



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
11.06.2008 Bulletin 2008/24

(51) Int Cl.:
A47K 3/30 (2006.01)

(21) Application number: **07119252.0**

(22) Date of filing: **25.10.2007**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR
Designated Extension States:
AL BA HR MK RS

(72) Inventors:
• **CARGNONI, Luca**
21023, MALGESSO (VARESE) (IT)
• **DE GIORGI, Marco**
21023, MALGESSO (VARESE) (IT)

(30) Priority: **05.12.2006 IT MI20062335**

(74) Representative: **Ponzellini, Gianmarco**
Bugnion S.p.A.
Viale Lancetti 17
20158 Milano (IT)

(71) Applicant: **INDUSTRIE ILPEA S.p.A.**
21023 Malgesso (Varese) (IT)

(54) **Section bar for shower box, sauna box and the like, door frame comprising said section bar and method for manufacturing said section bar**

(57) A section bar for panels, in particular for walls of a shower box, sauna box and the like, comprises at least one main body (2) of longitudinal major extension defining a seat (3) having a U-shaped outline, delimited by two side walls (5) and a base (6) and having an aperture (7) opposite to said base (6) and suitable for coupling with a panel (4), and at least one first lip seal (8) extending from the base (6) away from the main body

(2), in the opposite direction to that towards which the aperture (7) of the U-shaped seat (3) is turned. At least at a first end (2a) of the main body (2) there is a connecting element (9) comprising an upper portion (10) overmoulded on the main body (2) with which it forms a single body, and a lower portion (11) extending away from the upper portion (10) and overmoulded on the first lip seal (8) in such a manner as to form a single sealing edge with the latter.

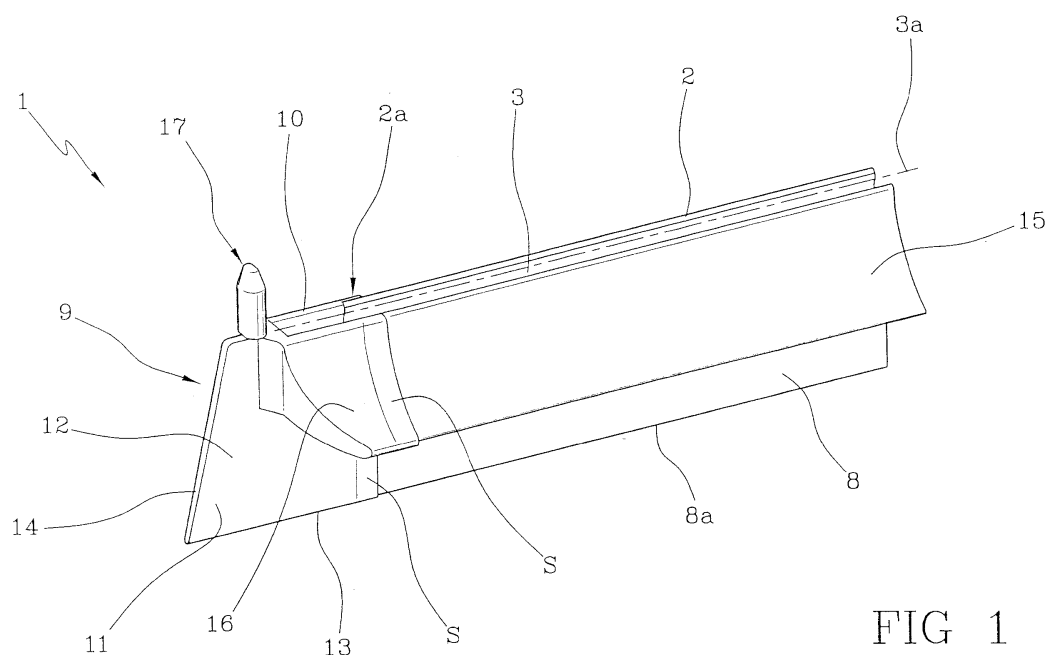


FIG 1

Description

[0001] The present invention relates to a section bar for shower box, sauna box and the like, a door frame comprising said section bar and a method of manufacturing said section bar.

[0002] It is known that there are several different configurations of shower and sauna boxes that are suitable for corner or wall installations, and generally consist of one or more panels combined together according to different closing systems.

[0003] One of the main requirements of the panels constituting a shower box or the panels to be used on top of a bathtub is perfect mating between them so that the shower area is well sealed in order to avoid water dispersion during use. In the particular case of sauna boxes, this requirement is directed to avoid steam dispersion.

[0004] Presently, in the large-scale retail trade there are shower boxes that can be directly assembled in situ not necessarily by qualified staff; this involves design choices capable of facilitating mounting of same.

[0005] The walls, that can consist of sheets of plastic material or glass can be in the form of swing panels, sliding or folding panels, etc. and are assembled by suitable structures of metal or plastic material.

[0006] If required, they are further provided with seals or flexible lips for hermetic tightness in the horizontal lower contact regions, along the contact region with the ceramic surface of the shower pan for example, or in the vertical side contact regions, such as along the articulation axis of the panel or yet along the closing axis between two walls. The latter can often be provided with magnetic seals ensuring closure.

[0007] Said technical expedients ensure more tightness and more insulation to the shower boxes, sauna boxes and the like, as compared with use of mere curtains, but in some cases, above all at the junction points of the section bars along the lower perimeters as regards the shower boxes, and generally along the whole perimeter of the structure in the case of sauna boxes, these expedients are not sufficient to avoid escaping of water or steam from the panels.

[0008] Presently, for junction of the section bars, coupling surfaces having minimum tolerances between the two pieces to be connected can be obtained by mechanical working, followed by possible application of glues or sealing agents, or premoulded plastic joints are used that are suitably shaped for assembly of the two vertical and horizontal section bars. In the last-mentioned case too, application of glues or sealing agents is required.

