



(22) Date de dépôt/Filing Date: 2004/06/14

(41) Mise à la disp. pub./Open to Public Insp.: 2005/12/14

(45) Date de délivrance/Issue Date: 2008/11/18

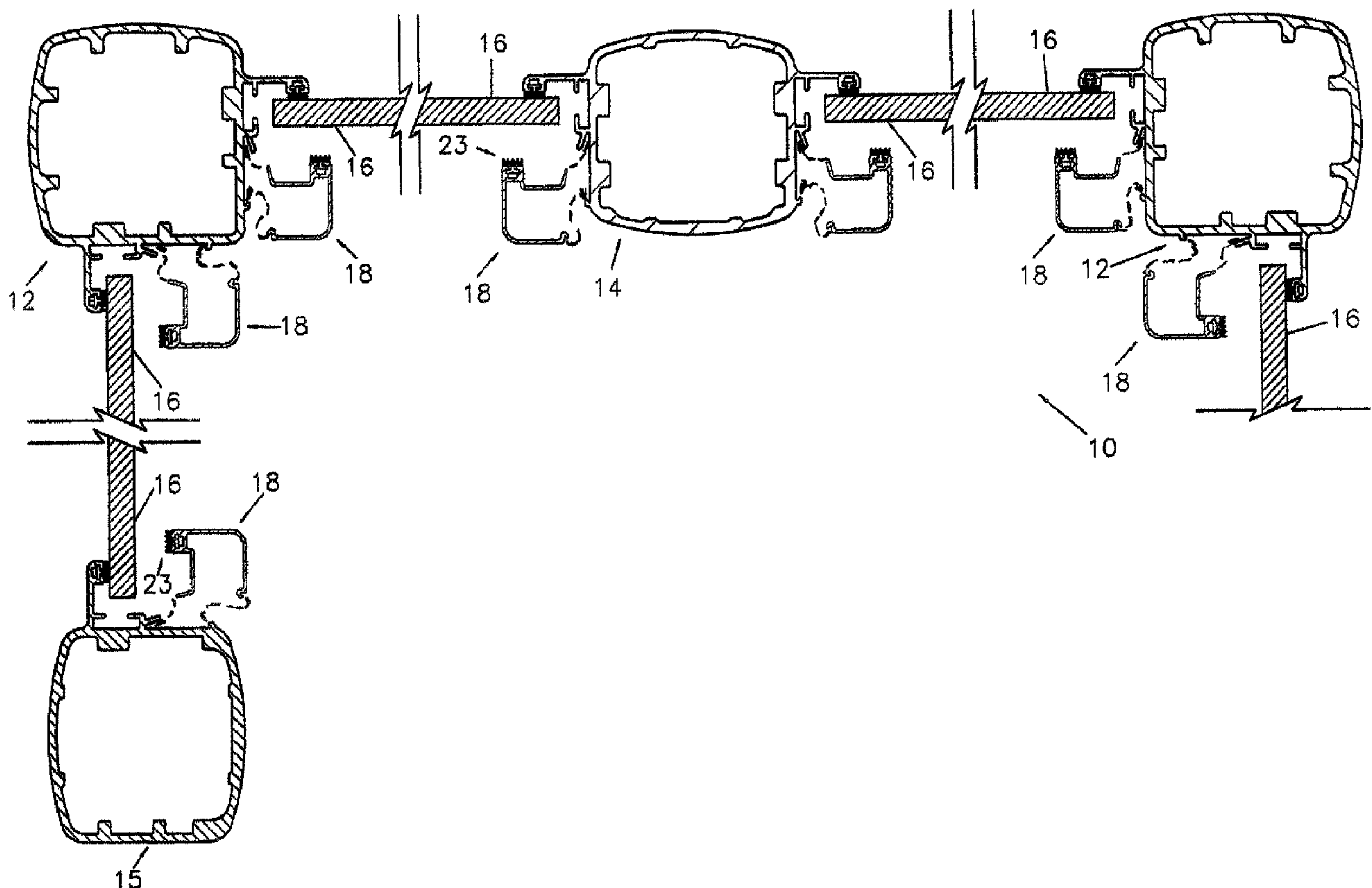
(51) Cl.Int./Int.Cl. *E04B 2/00* (2006.01),
E04B 1/343 (2006.01), *E04H 1/12* (2006.01),
E06B 3/58 (2006.01)

(72) Inventeur/Inventor:
GOODNOUGH, ROBERT A., CA

(73) Propriétaire/Owner:
GOODNOUGH, ROBERT A., CA

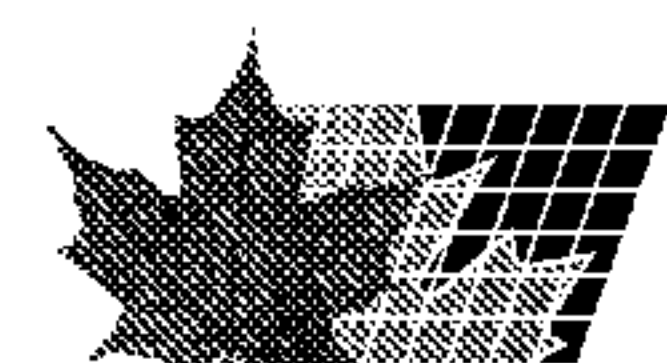
(54) Titre : SYSTÈME DE STRUCTURE DE MUR PREFABRIQUEE

