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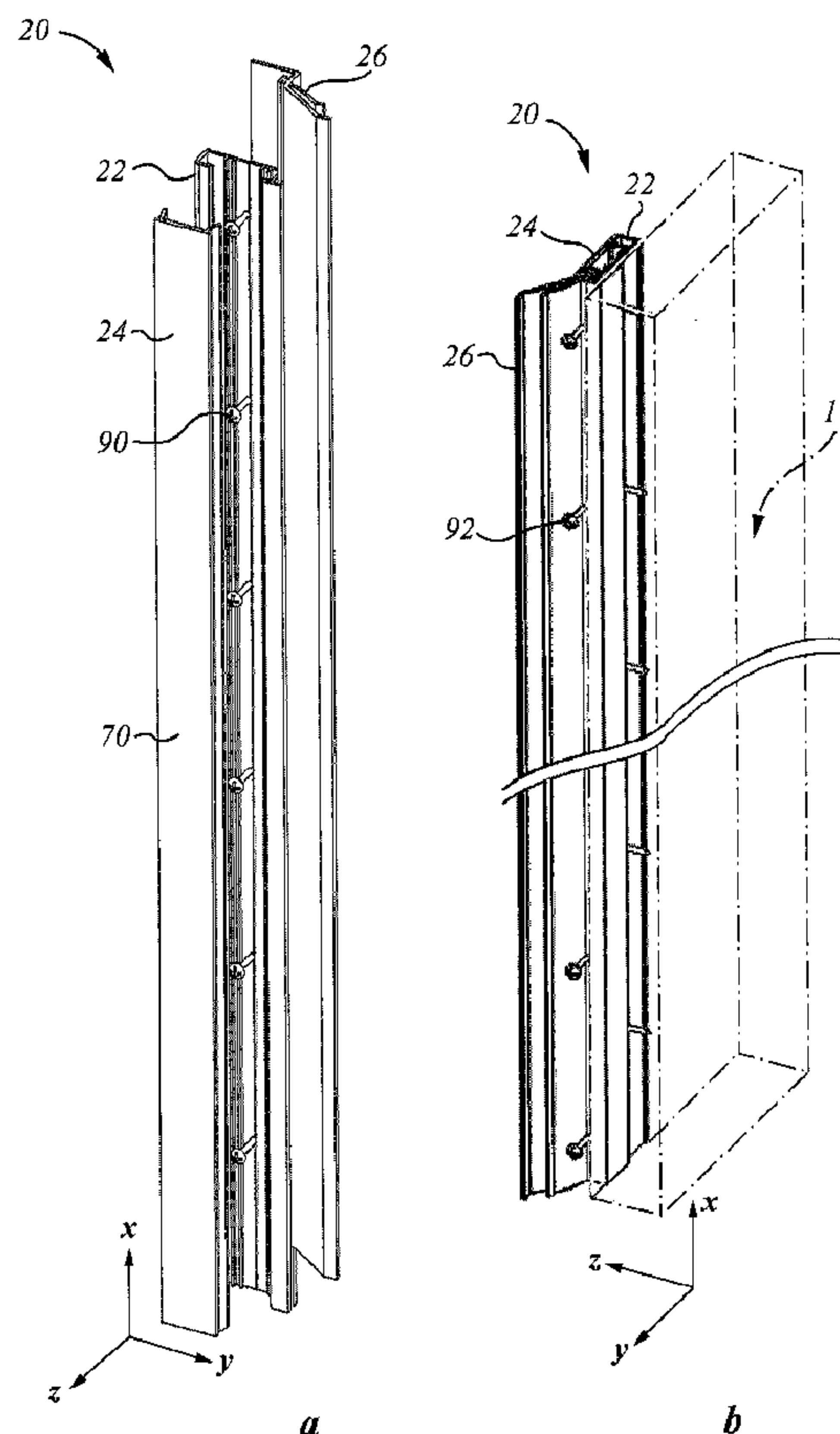
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(54) Title: DOOR SEAL FITTING



(57) Abrégé/Abstract:

A door seal fitting, such as for a garage door, may include a main body or mounting fitting; a cap, and the door seal itself. The mounting fitting has a back web or wall that is attached to a door post or door jamb. The cap seats on the mounting fitting to

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

conceal the mounting hardware of the mounting fitting. The door seal is located in a T- shaped slot on the doorward end of the mounting fitting. It is secured by mechanical fasteners that are hidden behind the seal. The mechanical fasteners pass through a web of the mounting fitting and through a wing or internal leg of the cap. The fasteners are spaced along the length of the assembly to discourage axial shrinkage or shifting of the cap relative to the mounting fitting.

**Abstract**

A door seal fitting, such as for a garage door, may include a main body or mounting fitting; a cap, and the door seal itself. The mounting fitting has a back web or wall that is attached to a door post or door jamb. The cap seats on the mounting fitting to conceal the mounting hardware of the mounting fitting. The door seal is located in a T-shaped slot on the doorward end of the mounting fitting. It is secured by mechanical fasteners that are hidden behind the seal. The mechanical fasteners pass through a web of the mounting fitting and through a wing or internal leg of the cap. The fasteners are spaced along the length of the assembly to discourage axial shrinkage or shifting of the cap relative to the mounting fitting.

## **DOOR SEAL FITTING**

### **Field of the Invention**

5 This invention relates to the field of doors seals and related mounting fittings.

### **Background of the Invention**

10 In door seal assemblies there may be a mounting fitting that is secured to the door post or door jamb, and a door seal that seats in the mounting fitting. It is often desirable for mounting hardware, such as mechanical fasteners to be concealed from view. To that end, there may be a cap or other cosmetic covering that fits on the mounting fitting.

### **Summary of the Invention**

15 In an aspect of the invention there is a door seal mounting assembly. It has a door seal holder and a cap. The door seal holder has a base member; a first seat in which to mount a door seal; and a second seat defining an accommodation for the cap. The cap has a facing and a first wing. The base member has a mounting portion for attachment to a door post by mounting  
20 hardware. The cap, when located in the cap seat, conceals the mounting hardware. The base member has a wall through which to drive mounting hardware to secure the base member to the door post, and also as a first arm extending away from the back and away from the door post. When the cap is mounted in the second seat, the facing conceals the mounting hardware of the base member. When the cap is mounted in the second seat, the wing and the web of the base  
25 member are opposed, whereby they may be secured together.

In a feature of that aspect of the invention, as installed, a plurality of axially spaced mechanical fasteners secure the first wing and the web of the first arm of the base member. In another feature, the door seal assembly includes a door seal mounted in the first seat, and, when  
30 so mounted, the door seal obscures from view mechanical fasteners securing the first arm and first wing together. In another feature, the cap mates with the second seat in a snap fit condition. In still another feature, the door seal holder has a guide. The guide is positioned inwardly of, and in opposition to the first arm. The guide is positioned to intercept the first wing on entry of the cap into the first seat. The guide constrains deflection of the first wing away from the first arm.  
35

In another feature, when assembled, the cap has a facing that lies substantially flush with the door seal holder. In still another feature, at least one of the base member and the cap is an extrusion. In a further feature, the wing is a first wing, and the cap has a second wing, the first



and second wings being symmetrically opposed. In still another feature, the back has a centering indexing groove formed therein.