[0009] While the known art briefly described above is presently widely used on the market and accomplishes the intended tasks in an optimal manner, it however appears to be susceptible of improvements under different points of view.

[0010] In fact, the above described techniques have limits residing in the reduced duration of tightness due to the mechanical stresses to which the joints are sub-

mitted during the opening and closing steps, and by effect of rubbing in the work plane tending to disconnect the glued parts. In addition, the manual operations for sealing are expensive and do not ensure a constant result. Finally there are also problems of aesthetic nature.

[0011] Accordingly, the present invention aims at substantially solving all the drawbacks highlighted above.

[0012] A first aim of the invention is to ensure hermetic tightness in time without application of glues or sealing agents.

[0013] Another aim is to guarantee a constant quality of the pieces to be assembled without further interventions for new gluing or replacement of the angle elements for junction and sealing.

[0014] A general aim of the invention is also manufacture of a section bar for panels and of a door frame that can be easily mounted and give better aesthetic results.

[0015] In addition, the present invention aims at carrying out a method for obtaining section bars for shower box, sauna box and the like, and a method for assembling door frames comprising these section bars.

[0016] The foregoing and further aims that will become more apparent in the progress of the present description are substantially achieved by a section bar for panels according to the appended claims 1 to 11, by a frame door for shower box, sauna box and the like according to claims 13 to 15, and by a method of manufacturing section bars according to claim 12, as well as a method of manufacturing door frames according to claims 16 to 18.

[0017] Further features and advantages will be best understood from the detailed description of a preferred but not exclusive embodiment of the invention, in which:

- Fig. 1 is a perspective view of a portion of a section bar for shower box, sauna box and the like in accordance with the present invention;
- Fig. 2 is an elevation side view of the section bar in Fig. 1;
- Fig. 3 is an elevation front view of the section bar shown in Fig. 1, seen in section;
- Fig. 4 is a section view of a known section bar for shower box, sauna box and the like, to be coupled with the section bar in accordance with the present invention;
- Fig. 5 is a perspective view of a door frame portion in accordance with the present invention;
- Fig. 6 is a perspective view of a portion of a section bar for shower box, sauna box and the like in a second embodiment;
- Fig. 7 is a perspective view of a section bar portion in accordance with the present invention, in a third embodiment.

[0018] With reference to Fig. 1, a section bar for shower box, sauna box and the like in accordance with the present invention has been generally identified by refer-

ence numeral 1.

[0019] Section bar 1 comprises at least one main body 2 of longitudinal major extension, defining a seat 3 having a U-shaped profile and designed to hold an edge of a panel 4 constituting a door frame for shower box, sauna box and the like.

[0020] Seat 3 is delimited by two side walls 5 and a base 6 and has an aperture 7 opposite to base 6. Located on the side walls 5, close to aperture 7 and mutually facing, are two teeth 23 reducing the entry section of seat 3 so as to increase the interference between bar 1 and panel 4 and thus ensure better coupling.

[0021] As shown in Figs. 2 and 3, a first lip seal 8 extends under base 6 of seat 3, away from the main body 2, in the opposite direction to that towards which aperture 7 of the U-shaped seat 3 is turned.

[0022] In particular, the first lip seal 8 has an elongated form and extends substantially straight between a first end 24 connected to base 6 of seat 3, and a second free end 25.

[0023] Along the extension of the first lip seal 8 there is a localised cross-section narrowing, disposed close to the first end 24 and giving more flexibility to the first lip seal 8.

[0024] This first lip seal 8 has a lower edge 8a substantially parallel to the longitudinal axis 3a of the U-shaped seat 3.

[0025] At least at a first end 2a of the main body 2 there is a connecting element 9 shown in Figs. 1 and 2, which is overmoulded, along an overmoulding region S, both on seat 3 and on the first lip seal 8, so as to form a single body therewith. The overmoulded region S is highlighted in the accompanying drawings for explanation purposes alone; in the final product this region is not visible so that the section bar shows an aesthetic continuity, without interruptions in the material.

[0026] In particular, the connecting element 9 comprises an upper portion 10 overmoulded on the main body 2 and a lower portion 11 extending away from the upper portion 10, overmoulded on the first lip seal 8 in such a manner as to form a single sealing edge therewith.

[0027] In the preferred embodiment shown in the accompanying drawings, the upper portion 10 of the connecting element 9 has a U-shaped conformation and constitutes an extension of the U-shaped seat 3 of the main body 2. Thus, a single holding region is formed for an edge of panel 4 made of glass or of plastic material.

[0028] The lower portion 11 of the connecting element 9 comprises an interference tab 12 made of one piece construction with the upper portion 10 and defining an extension of the first lip seal 8.

[0029] This tab 12 is delimited by a lower edge 13 in alignment with the lower edge 8a of the first lip seal 8, and of which it constitutes an extension. In addition, tab 12 is delimited by a side edge 14 of such an inclination that angle "a" included between this side edge 14 and the lower edge 13 of tab 12 is an acute angle.

[0030] Advantageously, section bar 1 further comprises

a second lip seal 15 projecting away from one of the two side walls 4 of the main body 2. This second lip seal 15 is inclined to the first lip seal 8, so as to identify an acute angle "b" therewith.

[0031] In the configuration of a door frame with swing panels, the interference tab 12 of a section bar 1 mounted on a first panel faces the interference tab 12 of a section bar 1 mounted on a second panel, in such a manner that, in the closed configuration of the door frame, the two tabs interfere with each other by overlapping and ensure tightness of the shower box or sauna box. In the same manner if the door frame is of the sliding panel type, tab 12 partly overlaps the vertical jamb of the structure delimiting the shower box or sauna box, thus efficiently closing the lower junction region.

