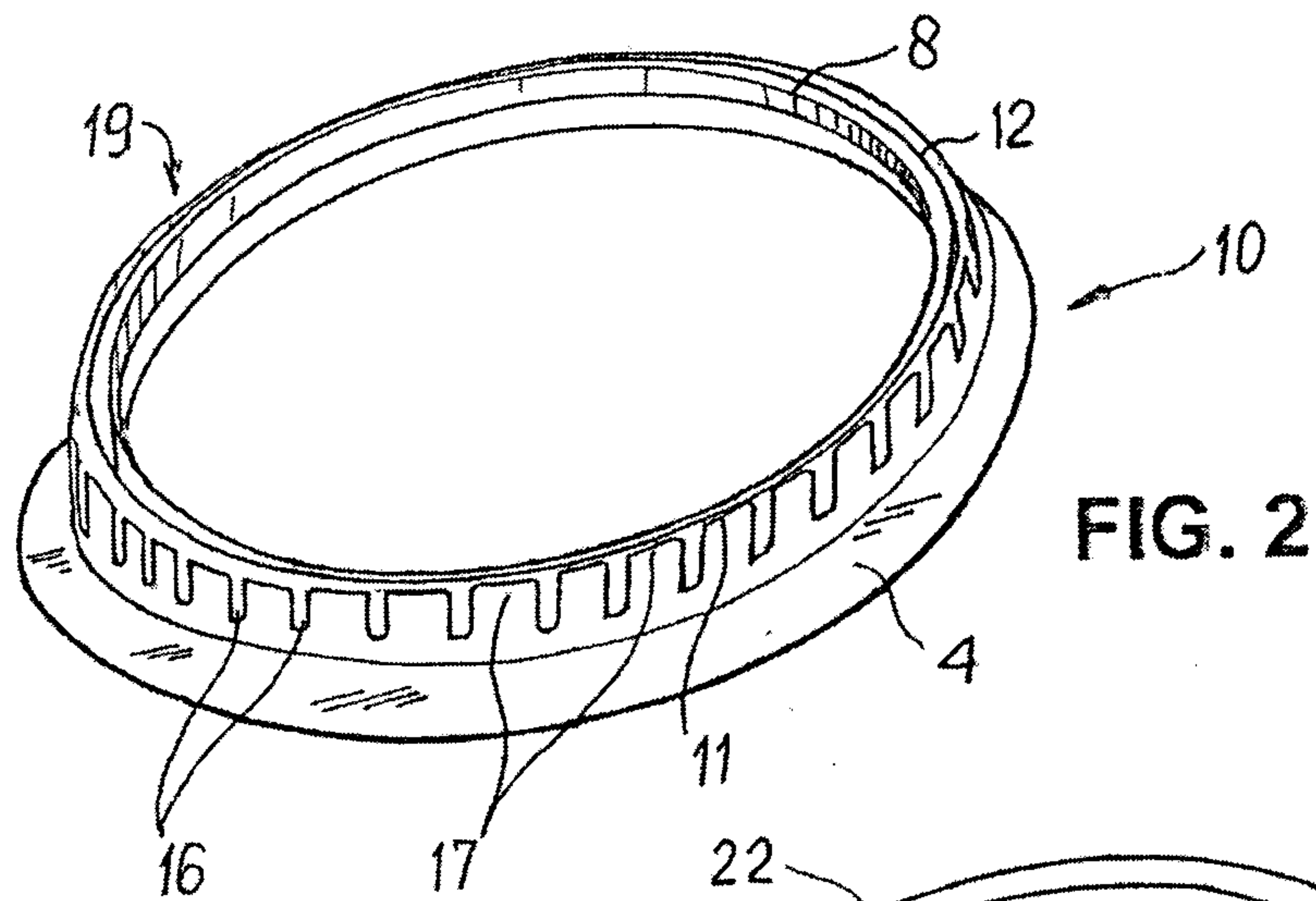