In another feature, the door seal holder is an extruded plastic member. The cap is an extruded plastic member. The door seal holder has a substantially planar back for placement against a door post. A first arm extends away from the back. A second arm extends away from the back. The first and second arms define first and second opposed sides of the second seat. The first arm also has a slot defining the first seat. The first arm defines a first web. The wing is a first wing and the cap also has a second wing. The first and second wings are opposed and the cap is symmetrical about a centerline. When the cap is mounted in the second seat, the first and second wings being concealed by the facing. When the cap is mounted in the second seat, the first wing and the first web being opposed to permit a mechanical fastener to be driven through both. In a further feature, the door seal mounting assembly is found in combination with a door seal, the door seal being mounted in the first seat, and, when so mounted, the mechanical fastener also passes through the door seal and is hidden by the door seal.

In another aspect of the invention there is any combination of any of the features of any one of embodiments shown or described herein, in combination with the features of any other embodiment, except to the extent those features are mutually exclusive. In another aspect of the invention, there is any apparatus substantially as shown or described herein, in whole or in part.

### **Brief Description of the Drawings**

These aspects and other features of the invention can be understood with the aid of the following illustrations of a number of exemplary, and non-limiting, embodiments of the principles of the invention in which:

Figure **1a** shows a perspective view of a portion of a door seal assembly;

Figure **1b** shows another perspective view of the assembly of Figure **1a**, taken approximately at a right angle to the view of Figure **1a**;

Figure **2** is an enlarged detail of Figure **1b**;

Figure **3a** is an enlarged detail of Figure **1a**, in partially exploded form;

Figure **3b** shows the features of Figure **3a** as assembled;

Figure **4** is a cross-section of the base fitting of the door seal assembly of Figure **1a**;

Figure **5** is a cross section of an alternate embodiment to that of Figure **4**; and

Figure **6** is a cross-section of a further alternate embodiment to that of Figure **4**.

### **Detailed Description**

5 The description that follows, and the embodiments described therein, are provided by way of illustration of an example, or examples, of particular embodiments of the principles of the present invention. These examples are provided for the purposes of explanation, and not of limitation, of those principles and of the invention. In the description, like parts are marked throughout the specification and the drawings with the same respective reference numerals. The drawings may be understood to be to scale and in proportion unless otherwise noted. The  
10 wording used herein is intended to include both singular and plural where such would be understood, and to include synonyms or analogous terminology to the terminology used, and to include equivalents thereof in English or in any language into which this specification may be translated, without being limited to specific words or phrases.

15 For the purposes of this description, it may be that a Cartesian frame of reference may be employed. In such a frame of reference, the long, or largest, dimension of an object may be considered to extend in the direction of the x-axis, the base of the article, where substantially planar, may be considered to extend in an x-y plane, and the height of the article may be measured in the vertical, or y-direction. Accordingly, the width of the window assembly  
20 described herein may be arbitrarily designated as the x-direction; and the height may be arbitrarily designated as the y-direction. The through-thickness is then the z-direction. In the present specification, reference is made to door trim fittings that may be formed as extruded members. When speaking of extrusions, the direction of extrusion is the x-direction, the lateral direction is the y-direction, and the through-thickness is the z-direction. In terms of the context  
25 of a door seal fitting assembly such as mounted to a door post, the x-direction then also becomes the vertical direction, the y-direction is the horizontal direction parallel to the face of the door post or door jamb, and the z-direction is the direction horizontal and perpendicular to the door post or door jamb. Unless noted otherwise, the terms “inside” and “outside”, “inwardly” and “outwardly”, refer to location or orientation relative to the door. In this description, when an  
30 item, or structure, or wall, is indicated as being insulated, such term is understood to mean that the wall has a layer of insulation. In this specification, The commonly used engineering terms “proud”, “flush” and “shy” may be used to denote items that, respectively, protrude beyond an adjacent element, are level with an adjacent element, or do not extend as far as an adjacent element, the terms corresponding conceptually to the conditions of “greater than”, “equal to” and  
35 “less than”.



Referring to the Figures, and by way of a general overview, a door seal assembly is indicated generally as **20**, such as for mounting to a door post or door jamb **10**. Door seal assembly **20** may be a garage door seal, for use with a multi-section track-following roll-up door. Door seal assembly **20** has a first, or mounting, member **22**; a second, or cap, cap member **24**; and a door seal **26**. All of members **22**, **24**, and **26** may be extrusions, and the direction of extrusion may be termed the axial direction. The mounting member **22** may have the form of a mounting bracket, or channel, having a first portion or member, or base member, or back, identified as **28**; and a pair of first and second arms **30**, **32**. Mounting member **22** also has a first seat, namely a door seal seat, **34**. Mounting member **22** also has a second seat, namely a cap seat **36** which defines an accommodation for receiving cap member **24**.

Back **28** of mounting member **22** may include a planar, or substantially planar, main portion **38** which may have an externally facing wall surface **40**, and an internally facing wall surface **42**. Back **28** may also have a spaced array of stiffening ribs **44**. Along the centerline about which the ribs are symmetrically spaced there may be a centerline slot or groove **46**. On the doorward end of back **28** there may be a finger **48**. Finger **48** stands outwardly of back **28**, pointing away from the door jamb.

First arm **30** may include a web **50** that stands perpendicularly away from the internal face of back **28**, on the door-ward end thereof relative to ribs **44**. Web **50** may be substantially planar. The proximal end of web **50** is rooted to back **28**. The distal end of web **50** stands outwardly away from back **28**. At the inside of the distal end is a stepped flange, or rail, **52** that defines one half of second seat **36**. At the door-ward side first arm **30** may include a flange **54** having a backwardly bent toe **56**.

Door seal seat **34** may be the T-shaped slot **60** defined between have the opposed first and second spaced apart angled legs formed by flange **54** and toe **56** on one hand, and by the door-ward end and finger **48** on the other hand, door-ward of web **50**.

Second arm **32** may include a web **62** and an inwardly turned stepped flange **64** that stands in opposition to rail **52**, those two elements defining the respective doorward and outward halves of cap seat **36**, spaced symmetrically inboard and outboard of groove **46**. At the jamb end of second arm **32** there may be a protrusion, or stub, or toe, or dog, or fulcrum **66**.

