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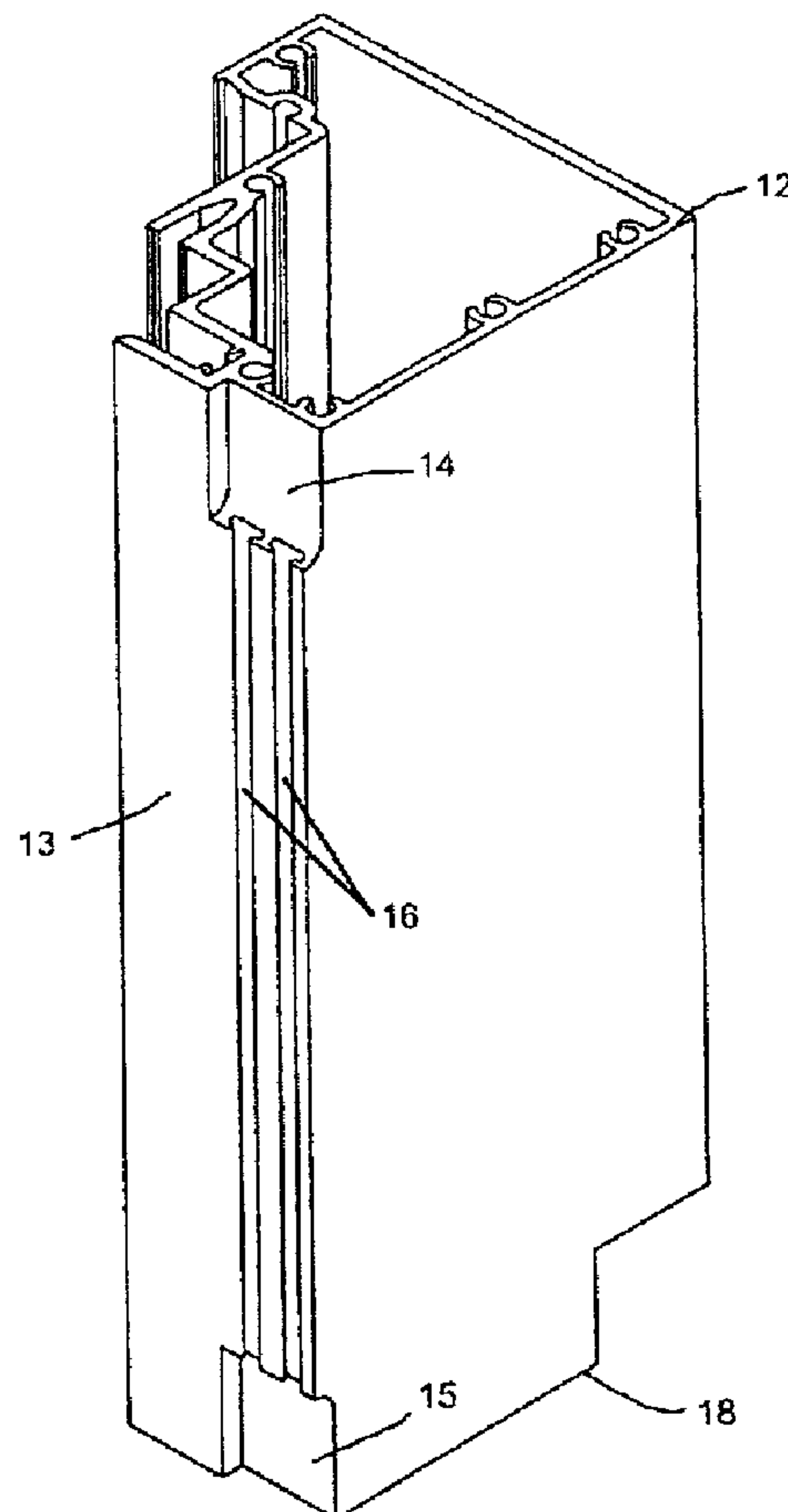
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(54) Title: SLIDING DOOR ASSEMBLY FOR AIR AND WATER EXCLUSION



(57) Abrégé/Abstract:

A sliding door assembly includes a fixed meeting stile sufficiently designed for maintaining a vertical weather strip gasket; a door jamb sufficiently designed for maintaining a vertical weather strip gasket; a first horizontal weather bar comprising an attaching

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

means for engaging a sill of the sliding door assembly, and a horizontal member having a first end for engaging the fixed meeting stile, and a second end for engaging the door jamb, wherein the horizontal member is sufficiently designed for maintaining a horizontal weather strip gasket; and a second horizontal weather bar comprising an attaching means for engaging a head component of the sliding door assembly, and a horizontal member having a first end for engaging the fixed meeting stile, and a second end for engaging the door jamb, wherein the horizontal member is sufficiently designed for maintaining a horizontal weather strip gasket.

SLIDING DOOR ASSEMBLY FOR AIR AND WATER EXCLUSION

ABSTRACT

A sliding door assembly includes a fixed meeting stile sufficiently designed for maintaining a vertical weather strip gasket; a door jamb sufficiently designed for maintaining a vertical weather strip gasket; a first horizontal weather bar comprising an attaching means for engaging a sill of the sliding door assembly, and a horizontal member having a first end for engaging the fixed meeting stile, and a second end for engaging the door jamb, wherein the horizontal member is sufficiently designed for maintaining a horizontal weather strip gasket; and a second horizontal weather bar comprising an attaching means for engaging a head component of the sliding door assembly, and a horizontal member having a first end for engaging the fixed meeting stile, and a second end for engaging the door jamb, wherein the horizontal member is sufficiently designed for maintaining a horizontal weather strip gasket.

TITLE

SLIDING DOOR ASSEMBLY FOR AIR AND WATER EXCLUSION

BACKGROUND

[001] Sliding door assemblies typically include a sliding door moveable between a closed position and an open position, a stationary door maintained in a stationary position, and a door frame surrounding and supporting the sliding door and the stationary door. A common problem with known sliding door assemblies is that they are not nearly as airtight and weatherproof as desired. While the stationary doors of such structures are readily securable weather tightly in their frames, the sliding doors pose a sealing problem which has long persisted.

SUMMARY

[002] Sliding door assemblies for air and water exclusion are disclosed herein. According to an embodiment of the present invention, there is disclosed a sliding door assembly that includes a fixed meeting stile having an outer surface sufficiently designed for maintaining at least one vertical weather strip gasket; a door lock jamb having a side surface sufficiently designed for maintaining at least one vertical weather strip gasket; a first horizontal weather bar comprising an attaching means for engaging a sill of the sliding door assembly, and a horizontal member having a first end for engaging the outer surface of the fixed meeting stile, and a second end for engaging the side surface of the door lock jamb, wherein the horizontal member of the first horizontal weather bar is sufficiently designed for maintaining at least one horizontal weather strip gasket; and a second horizontal weather bar comprising an attaching means for engaging a head component of the sliding door assembly, and a horizontal member having a first end for engaging the outer surface of the fixed meeting stile, and a second end for engaging the side surface of the door lock jamb, wherein the horizontal member of the second horizontal weather bar is sufficiently designed for maintaining at least one horizontal weather strip gasket.

[003] According to an embodiment of the present invention, there is disclosed a sliding door assembly that includes a head component including an operable head and a fixed head; a bottom sill component including an operable sill and a fixed sill, wherein at least a portion of the fixed sill has a threshold sufficiently designed to engage a horizontal weather bar, wherein the horizontal weather bar comprises: an attaching means for engaging the threshold, a horizontal member, and at least one horizontal weather strip gasket engaging the horizontal member; a fixed meeting stile engaging the head component and the bottom sill component, wherein a side of the fixed meeting stile maintains a fixed panel door, wherein an outer surface of the fixed meeting stile is sufficiently designed to engage the horizontal member of the horizontal weather bar such that at least a portion of the horizontal member overlaps the fixed meeting stile, and wherein the outer surface of the fixed meeting stile is sufficiently designed to engage a vertical weather strip gasket such that the vertical weather strip gasket and the horizontal weather strip gasket of the horizontal weather bar form a protective seal; a door lock jamb for engaging a door stile of a moveable door; and a fixed jamb for maintaining one side of the fixed panel door.

[004] According to an embodiment of the present invention, there is disclosed a sliding door assembly that includes a head component including an operable head and a fixed head; a bottom sill component including an operable sill and a fixed sill; a horizontal weather bar comprising: an attaching means for engaging directly or indirectly with the fixed sill; a horizontal member; and at least one horizontal weather strip gasket engaging the horizontal member; a fixed meeting stile engaging the head component and the bottom sill component and including a fixed stile and a moveable stile, wherein a side of the fixed stile maintains a fixed panel door, wherein an outer surface of the fixed meeting stile is sufficiently designed to engage the horizontal member of the horizontal weather bar such that at least a portion of the horizontal member overlaps the fixed meeting stile, wherein the fixed meeting stile is sufficiently designed to engage a vertical weather strip gasket such that the vertical weather strip gasket and the horizontal weather strip gasket of the horizontal weather bar form a protective seal, and wherein the moveable stile maintains one side of a sliding panel door; a door lock jamb for engaging a door stile of the sliding panel door, wherein the door lock jamb is sufficiently designed to engage at least a portion of the horizontal member of the horizontal weather bar, and wherein the door lock jamb is sufficiently designed to engage a vertical weather strip gasket such that the vertical

weather strip gasket and the horizontal weather strip gasket of the horizontal weather bar form a protective seal; and a fixed jamb for maintaining one side of the fixed panel door.

BRIEF DESCRIPTION OF THE DRAWINGS

[005] The present invention will be further explained with reference to the attached drawings, wherein like structures are referred to by like numerals throughout the several views. The drawings shown are not necessarily to scale, with emphasis instead generally being placed upon illustrating the principles of the present invention.

[006] FIGS. 1A and 1B illustrate an embodiment of a fixed meeting stile of the present invention. FIG. 1A is a top plan view of the fixed meeting stile. FIG. 1B is an isometric view of the fixed meeting stile;

[007] FIGS. 2A and 2B illustrate an embodiment of a door lock jamb of the present invention. FIG. 2A is a top plan view of the door lock jamb. FIG. 2B is an isometric view of the door lock jamb;

[008] FIG. 3 is a front isometric view illustrating an embodiment of a horizontal weather bar of the present invention;

[009] FIG. 4 is a back isometric view of the horizontal weather bar of FIG. 3;

[0010] FIGS. 5A and 5B illustrate fragmentary isometric views of the fixed meeting stile of FIG. 1B and the horizontal weather bar of FIG. 3 prior to engaging the horizontal weather bar and the fixed meeting stile. FIG. 5A is a fragmentary isometric view of the fixed meeting stile and the horizontal weather bar from the front. FIG. 5B is a fragmentary isometric view of the fixed meeting stile and the horizontal weather bar from the back;

[0011] FIGS. 6A and 6B illustrate fragmentary isometric views of the fixed meeting stile of FIG. 1B and the horizontal weather bar of FIG. 3 after engaging the horizontal weather bar and the fixed meeting stile. FIG. 6A is a fragmentary isometric view of the fixed meeting stile and the horizontal weather bar from the front. FIG. 6B is a fragmentary isometric view of the fixed meeting stile and the horizontal weather bar from the back;

[0012] FIGS. 7A and 7B illustrate fragmentary isometric views of an embodiment of a sliding door assembly of the present invention incorporating the fixed meeting stile of FIG. 1B, the door lock jamb of FIG. 2B, and the horizontal weather bar of FIG. 3. FIG. 7A shows the

sliding door assembly prior to positioning of weather strip gaskets. FIG. 7B shows the sliding door assembly after positioning the weather strip gaskets;

[0013] FIGS. 8A and 8B illustrate an embodiment of a fixed meeting stile of the present invention. FIG. 8A is a top plan view of the fixed meeting stile. FIG. 8B is an isometric view of the fixed meeting stile;

[0014] FIGS. 9A and 9B illustrate an embodiment of a door lock jamb of the present invention. FIG. 9A is a top plan view of the door lock jamb. FIG. 9B is an isometric view of the door lock jamb;

[0015] FIGS. 10A and 10B illustrate fragmentary isometric views of the fixed meeting stile of FIG. 8B and the horizontal weather bar of FIG. 3 prior to engaging the horizontal weather bar and the fixed meeting stile. FIG. 10A is a fragmentary isometric view of the fixed meeting stile and the horizontal weather bar from the front. FIG. 10B is a fragmentary isometric view of the fixed meeting stile and the horizontal weather bar from the back;

[0016] FIGS. 11A and 11B illustrate fragmentary isometric views of the fixed meeting stile of FIG. 8B and the horizontal weather bar of FIG. 3 after engaging the horizontal weather bar and the fixed meeting stile. FIG. 11A is a fragmentary isometric view of the fixed meeting stile and the horizontal weather bar from the front. FIG. 11B is a fragmentary isometric view of the fixed meeting stile and the horizontal weather bar from the back;

[0017] FIGS. 12A and 12B illustrate fragmentary isometric views of an embodiment of a sliding door assembly of the present invention incorporating the fixed meeting stile of FIG. 8B, the door lock jamb of FIG. 9B, and the horizontal weather bar of FIG. 3. FIG. 12A shows the sliding door assembly prior to positioning of weather strip gaskets. FIG. 12B shows the sliding door assembly after positioning the weather strip gaskets.

[0018] While the above-identified drawings set forth presently disclosed embodiments, other embodiments are also contemplated, as noted in the discussion. This disclosure presents illustrative embodiments by way of representation and not limitation. Numerous other modifications and embodiments can be devised by those skilled in the art which fall within the scope and spirit of the principles of the present invention.

DETAILED DESCRIPTION

[0019] Sliding door assemblies for air and water exclusion re disclosed herein.

[0020] As used herein, the terms “fixed meeting stile” or “meeting stile” refer to the vertical portion of a door frame that includes a fixed stile engaging a stationary door and a fixed vertical hook engaging a moveable door.

[0021] As used herein, the term “door lock jamb” refers to the vertical portion of a door frame onto which a door is secured.

[0022] As used herein, the term “weather strip gasket” refers to a material or device used to prevent rain and water from entering a sliding door assembly by either blocking it outright or by blocking most of it and returning or rerouting it. A secondary goal of a weather-strip gasket may be to keep interior air in, thus saving energy with heating and air conditioning.

[0023] As used herein, the term “weather bar” refers to a device of the present invention used to help seal an opening. In an embodiment, the opening may exist between a threshold or sill and a door lock jamb. In an embodiment, the opening may exist between a threshold or sill and a fixed meeting stile. In an embodiment, the opening may exist between a head component and a door lock jamb. In an embodiment, the opening may exist between a head component and a fixed meeting stile. Weather bars of the present invention typically include one or more weather strip gaskets.

[0024] As used herein, the term “channel” refers to an opening, groove, notch or relief for accepting a weather strip gasket.