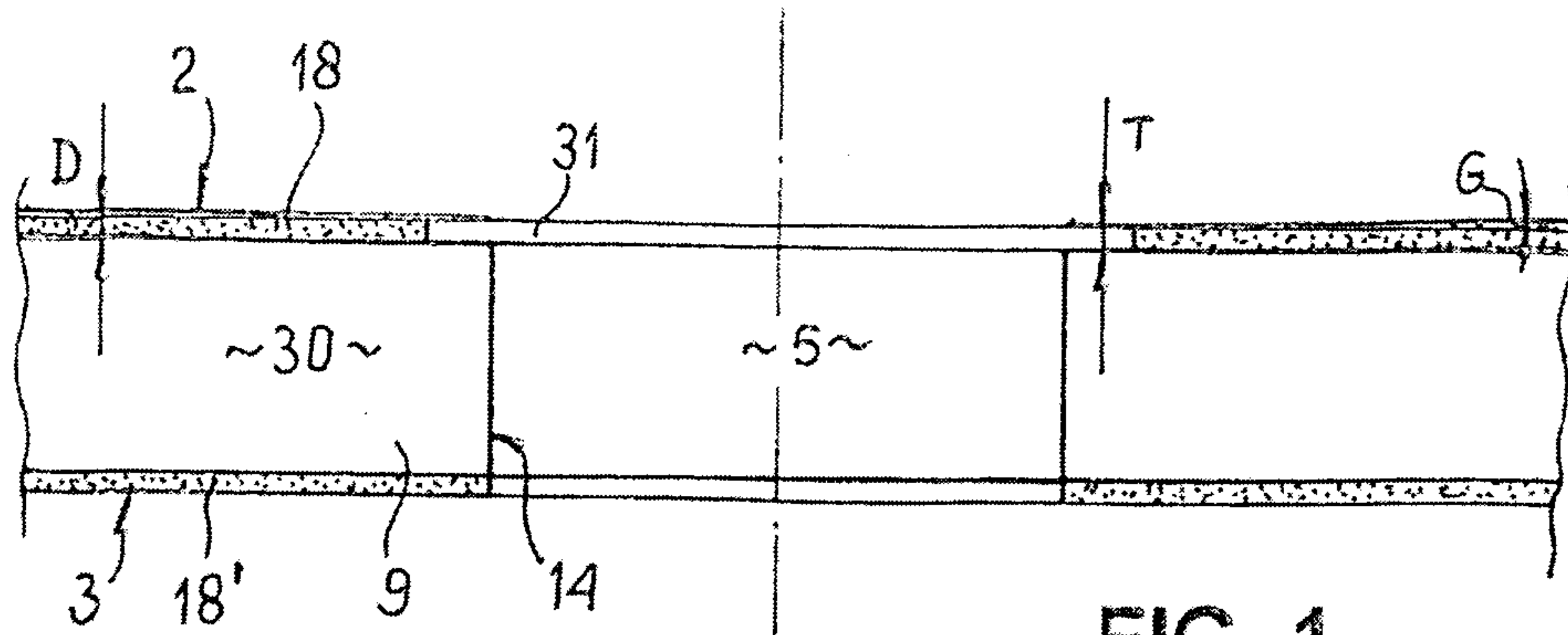
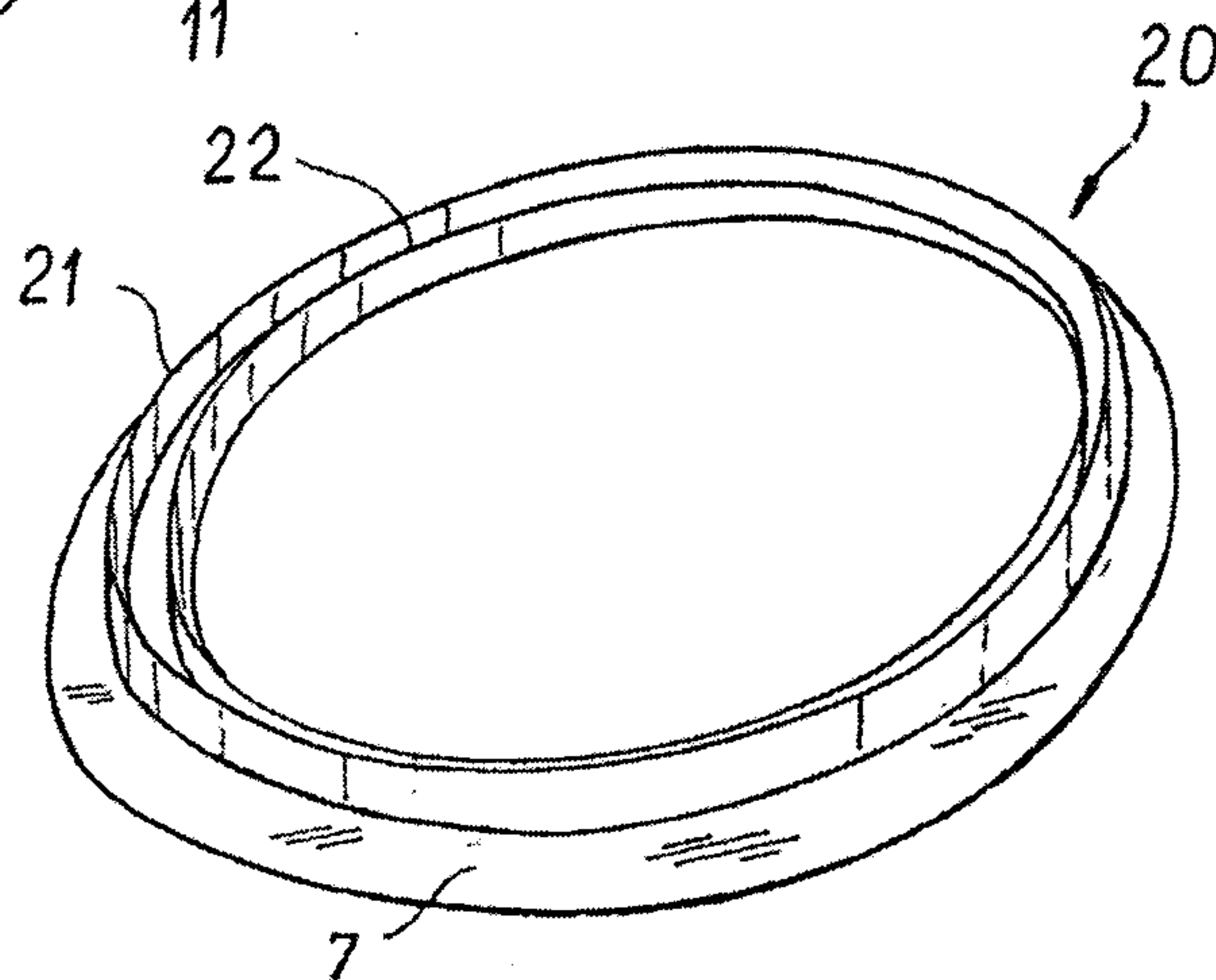