(54) Title: PREFABRICATED WALL STRUCTURE SYSTEM



(57) Abrégé/Abstract:

A prefabricated wall structure used in bus shelters, smoking shelters, etc, has hollow, extruded post sections for use in supporting the roof, each post having at least one substantially smooth face, at least one adjoining face having a glazing receiver section projecting therefrom along its length, to receive a glazing panel. Glazing snap members secure the glazing panel to the glazing receiver, with snap-retention rib projections extending parallel with the glazing receiver section, removable securing the glazing



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

snap. The two-element panel mounting system provides for various combinations of corner posts, mid-posts and/or door posts. Handing of the posts and other components is obtained by merely reversing the component longitudinally. The free sides of the posts may be curved, and all their corners radiused, as are also the external corners of the glazing receiver sections, and also the glazing snap. These latter two each include profiled recesses to receive an extruded rubber seal in inserted, anchored relation therein. The respective posts (corner, mid-post and door post) may be oriented such that the glazing snaps are located within the shelter structure, for unrestricted installation and/or removal of the glazing panels.

ABSTRACT

A prefabricated wall structure used in bus shelters, smoking shelters, etc, has hollow, extruded post sections for use in supporting the roof, each post having at least one substantially smooth face, at least one adjoining face having a glazing receiver section projecting therefrom along its length, to receive a glazing panel. Glazing snap members secure the glazing panel to the glazing receiver, with snap-retention rib projections extending parallel with the glazing receiver section, removable securing the glazing snap. The two-element panel mounting system provides for various combinations of corner posts, mid-posts and/or door posts. Handling of the posts and other components is obtained by merely reversing the component longitudinally. The free sides of the posts may be curved, and all their corners radiused, as are also the external corners of the glazing receiver sections, and also the glazing snap. These latter two each include profiled recesses to receive an extruded rubber seal in inserted, anchored relation therein. The respective posts (corner, mid-post and door post) may be oriented such that the glazing snaps are located within the shelter structure, for unrestricted installation and/or removal of the glazing panels.

PREFABRICATED WALL STRUCTURE SYSTEM

Background Of The Invention

1. This invention is directed to a prefabricated building system employing roof-supporting extruded metal sections, having provision for the installation of panels of glass, Lexan (T.M.), acrylic, metal and composite materials, for a variety of structures, including transit shelters, smoking shelters, railside shelters, wall panel systems, wind-breaks and the like.

2. Widespread use is currently made of prefabricated shelters incorporating roof-support elements generally similar to those of the present invention. However, many of these prior art systems have a number of defects which detract significantly from their appearance and over-all benefit.

Some of the aforesaid defects include:

Post and panel constructions utilizing a three-member mounting arrangement by which glazing and other panels are assembled to the structure. The erection of such three-member assemblies is labour intensive, thus increasing their ultimate cost;

The prior art square, hollow structural posts generally have protruding channels, known as 'receivers' extending along all four sides of the extruded post section, for mounting what is termed in the industry as the 'glazing body' extrusion, using a variety of self tapping screw type fasteners. Since these

fasteners are applied subsequently to the painting of the extrusions, their use causes interruptions and breaches in the painted surfaces. Aluminum is well known for its rapid oxidization properties, and these breaches permit oxidization to initiate, take hold and begin to creep under the painted surfaces, thus destroying the adhesion between the aluminum base material and the paint itself, adversely affecting the appearance of the structure.

A third component, known as a 'glazing snap', is then clipped into place, to retain the glass or other panel, which panels per se do not form a part of the present invention.

In many instances these prior art extruded components have sharp corners and edges that are generally at least square or more acutely angled in section, and when electrostatically painted, are susceptible to the Faraday Effect, which causes the corners to receive only a very thin layer of paint protection, which over time, can also lead to paint failure.

A further disadvantage of the known prior art post sections is that the sides of the posts that are not used to secure panels are left with exposed glazing body receivers. These open section, exposed receivers enable dust, dirt, gum, insects, mold and other debris to collect in them, thus making the posts very unsanitary and unsightly. These receivers are very difficult to access and clean, and the general public is constantly exposed to these surfaces.

As described above, these prior art receivers are very

difficult to paint, even with the use of electrostatic painting equipment. Without a full and proper application of paint, these surfaces are susceptible to oxidization, which may ultimately lead to a paint failure.

Brief Summary Of The Invention

The present invention provides a prefabricated wall structure, for use in supporting a roof, and having hollow, extruded post sections, each with at least one substantially smooth face, at least one adjoining face having a glazing receiver section projecting therefrom and extending along substantially the length of the post, to receive a glazing panel in inserted relation therein;

at least one glazing snap member to secure the glazing panel to the glazing receiver, and snap-retention rib projections extending parallel with the glazing receiver section, to receive the glazing snap in removable secured relation therewith.

Thus, there is provided a two-element panel mounting, having a glazing receiver section into which an edge of a glazing panel may be entered, and adjacent, inclined snap retention ribs; and a glazing snap, for attachment to the ribs, in securing relation with the glazing panel.

There are provided three types of posts, namely a corner post door post and a mid-post.

The corner posts have two adjoining smooth sides and two opposed sides each having a glazing receiver section, and snap retention ribs.