[0032] The connecting element 9 further comprises a wing 16 laterally extending away from the upper portion 10. This wing 16 is overmoulded on the second lip seal 15 and defines an extension of same. In this manner, wing 16 and the second lip seal 15 constitute a single deviating edge preventing water or condensate drops from escaping therefrom because they are deviated towards the inside of the shower box or sauna box, in particular towards the inner region of the shower pan or sauna area.

[0033] Preferably, as shown in Fig. 3, the deviating edge has a curved outline in section along a plane orthogonal to axis 3a of seat 3, the convexity of which faces the sealing edge; this course facilitates the descent of water or condensate drops. Alternatively, this deviating edge can be straight, but always transverse to the first lip seal 8.

[0034] The connecting element 9 further comprises latching means 17 to couple the section bar 1 to a generic section member preferably disposed at a position perpendicular to the section bar 1.

[0035] In a preferred configuration shown in Fig. 2, this latching means 17 projects from the upper portion 10 in the opposite direction to the extension direction of the lower portion 11. This latching means 17 advantageously consists of bayonet joints or elements that are joined by interlocking or interference fit to respective elements made on the generic section member to which section bar 1 is to be connected.

[0036] The main body 2 of section bar 1 is generally made of rigid, opaque or transparent, plastic material such as rigid PVC (polyvinylchloride), polycarbonate, polystyrene and polypropylene, possibly with a metal core.

[0037] This is made necessary because panel 4 is to be inserted in seat 3 of the main body 2 by exerting pressure so as to spread the two side walls 5 apart, said panel 4 being then steadily retained in place by effect of the return spring force of the material and possibly also of teeth 23.

[0038] The first 8 and second 15 lip seals are on the contrary made of flexible material such as elasticised PVC, thermoplastic styrene, polyurethane or polyolefin

rubber.

[0039] The connecting element 9 too is preferably made of a flexible rubber material, preferably of the same nature as that used for the first and second lip seals 8 and 15.

[0040] In particular, the sealing edge, defined by the first lip seal 8 and by the lower portion 11 of the connecting element 9, must be flexible because in the closed position of the door frame it abuts against the outside structure of the shower box or sauna box, and it slightly deforms so as to adhere to this structure and avoid water or steam escape.

[0041] Generally, section bar 1 is made by co-extrusion, in a single block, of the main body 2 and the first 8 and second 15 lip seals.

[0042] Advantageously, the U-shaped seat is co-extruded using transparent rigid plastic material and bright metal; in fact, metal improves the aesthetic result of the section bar, in addition to possibly increasing the structural resistance of the main body 2. As an alternative to insertion of the metal strip, a similar effect can be obtained by application of a metallized polyester tape.

[0043] Once the individual block consisting of the main body 2 and of the first 8 and second 15 lip seals has been extruded, the connecting element 9 is overmoulded on this block, at least at the first end 2a of the main body 2. In particular, the upper portion 10 is overmoulded on the main body 2, the lower portion 11 is overmoulded on the first lip seal 8 and wing 16 is overmoulded on the second lip seal 15.

[0044] In an alternative configuration not shown, preferred in the presence of particular aesthetic effects such as the metallized effect, the main body 2 is provided to extend along axis 3a beyond the end of the first lip seal 8, so that the holding region designed to couple with an edge of panel 4 made of glass or plastic material exclusively consists of the U-shaped seat 3, and not of the U-shaped seat and the upper portion 10 of the connecting element 9, as in the preferred configuration.

This allows a holding region of the panel with a metallized effect to be obtained even at the corner portion, so as to achieve a better final aesthetic result.

[0045] The upper portion 10 of the connecting element 9 in this case is not U-shaped but comprises part of the interference tab 12. Therefore a connecting element 9 consisting of the interference tab 9 alone as shown in Fig. 6, is obtained.

[0046] The section bar 1 in accordance with the present invention preferably applies to a lower horizontal edge of a panel 4 made of glass or plastic material defining a door frame 18 for shower box, sauna box and the like. Generally, this panel 4 is laterally bordered with at least one section member 19 of known type, comprising a main portion 20 of longitudinal major extension defining a U-shaped seat 21 to be coupled to panel 4. Externally of the U-shaped seat 21, along the whole longitudinal extension of the main portion 20 there is a seal 22. Should this section member 19 be applied to a side

vertical edge of panel 4 placed at the opening or closure of the shower box or sauna box, seal 22 is preferably of the magnetic type.

[0047] Section bar 1 in accordance with the present invention can be coupled in a removable manner with the side section member 19 applied to panel 4, through said latching means 17. Alternatively, the connecting element 9 can also be overmoulded on one end 19a of the side section member 19, thus defining a single L-shaped section bar or angle as shown in Fig. 7.

[0048] In the same manner, a second connecting element 9 can be applied through overmoulding also to a second end 2b of the main body 2. In this manner, if panel 4 has a second section member 19 applied to the second vertical side edge of panel 18, this second connecting element 9 can be connected to the second section member 19 either in a removable manner through the latching means 17, or in an irremovable manner through overmoulding. In the last mentioned case a U-shaped section bar is obtained.

[0049] In particular, in the case of sauna boxes it is necessary for the door frame 18 to be provided with a section bar 1 in accordance with the present invention also on the upper edge of panel 4, to avoid escape from the box of the steam produced therein. Alternatively, the upper edge of panel 4 can be coupled to a generic section member of the previously described type.

[0050] The invention achieves the intended purposes; in fact the section bar being the object of the present invention simplifies the operations for assembling shower boxes or sauna boxes, because the angular connecting elements are already included in the section bar itself. Actually, overmoulding of the connecting element on the main body and on the first lip seal simplifies the working and mounting operations since no mechanical working is required in order to obtain junction surfaces with minimum tolerances, and gluing of the angular elements or angle bars to the rest of the section bar is avoided. Such a section bar in accordance with the present invention ensures hermetic tightness of the door frame in time without using glues or sealing agents.