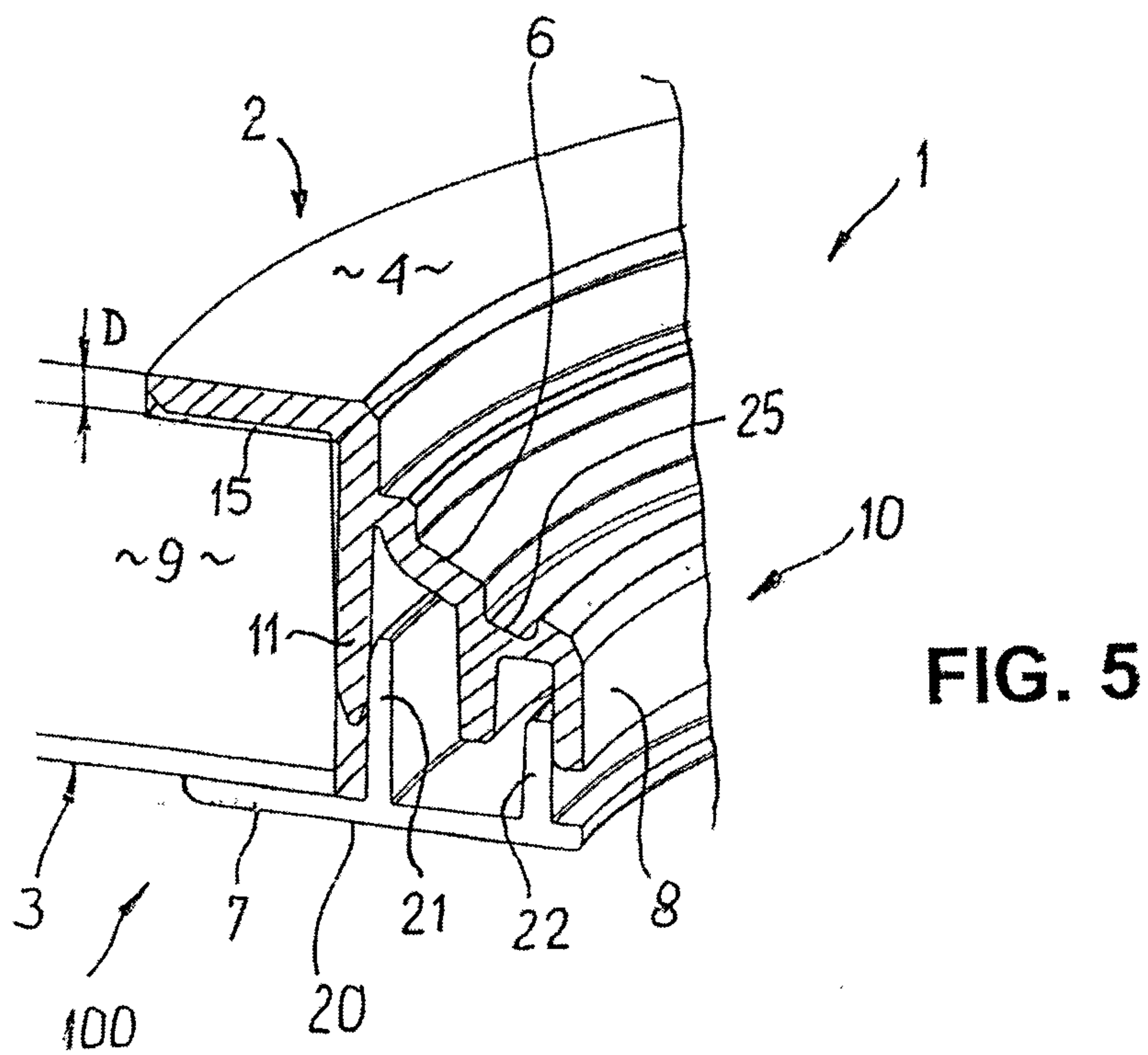