Cap **24** may be an extrusion, and may include a main portion, or web, **70** having first and second (or outboard and inboard) edges **72**, **74** such as engage corresponding reliefs formed in



the stepped-edge flanges **54** and **64** of first and second arms **30**, **32** of mounting member **22**. At each of inboard and outboard edges **72**, **74** may be formed a channel, or ledge, or notch, or accommodation **76**, such as may engage the stepped toe of flange **54** or **64** as may be, such that cap **24** may be restrained in the direction normal to back **28** (and therefore also to the door jamb, **10**), and such that the external face **96** of cap **24** may lie flush with, or substantially flush with, the outward extremities of arms **30**, **32**, such that the externally exposed surface of the assembly as a whole may be generally smooth. At each end of cap **24**, a wing or leg **58** extends inwardly and away from web **70**. Each wing or leg **58** is canted or splayed outward, and has, adjacent its root, a catch, notch, abutment, or detent **68**. Each leg **58** is biased outward to stand, at rest, in the splayed condition. On being squeezed toward each other, legs **58** can be introduced between the opposed halves of seat **36**. As cap **24** is driven forward toward back **28**, and home such that the respective ends of web **70** seat in the accommodations defined by the stepped edges or toes of flanges **54** and **64**. The act of engagement causes the sloped cam faces of detents **68** to ride against those toes, thereby deflecting and releasing detents **68** and causing a snap fit. Wing **58** is of a length such that the distant tip of wing **58** does not bottom out on back **28** of mounting member **22** before cap **24** is home and engaged in second seat **36**. However, as tip **78** advances, it extends past the extremity of the raised ribs **44**, and may be deflected in the direction tending more strongly to force detents **68** against first and second arms **30**, **32**.

Door seal **26** may be of many different shapes and sizes. In the embodiment shown, door seal has a root **80**, a main web **82**, a primary wiper **84**, a secondary wiper **86**, and a flange or anchor web **88**. Root **80** is sized to fit within slot **60**, the stem fitting in the gap between finger **48** and toe **56**, and the cross-bar of the T of root **80** being spaced from main web **82** to admit, and capture, finger **48** and toe **56** therebetween.

Main web **82** and anchor web **88** may lie at right angles, the one forming, in effect, a flange to the other. Main web **82** may be sized to be a strip having an inside dimension corresponding to the depth of mounting member **22** across the end face defined by finger **48** and toe **56**. When installed, mounting hardware **90**, e.g., a screw or nail, is driven through back **28** at centerline groove **46** and into jamb **10** mounting member **22** pivots on fulcrum **66**, and anchor web is squeezed between back **28** and jamb **10**.

Cap **24** is then introduced between flanges **54** and **64** and driven home. Once in place, wing **58** stands generally in opposition to web **50**, and spaced therefrom. A mechanical fastener **92** (again, a screw or nail) is driven centrally into main web **82**, between finger **48** and toe **56**, and generally centrally through web **50** of first arm **30**. As it advances further inwardly, it



encounters and pierces wing **58**, thereby inhibiting wing **58** from axial movement relative to mounting member **22**. In this process, wing **58** is inhibited from deflecting away from mechanical fastener **92** by the presences of one or another of ribs **44**, which function as abutments, or stops, that limit its backward deflection. Additional mechanical fasteners **92** can be driven into wing **58** at axially spaced locations therealong, to the far end thereof, thereby tending to discourage movement of wing **58**, and consequently web **70** and cap **24** generally, relative to mounting member **22**. In this condition, cap **24** conceals mounting hardware **90**. It may also be noted that fasteners **92** also provide spaced securement of door seal **26** to mounting member **22** as well. Where a plurality of fasteners is spaced along the various parts, those fasteners may tend to discourage axial shrinkage or movement between the parts. It may also be notes that as installed, fasteners **92** may tend not to be externally visible. That is, from the front side they are hidden by mounting member **22**. Laterally fasteners are hidden behind door seal **26**, being between door seal **26** and the door post or jamb **10**. Rearwardly fasteners **92** are hidden by the door itself when closed. The door may be a sectional rolling garage door.

On some occasions, a garage door portal may be exposed to the sun for relatively long periods of time, and the air circulation adjacent to the door may be minimal. Particularly where the door seal and trim fittings are darker colours, the plastic extrusions may tend to become warm. At times the cap may become warm enough that it may tend to want to shrink or twist, or distort. Shrinkage in the axial direction may then leave a gap. The underlying mounting fitting may be secured along its length to the door post, and so may be restrained against shrinkage. By using a plurality of axially spaced apart mechanical fasteners **92**, such as screws, the cap **24** may then also be constrained in terms of shrinkage or movement relative to the underlying mounting member. Mechanical fasteners **92** are placed on the door-ward side of the assembly, and, unlike the exposed outward side, are concealed from view by the seal itself. When thus held at both ends, and perhaps at additional intermediate positions, cap **24** may be discouraged from moving or distorting. The juxtaposition, i.e., the opposed, axially running placement, of the web of the stationary back member, namely web **30**, and the corresponding web of the cap member, namely wing or leg **58** of cap **24**, provides two reference elements that may then be held together, or interlinked, or secured, in axial position to restrain relative motion between the parts. In the example this interlinking is achieved by mechanical fasteners **92**. Conveniently, fasteners **92** are effectively hidden from view behind door seal **26**.

The embodiment of Figure **5** is substantially similar to the embodiment of Figure **4**, but rather than having two wings **58**, in assembly **120**, cap **124** has only a single wing **58**. Whereas cap **24** is symmetrical, and can be turned end-for-end as the user may please, cap **124** is not

symmetrical. Otherwise it is the same, and installation is as above, except that the short detent **128** is engaged on the stepped edge of second arm **32** first, and then wing **58** is moved inside of the stepped edge of arm **30**.

5           The embodiment of Figure **6** is substantially similar to the embodiments of Figures **4** and **5**. However, in this instance, assembly **140** has a mounting member **142** that has a first arm **150**, but, in place of second arm **32**, assembly **140** has a very small arm, or a ledge, or abutment, or rail, or stop **152**. Likewise, cap **144** has one side and one wing for engaging first wing **30**, as before. Cap **144** also has, however, an opposite edge, or foot **154** that engages stop **152**. Stop  
10   **152** and foot **154** may have a male-and-female mating arcuate relationship such that then may be first engaged, and web **160** rotated to bring wing **58** into engagement as before. In this instance, cap **144** is not symmetrical, and mounting member **142** has only one arm, not two. Furthermore, whereas the outward presentation face of cap **24** may be substantially parallel to the face of the door post or door jamb **10**, the outward face **156** of cap **144** is not. It may be inclined obliquely,  
15   or rounded to form a relatively smooth presentation surface.

In the embodiments shown and described, the mounting member, the cap, and the door seal are all extrusions. The door seal is typically a flexible rubber member. The mounting member and the cap may be made of a rigid plastic.

20           Although the various embodiments have been illustrated and described herein, the principles of the present invention are not limited to these specific examples which are given by way of illustration, but only by a purposive reading of the claims.