[0051] Finally, the absence of adhesives or cements allows the aesthetic result of the whole door frame to be improved because there are no possible glue smears during assembling.

Claims

1. A section bar for panels, in particular for walls of a shower box, sauna box and the like, comprising:

- at least one main body (2) of longitudinal major extension, defining a seat (3) having a U-shaped outline, delimited by two side walls (5) and a base (6) and having an aperture (7) opposite to said base (6) and suitable for coupling with a panel (4);

- at least one first lip seal (8) extending, preferably from said base (6), away from the main body (2), in the opposite direction to that towards which the aperture (7) of the U-shaped seat (3) is turned;

characterised in that it comprises, at least at a first end (2a) of said main body (2), a connecting element (9) comprising an upper portion (10) overmoulded on the main body (2) and with which it forms a single body, and a lower portion (11) extending away from said upper portion (10) and overmoulded on said first lip seal (8) in such a manner as to form a single sealing edge with the latter.

2. A section bar as claimed in claim 1, **characterised in that** said upper portion (10) of the connecting element (9) has a U-shaped configuration and constitutes an extension of the U-shaped seat (3) of the main body (2).

3. A section bar as claimed in claim 1, **characterised in that** said lower portion (10) of the connecting element (9) comprises an interference tab (12) made of one piece construction with the upper portion (10) of the connecting element (9) and defining an extension of the first lip seal (8).

4. A section bar as claimed in claim 3, **characterised in that** said interference tab (12) has a lower edge (13) placed in alignment with and in the extension of a lower edge (8a) of the first lip seal (8), substantially parallel to the longitudinal axis (3a) of the U-shaped seat (3).

5. A section bar as claimed in claim 4, **characterised in that** said interference tab (12) has a side edge (14) such inclined that the angle (a) included between said side edge (14) and the lower edge (13) of the interference tab (12) is an acute angle.

6. A section bar as claimed in anyone of the preceding claims, **characterised in that** it comprises a second lip seal (15) projecting away from one of the two side walls (5) of the main body (2) and disposed transversely of the first lip seal (8) so as to form an acute angle (b) therewith, and **in that** preferably the connecting element (9) further comprises a wing (16) laterally extending away from the upper portion (10) overmoulded on said second lip seal (15) and defining an extension thereof.

7. A section bar as claimed in anyone of the preceding claims, **characterised in that** said connecting element (9) comprises latching means (17) for coupling the section bar with a section member (19), preferably in an orthogonal manner.

8. A section bar as claimed in anyone of the preceding claims, **characterised in that** said main body (2) is made of opaque or transparent rigid plastic material, preferably a material selected from the group comprising rigid PVC (polyvinylchloride), polycarbonate, polystyrene, polypropylene, possibly having a metal core.

9. A section bar as claimed in claims 3 and 6, **characterised in that** said first lip seal (8), second lip seal (15), interference tab (12) and wing (16) are made of flexible material, preferably a material selected from the group comprising elasticised PVC, thermoplastic styrene, polyurethane or polyolefin rubber.

10. A method of manufacturing a section bar for panels, in particular for walls of a shower box, sauna box and the like, comprising the step of extruding a main body (2) defining a seat (3) of longitudinal major extension, having a U-shaped profile, and comprising two side walls (5), a base (6) and an aperture (7) opposite to the base (6) and at least one first lip seal (8) extending, preferably from said base (6), away from the main body (2) in the opposite direction to that towards which the aperture (7) of the U-shaped seat (3) is turned; **characterised in that** it comprises the step of overmoulding, at least on a first end (2a) of said main body (2), a connecting element (9) comprising an upper portion (10) forming a single body with the main body (2), and a lower portion (11) extending away from said upper portion (10) and defining a single sealing edge with the lip seal (8).

11. A door frame for a shower box, sauna box and the like, comprising:

- at least one panel (4) made of glass or plastic material;

- at least one first section member (19) comprising a main portion (20) having a longitudinal major extension defining a seat (21) having a U-shaped outline, to be coupled with said panel (4) preferably along a vertical side edge of the panel (4); said first section member (19) further comprising a seal (22) along the whole longitudinal extension of said main portion (20), extending under and away from said U-shaped seat (21); said door frame being **characterised in that** it further comprises at least one section bar (1) as claimed in one or more of claims 1 to 9, adapted to be coupled to said panel (4), preferably along a lower horizontal edge of said panel (4).

12. A method of manufacturing a door frame for a shower box, sauna box and the like, comprising a step of coupling a panel (4) made of glass or plastic material with at least one first section member (19) compris-

ing a main portion (20) of longitudinal major extension defining a U-shaped seat (21) for housing a side edge of said panel (4), and a seal (22) disposed along the whole longitudinal extension of said main portion (20), **characterised in that** it comprises the further step of coupling said panel (4) with at least one section bar (1) in accordance with one or more of claims 1 to 9. 5

13. A method as claimed in claim 12, **characterised in that** it comprises the step of connecting said first section member (19) to said section bar (1) in a removable manner, through said latching means (17). 10

14. A method as claimed in claim 12, **characterised in that** it comprises the step of connecting said first section member (19) to said section bar (1) in an irremovable manner by overmoulding the connecting element (9) on said first section member (19). 15