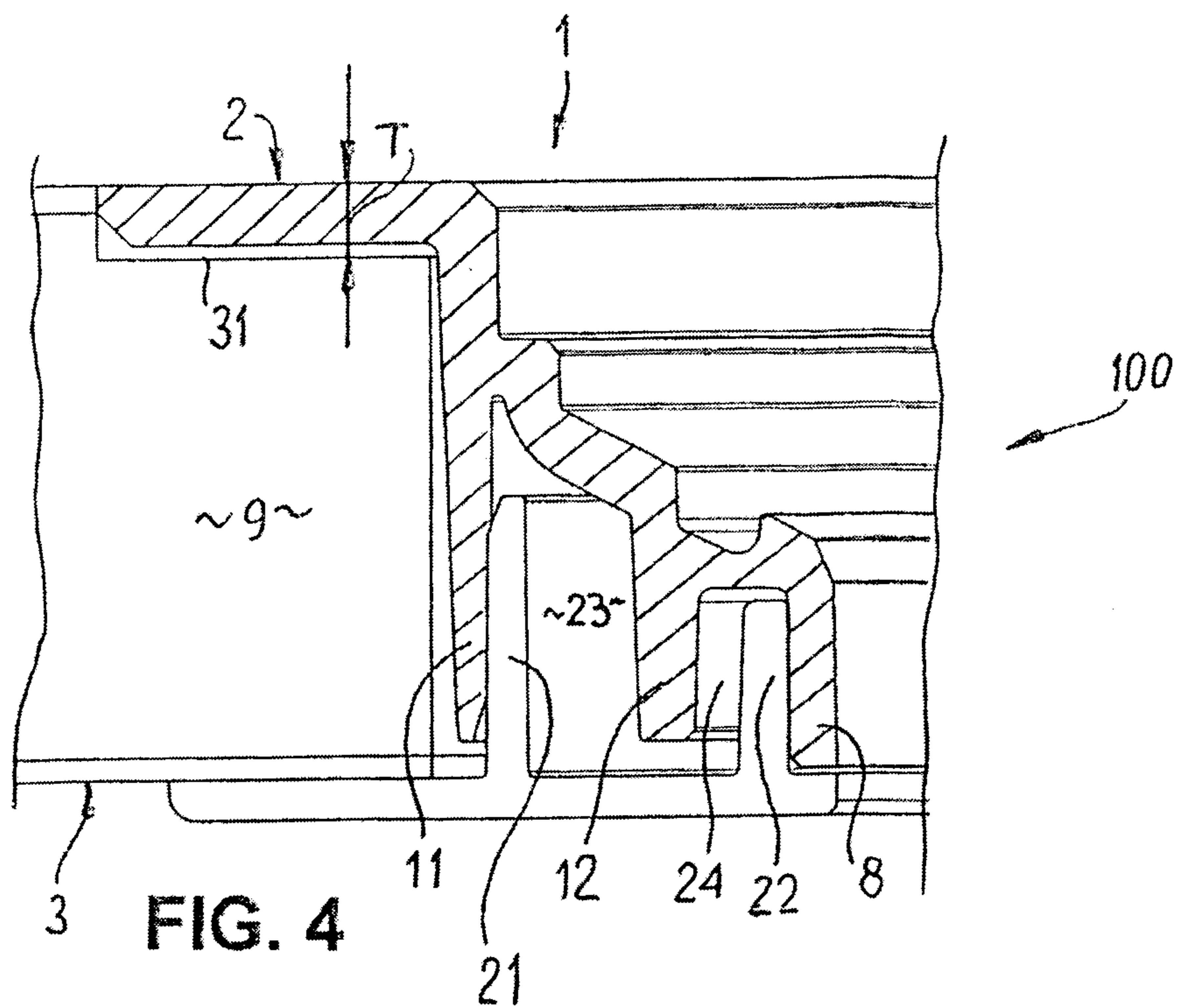


FIG. 3