[0025] As used herein, the term “water and air infiltration” refers to the ability of water and/or air to move into an interior space.

[0026] As used herein, the term “engage”, “engaging” or “engaged” refers to contacting or to make contact with something.

[0027] As used herein, the term “protective seal” refers to the ability of a sliding door assembly of the present invention to prevent water and air infiltration.

[0028] FIGS. 1A and 1B illustrate an embodiment of a fixed meeting stile **10** of the present invention. FIG. 1A is a top plan view of the fixed meeting stile **10**. FIG. 1B is an

isometric view of the fixed meeting stile **10**. The fixed meeting stile **10** would typically be connected to a door stile of a stationary glass door panel (not shown) at location **11** using means known in the art. The fixed meeting stile **10** includes a head end **12** for connecting with a head component of a sliding door assembly, a sill end **18** for connecting with a sill component of a sliding door assembly, and a vertical axis therebetween. In the embodiments shown in FIGS. 1A and 1B, the fixed meeting stile **10** includes an outer surface **13** having a recessed area **14** at the head end **12**, a recessed area **15** at the sill end **18**, and two channels **16** running vertically between recessed areas **14** and **15**. The channels **16** are sufficiently designed to maintain vertical weather strip gaskets (not shown in FIGS. 1A or 1B). Tongue **19** is adapted to overlap and interlock with a mating tongue on an operable meeting stile of a moveable (sliding) door when the sliding door is in a closed position.

[0029] FIGS. 2A and 2B illustrate an embodiment of a door lock jamb **20** of the present invention. FIG. 2A is a top plan view of the door lock jamb **20**. FIG. 2B is an isometric view of the door lock jamb **20**. The door lock jamb **20** includes a head end **22** for connecting with a head component of a sliding door assembly, a sill end **28** for connecting with a sill component of a sliding door assembly, and a vertical axis therebetween. In the embodiments shown in FIGS. 2A and 2B, the door lock jamb **20** includes a side surface **23** with section **29** having a surface **27**. Surface **27** includes a recessed area **24** at the head end **22**, a recessed area **25** at the sill end **28**, and two channels **26** running vertically between recessed areas **24** and **25**. The channels **26** are sufficiently designed to maintain vertical weather strip gaskets (not shown in FIGS. 2A or 2B).

[0030] FIGS. 3 and 4 illustrate an embodiment of a horizontal weather bar **30** of the present invention. FIG. 3 is a front isometric view of the horizontal weather bar **30**, and FIG. 4 is a back isometric view of the horizontal weather bar **30**. The horizontal weather bar **30** includes a horizontal member **34**, and attaching means **32** for engaging one of a sill, a threshold, or a head component of a sliding door assembly. The horizontal member **34** includes a first coped end **34a**, a second coped end **34b**, and a horizontal axis therebetween. In an embodiment, when the horizontal weather bar **30** engages a sill of a sliding door assembly, the first coped end **34a** is capable of engaging and overlapping an outer surface of a fixed meeting stile of the present invention, and the second coped end **34b** is capable of engaging and overlapping a side surface of a door lock jamb of the present invention. In an embodiment, when the horizontal weather bar **30** engages a head component of a sliding door assembly, the second coped end **34b** is capable of

engaging and overlapping an outer surface of a fixed meeting stile of the present invention, and the first coped end **34a** is capable of engaging and overlapping a side surface of a door lock jamb of the present invention. Along the horizontal axis of the horizontal member **34**, there are horizontal channels **36** for maintaining horizontal weather strip gaskets **37**.

[0031] FIGS. 5A and 5B, in conjunction with FIGS. 6A and 6B, illustrate the engagement of the fixed meeting stile **10** and the horizontal weather bar **30**. As illustrated in the various figures, vertical weather strip gaskets **17** and horizontal weather strip gaskets **37** are positioned, respectively, in the fixed meeting stile **10** and the horizontal weather bar **30**. FIG. 5A is a fragmentary isometric view of the fixed meeting stile **10** and the horizontal weather bar **30** from the front prior to engagement. FIG. 5B is a fragmentary isometric view of the fixed meeting stile **10** and the horizontal weather bar **30** from the back prior to engagement. FIG. 6A is a fragmentary isometric view of the fixed meeting stile **10** and the horizontal weather bar **30** from the front after engagement. FIG. 6B is a fragmentary isometric view of the fixed meeting stile **10** and the horizontal weather bar **30** from the back after engagement. When vertical weather strip gaskets **17** are positioned within the channels **16** of the fixed meeting stile **10**, and when horizontal weather strip gaskets **37** are positioned within the channels **36** of the horizontal weather bar **30**, the vertical weather strip gaskets **17** will abut the top horizontal weather strip gasket **37** forming a protective seal, as illustrated in FIGS. 6A and 6B. In an embodiment, the abutting of the vertical weather strip gaskets **17** and horizontal weather strip gaskets **37** creates a wick-free environment. The ends of the vertical weather strip gaskets **17** will not extend past the horizontal weather strip gaskets **37**, thus stopping the possibility of water wicking up the vertical weather strip gaskets **17**.

[0032] FIGS. 7A and 7B are fragmentary isometric views of a sliding door assembly **70** of the present invention featuring the fixed meeting stile **10**, the door lock jamb **20**, and the horizontal weather bar **30**. FIG. 7A shows the meeting stile **10**, the door lock jamb **20**, and the horizontal weather bar **30** in position without any weather strip gaskets. FIG. 7B shows the meeting stile **10**, the door lock jamb **20**, and the horizontal weather bar **30** in position with weather strip gaskets **17** and **37**. The sliding door assembly **70** illustrated in FIGS. 7A and 7B have an OX configuration for illustrative purposes only. The fixed meeting stile **10** and the horizontal weather bar **30** of the present invention are not intended to be limited to sliding door units having an OX configuration, as other typical sliding door configurations can be used. The

head component of the sliding door assembly **70**, as well as the fixed panel door and the sliding panel door are not shown in FIGS. 7A and 7B for simplicity. The sliding door assembly **70** includes a bottom sill component **72** having an operable sill **74** for positioning a moveable door, and a fixed sill **76** for maintaining a stationary door. The fixed sill **76** includes a threshold **78**. As illustrated in FIGS. 7A and 7B, the horizontal weather bar **30** engages the threshold **78** via attaching means **32**. The sill end **18** of the fixed meeting stile **10** is sufficiently designed to engage the first coped end **34a** of the first horizontal weather bar **30**. The first coped end **34a** of the first horizontal weather bar **30** overlaps the recessed area **15** of the fixed meeting stile **10**. Similarly, the sill end **28** of the door lock jamb **20** is sufficiently designed to engage the second coped end **34b** of the first horizontal weather bar **30**. The second coped end **34b** of the first horizontal weather bar **30** overlaps the recessed area **25** of the door lock jamb **20**. Although not illustrated in FIGS. 7A and 7B, a second horizontal weather bar **30** can engage the head component of the sliding door assembly **70** via attaching means **32**, such that the second coped end **34b** of the second horizontal weather bar **30** overlaps the recessed area **14** at the head end **12** of the fixed meeting stile **10**. Similarly, the first coped end **34a** of the second horizontal weather bar **30** overlaps the recessed area **24** at the head end **22** of the door lock jamb **20**. When a sliding door assembly of the present invention includes a first horizontal weather bar having horizontal weather strip gaskets, a second horizontal weather bar having horizontal weather strip gaskets, a fixed meeting stile having vertical weather strip gaskets, and a door lock jamb having vertical weather strip gaskets, a protective seal is created around the periphery of a sliding door.

[0033] FIGS. 8A and 8B illustrate an embodiment of a fixed meeting stile **80** of the present invention. FIG. 8A is a top plan view of the fixed meeting stile **80**. FIG. 8B is an isometric view of the fixed meeting stile **80**. The fixed meeting stile **80** would typically be connected to a door stile of a stationary glass door panel (not shown) at location **81** using means known in the art. The fixed meeting stile **80** includes a head end **82** for connecting with a head component of a sliding door assembly, a sill end **88** for connecting with a sill component of a sliding door assembly, and a vertical axis therebetween. In the embodiments shown in FIGS. 8A and 8B, the fixed meeting stile **80** includes an outer surface **83** sufficiently designed for maintaining a vertical weather bar capable of maintaining vertical weather strip gaskets. Tongue **89** is adapted to overlap and interlock with a mating tongue on an operable meeting stile of a moveable (sliding) door when the sliding door is in a closed position. The fixed meeting stile **80**

is fabricated such that the outer surface **83** of the meeting stile **80** does not lie flat with the surface of the tongue **89**, forming an outer surface **83** capable of holding in place a vertical weather bar (as illustrated, for example, in FIG. 10A). The outer surface **83** is sufficiently designed to engage one of the coped ends of the horizontal weather bar **30**.

[0034] FIGS. 9A and 9B illustrate an embodiment of a door lock jamb **90** of the present invention. FIG. 9A is a top plan view of the door lock jamb **90**. FIG. 9B is an isometric view of the door lock jamb **90**. The door lock jamb **90** includes a head end **92** for connecting with a head component of a sliding door assembly, a sill end **98** for connecting with a sill component of a sliding door assembly, and a vertical axis therebetween. In the embodiments shown in FIGS. 9A and 9B, the door lock jamb **90** includes a side surface **93** with section **99** having a surface **97** sufficiently designed for maintaining a vertical weather bar capable of maintaining vertical weather strip gaskets.

[0035] FIGS. 10A and 10B, in conjunction with FIGS. 11A and 11B, illustrate the engagement of the fixed meeting stile **80** and the horizontal weather bar **30**. As illustrated in the various figures, vertical weather bar **100** having vertical weather strip gaskets **107** are positioned in the fixed meeting stile **80**, and horizontal weather strip gaskets **37** are positioned in the horizontal weather bar **30**. FIG. 10A is a fragmentary isometric view of the fixed meeting stile **80** and the horizontal weather bar **30** from the front prior to engagement. FIG. 10B is a fragmentary isometric view of the fixed meeting stile **80** and the horizontal weather bar **30** from the back prior to engagement. FIG. 11A is a fragmentary isometric view of the fixed meeting stile **80** and the horizontal weather bar **30** from the front after engagement. FIG. 11B is a fragmentary isometric view of the fixed meeting stile **80** and the horizontal weather bar **30** from the back after engagement. When the vertical weather bar **100** having the vertical weather strip gaskets **107** are positioned on, or engaged with, the outer surface **83** of the fixed meeting stile **80**, and when horizontal weather strip gaskets **37** are maintained in the channels **36** of the horizontal weather bar **30**, the vertical weather strip gaskets **107** will abut the top horizontal weather strip gasket **37** forming a protective seal, as illustrated in FIGS. 11A and 11B. In an embodiment, the abutting of the vertical weather strip gaskets **107** and horizontal weather strip gaskets **37** creates a wick-free environment. The ends of the vertical weather strip gaskets **107** will not extend past the horizontal weather strip gaskets **37**, thus stopping the possibility of water wicking up the vertical weather strip gaskets **107**.

[0036] FIGS. 12A and 12B are fragmentary isometric views of a sliding door assembly **120** of the present invention featuring the fixed meeting stile **80**, the door lock jamb **90**, and the horizontal weather bar **30**. FIG. 12A shows the meeting stile **80**, the door lock jamb **90**, and the horizontal weather bar **30** in position without any weather strip gaskets. FIG. 12B shows the meeting stile **80**, the door lock jamb **90**, and the horizontal weather bar **30** in position with weather strip gaskets. The sliding door assembly **120** illustrated in FIGS. 12A and 12B have an OX configuration for illustrative purposes only. The fixed meeting stile **80** and the horizontal weather bar **30** of the present invention are not intended to be limited to sliding door units having an OX configuration, as other typical sliding door configurations can be used. The head component of the sliding door assembly **120**, as well as the fixed panel door and the sliding panel door are not shown in FIGS. 12A and 12B for simplicity. The sliding door assembly **120** includes a bottom sill component **122** having an operable sill **124** for positioning a moveable door, and a fixed sill **126** for maintaining a stationary door. The fixed sill **126** includes a threshold **126**. As illustrated in FIGS. 12A and 12B, horizontal weather bar **30** engages the threshold **128** via attaching means **32**. The sill end **88** of the fixed meeting stile **80** is sufficiently designed to engage the first coped end **34a** of the first horizontal weather bar **30**. The first coped end **34a** of the first horizontal weather bar **30** overlaps the recessed outer surface **83** towards the sill end **88** of the fixed meeting stile **80**. Similarly, the sill end **98** door lock jamb **90** is sufficiently designed to engage the second coped end **34b** of the horizontal weather bar **30**. The second coped end **34b** of the horizontal weather bar **30** overlaps the side surface **93** of the door lock jamb **90** towards the sill end **98** of the door lock jamb **90**. Although not illustrated in FIGS. 12A and 12B, a second horizontal weather bar **30** can engage the head component of the sliding door assembly **120** via attaching means **32**, such that the second coped end **34b** of the second horizontal weather bar **30** overlaps the outer surface **83** at the head end **82** of the fixed meeting stile **80**. Similarly, the first coped end **34a** of the second horizontal weather bar **30** overlaps the side surface **93** at the head end **92** of the door lock jamb **90**. When a sliding door assembly of the present invention includes a first horizontal weather bar having horizontal weather strip gaskets, a second horizontal weather bar having horizontal weather strip gaskets, a fixed meeting stile having vertical weather strip gaskets, and a door lock jamb having vertical weather strip gaskets, a protective seal is created around the periphery of a sliding door.

[0037] While illustrative embodiments of the invention are disclosed herein, it will be appreciated that numerous modifications and other embodiments may be devised by those skilled in the art. Therefore, it will be understood that the appended claims are intended to cover all such modifications and embodiments that come within the spirit and scope of the present invention.

CLAIMS

What is claimed is:

1. A sliding door assembly comprising:
 - a fixed meeting stile having an outer surface that includes at least one vertical weather strip gasket;
 - a door lock jamb having a side surface that includes at least one vertical weather strip gasket;
 - a first horizontal weather bar comprising:
 - an attaching means for engaging a sill of the sliding door assembly, and
 - a horizontal member having a first end for engaging the outer surface of the fixed meeting stile, and a second end for engaging the side surface of the door lock jamb, wherein the horizontal member of the first horizontal weather bar includes at least one horizontal weather strip gasket; and
 - a second horizontal weather bar comprising:
 - an attaching means for engaging a head component of the sliding door assembly, and
 - a horizontal member having a first end for engaging the outer surface of the fixed meeting stile, and a second end for engaging the side surface of the door lock jamb, wherein the horizontal member of the second horizontal weather bar includes at least one horizontal weather strip gasket.
2. The sliding door assembly of claim 1 wherein the at least one vertical weather strip gasket on the fixed meeting stile abuts both the at least one horizontal weather strip gasket on the first horizontal weather bar, and the at least one horizontal weather strip gasket on the second horizontal weather bar.
3. The sliding door assembly of claim 1 wherein the at least one vertical weather strip gasket on the door jamb abuts both the at least one horizontal weather strip gasket on the first

horizontal weather bar, and the at least one horizontal weather strip gasket on the second horizontal weather bar.