The mid-posts each have two opposed smooth sides and two sides each with a glazing receiver section, and snap retention

ribs.

The door post has a glazing receiver section, in opposed relation to its flat end face. The inner and outer faces of the post are outwardly convexly curved.

The smooth sides of the respective posts may be curved, and all their corners radiused. Also, the external corners of the glazing receiver sections may be radiused, as is also the glazing snap.

The glazing receiver sections and the opposed glazing snap each include profiled recesses to receive an extruded rubber seal in inserted, anchored relation therein. The glazing snap is sized so as to apply, when assembled, a compressive force of the seal to the face of the panel in the order of four to six pounds per linear inch.

In the case of a shelter, such as a bus shelter that is erected against a backing wall of an existing structure, the respective posts (corner and mid-post) may be oriented such that the glazing snaps are located within the shelter structure, thus providing unrestricted access for installation and/or removal of the glazing panels, and making replacement of the glazing panel or panels a comparatively simple operation.

The present system includes mullion and wind-skirt members, incorporating a glazing receiver section or sections corresponding with the above described glazing receiver provisions.

Brief Description of The Several Views Of The Drawings

Certain embodiments of the present invention are described by

way of example, without limitation of the invention thereto other than as set forth in the present claims, reference being made to the accompanying drawings, wherein:

Figure 1 is a plan view in cross section of a portion of wall of a building structure in accordance with the present invention;

Figure 2 is an enlarged view of portions of Figure 1, showing a corner post and a mid-post;

Figure 3 is a plan view in cross section of a glazing snap and a cross section of the extruded rubber seal;

Figure 4 is a plan view in cross section of a wind skirt for the subject structure;

Figure 5 is a plan view in cross section of a mullion cross member complete with installed glazing snaps for the subject structure;

Figure 6 is a plan view in cross section of a door-post complete with glazing snap and rubber seal for the subject structure.

Detailed Description Of The Invention

Referring to Figure 1, this shows in cross section a back and side wall portion 10 of a shelter, having two corner posts 12,12, an intermediate or mid-post 14, and an optional door post 15.

It will be understood that the left or right 'handing' of the components, such as a corner post 12 is achieved merely by inverting the post, in order to reverse it handing.

Portions of four panels, 16, 16 are illustrated, for purposes of clarity.

Seven glazing snaps 18, 18 are shown, with directional arrows to

indicate their location of installation. It will be understood that in assembly with a mullion cross member and a wind-skirt, the four edges, comprising the top, bottom and side edges of each panel 16 will be secured by the installation of a glazing snap 18.

Referring to Figure 2, the corner post 12 has two glazing receiver sections 20, located on adjacent faces 22, 24, which faces are substantially flat.

Each glazing receiver section 20, which is extruded integrally with the posts 12 and 14, consists of a protruding extruded rib having a seal housing 29 located at its outer end, for insertion of a rubber or plastic sealing strip 23. The receiver section 20 includes mutually inclined retaining ribs 30, 32 by which a glazing snap 18 is engaged. A pair of locating ribs located adjacent the surface of the post (12, 14) serve to centre a glazing panel 16 when it is installed, prior to the application of a snap 18 in sealing relation with the glazing panel 16.

The intermediate post 14 has a pair of glazing receiver sections 20, in mutually opposed relation on its side faces. The inner and outer faces of the post 14 are outwardly, convexly curved.

Referring to Figure 3, a glazing snap 18 has a base portion 38, having a seal housing 29 facing outwardly, and surmounted by a wall 40 which terminates in an inclined toe portion 42.

A second wall 44, extending substantially parallel with the wall 40 has a hooked heel portion 46.

In use, with a rubber or plastic sealing strip 23 secured in the seal housing 29, the snap 18 is secured to its respective

post, by inserting the toe portion 42 in engaged relation beneath the retaining rib 30 and the hooked heel portion 46 in engaging relation with retaining rib 32.

This installation will then automatically result in the rubber sealing strip 23 pressing with predetermined sealing force against the inserted glazing panel 16, adjacent its edge.

Referring to Figure 4, a wind-skirt 50 has a substantially rectangular body, being illustrated with three ribs 52, along its bottom surface, to make contact with the ground on which the construction stands. The corners of the wind-skirt 50 are radiused, and its two sides may be curved. The top face of the wind-skirt 50 has a glazing receiver section 20, as described above, to which the bottom edge of a glazing panel 16 may be mounted, and secured thereto by means of a snap 18, in engaged relation with the wind-skirt 50.

Referring to Figure 5, a mullion member 54 has an arrangement and shape similar to an intermediate post 14, with a pair of glazing receiver sections 20, in mutually opposed relation on its top and bottom faces. The two side faces of the mullion member 54 may be outwardly convexly curved. The mullion 54 is used to connect two adjacent glazing panel portions 16 along their adjacent horizontal edges. A pair of glazing snaps 18 engage the glazing panel portions 16, being mounted on the upper and lower receiver sections 20 of the mullion 54.

Referring to Figure 6, the door post 15 has a glazing receiver section 20, in opposed relation to its flat end face. The inner and outer faces of the post 15 are outwardly convexly curved.