**Claims**

I claim:

- 5        1.        A door seal mounting assembly comprising:  
a door seal holder and a cap;  
said door seal holder having a base member; a first seat in which to mount a door seal;  
and a second seat defining an accommodation for said cap;  
said cap having a facing and a first wing;  
10        said base member having a mounting portion for attachment to a door post;  
said base member having a wall through which to drive mounting hardware to secure  
said base member to the door post, and a first arm extending away therefrom;  
when said cap is mounted in said second seat, said facing concealing the mounting  
hardware of the base member;  
15        when said cap is mounted in said second seat, said wing and said web of said base  
member being opposed.
- 20        2.        The door seal mounting assembly of claim 1 wherein, as installed, a plurality of axially  
spaced mechanical fasteners secure said first wing and said web of said first arm of said base  
member.
- 25        3.        The door seal mounting assembly of claim 1 wherein said door seal assembly includes a  
door seal mounted in said first seat, and, when so mounted, said door seal obscures from view  
mechanical fasteners securing said first arm and first wing together.
- 30        4.        The door seal mounting assembly of claim 1 wherein said cap mates with said second  
seat in a snap fit condition.
- 35        5.        The door seal assembly of claim 1 wherein said seal holder has a guide, said guide being  
positioned inwardly of, and in opposition to said first arm, said guide being positioned to  
intercept said first wing on entry of said cap into said first seat, said guide constraining deflection  
of said first wing away from said first arm.
6.        The door seal assembly of claim 1 wherein, when assembled, said cap has a facing that  
lies substantially flush with said door seal holder.

7. The door seal assembly of claim 1 wherein at least one of said [first member] and said cap is an extrusion.

8. The door seal assembly of claim 1 wherein said wing is a first wing, and said cap has a second wing, said first and second wings being symmetrically opposed.

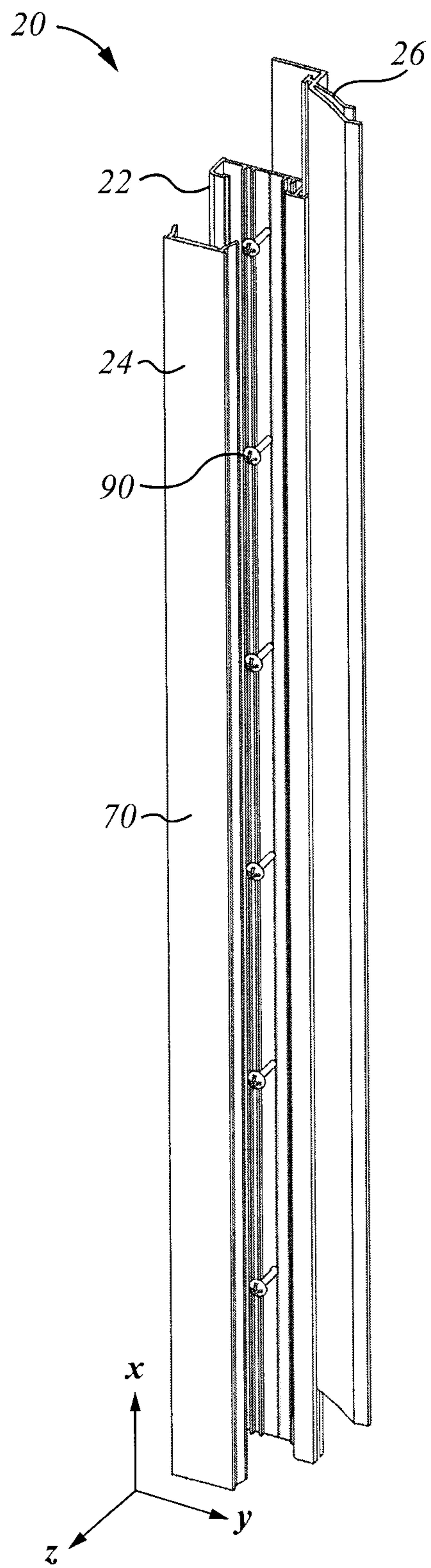
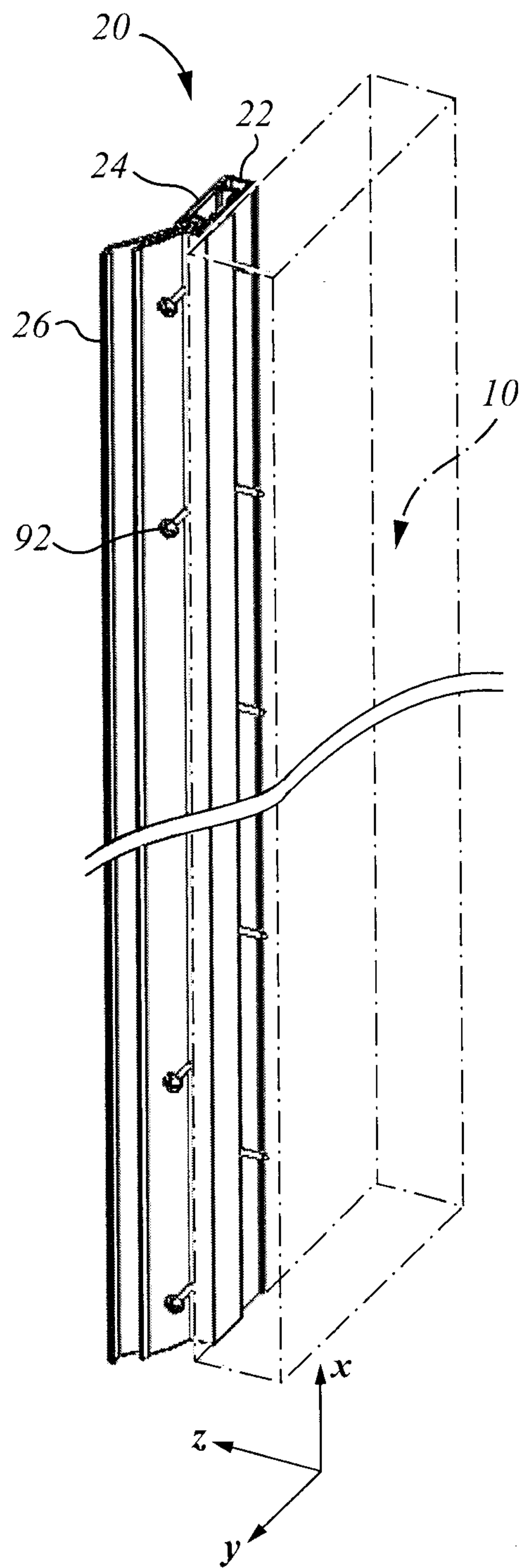
9. The door seal assembly of claim 1 wherein said back has a centering indexing groove formed therein.

