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(54) **Improved fixing element for window covering rail**

(57) The invention relates to a system (1) of a window covering rail (2) and a fixing element (20) for fixing the window covering rail to a surface. The fixing element comprises a central part (21) which is provided on one side with a clamping part (22,23) which extends substantially transversely of the central part for clamping engagement on the side of the rail. The clamping part substantially encloses the side of the rail, is largely form-fitting

with the side of the rail and is provided at the outer end thereof with a protruding edge. The central part is provided on the opposite side with a shoe for engaging on the upper side of the rail. The rail is provided on the upper side with a closed surface which is adapted to clampingly receive the shoe.

The invention also relates to a separate window covering rail and a separate fixing element as described as component of the system.

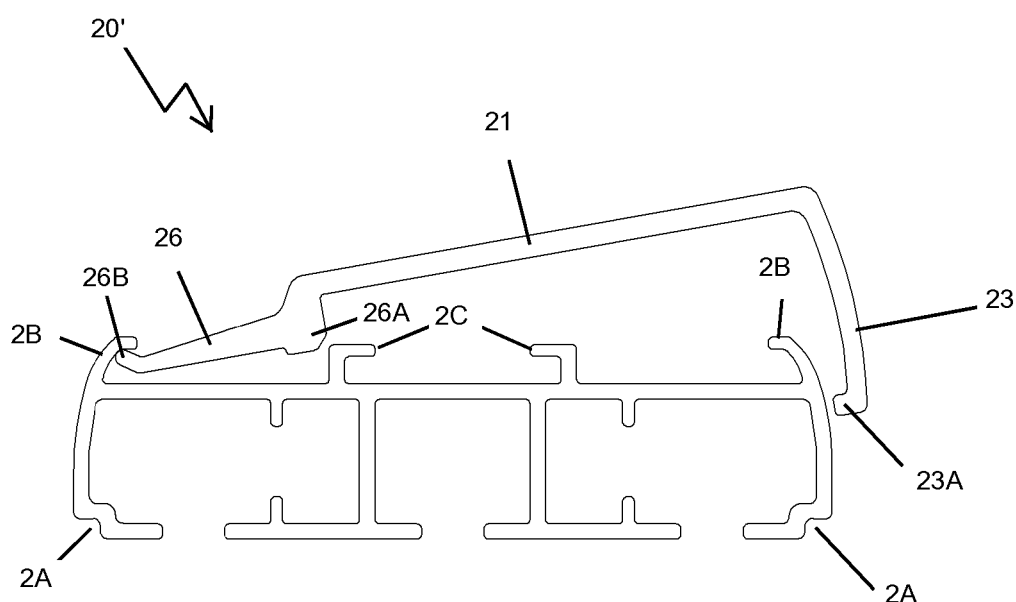


FIG. 4A

Description

[0001] The present invention relates generally to an improved fixing element for a window covering rail, which fixing element comprises a central part which is provided on at least one side with a clamping part which extends substantially transversely of the central part for clamping engagement on the side of the rail.

[0002] Such a fixing element is known in practice. In the known system the fixing element is provided on the visual side with a resilient tongue for receiving in a channel halfway up the side of the rail.

[0003] The invention has for its object to provide an alternative hereto with a more elegant design.

[0004] The fixing element according to the invention has for this purpose the further technical measures that the clamping part substantially encloses the side of the rail, that the clamping part is largely form-fitting with the side of the rail and that the clamping part is provided at the outer end thereof with a protruding edge.

[0005] The clamping part of the innovative fixing element appears to the eye to be integrated into the rail. In addition, the fixing element is clamped round the rail and the rail can therefore be easily fixed therein. The clamping takes place close to the underside of the rail, whereby the fixing element according to the invention can moreover be mounted more closely against the ceiling than the known fixing element.

[0006] US 6 550 523 describes a system of a window covering rail and a fixing element with the above stated technical measures for fixing the window covering rail to a surface. The known system has the significant drawback that it is not suitable for wide systems, such as panel curtain systems, because of the hollow upper side of the rail. A further drawback is the fact that the known fixing element is provided on the visual side with a resilient tongue, whereby attention is still drawn to the fixing element and this element does not therefore appear to the eye to be fully integrated into the rail.