4. A sliding door assembly comprising:

a head component including an operable head and a fixed head;

a bottom sill component including an operable sill and a fixed sill,

wherein at least a portion of the fixed sill has a threshold that engages a horizontal weather bar,

wherein the horizontal weather bar comprises:

an attaching means for engaging the threshold,

a horizontal member, and

at least one horizontal weather strip gasket engaging the horizontal member;

a fixed meeting stile engaging the head component and the bottom sill component,

wherein a side of the fixed meeting stile maintains a fixed panel door,

wherein an outer surface of the fixed meeting stile engages the horizontal member of the horizontal weather bar such that at least a portion of the horizontal member overlaps the fixed meeting stile, and

wherein the outer surface of the fixed meeting stile engages a vertical weather strip gasket such that the vertical weather strip gasket and the horizontal weather strip gasket of the horizontal weather bar form a protective seal;

a door lock jamb for engaging a door stile of a moveable door; and

a fixed jamb for maintaining one side of the fixed panel door.

5. The sliding door assembly of claim 4 wherein the outer surface of the fixed meeting stile includes a head end, a sill end, and a vertical axis therebetween.

6. The sliding door assembly of claim 5 wherein the vertical axis of the outer surface of the fixed meeting stile includes at least one cavity spanning between the head end and the sill end.
7. The sliding door assembly of claim 6 wherein the at least one cavity engages the vertical weather strip gasket.
8. The sliding door assembly of claim 4 wherein the horizontal member of the horizontal weather bar includes a first coped end, a second coped end, and a horizontal axis therebetween.
9. The sliding door assembly of claim 8 wherein the first coped end of the horizontal member overlaps the outer surface of the fixed meeting stile.
10. A sliding door assembly comprising:
 - a head component including an operable head and a fixed head;
 - a bottom sill component including an operable sill and a fixed sill;
 - a horizontal weather bar comprising:
 - an attaching means for engaging directly or indirectly with the fixed sill;
 - a horizontal member; and
 - at least one horizontal weather strip gasket engaging the horizontal member;
 - a fixed meeting stile engaging the head component and the bottom sill component and including a fixed stile and a moveable stile,
 - wherein a side of the fixed meeting stile maintains a fixed panel door,
 - wherein an outer surface of the fixed meeting stile engages the horizontal member of the horizontal weather bar such that at least a portion of the horizontal member overlaps the fixed meeting stile,
 - wherein the outer surface of the fixed meeting stile engages a vertical weather strip gasket such that the vertical weather strip gasket and the horizontal weather strip gasket of the horizontal weather bar form a protective seal, and

- wherein the moveable stile maintains one side of a sliding panel door;
- a door lock jamb for engaging a door stile of the sliding panel door,
- wherein the door lock jamb engages at least a portion of the horizontal member of the horizontal weather bar, and
- wherein the door lock jamb engages a vertical weather strip gasket such that the vertical weather strip gasket and the horizontal weather strip gasket of the horizontal weather bar form a protective seal; and
- a fixed jamb for maintaining one side of the fixed panel door.
11. The sliding door assembly of claim 10 wherein the outer surface of the fixed meeting stile has a head end, a sill end, and a vertical axis therebetween.
 12. The sliding door assembly of claim 11 wherein the vertical axis of the front side of the fixed meeting stile includes at least one cavity spanning between the head end and the sill end.
 13. The sliding door assembly of claim 11 wherein the at least one cavity engages the vertical weather strip gasket.
 14. The sliding door assembly of claim 10 wherein the attaching means of the horizontal weather bar engages the fixed sill directly.
 15. The sliding door assembly of claim 10 further comprising a threshold that engages the horizontal weather bar.
 16. The sliding door assembly of claim 10 wherein the horizontal member of the horizontal weather bar includes a first coped end, a second coped end, and a horizontal axis therebetween.
 17. The sliding door assembly of claim 16 wherein the first coped end of the horizontal member overlaps the outer surface of the fixed meeting stile.
 18. The sliding door assembly of claim 10 further comprising a second horizontal weather bar.

19. The sliding door assembly of claim 18 wherein the second horizontal weather comprises:

an attaching means for engaging directly or indirectly with the head component,

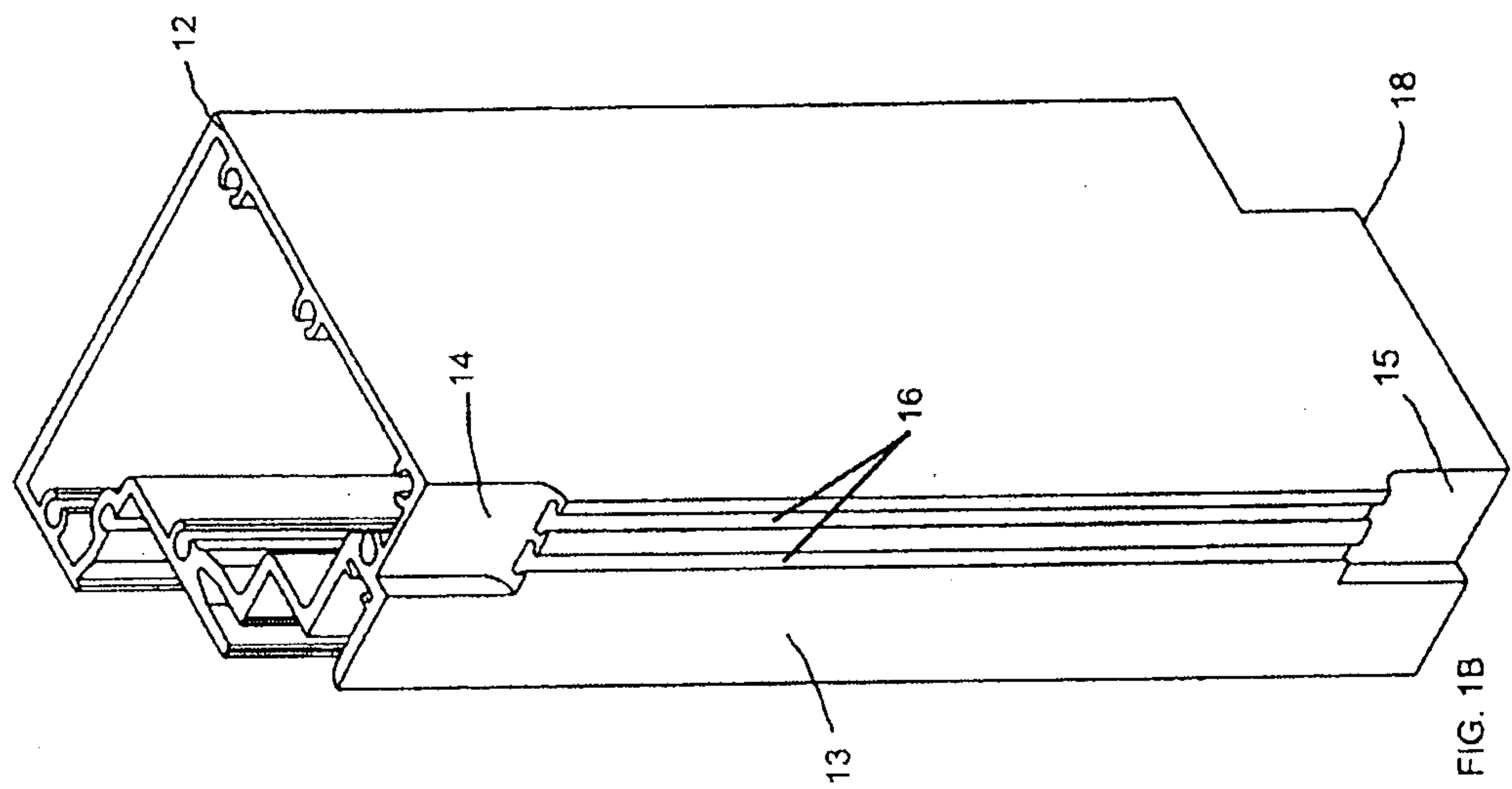
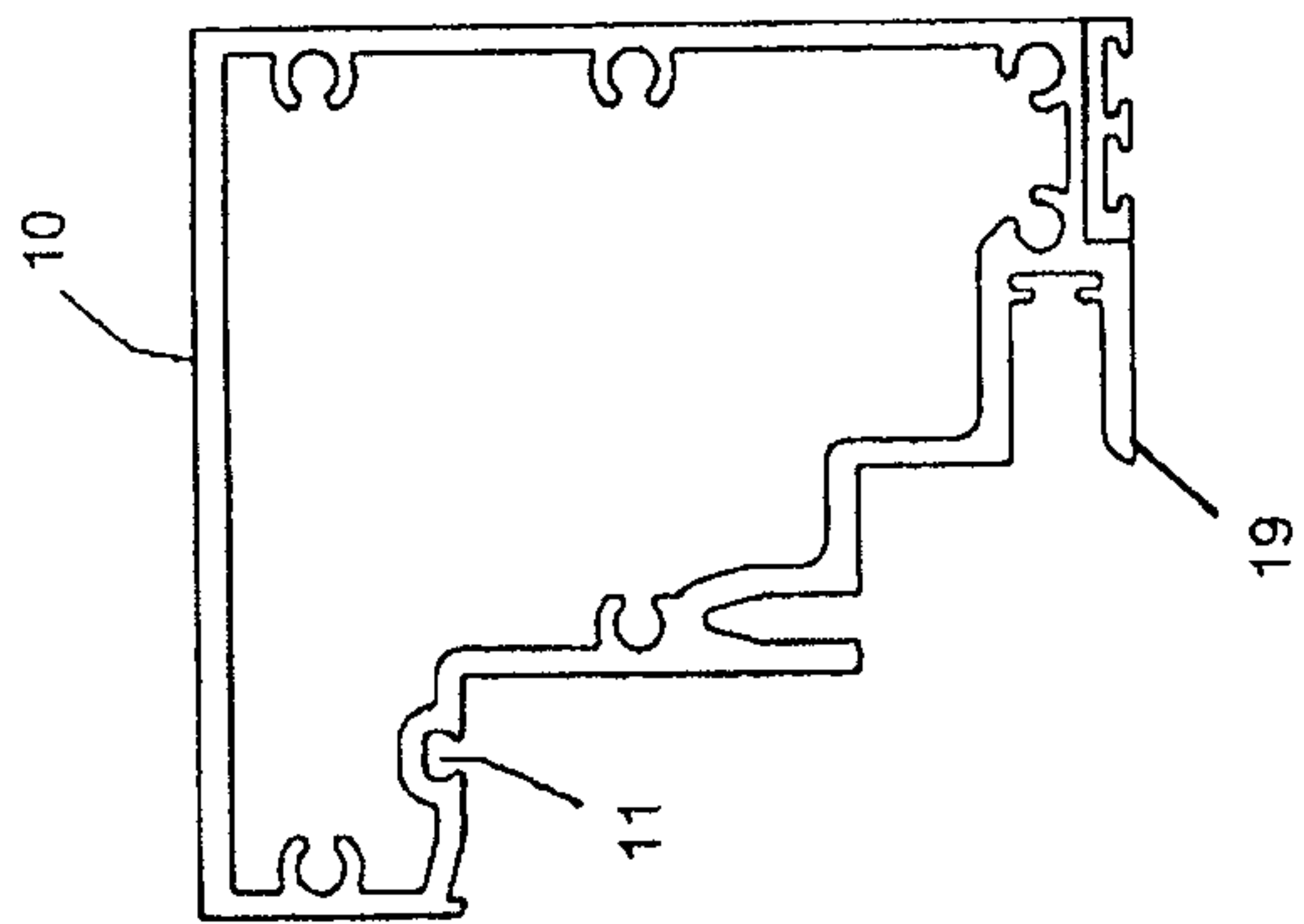
a horizontal member, and

at least one horizontal weather strip gasket engaging the horizontal member.

20. The sliding door assembly of claim 19,

wherein the outer surface of the fixed meeting stile engages the horizontal member of the second horizontal weather bar such that at least a portion of the horizontal member overlaps the fixed meeting stile, and

wherein the door lock jamb engages at least a portion of the horizontal member of the second horizontal weather bar.