2/4



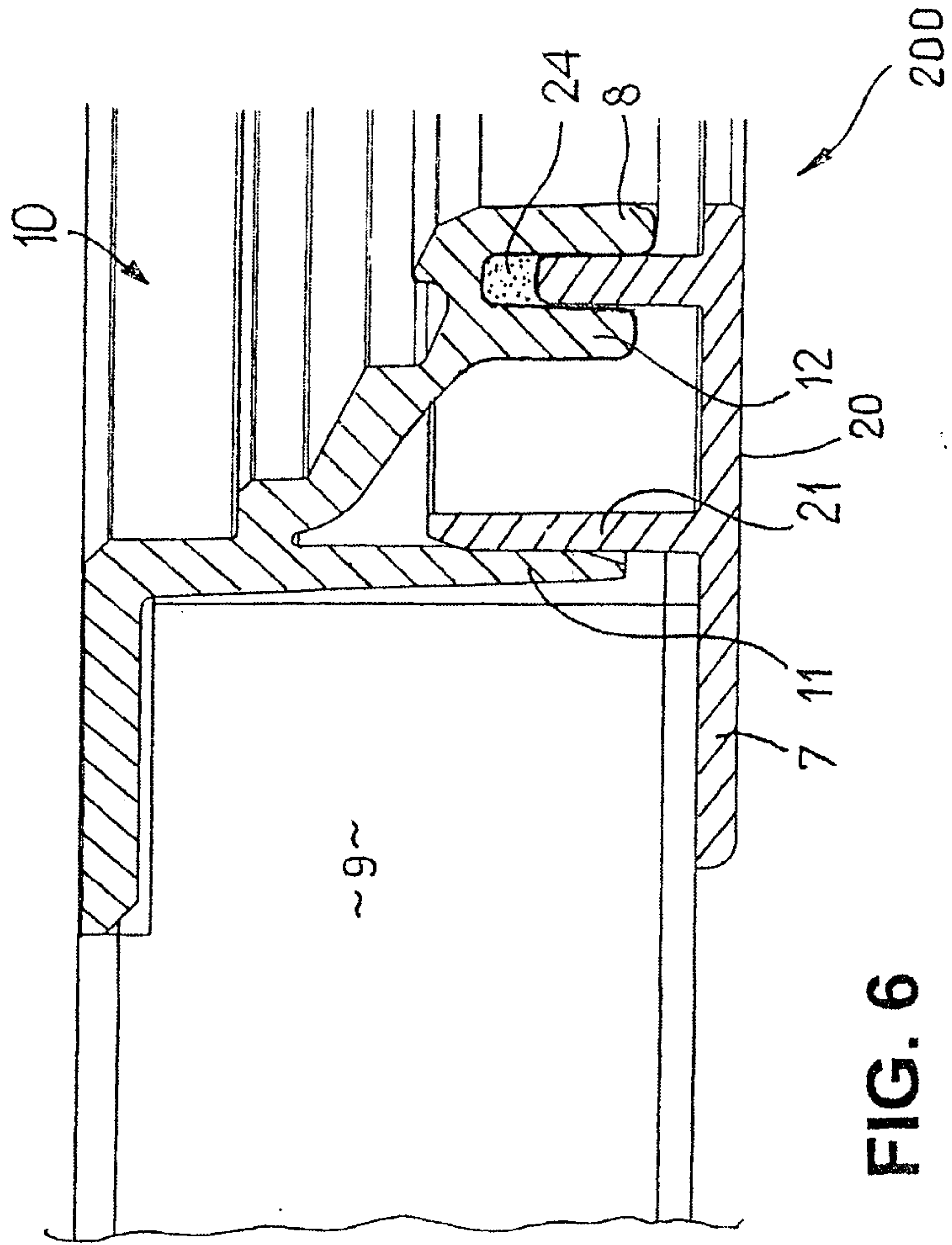