[0007] The invention has for its object to provide a system according to the preamble of claim 1 which obviates these drawbacks.

[0008] For this purpose the system according to the invention has the feature that the central part is provided on the opposite side with a shoe for engaging on the upper side of the rail, and that the rail is provided on the upper side with a closed surface which is adapted to clampingly receive the shoe.

[0009] In addition to obviating the above stated drawbacks, the system according to the invention has a further advantage, i.e. that in the mounted position the fixing element is wholly concealed from view on one side (the side of the shoe).

[0010] In a practical embodiment of the system at least one side of the rail protrudes beyond the upper side of the rail, and the upper side of the rail is further provided with at least one more centrally located standing edge, wherein the protruding side and the standing edge are

adapted to clampingly receive the shoe. The length of the shoe is smaller than the width of the rail and only a part of the upper side of the rail is adapted to clampingly receive the shoe. The shorter shoe advantageously provides a stronger clamping.

[0011] In a further practical embodiment of the system the shoe is provided on one side with a heel and on another side with a tip, wherein in the mounted situation of the fixing element in the rail the tip lies clampingly against the upper side and the heel lies clampingly against the standing edge. In this embodiment the system can bear great loads so that it is eminently suitable for wide systems such as panel curtain systems.

[0012] The invention also relates to an extra-robust system of a window covering rail and a fixing element according to the first or second preferred embodiment, wherein the rail is provided on at least one side with a channel situated in the bottom part of the side, which channel is adapted to receive the protruding edge of the clamping part. The channel is preferably wider than the edge.

[0013] The invention further relates to a window covering rail and a fixing element as described as component of the system according to the invention.

[0014] The invention will now be discussed in more detail with reference to the drawings, in which:

Figure 1 shows a schematic view of a first preferred embodiment of a fixing element according to the invention for a panel curtain system;

Figures 2A and 2B illustrate the operation of the fixing element of figure 1;

Figure 3 shows a schematic view of a second preferred embodiment of a fixing element according to the invention for a panel curtain system; and

Figures 4A and 4B illustrate the operation of the fixing element of figure 3.

[0015] Like components are designated in the figures with like reference numerals.

[0016] Figure 1 shows schematically a first preferred embodiment of a fixing element 20 according to the invention for fixing a panel curtain system 1.

[0017] Panel curtain system 1 comprises a rail 2 which can be fixed on a surface suitable for the purpose by means of the innovative fixing element 20. Panels 40 can be mounted as desired on the panel curtain system. Provided according to the invention for the purpose of fixing the panels to rail 2 is an innovative system 10 comprising co-acting profiles 11 and 12. Rail 2 can be closed at the outer ends by means of an innovative end structure 30. The system of co-acting profiles and the end structure are described in the priority document for this patent application.

[0018] Rail 2 can be fixed to a surface suitable for the purpose by means of fixing elements 20. Each fixing element 20 comprises for this purpose an opening 25 for passage of fixing means, such as a screw, for fixing to

the surface. Figures 2A and 2B illustrate the operation of fixing element 20. Each fixing element 20 comprises a central part 21 which is provided on either side with two clamping parts 22 and 23, which extend substantially transversely of central part 21 and which are intended for clamping engagement on the sides of rail 2. In the position of use clamping parts 22 and 23 almost completely enclose the sides of the rail and lie thereagainst in substantially form-fitting manner.

[0019] Clamping parts 22 and 23 are provided on the outer end thereof with a protruding edge 22A and 23A respectively. Rail 2 is provided on either side with a channel 2A which is situated in the sides close to the underside thereof. Channels 2A are intended for the purpose of receiving edges 22A and 23A respectively. Channels 2A are wider than the respective edges 22A, 23A (as seen in x-direction). This results in a clearance S, into which a suitable object can be inserted in order to facilitate removal of rail 2 from fixing element 20. Clamping parts 22 and 23 are identical.