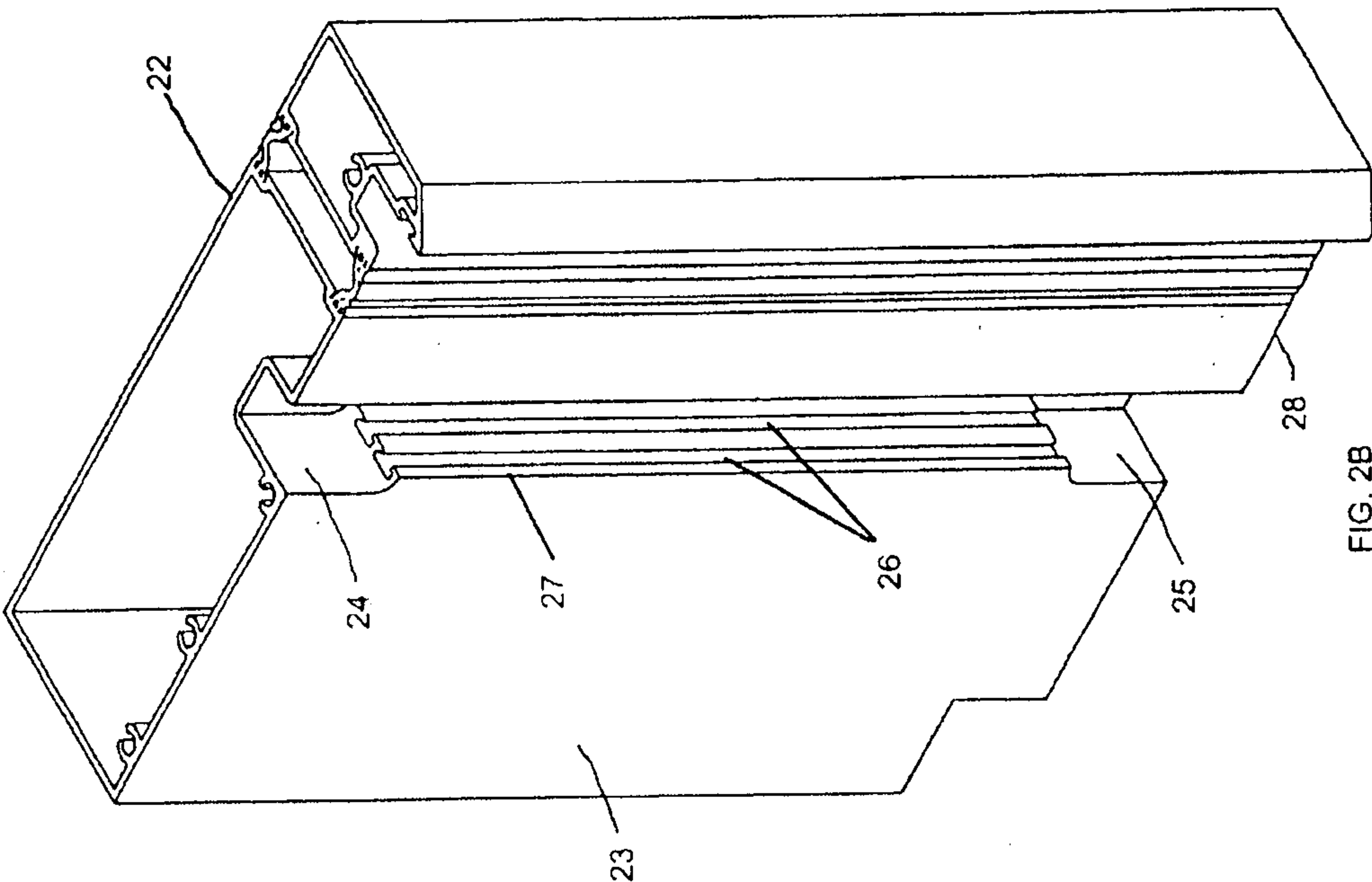


FIG. 2B

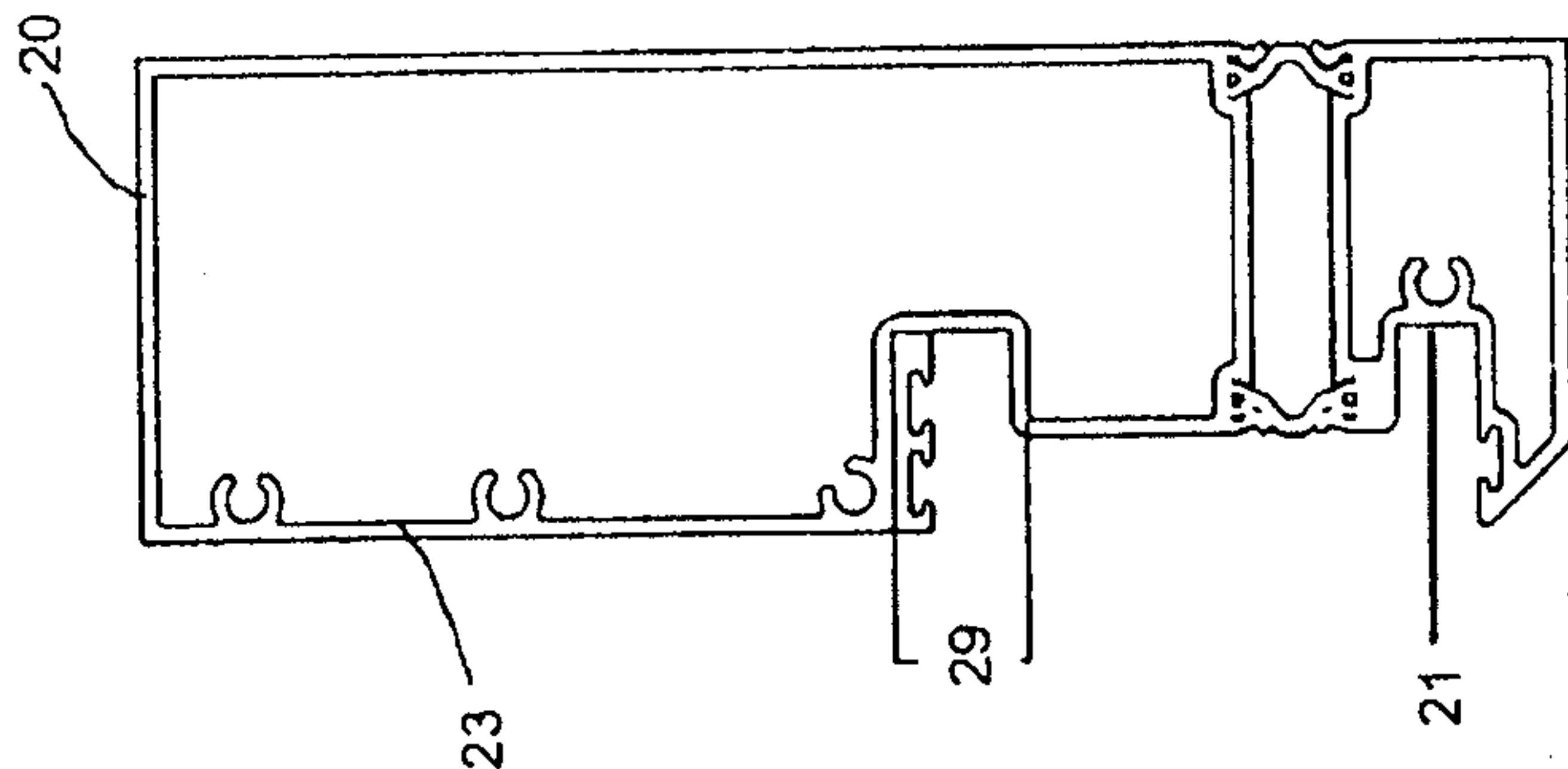


FIG. 2A

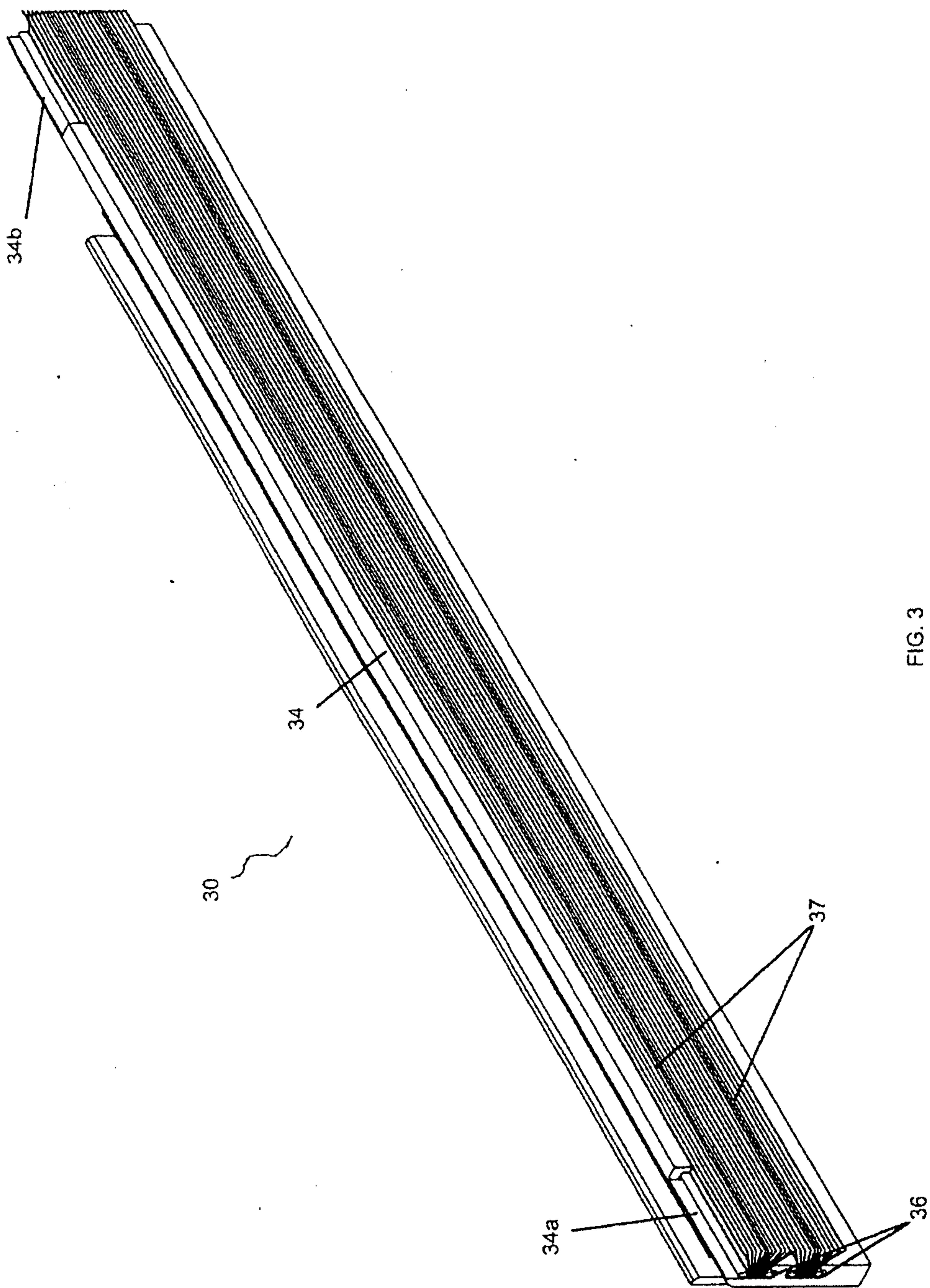
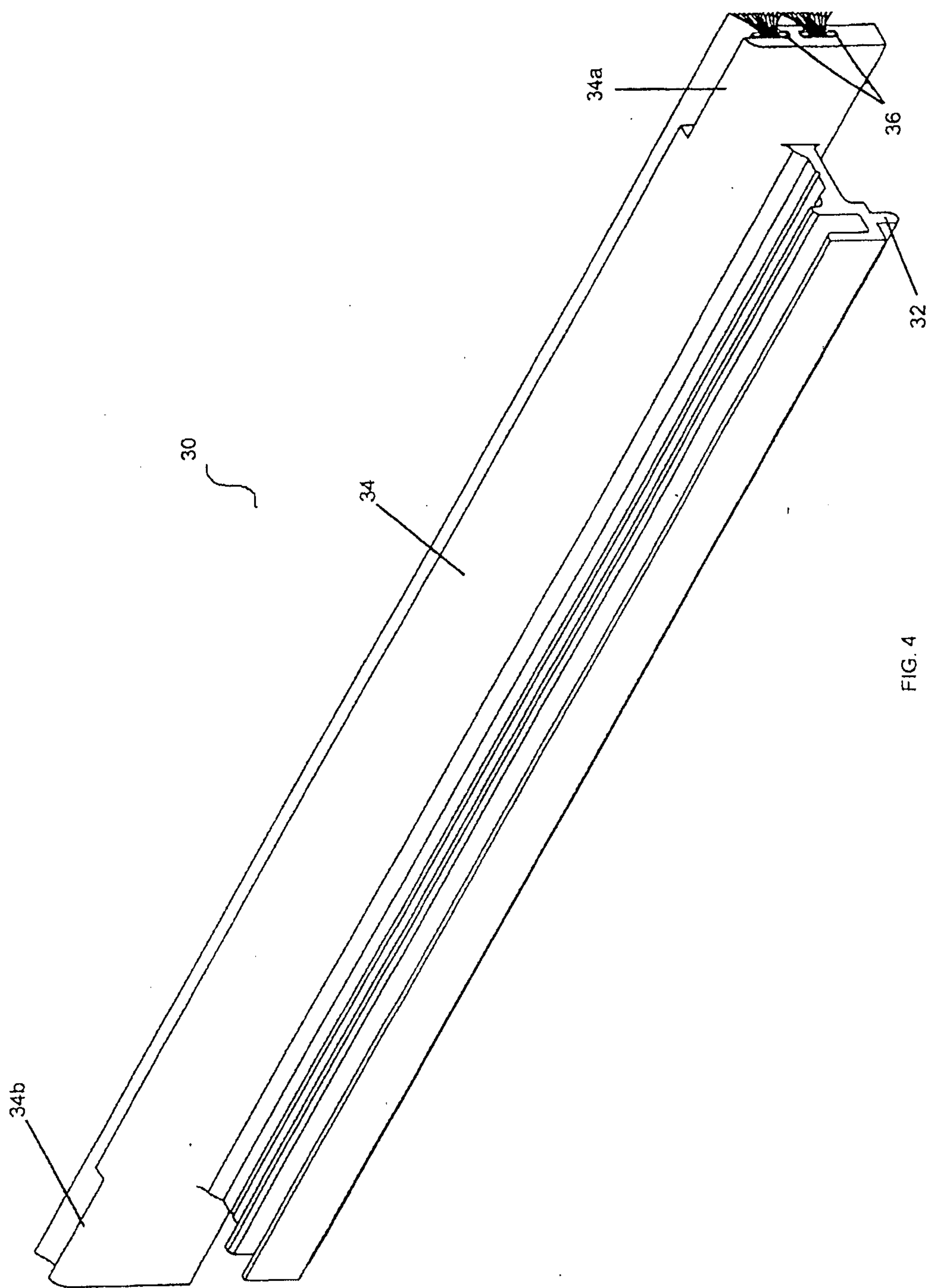