CLAIMS

1. A prefabricated load-bearing wall structure, for use in supporting a roof, said wall structure having unitary hollow, extruded load-bearing post sections, each with at least one wall having a substantially smooth outer face, at least one adjoining wall face having a glazing receiver section projecting from said post section and extending along substantially the length of the post section, in use to receive a glazing panel in inserted relation therein; snap-retention rib projections extending from said post section parallel with the glazing receiver section, for attachment of glazing attachment snap means to the post section, to receive a said glazing attachment snap means in removably secured relation with said post section, and at least one glazing attachment snap means removably attachable to said post section, in use to press with predetermined sealing force against said glazing panel, to secure said glazing panel in secured relation to said post section.
2. The structure as set forth in Claim 1, wherein said snap retention rib projections are in spaced-apart, mutually inclined relation; said glazing attachment snap means having an inclined toe portion and a hooked heel portion to engage said snap retention ribs in engaged, removable relation.
3. The structure as set forth in Claim 1, wherein said post sections comprise corner posts and intermediate posts, each said post having two said glazing receiver sections.
4. The structure as set forth in Claim 3, wherein said corner post section comprises a pair of substantially smooth outwardly convex curved faces, in mutually adjoining relation, and two adjoining substantially planar faces, each having a said glazing receiver section thereon.

5. The structure as set forth in Claim 3, wherein said intermediate post section comprises a pair of substantially smooth outwardly convex curved faces, in mutually opposed relation, and two mutually opposed substantially planar faces, each having a said glazing receiver section extending therealong.
6. The structure as set forth in Claim 1, said glazing attachment snap means having a toe portion, and a hooked heel portion in spaced relation from said toe portion, each in use to engage a respective said snap-retention rib projection.
7. The structure as set forth in Claim 1, further including, a mullion member glazing assembly, comprising a pair of substantially smooth outwardly convex curved side faces of said member, in mutually opposed relation, and two mutually opposed substantially planar faces of said member, each having a said glazing receiver section thereon.
8. The structure as set forth in claim 2, claim 3 or claim 7, said glazing receiver section and said glazing attachment snap means each having a profiled recess to receive an elastomeric sealing strip in inserted, retained relation therein, to provide sealing contact with two side faces of a said panel when inserted therebetween.
9. The structure as set forth in claim 1, claim 2 or claim 3, wherein said post sections may be arranged in predetermined mutual relation, to position said glazing receiver section and said glazing attachment snap means in a predetermined orientation, relative to the structure, to facilitate insertion and replacement of a said glazing panel.
10. The structure as set forth in claim 2, claim 3 or claim 4, including a mullion member in joining relation with a pair of adjacent coplanar said glazing panels, and a wind-skirt in joined relation with the bottom edge of a said glazing panel.

11. The structure as set forth in claim 2, claim3 or claim4, further including a door post glazing assembly, comprising a pair of substantially smooth outwardly convex curved side faces, in mutually opposed relation, and two mutually opposed substantially planar faces, one having a said glazing receiver section thereon and one being substantially flat to receive a door and hinge assembly in mounted, attached relation thereto.
12. The structure as set forth in claim 1, claim 2 or claim3, wherein substantially all exposed corners of aluminum structural extrusion elements of said structure bear a predetermined safety radius.
13. The structure as set forth in claim 1, claim 2 or claim 3, having structural fastener elements that are concealed, to provide enhanced protection against vandalism.
14. The structure as set forth in claim 1, claim 2 or claim 3, wherein said unitary hollow, extruded load-bearing post sections are of aluminum, having internal strengthening ribs to enhance the rigidity and strength of the structure.
15. The structure as set forth in Claim 1, claim 2 or claim 7, wherein substantially all exposed corners of aluminum structural extrusion elements of said structure bear a predetermined safety radius, to enhance the electrostatic application and the preservation of paint applied thereover.
16. The structure as set forth in claim 1, Claim 2 or claim 7, in combination with a plurality of like wall structures and a roof in covering relation therewith, to form a free-standing enclosure.
17. The structure as set forth in Claim 16, wherein said free standing enclosure is selected from the group comprising transit shelters, smoking shelters, railside shelters and wind-breaks.