FIG. 6

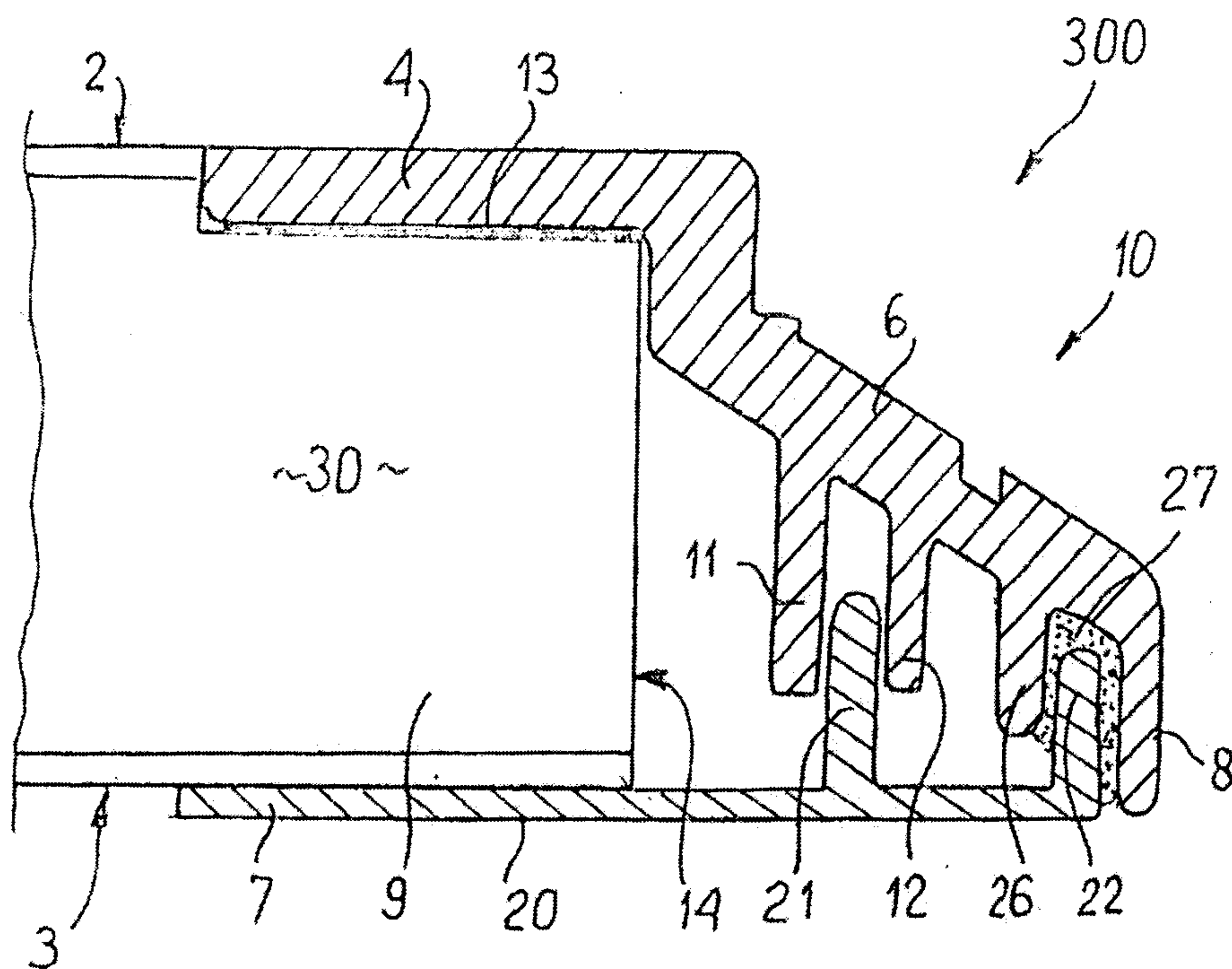


FIG. 7