FIG. 3



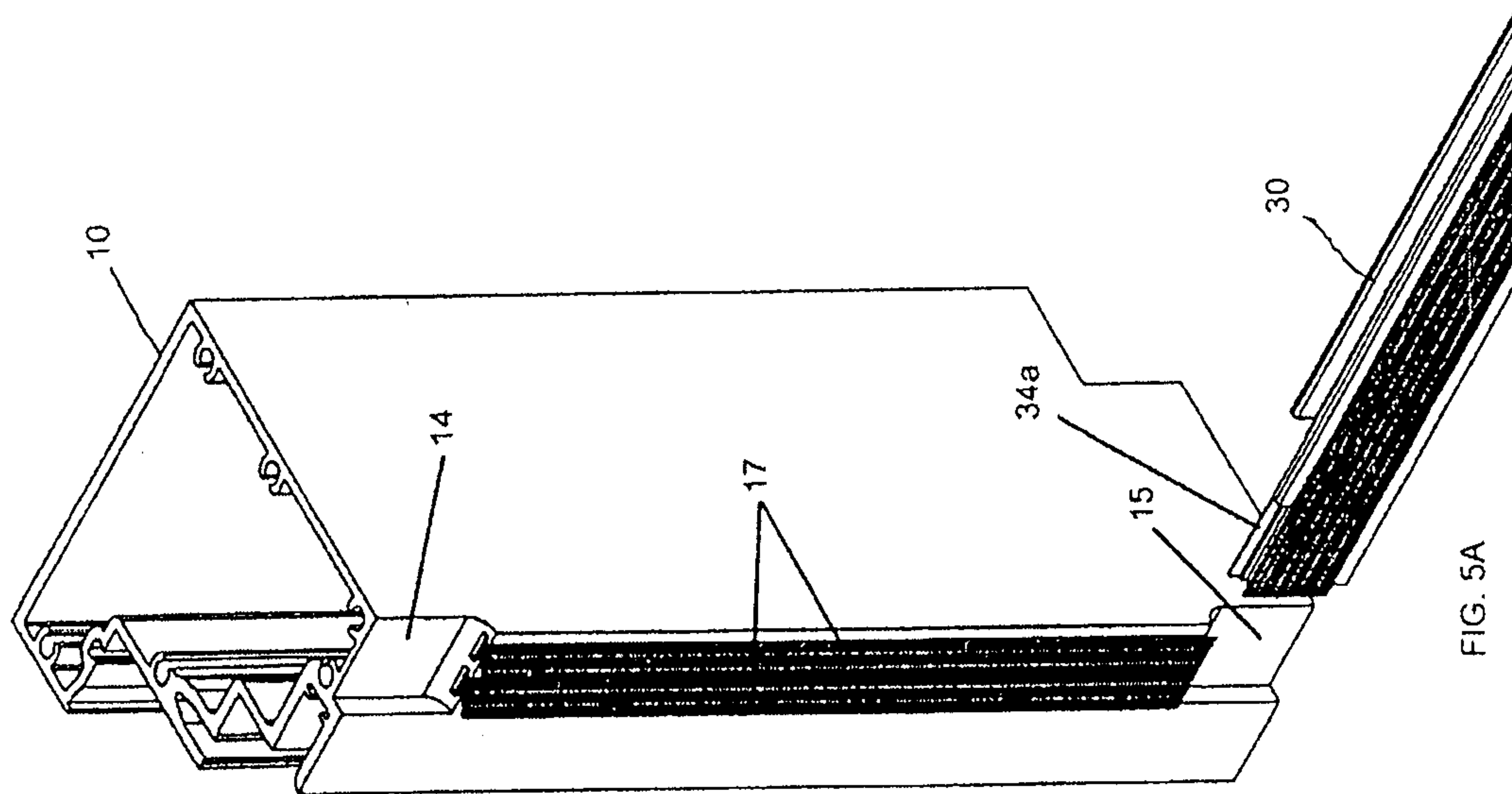


FIG. 5A

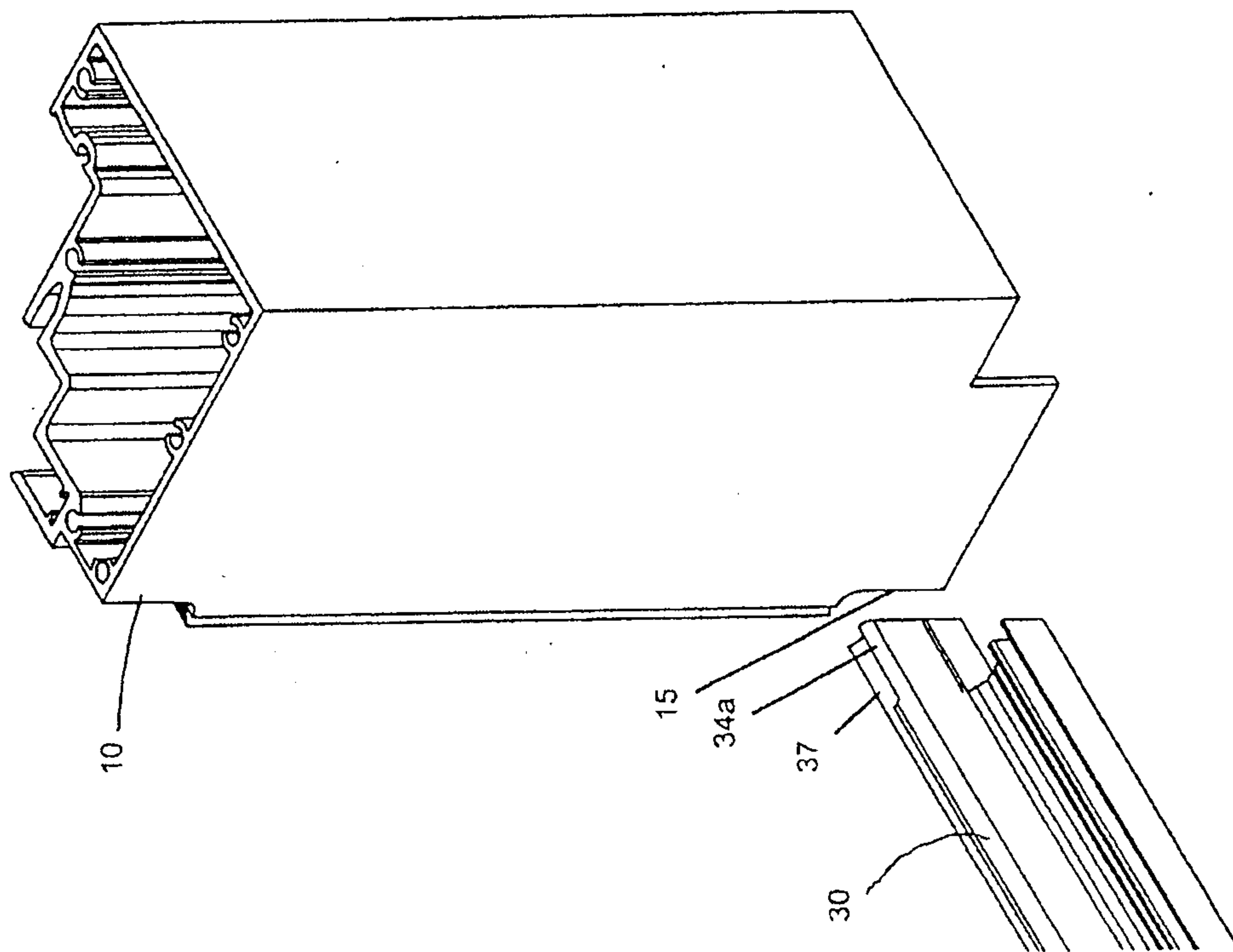
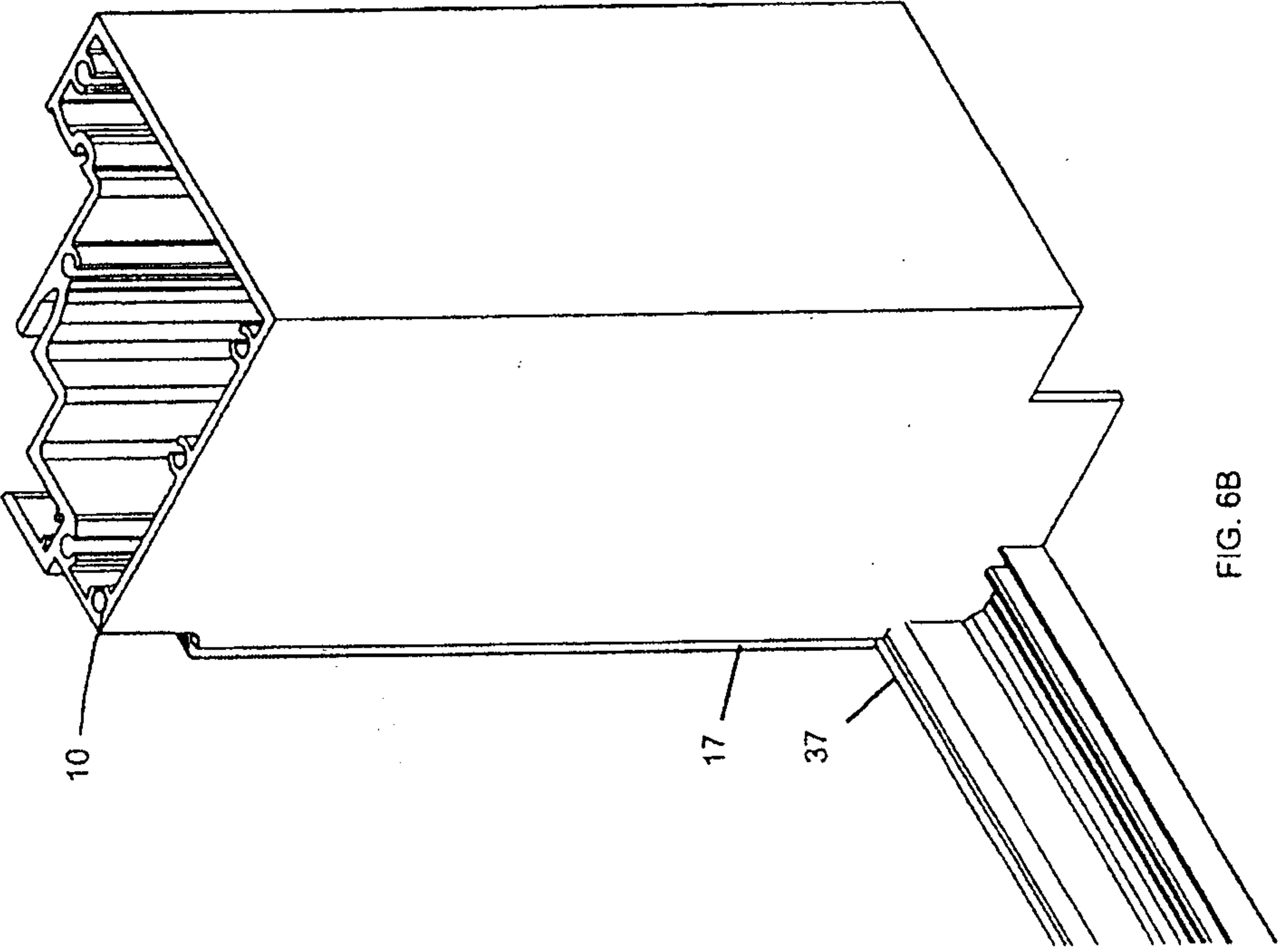
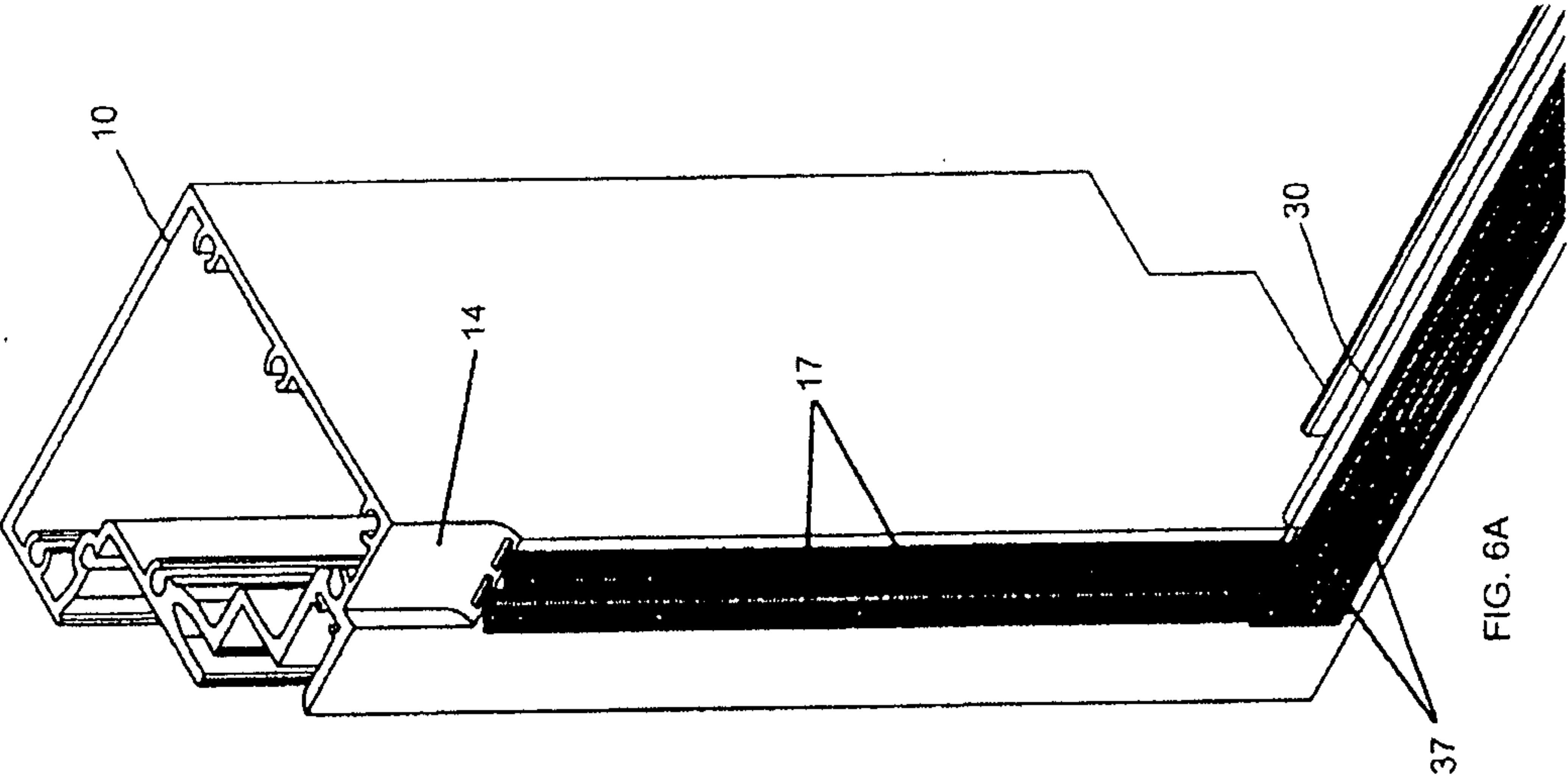
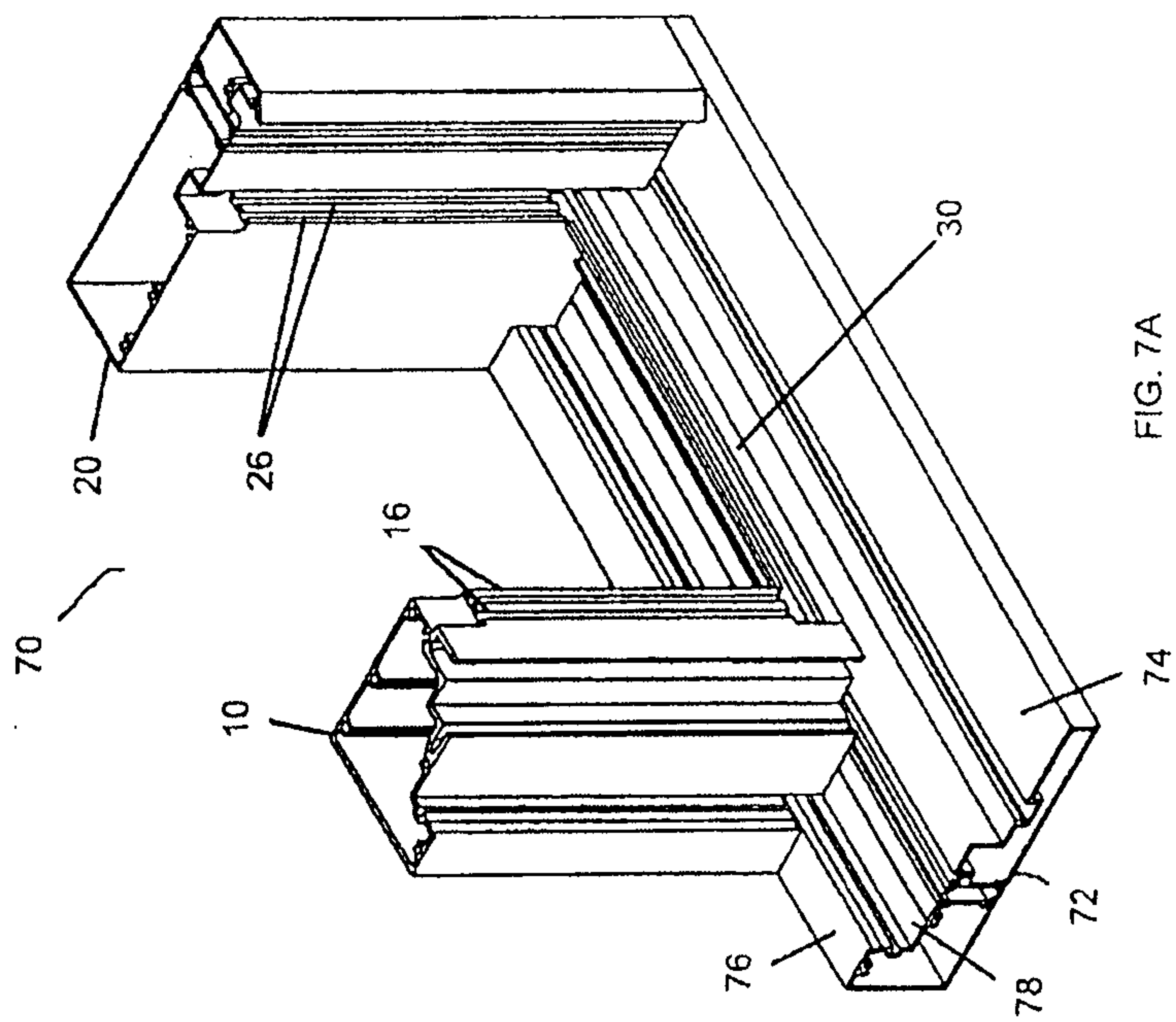
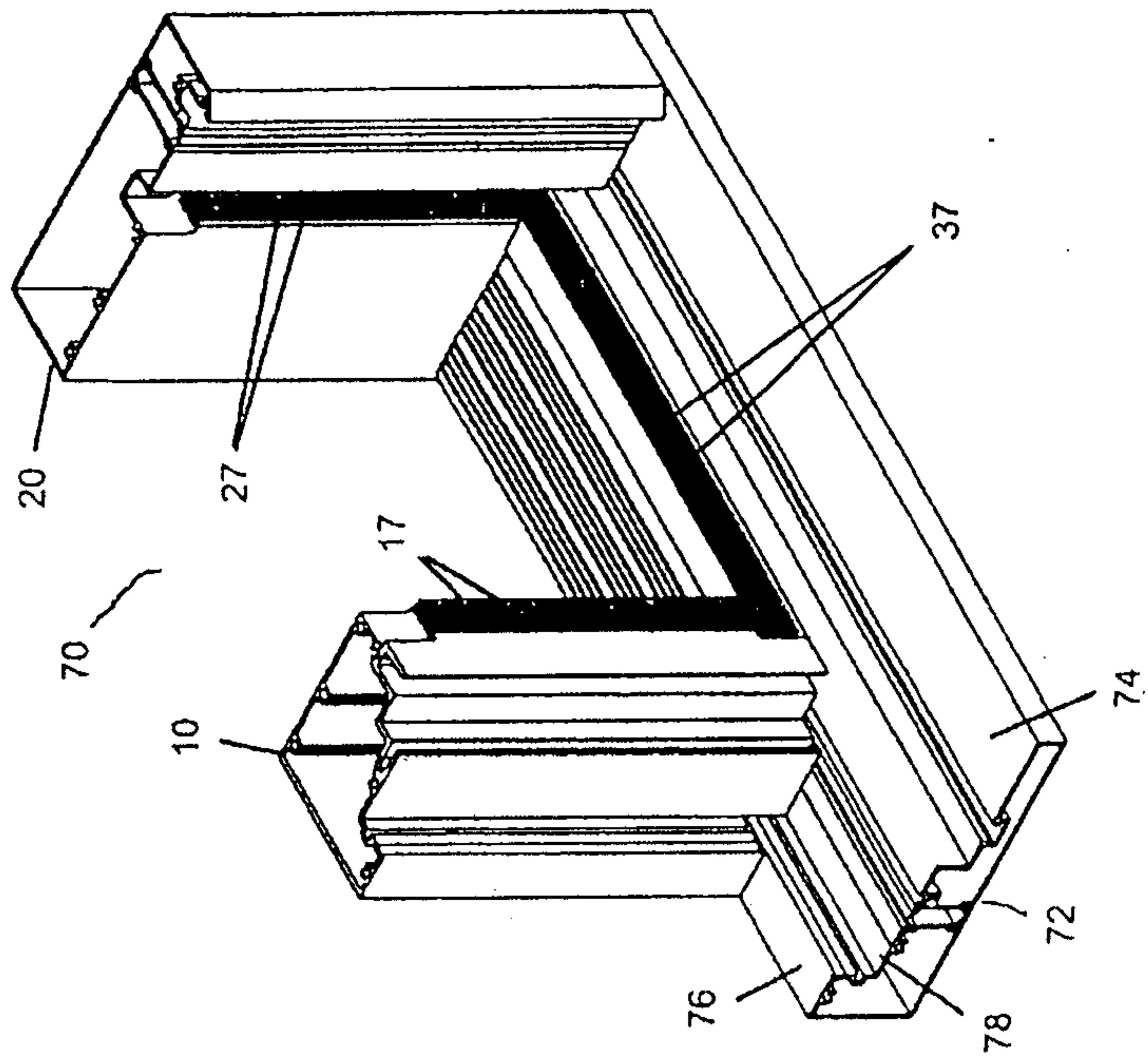