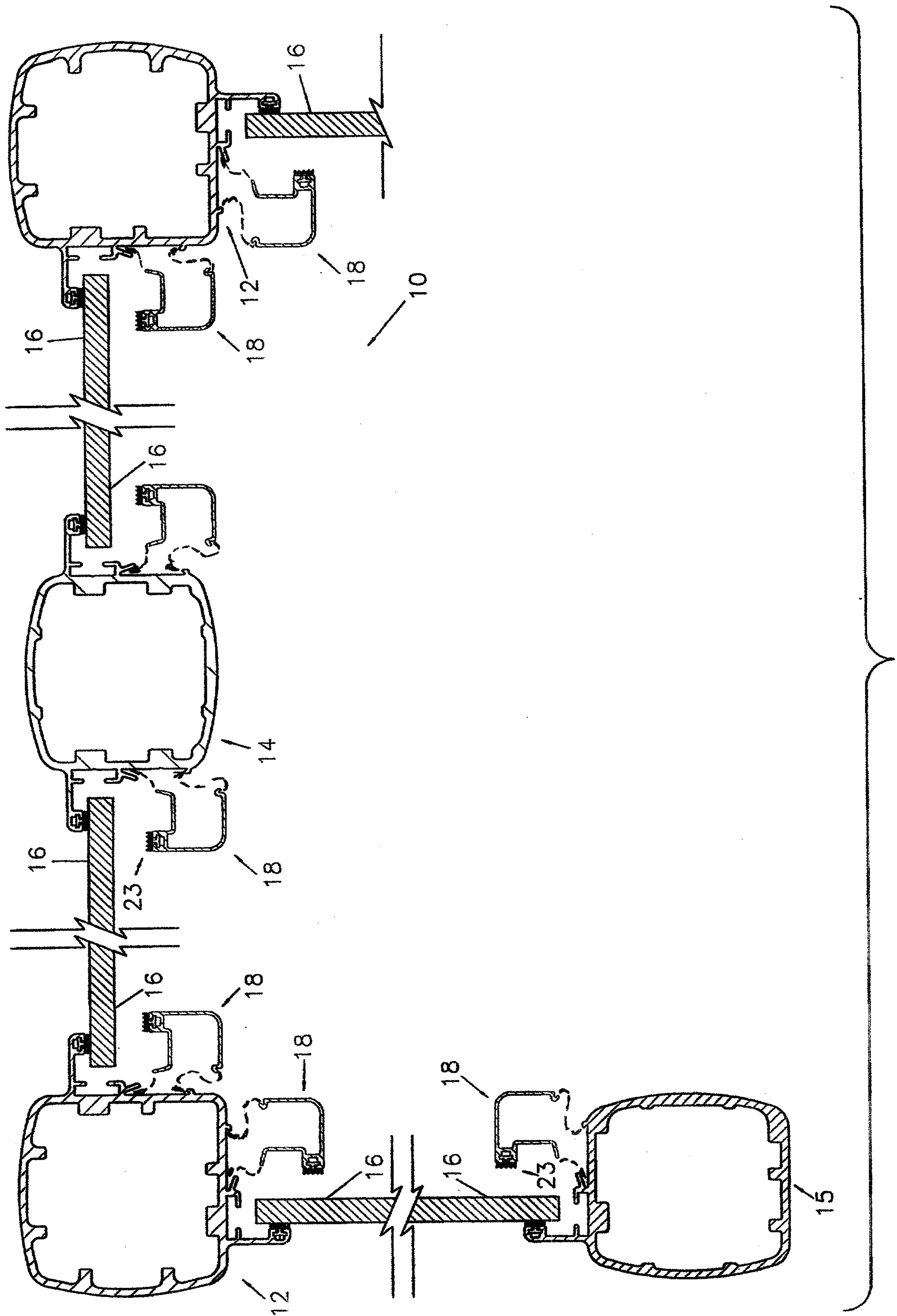
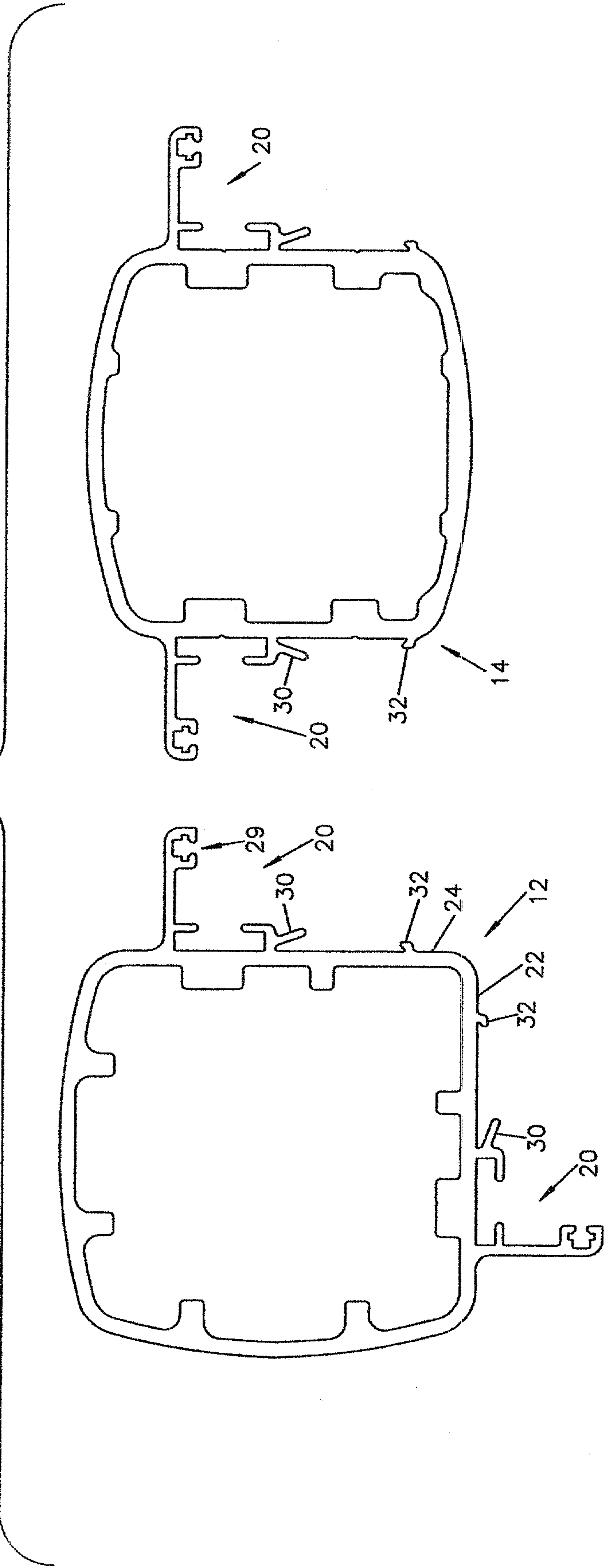