20

25

30

35

40

45

50

55

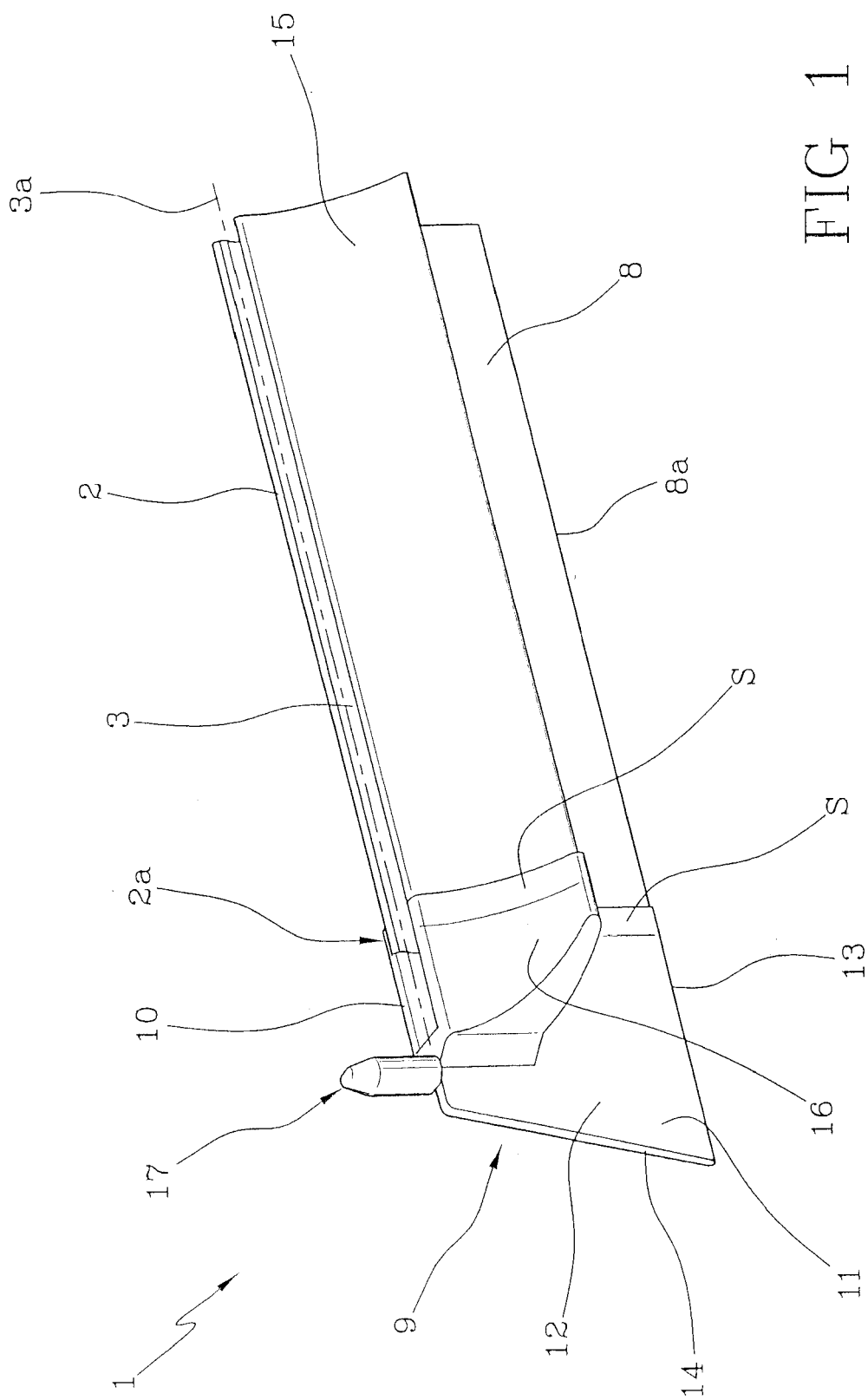


FIG 1

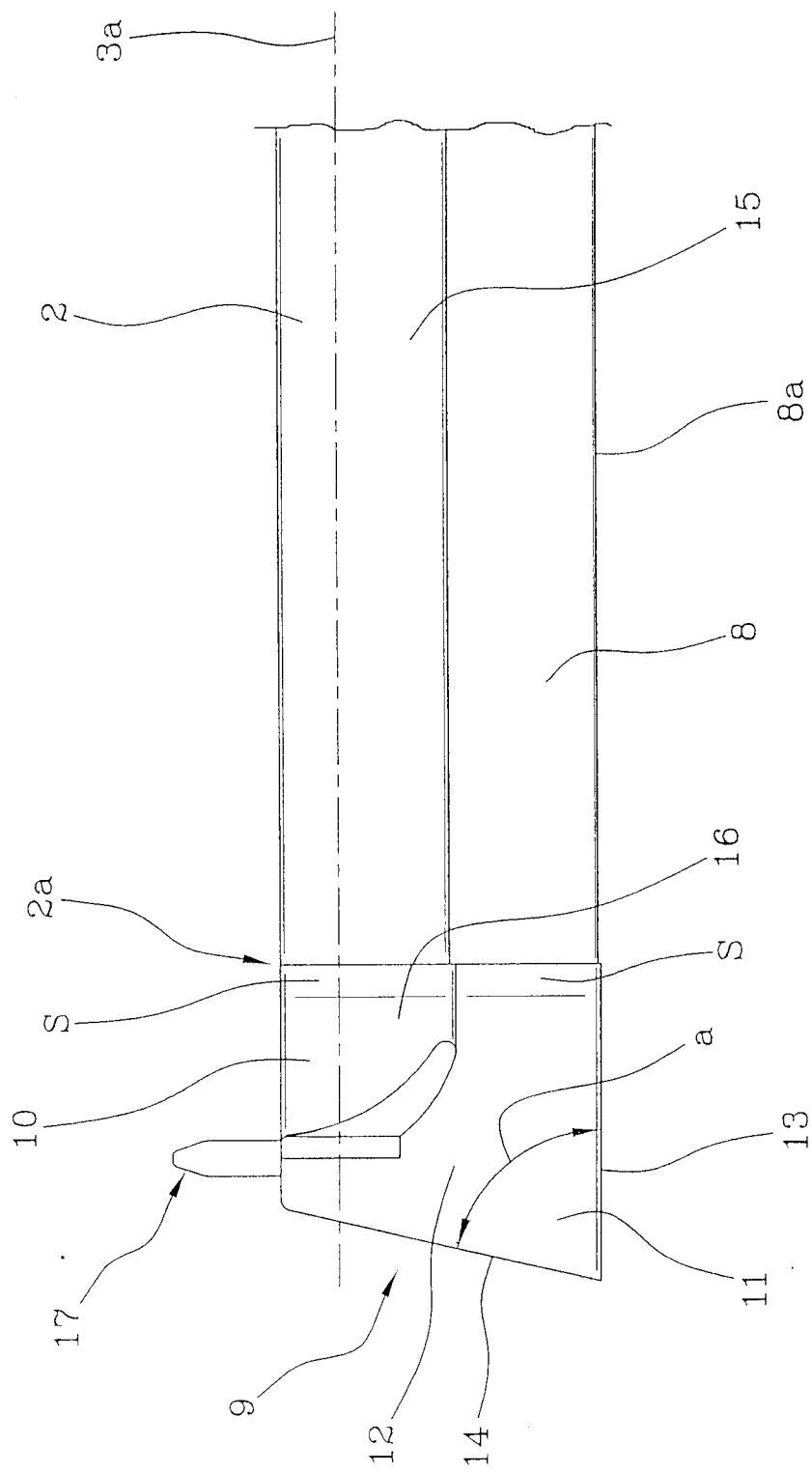