[0020] Central part 21 is provided with a bridge 24 for supporting on the upper side of rail 2. It is further substantially flat.

[0021] The sides of rail 2 protrude relative to the upper side of rail 2. The upper side of rail 2 is further provided with standing edges 2C which are located more centrally. Recesses for receiving bridge 24 in concealed manner are created between protruding sides 2B and standing edges 2C.

[0022] Figure 3 shows schematically a second preferred embodiment of a fixing element 20' according to the invention for fixing a panel curtain system 1.

[0023] Figures 4A and 4B illustrate the operation of fixing element 20' in the case of rail 2. Each fixing element 20' comprises a central part 21 which is provided on one side with a clamping part 23, which is identical to clamping part 23 of the above described first preferred embodiment 20.

[0024] Central part 21 is provided on the side opposite clamping part 23 with a shoe 26 for engaging on the upper side of rail 2. Shoe 26 is recessed relative to the surface of central part 21. The shoe is provided on one side with an outer end 26A, referred to as heel, and on another side with an outer end 26B, referred to as tip. Heel 26A is to some extent thickened. Tip 26B is directed slightly upward and hooks behind protruding side 2B during insertion.

[0025] Rail 2 is provided on the upper side with a substantially closed surface. The dimensions of shoe 26, as seen from tip 26B to heel 26A, are adapted to the distance between protruding side 2B and the closest standing edge 2C of rail 2. The dimensions of shoe 26 are chosen such that shoe 26 can be clampingly received in the upper side of rail 2, wherein tip 26B lies against side 2B and heel 26A lies against standing edge 2C.

[0026] The innovative fixing element is in principle suitable for fixing any type of rail for various types of window covering, and in particular for wide, flat window covering

rails, and is therefore described by way of illustration for use in a panel curtain system. As well as for fixing purposes, the innovative fixing element is also highly suitable as coupling piece for two rail parts, for instance in order to extend rails.

[0027] The invention is of course not limited to the described and shown preferred embodiments, but extends to any embodiment falling within the scope of protection as defined in the claims, as seen in the light of the foregoing description and accompanying drawings.

Claims

1. System of a window covering rail and a fixing element for fixing the window covering rail to a surface, which fixing element comprises a central part which is provided on one side with a clamping part which extends substantially transversely of the central part for clamping engagement on the side of the rail, wherein the clamping part substantially encloses the side of the rail, is largely form-fitting with the side of the rail and is provided at the outer end thereof with a protruding edge, **characterized in that** the central part is provided on the opposite side with a shoe for engaging on the upper side of the rail, and that the rail is provided on the upper side with a closed surface which is adapted to clampingly receive the shoe.
2. System as claimed in claim 1, wherein at least one side of the rail protrudes beyond the upper side of the rail, and wherein the upper side of the rail is further provided with at least one more centrally located standing edge, wherein the protruding side and the standing edge are adapted to clampingly receive the shoe.
3. System as claimed in claim 2, wherein the shoe is provided on one side with a heel and on another side with a tip, wherein in the mounted situation of the fixing element in the rail the tip lies clampingly against the upper side and the heel lies clampingly against the standing edge.
4. System as claimed in any of the foregoing claims, wherein the rail is provided on at least one side with a channel situated in the bottom part of the side, which channel is adapted to receive the protruding edge of the clamping part.
5. System as claimed in claim 4, wherein the channel is wider than the edge.
6. Window covering rail as described as component of the system as claimed in any of the foregoing claims 1-5.
7. Fixing element as described as component of the

system as claimed in any of the foregoing claims 1-5.