FIG. 1

FIG. 2



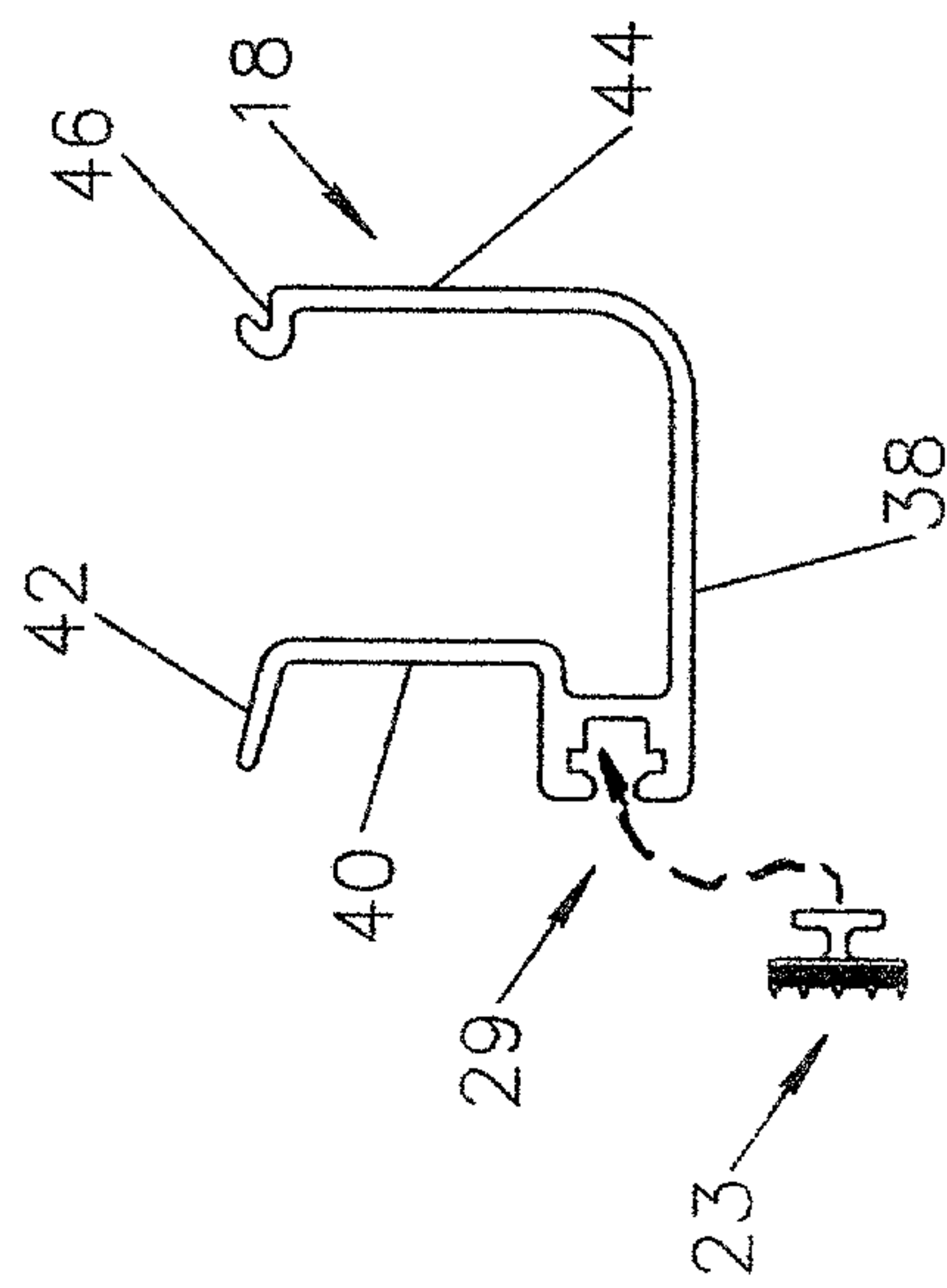


FIG. 3