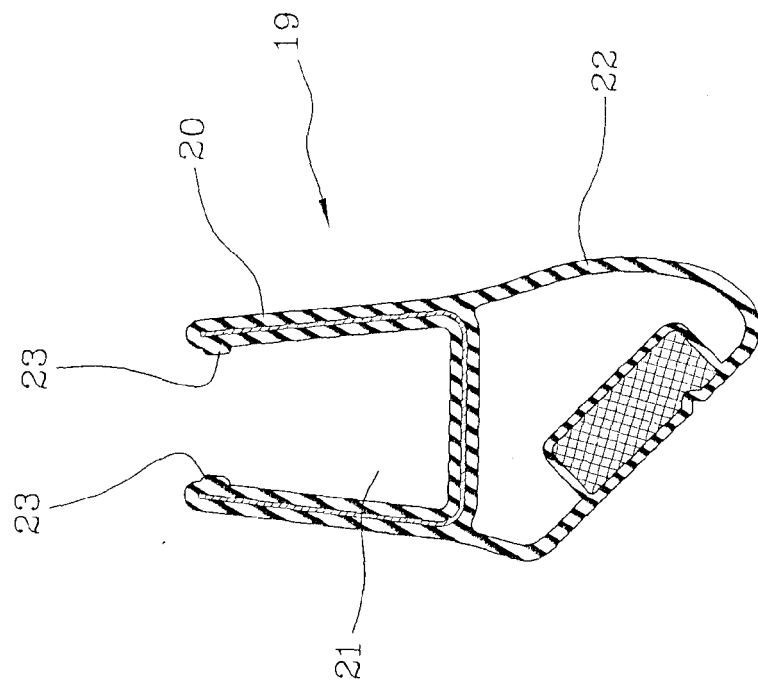
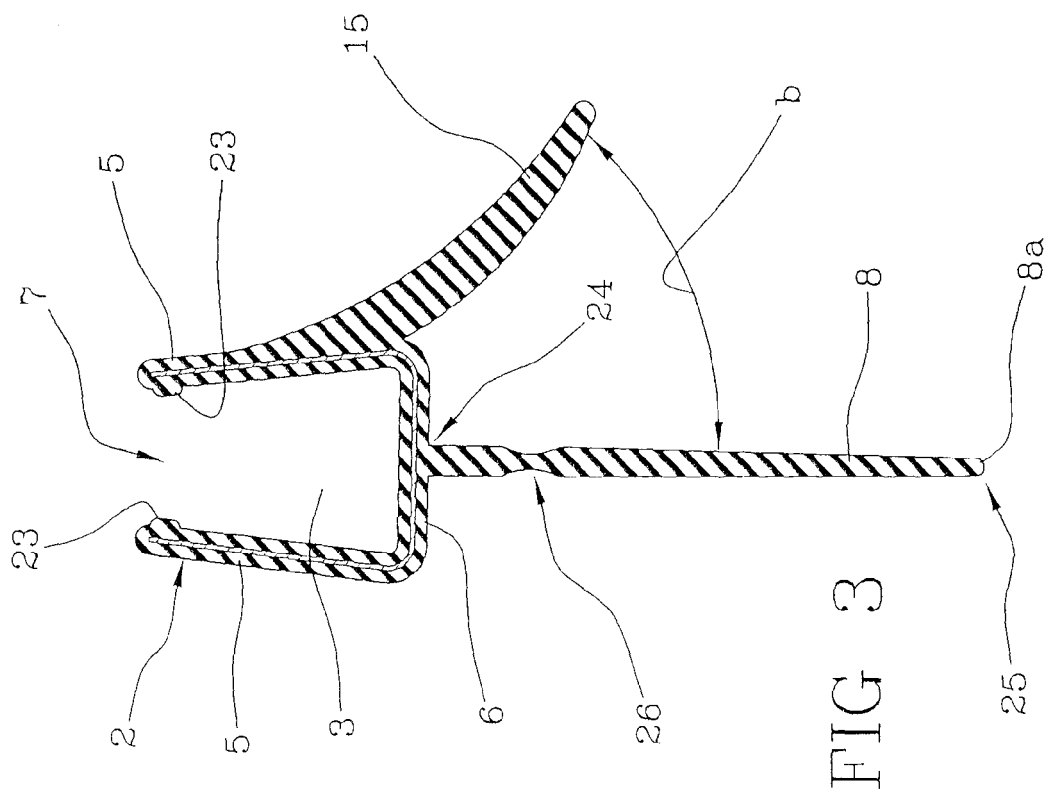