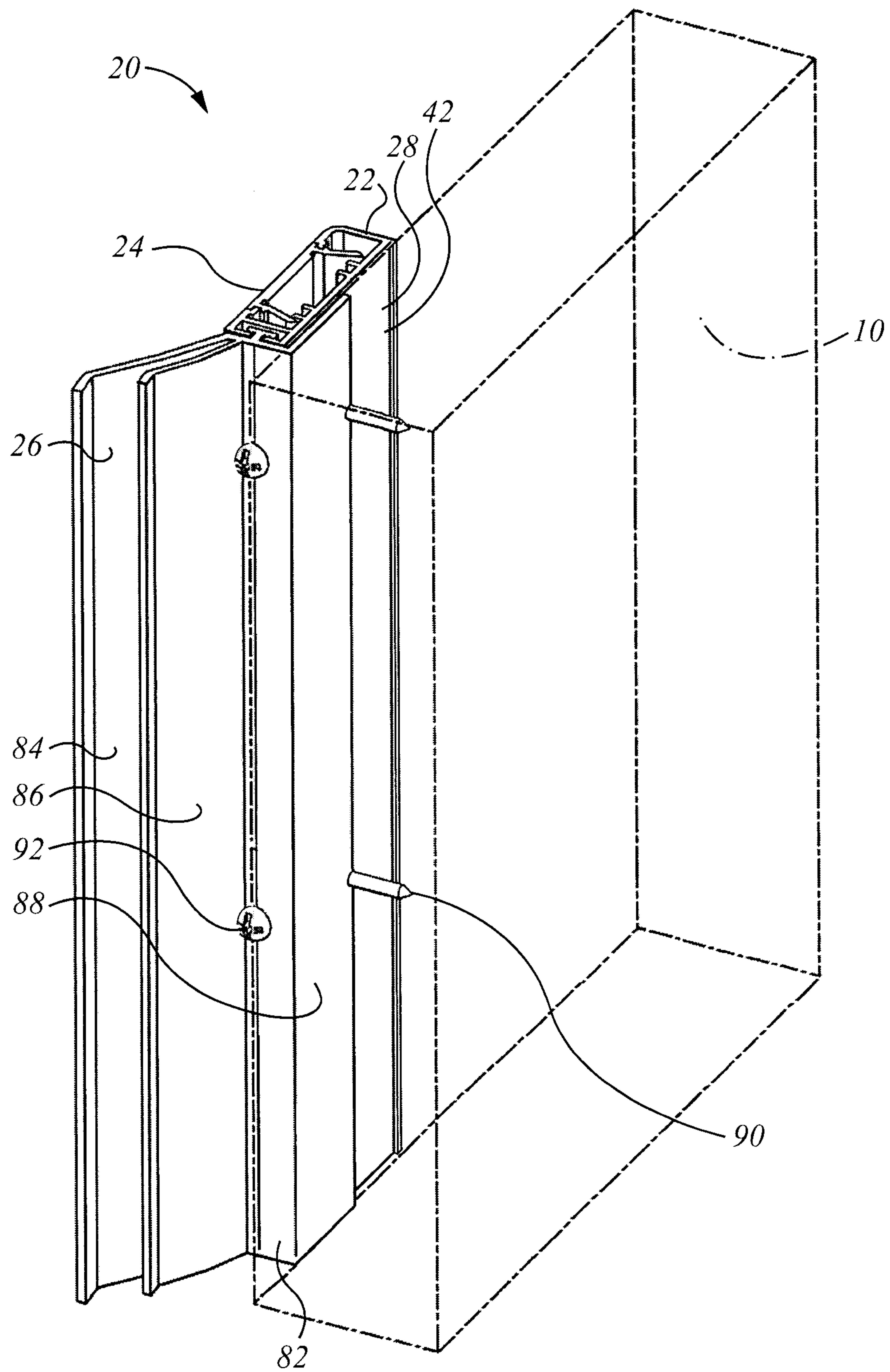
10. The door seal mounting assembly of claim 1 wherein:  
the door seal holder is an extruded plastic member;  
the cap is an extruded plastic member;  
the door seal holder has a substantially planar back for placement against a door post; a first arm extending away from said back; a second arm extending away from said back, said first and second arms defining first and second opposed sides of said second seat;  
said first arm also having a slot defining said first seat;  
said first arm defining a first web;  
said wing is a first wing and said cap also has a second wing, said first and second wings being opposed and said cap being symmetrical about a centerline;  
when said cap is mounted in said second seat, said first and second wings being concealed by said facing; and  
when said cap is mounted in said second seat, said first wing and said first web being opposed to permit a mechanical fastener to be driven through both.

11. The door seal mounting assembly of claim 10 in combination with a door seal, said door seal being mounted in said first seat, and, when so mounted, the mechanical fastener also passes through said door seal and is hidden by said door seal.

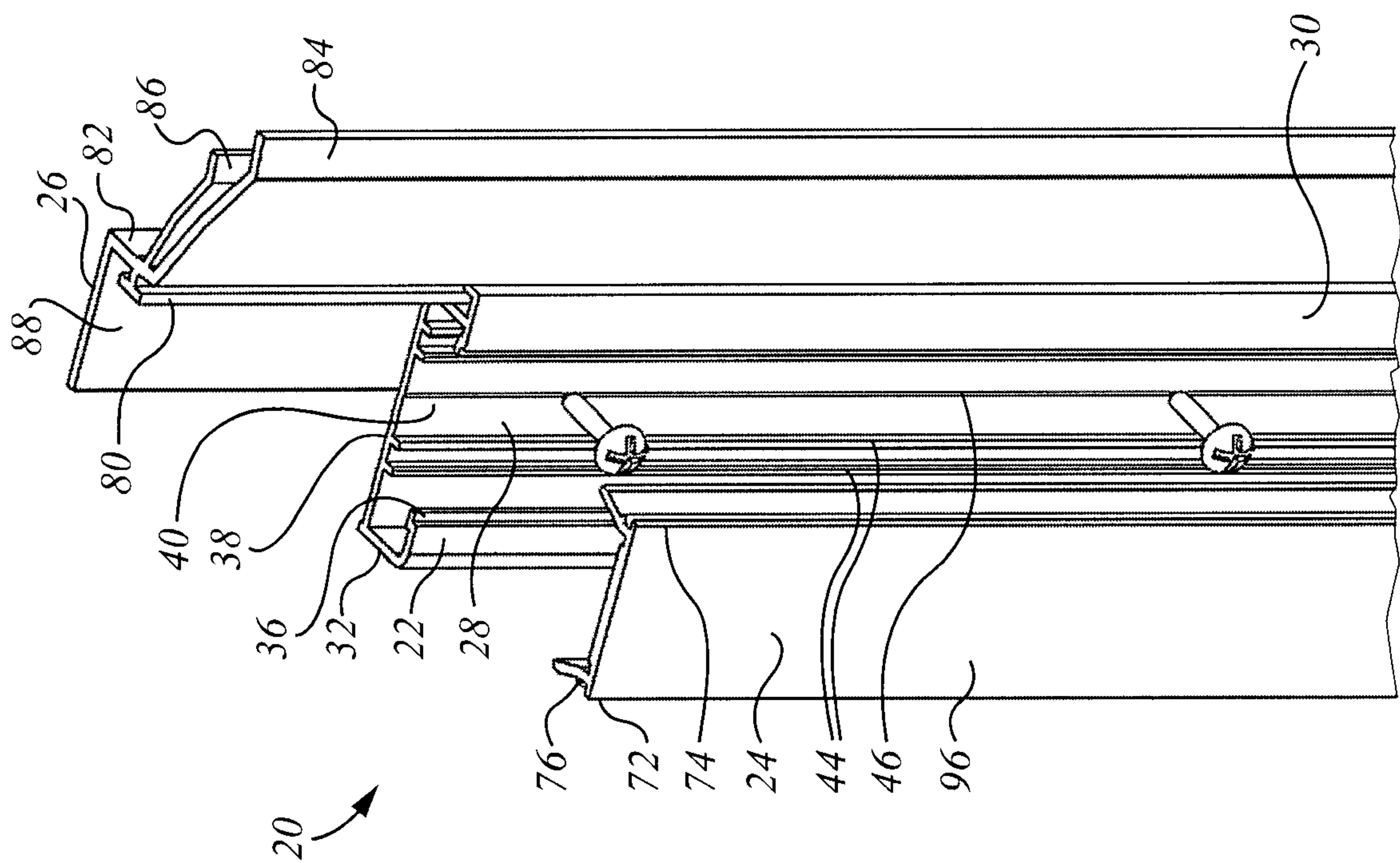
12. The door seal mounting assembly of claim 1 wherein said door seal holder and said cap have respective first and second ends, and mechanical fasteners are driven through said wing of said cap and said web of said base member at both of said first and second ends.