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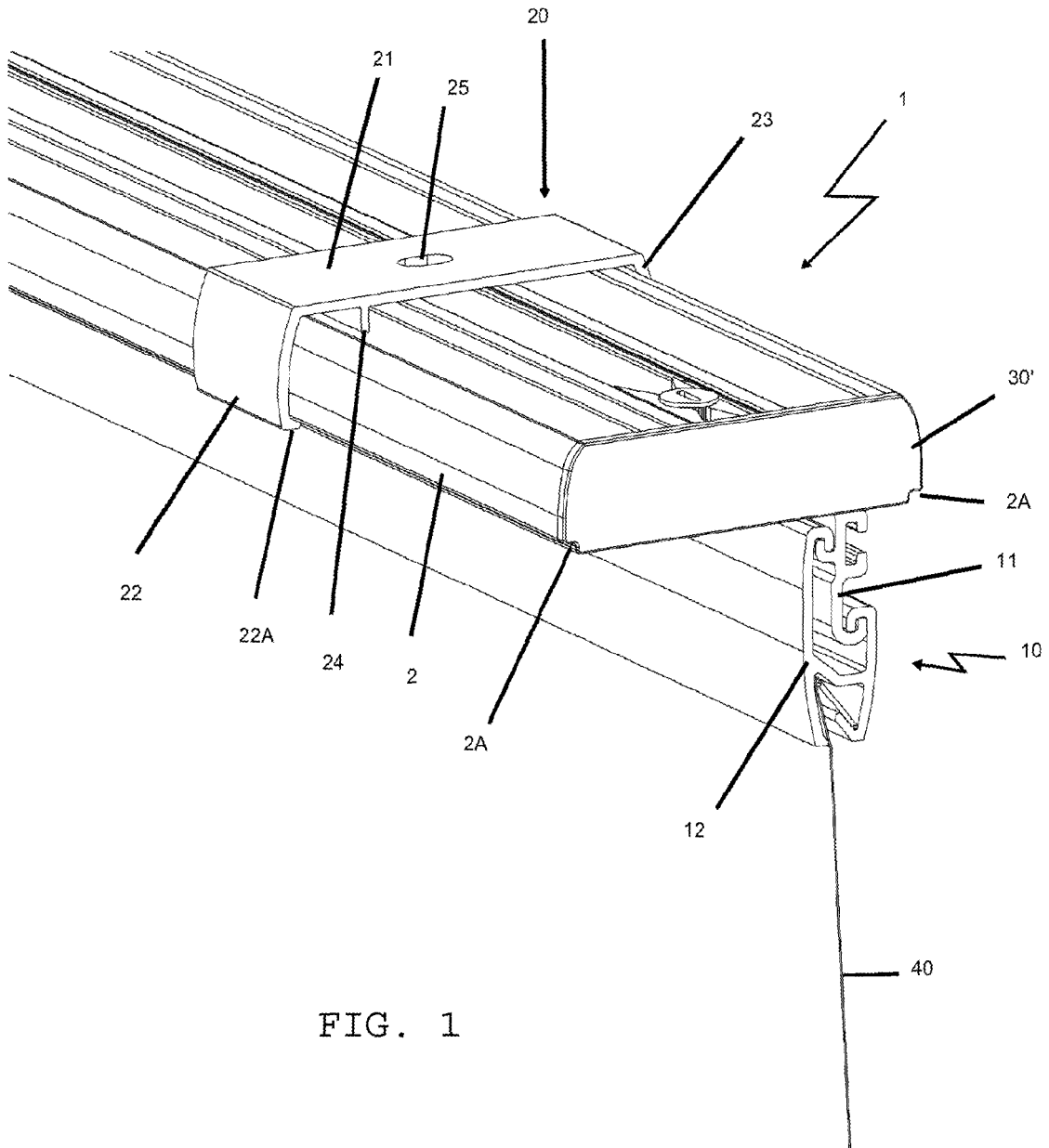