FIG 2



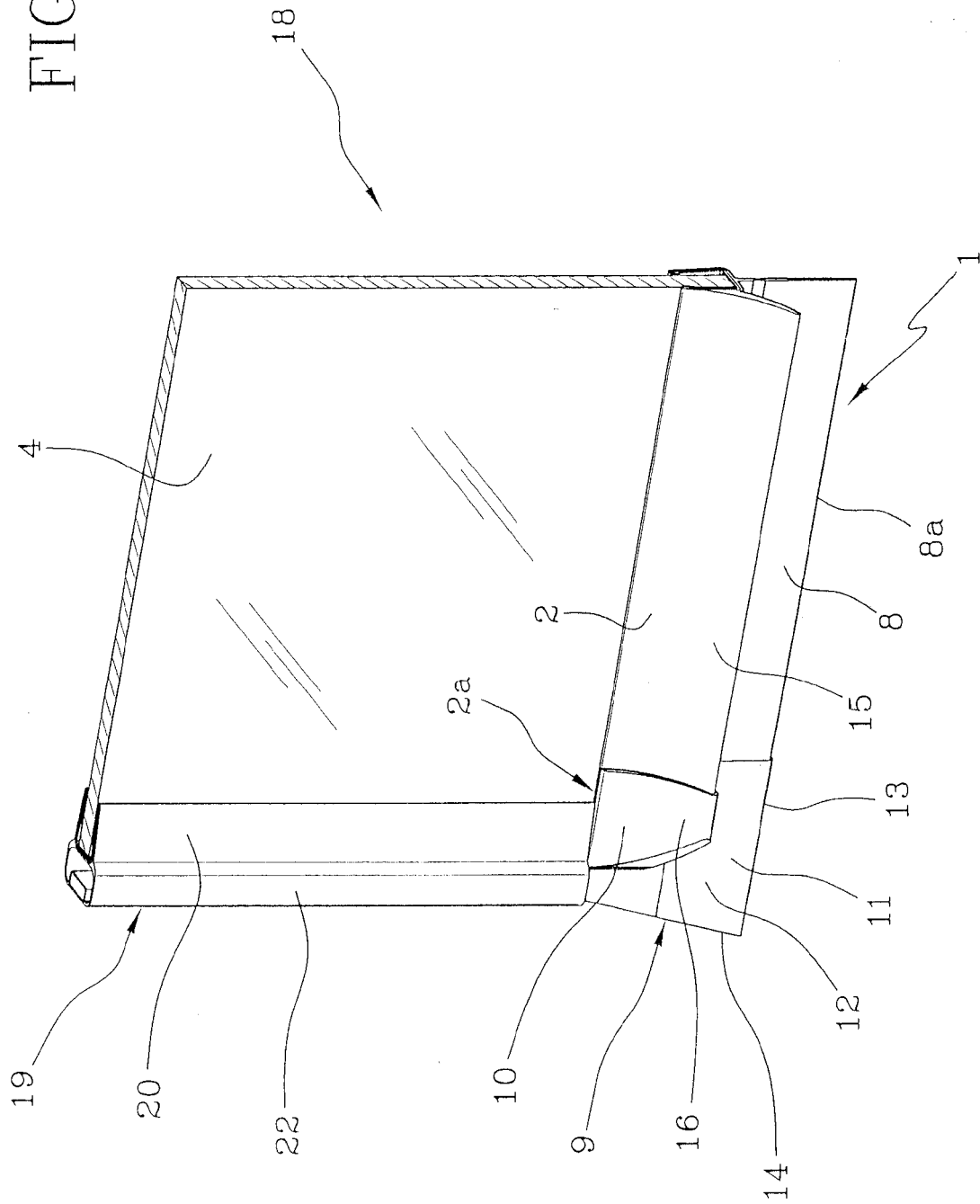


FIG 5