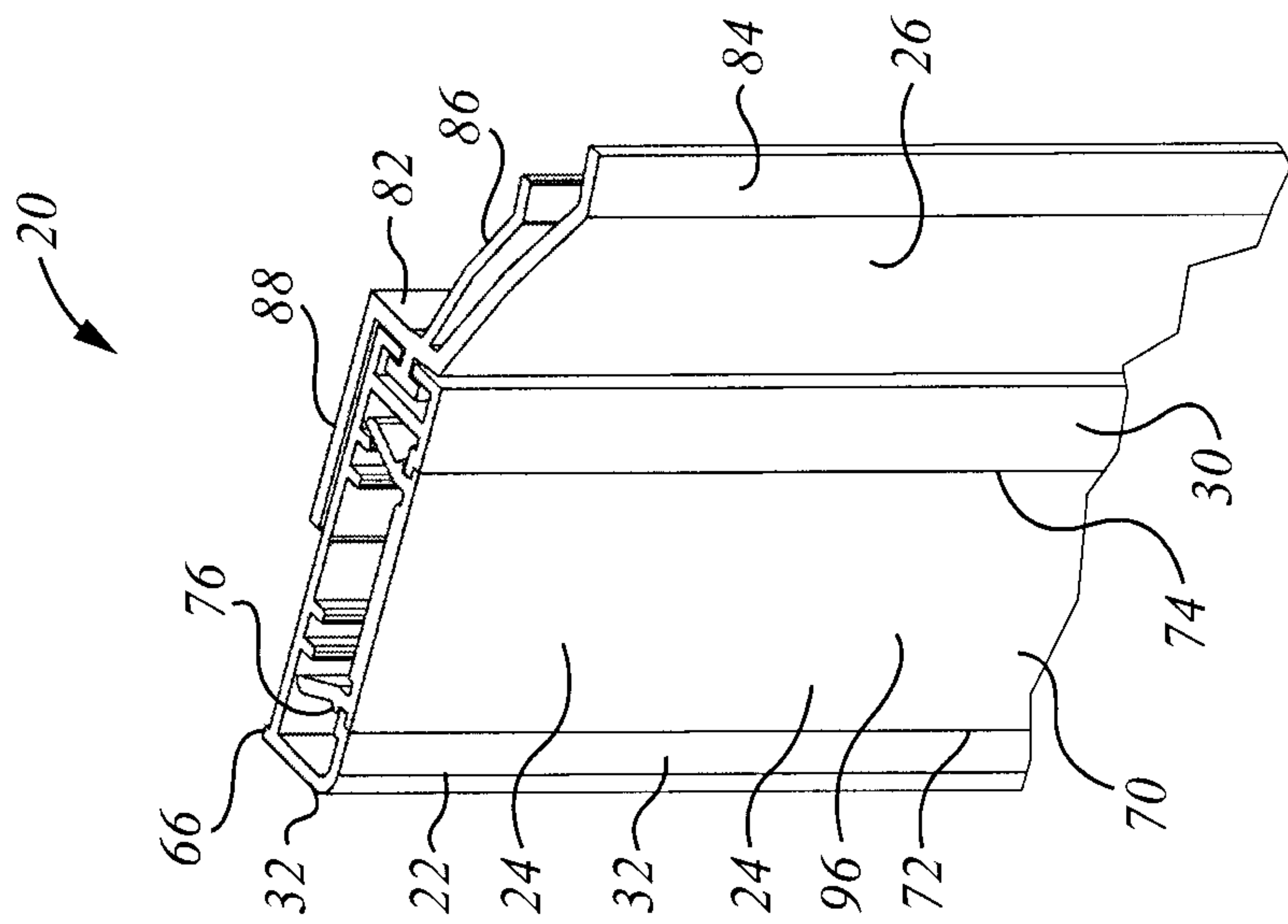
**FIG. 1a****FIG. 1b**

**FIG. 2**

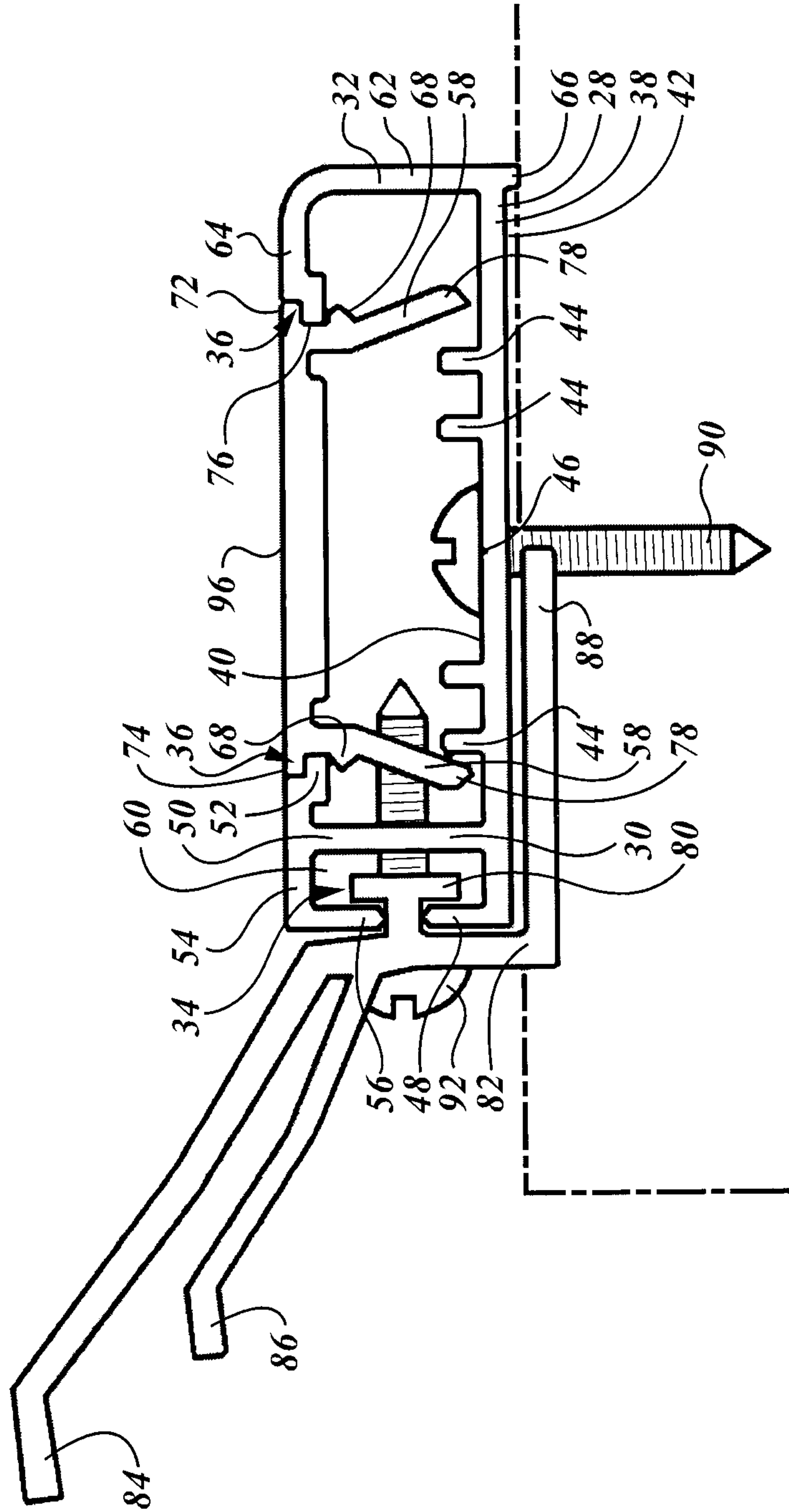