FIG. 1

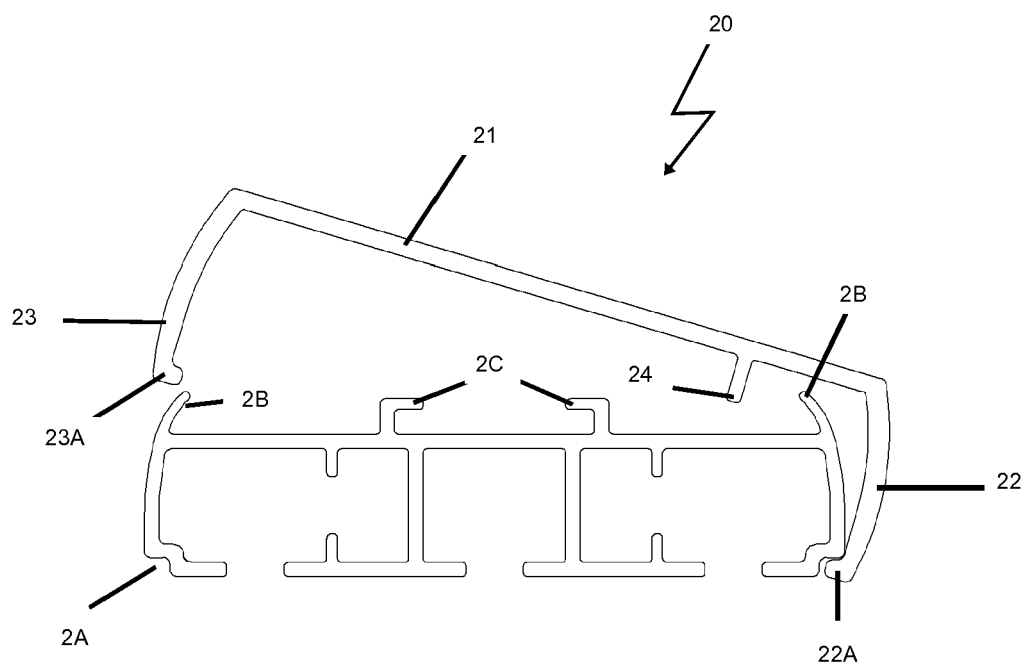


FIG. 2A

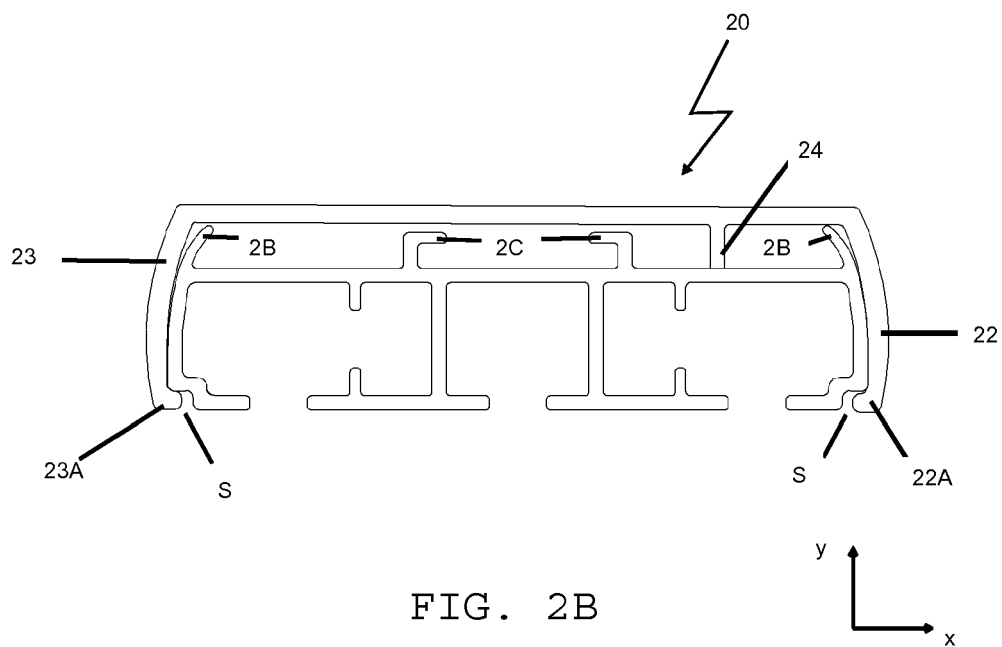


FIG. 2B

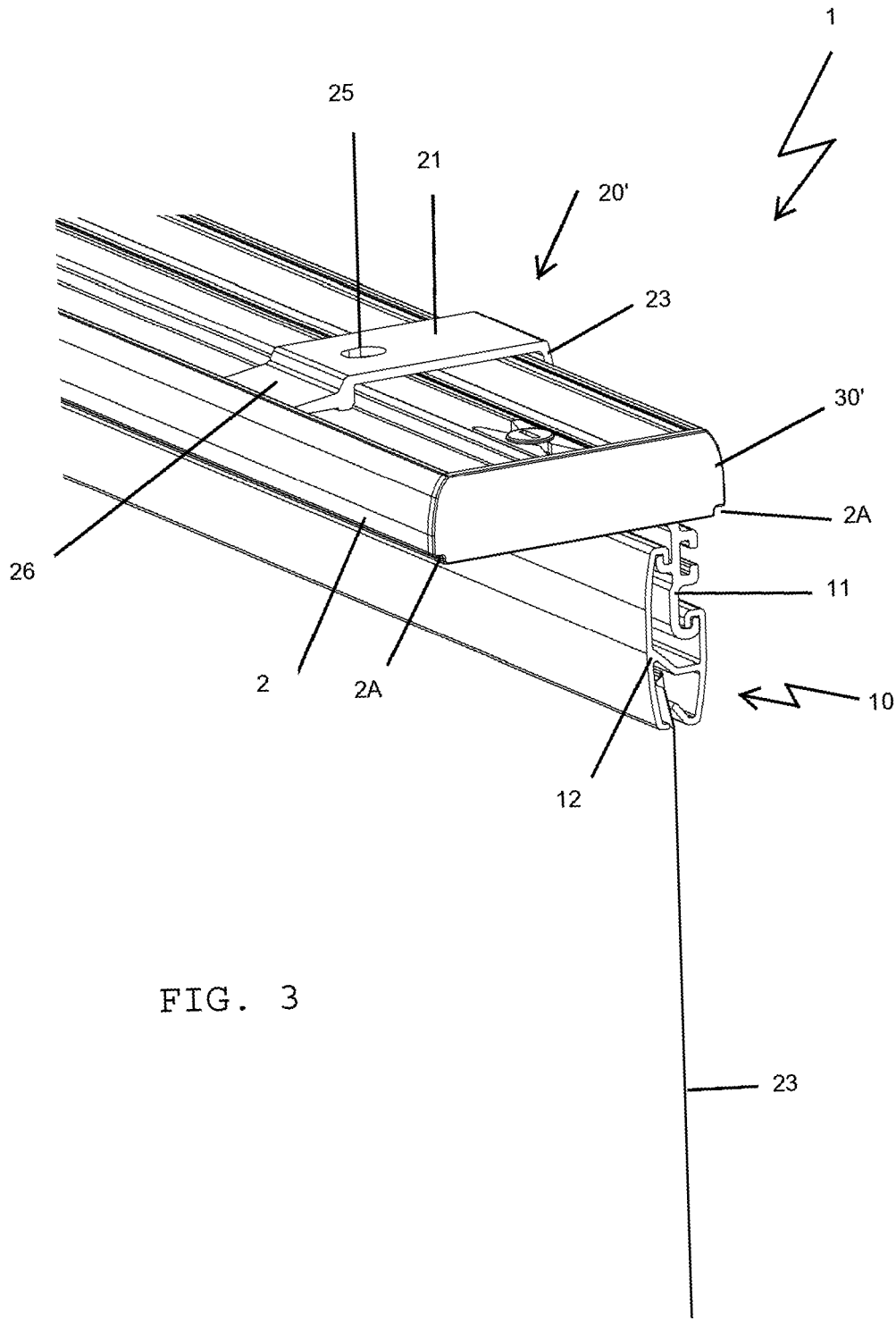


FIG. 3

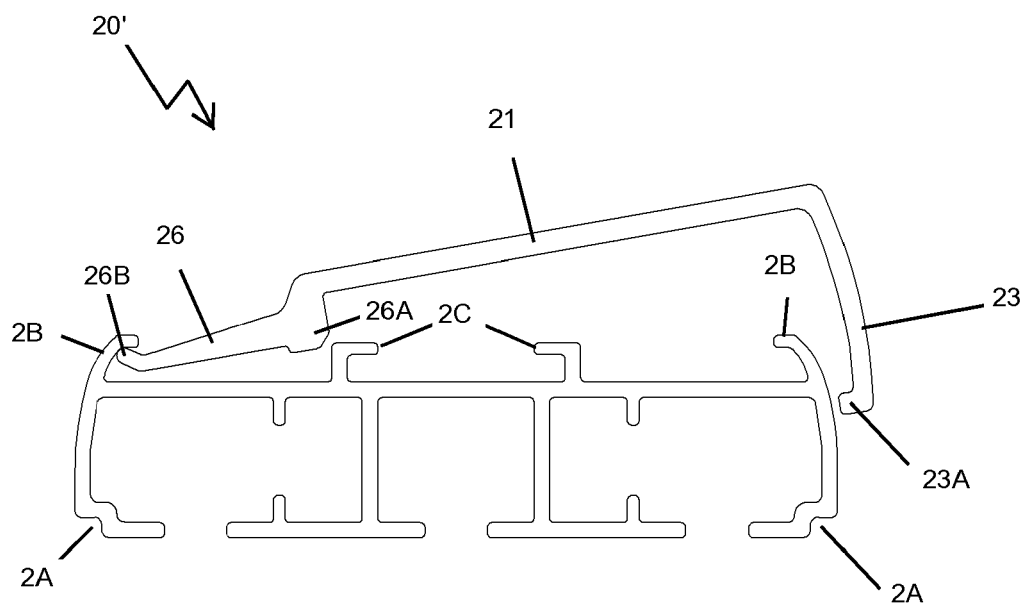


FIG. 4A

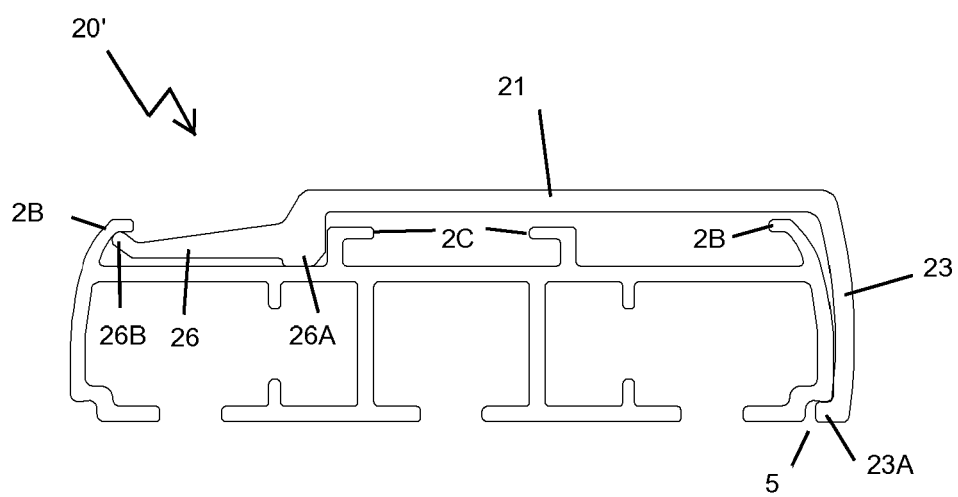


FIG. 4B



EUROPEAN SEARCH REPORT

Application Number
EP 08 10 5285

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2004/226667 A1 (TYNER JAMES D [US]) 18 November 2004 (2004-11-18) * the whole document *	1-7	INV. E06B9/323 E06B9/36
A	US 5 353 857 A (ANDERSON RICHARD N [US]) 11 October 1994 (1994-10-11) * the whole document *	2,3	
			TECHNICAL FIELDS SEARCHED (IPC)
			E06B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 8 December 2008	Examiner Geivaerts, Dirk
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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EPO FORM 1503 03/82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 08 10 5285

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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08-12-2008

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2004226667 A1	18-11-2004	NONE	
US 5353857 A	11-10-1994	CA 2092648 A1	19-09-1993

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US 6550523 B [0006]