FIG. 5B





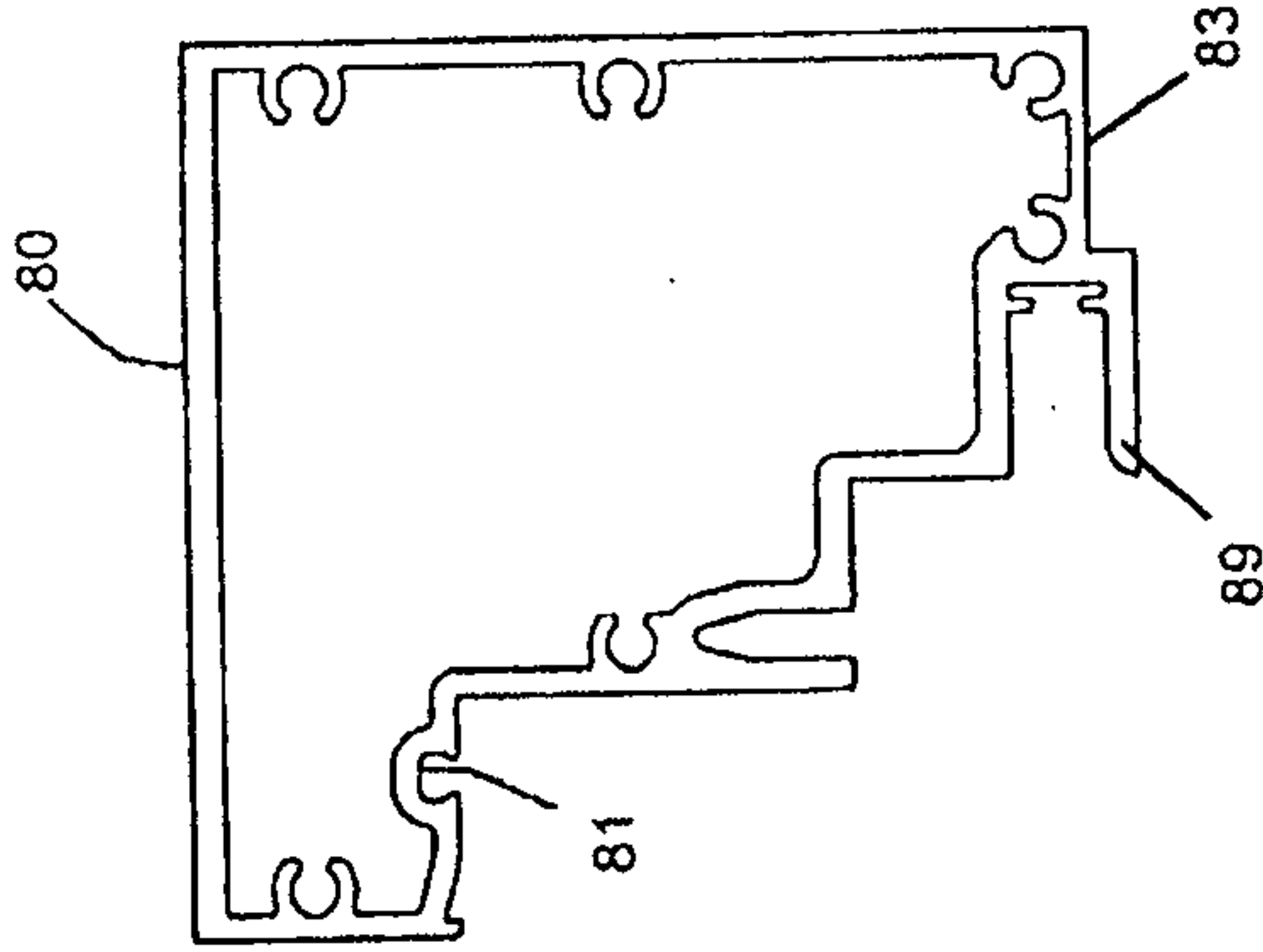
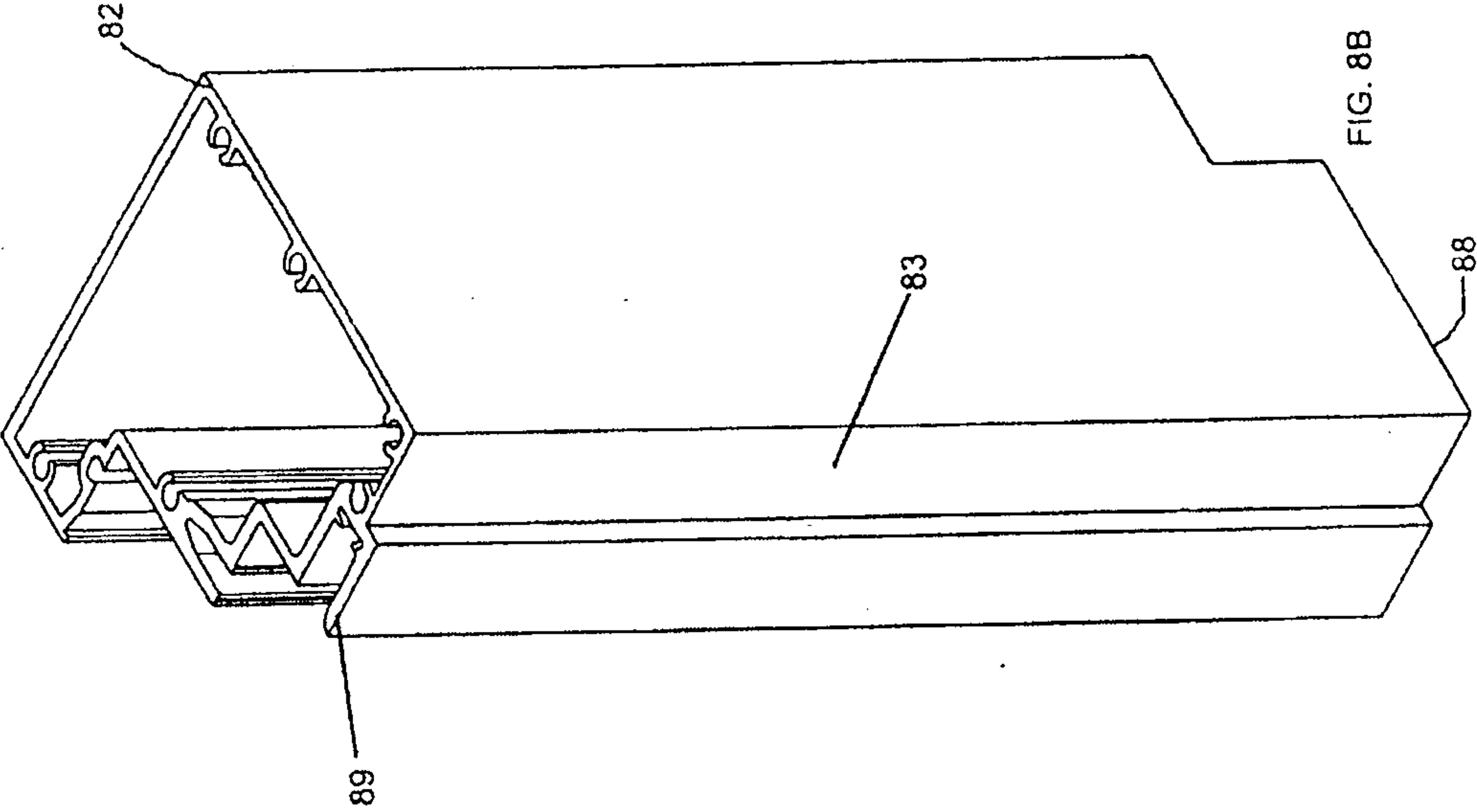