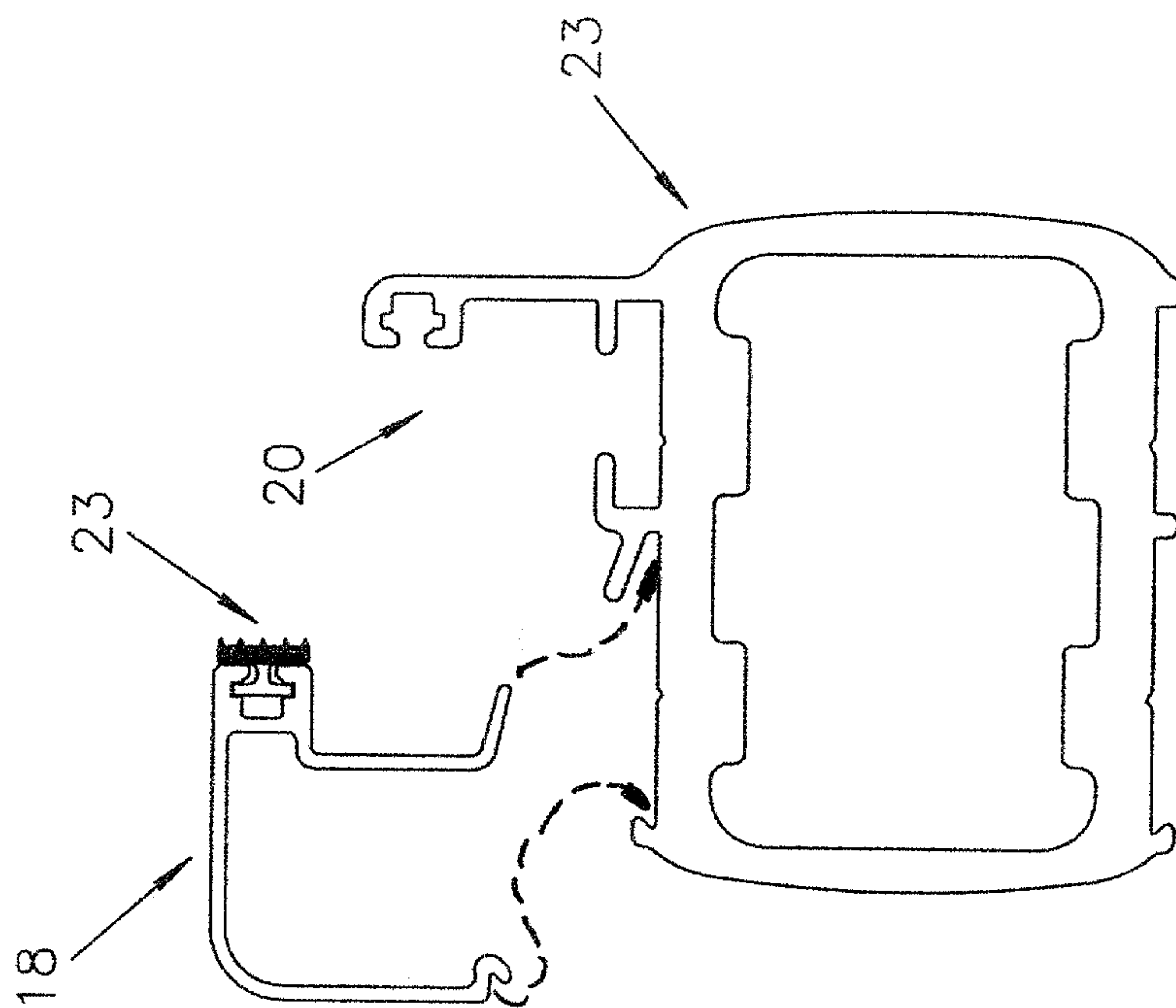


FIG. 4

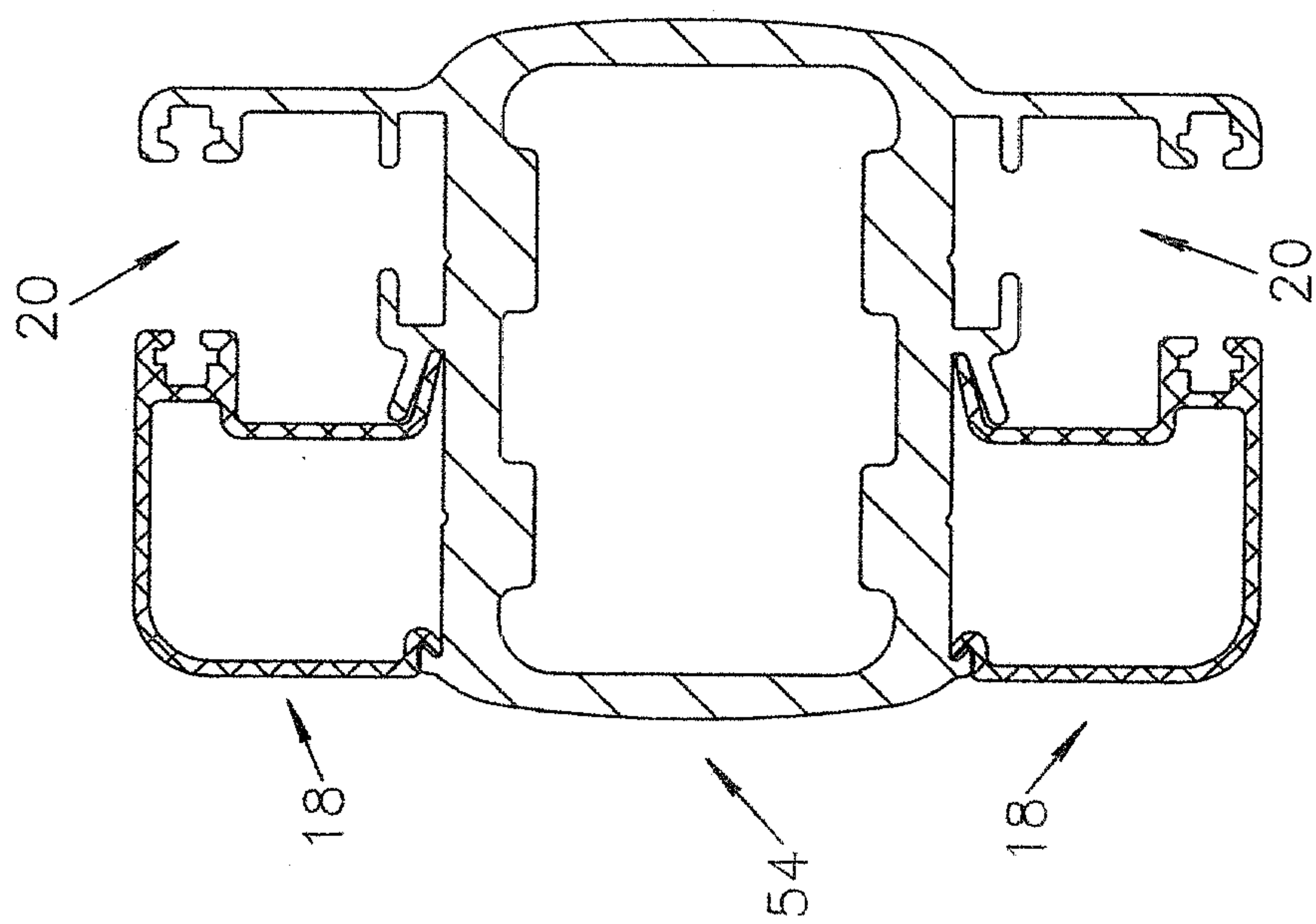