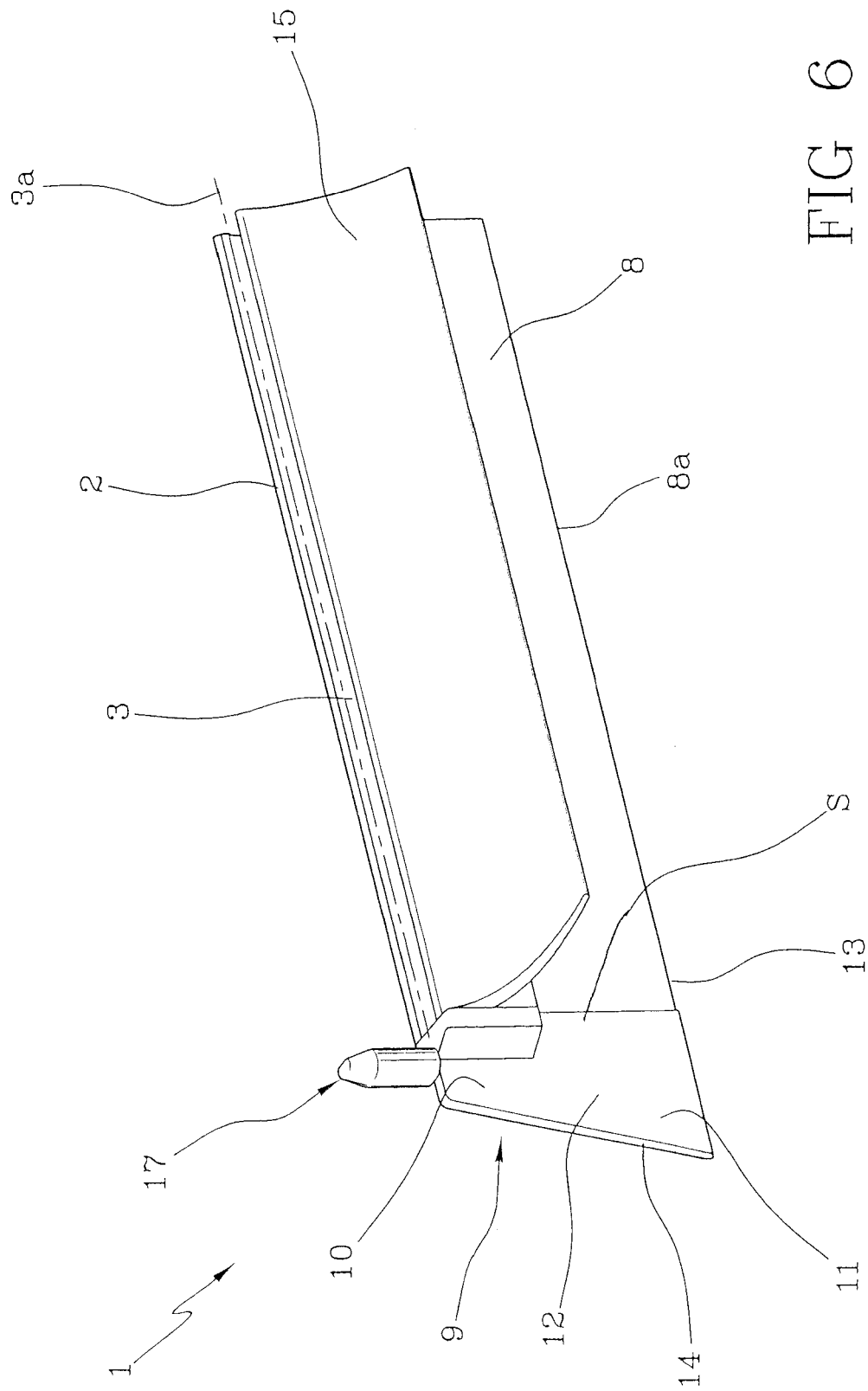


FIG 6

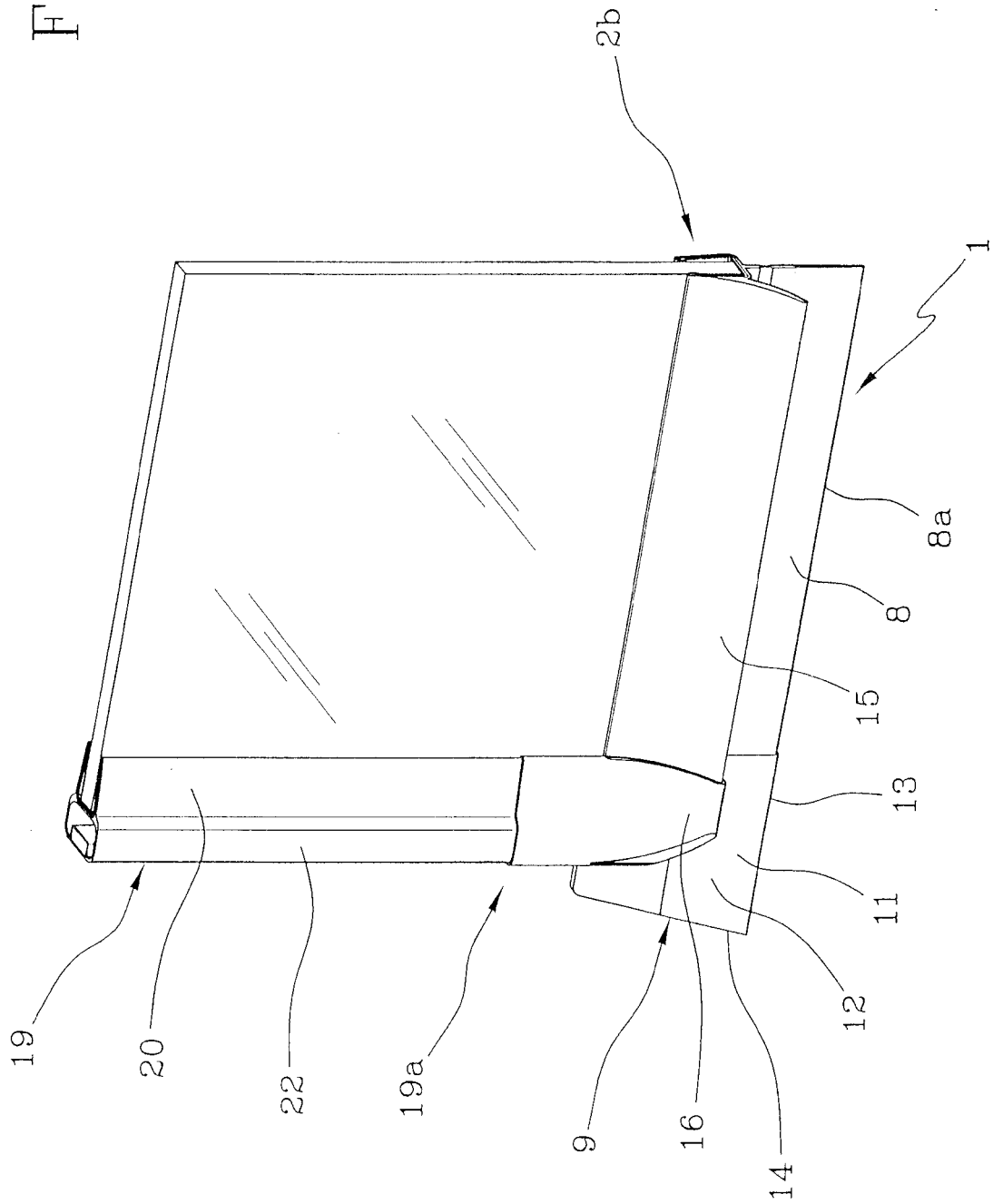


FIG 7