FIG. 8A

FIG. 8B

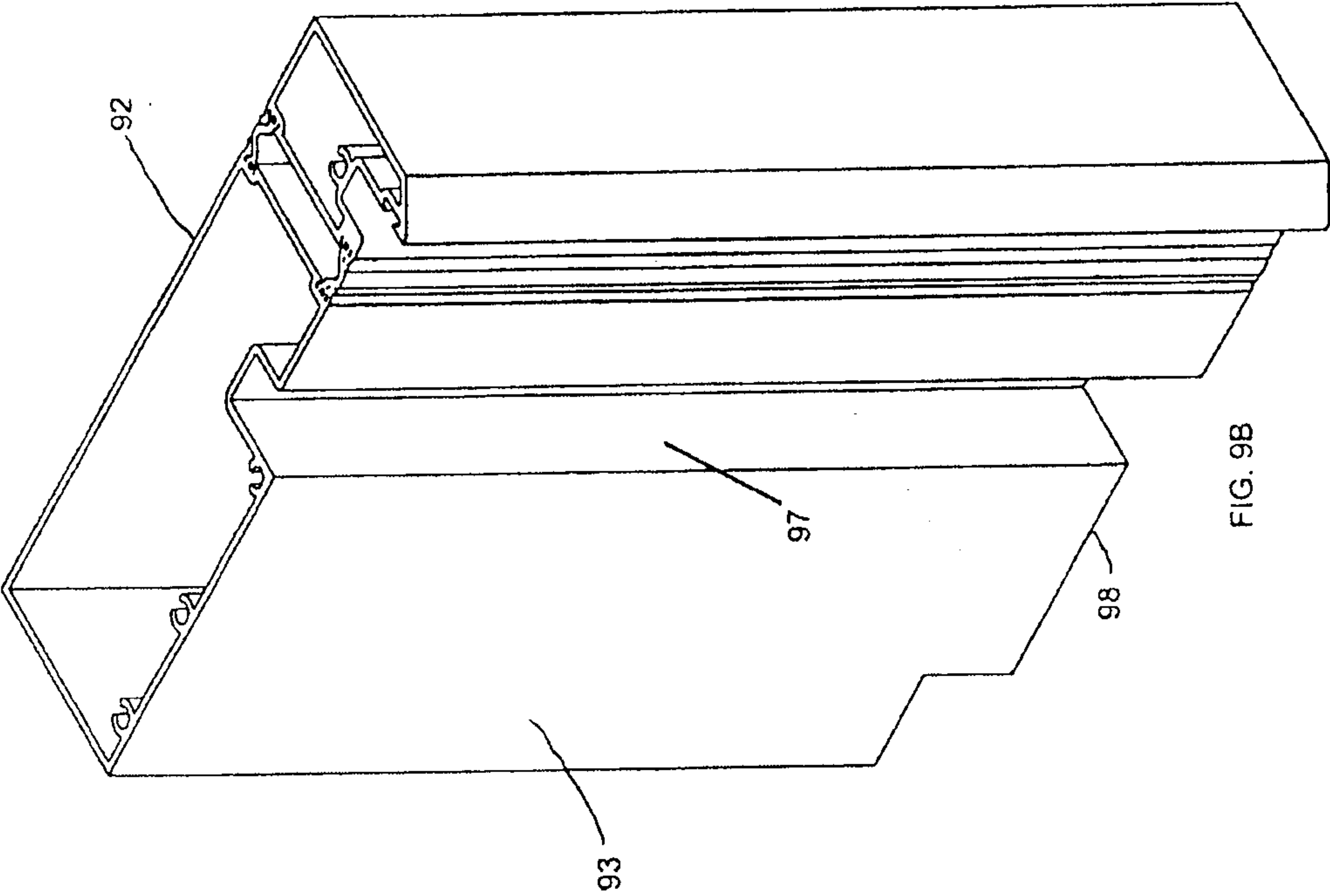


FIG. 9B

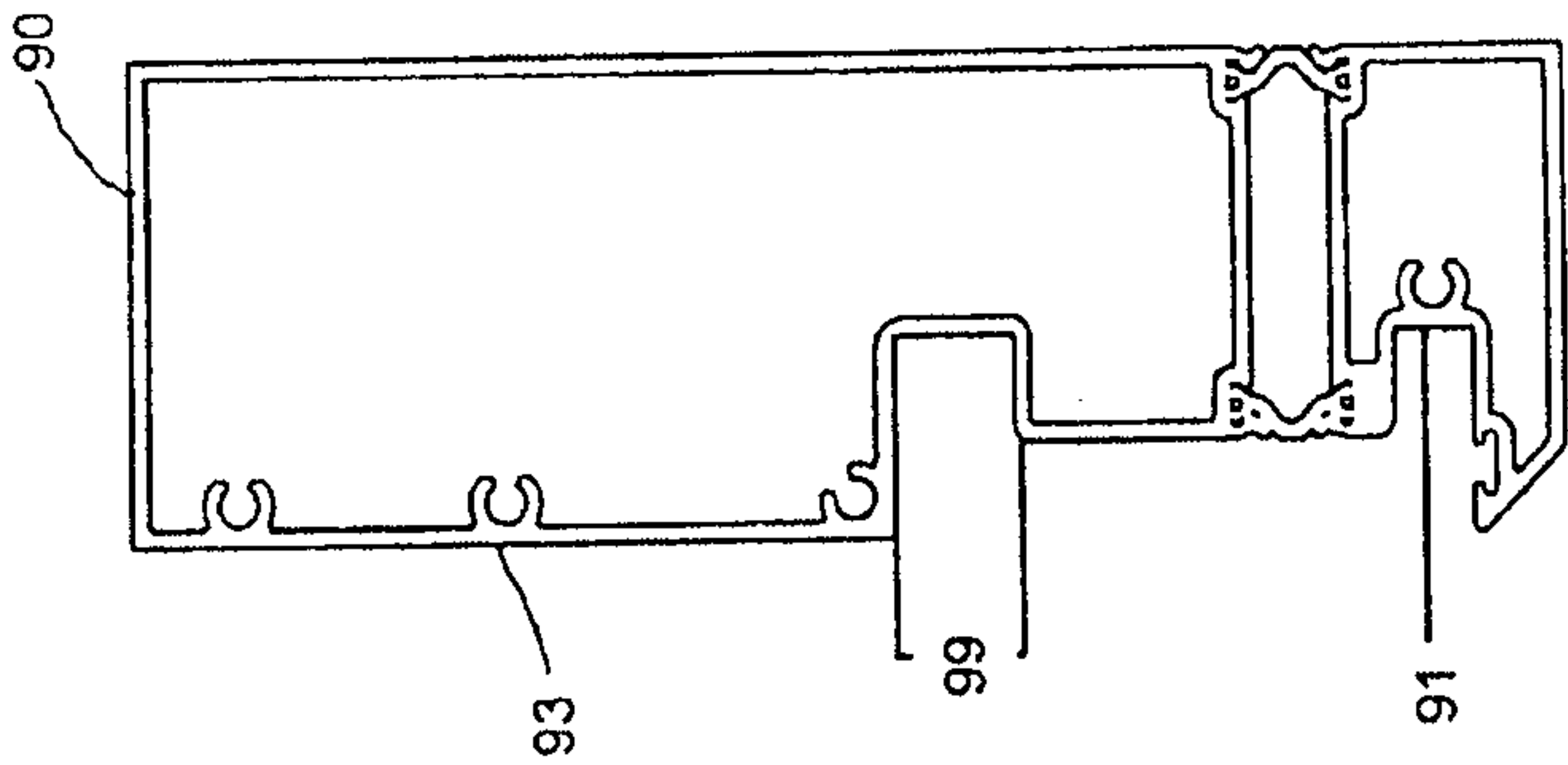
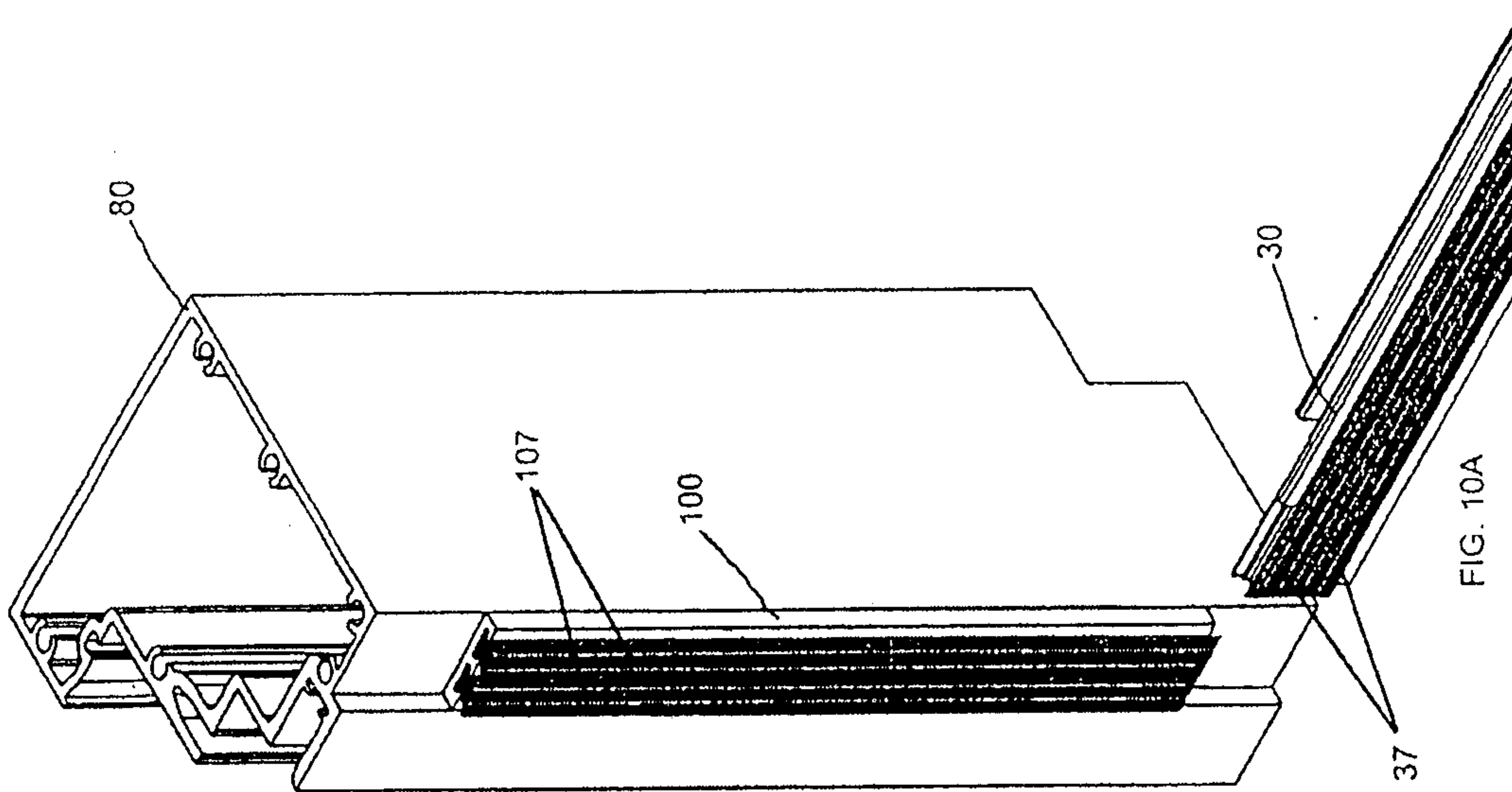
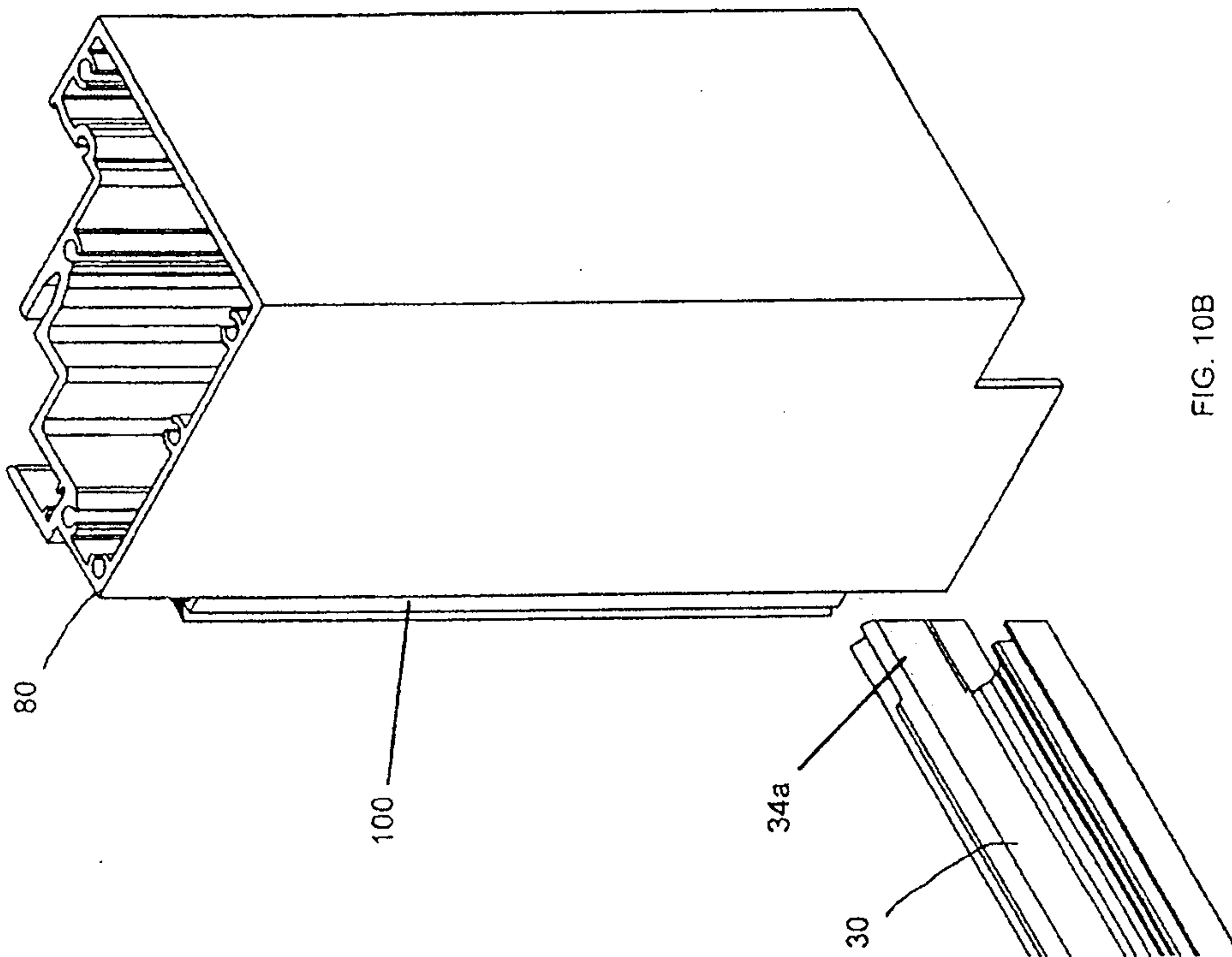
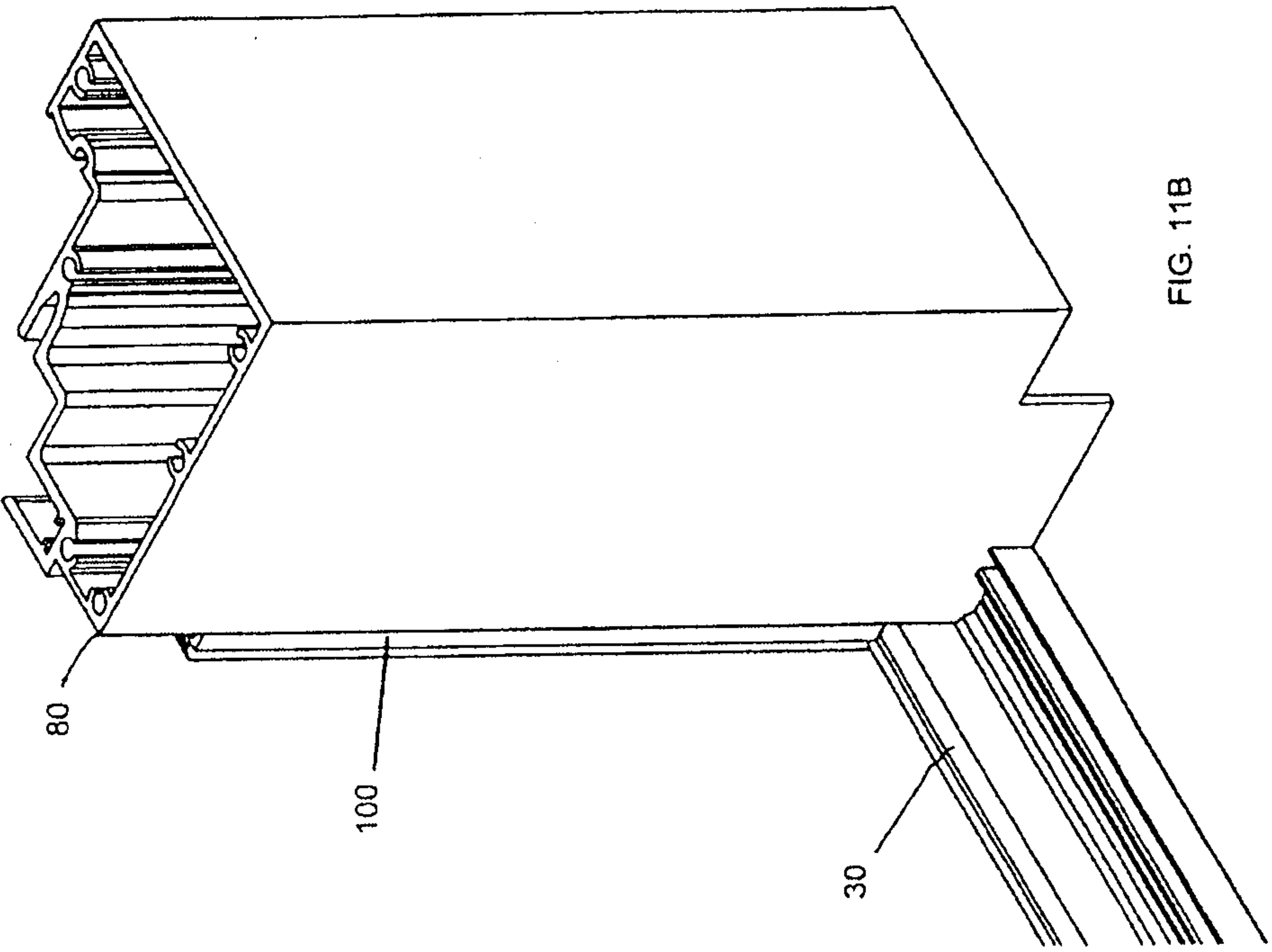
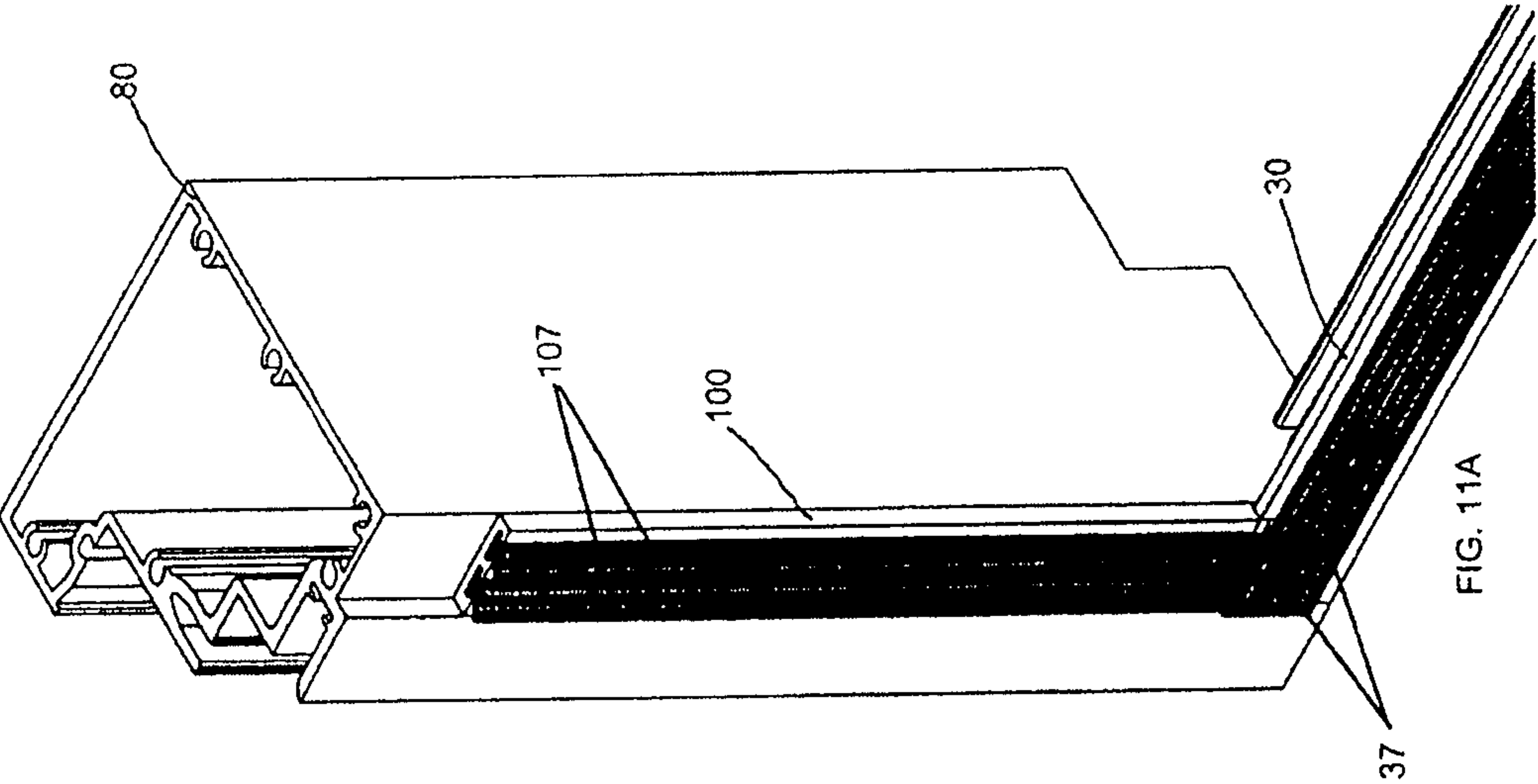