FIG. 5

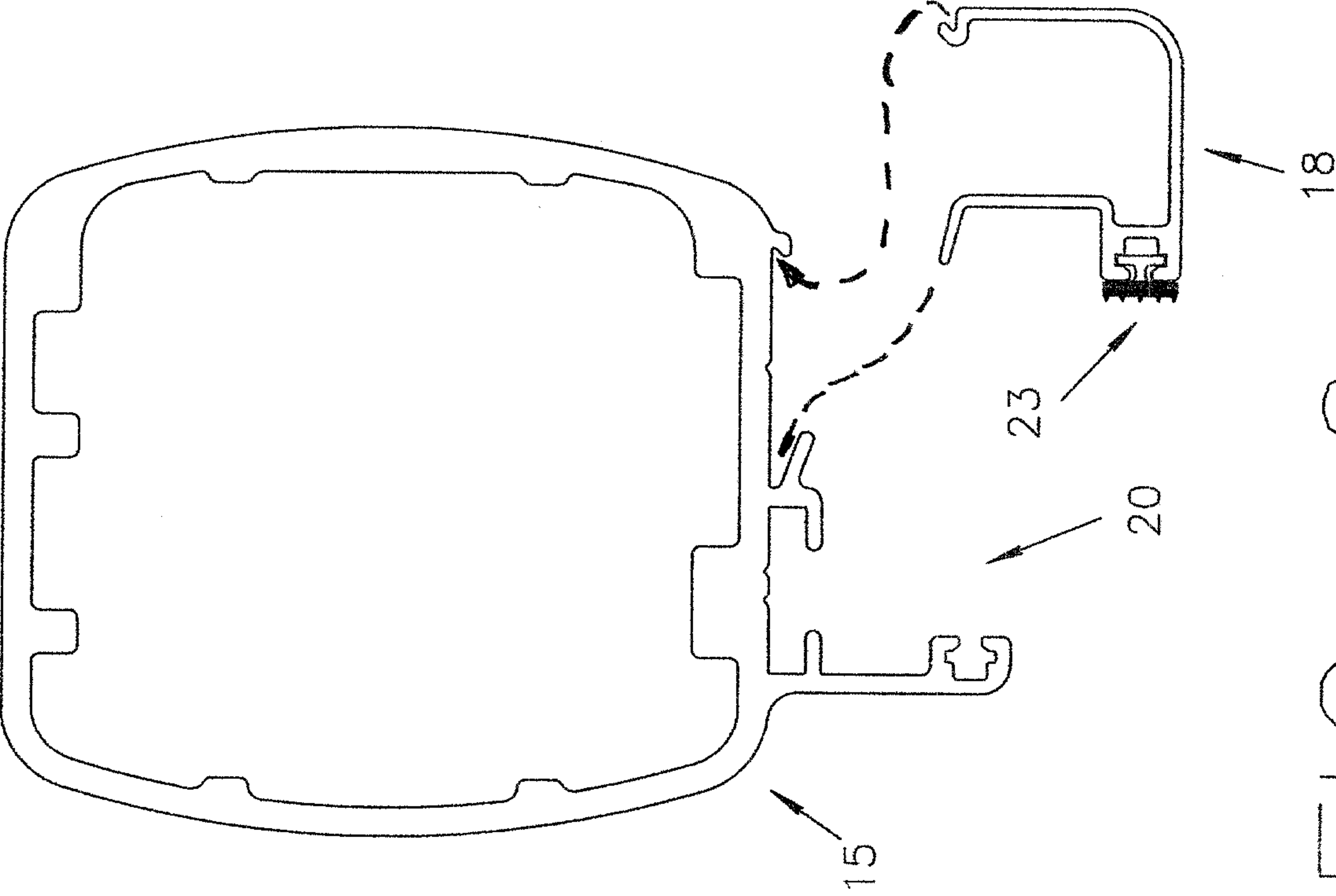


FIG. 6