**FIG. 3a**

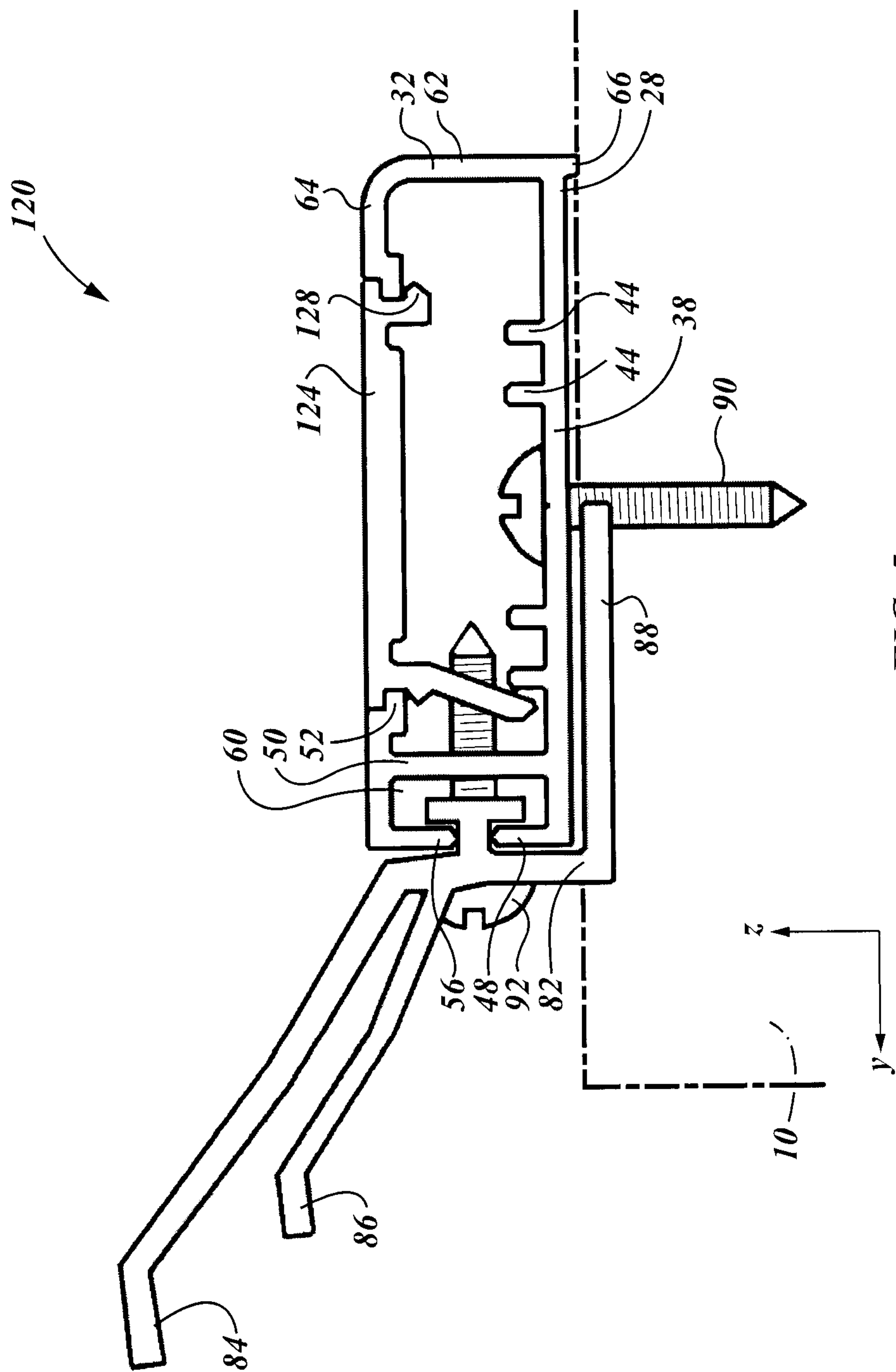


**FIG. 3b**

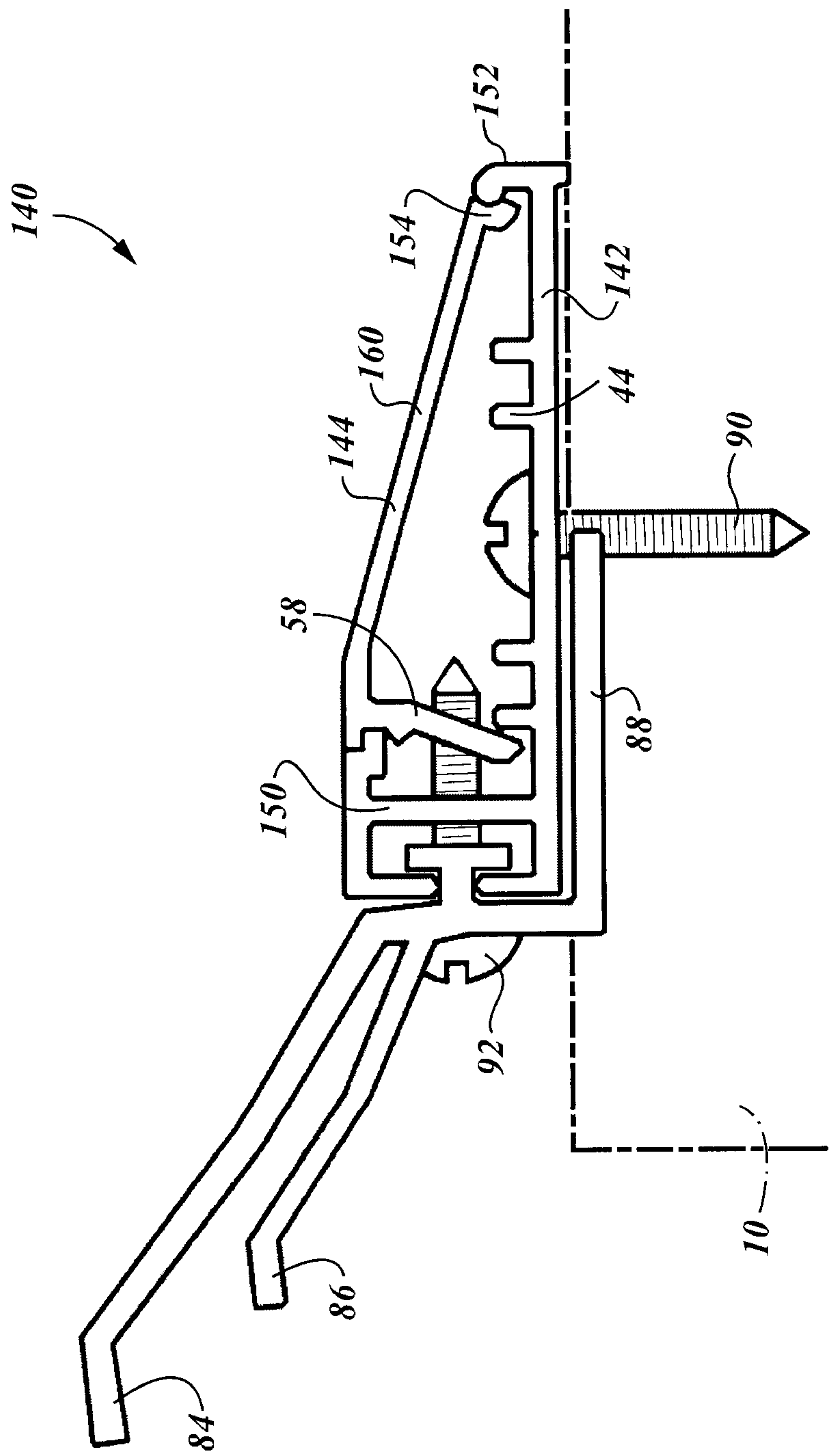