FIG. 9A





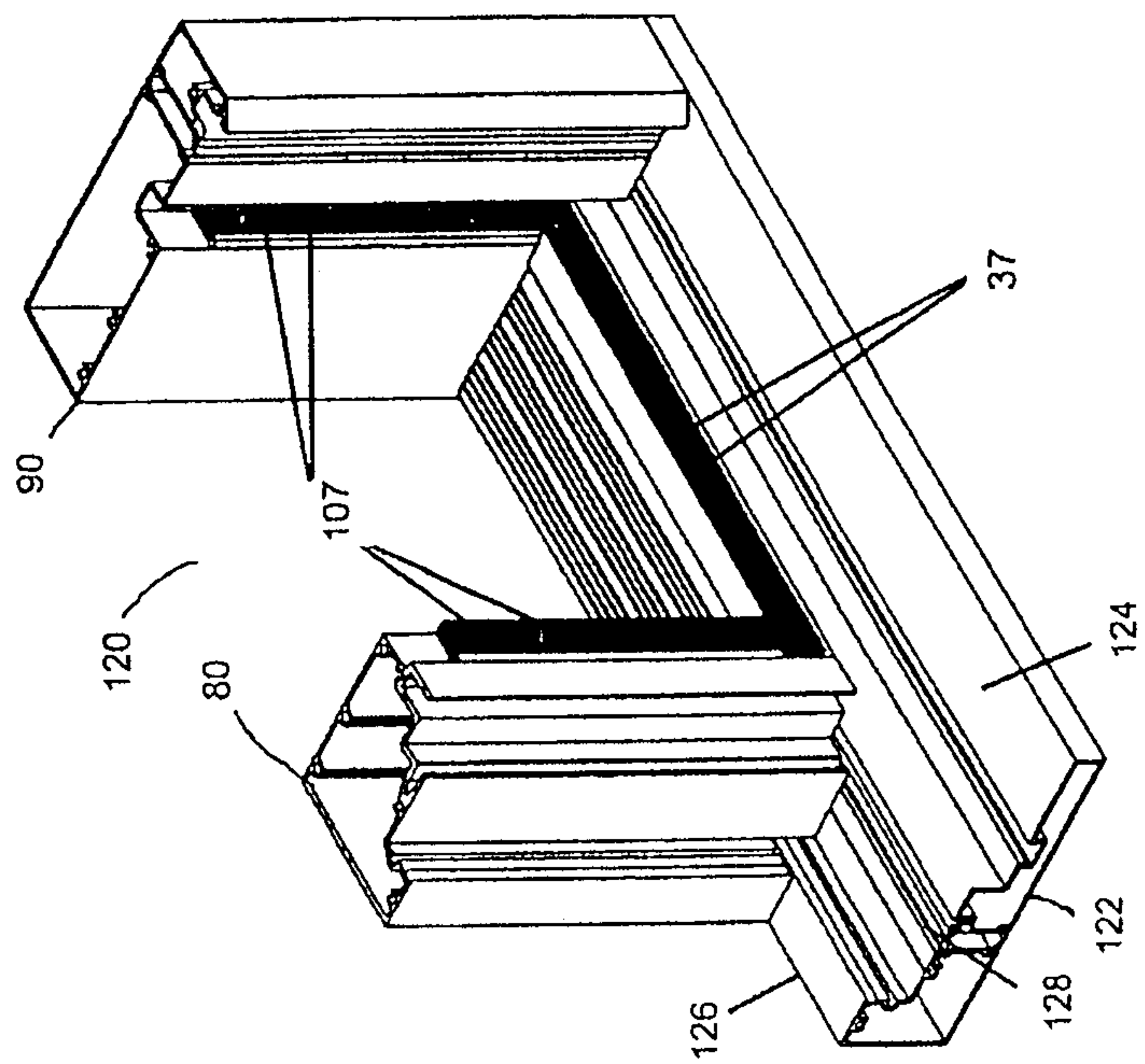


FIG. 12B

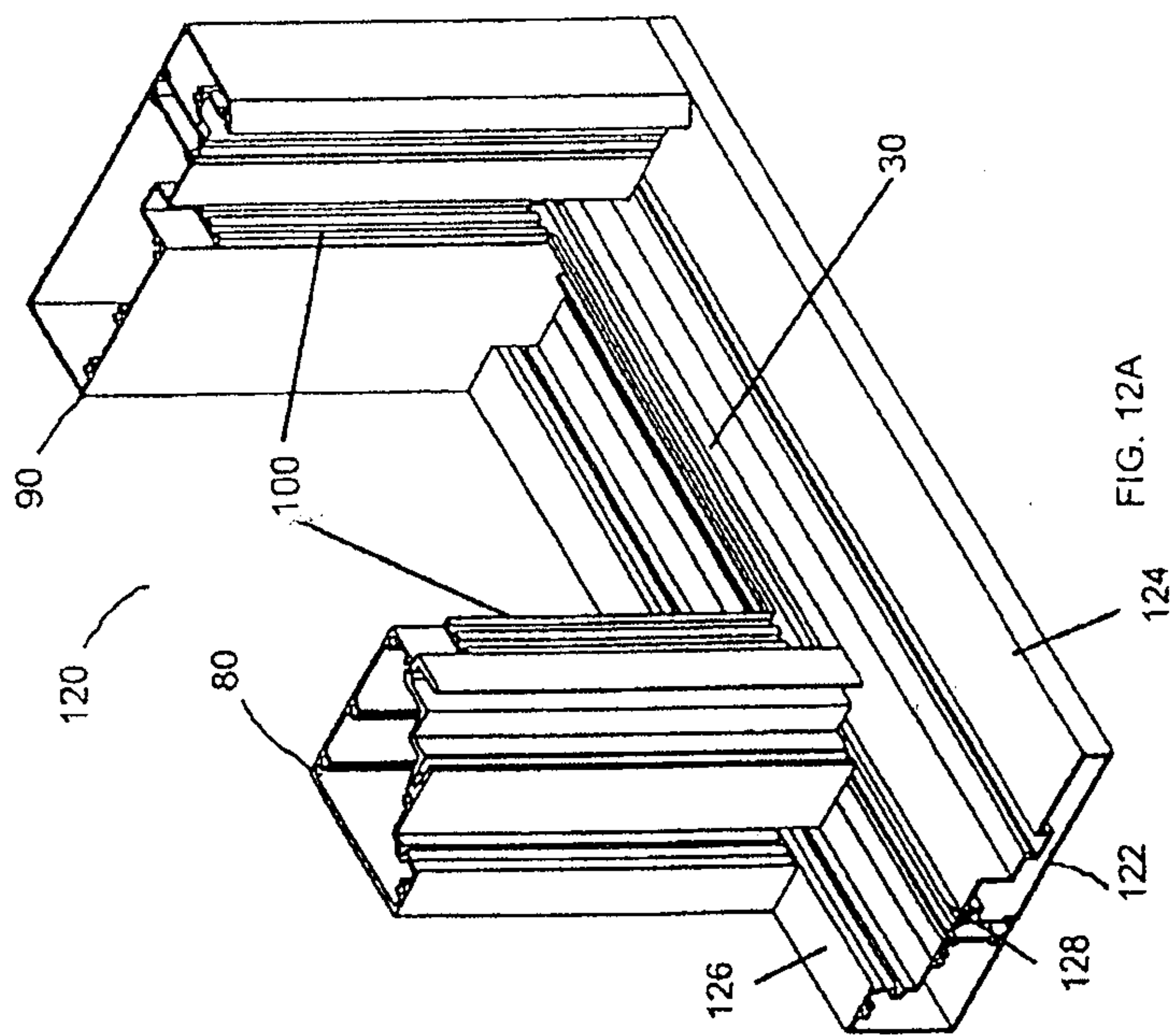


FIG. 12A