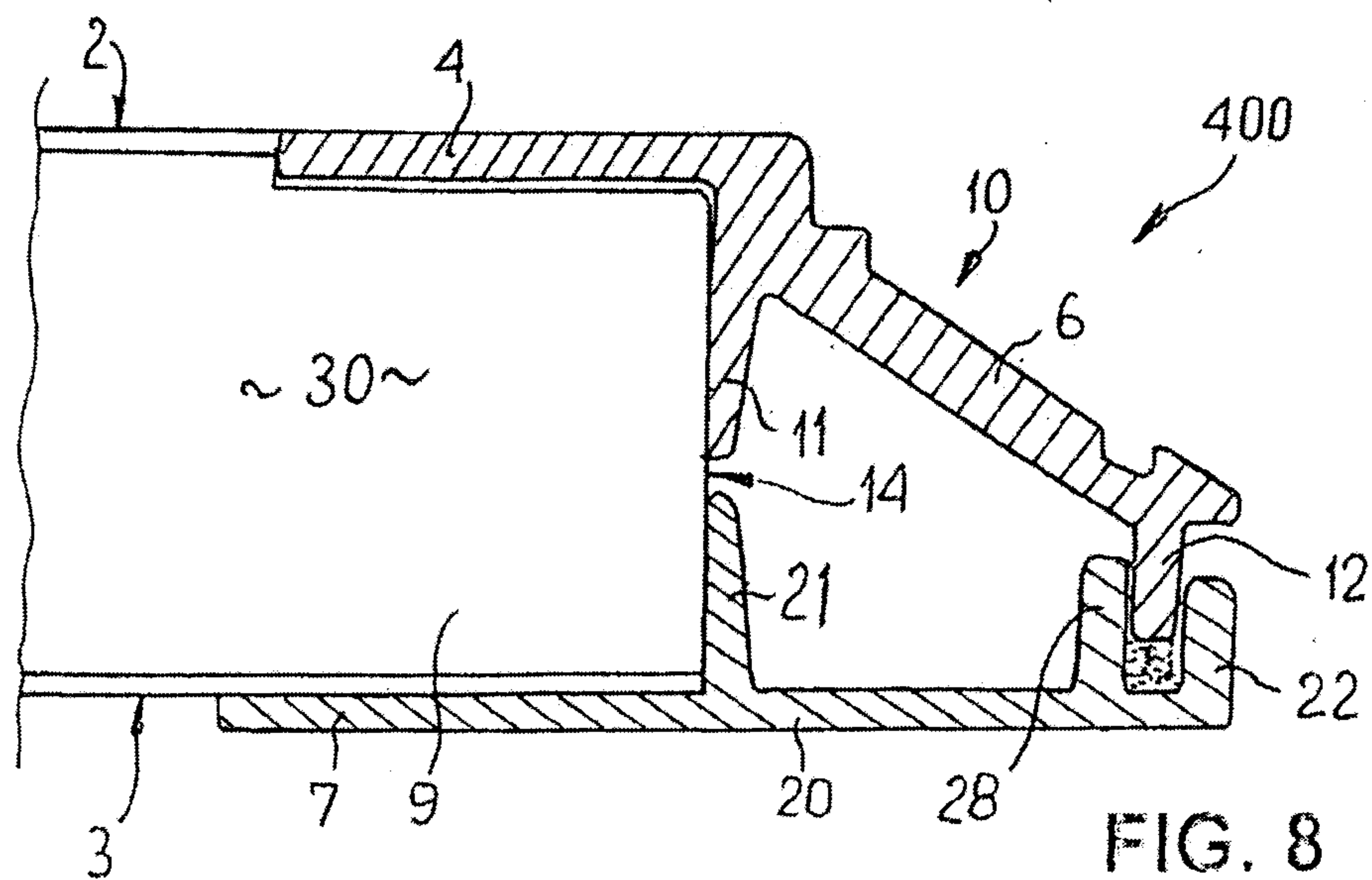


FIG. 8