**FIG. 4**



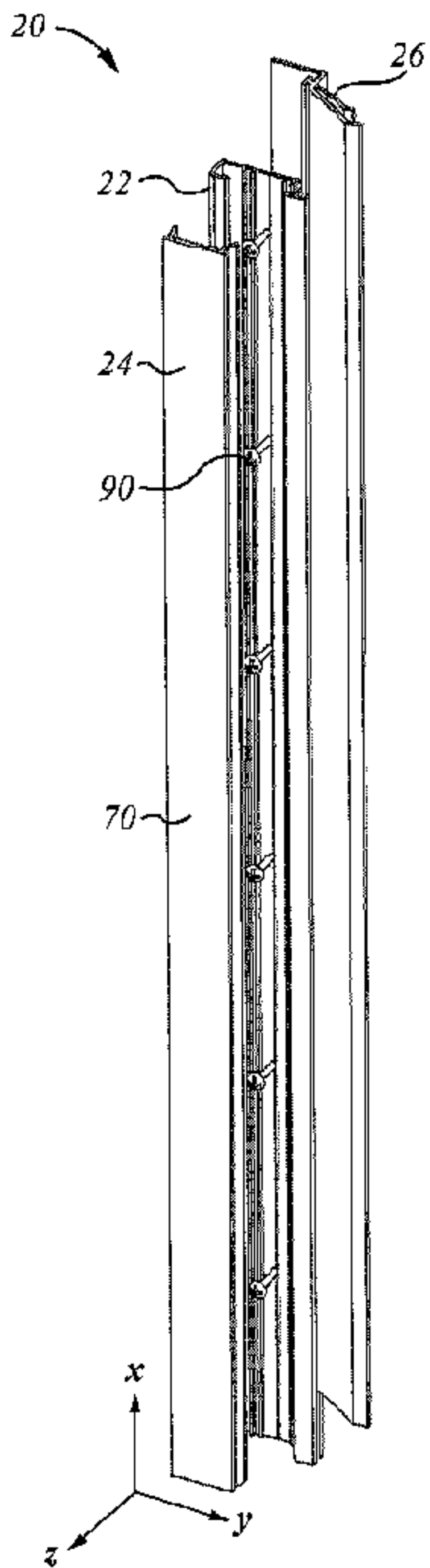


**FIG. 5**

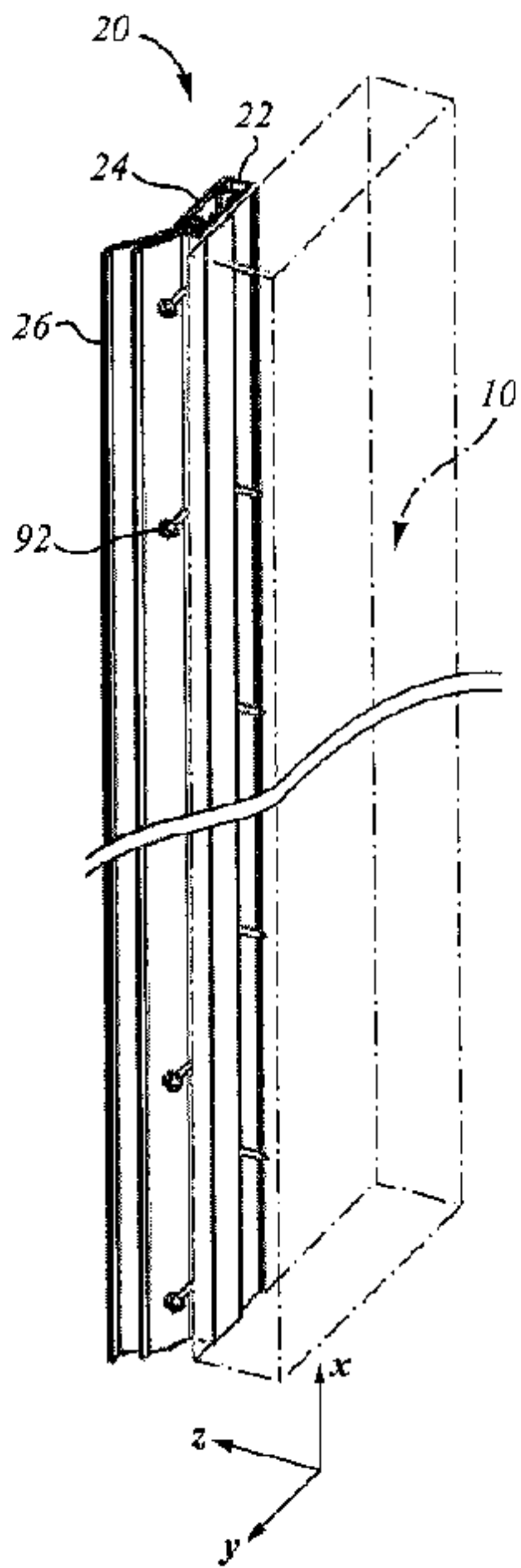


**FIG. 6**





*a*



*b*