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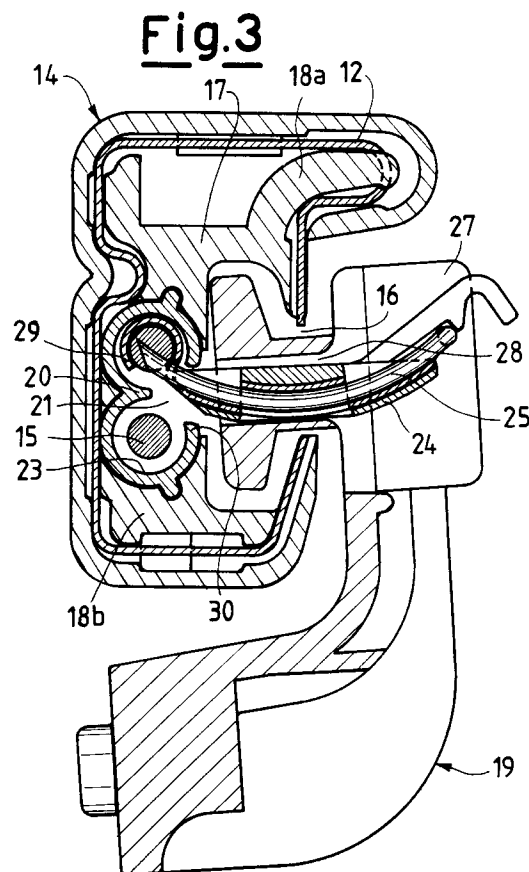
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I-20121 Milano (IT)(54) **Curvable slide rail for a curtain support and/or draw slider.**

(57) A curvable slide rail for a curtain support and/or draw slider, in which the rail consists of at least one rectilinear section bar and at least one curvable connection element provided with recesses in the form of partially penetrating cuts, both having an essentially C-shaped cross-section defining a continuous lateral longitudinal slot for housing a portion of at least one slider, within the connection element there being embedded at least one tubular element enabling drawing cord elements to pass, wherein the at least one tubular element is open longitudinally towards the slot, the tubular element being arranged to receive one end of a support element for an element for fixing the slider to the drawing elements of at least one end of a curtain.

**EP 0 653 175 A1**

This invention relates to a curvable slide rail for a curtain support and/or draw slider.

Various types of curtain support and slide rails are known. These are generally of hollow profiled cross-section with a lateral longitudinal slot through which slidable curtain support elements known as draw sliders or curtain carriers are inserted.

European patent EP-A-473 211 describes one of such rail types, consisting essentially of two section bars joined together by a connection element which has a cross-section complementary to the rail. The connection element is inserted into both ends of the rail to hence join each rail terminal portion, provided for fixing to a wall, to the central portion of the rail.

The connection element is provided with a plurality of variously shaped recesses in the form of partially penetrating cuts. These recesses allow curvature to a desired angle, which can be up to 90° or slightly more.

Two continuous rigid tubes can be embedded in a part of the connection element and be curved together with the connection element in order to collaborate in maintaining the position of this element once curved.

The main drawback of these rails is the presence of the internal tubes in the connection element. In this respect these tubes hinder or indeed prevent sliding of the drawing cord which draws the curtain carrier, ie the slider.

The main object of the present invention is to provide a curvable slide rail for a support and/or draw slider which obviates said drawback by allowing and/or facilitating the sliding of the slider drawing cord over its entire length, ie including within the connection or curved portions.

This object is attained according to the present invention by a curvable connection element for a slide rail for a curtain support and/or draw slider, as defined in the claims.

The structural and operational characteristics and advantages of a curvable slide rail for a curtain support and/or draw slider according to the invention will be more apparent from the detailed description given hereinafter by way of non-limiting example with reference to the accompanying schematic drawings in which:

Figure 1 is a plan view, at least of end portions, of a curvable rail with sliding curtain support and/or draw sliders according to the present invention;

Figure 2 is a cross-section through the rail on the line II-II of Figure 1;

Figure 3 is a cross-section through the rail on the line III-III of Figure 1;

Figure 4 is a cross-section through the rail on the line IV-IV of Figure 1.

With reference to Figure 1, this shows a plan view of a curvable rail, indicated overall by 11, which is substantially composed of a pair of rectilinear telescopic section bars 12 and 13 and connection elements 14 partly insertable into the section bars 12 and 13.

As can be seen from the remaining figures, both the section bars 12 and 13 and the connection elements 14 are of essentially C cross-section.

The outer bar 12 and inner bar 13 are internally empty to receive drawing cord elements 15 and are simply inserted one into the other, leaving open a longitudinal slot 16. They can be constructed for example of extruded light alloy or rigid plastics material.

Each connection element 14, constructed for example of nylon or the like, comprises a central region 17 and two side regions, namely an upper 18a and a lower 18b with their ends facing each other. In this manner there is also defined in the element 14 a continuous lateral longitudinal slot aligned with that indicated by 16, and in which there are positioned draw sliders 19, or simply sliders for a curtain (not shown), for its movement.

A tubular element 20 is embedded within the central region 17 of the connection element 14 during its construction. This longitudinal tubular element 20 opens towards the slot 16 via two continuous longitudinal slits 21. The tubular element 20 therefore has a cross-section essentially of "3" shape and is substantially composed of two side-by-side channels 22 and 23.

The two channels 22 and 23 open longitudinally into the two slits 21 towards the slot 16, to allow the insertion of a support element 24 with a relative fixing element 25 for the draw sliders 19.

The drawing cord element 15 for directly moving the curtain draw sliders and indirectly moving the curtain support sliders is inserted through each of the channels 22 and 23. It will be noted that the channels 22 and 23 have a curved wall portion 30 extending into the region facing the slot 16 which is such as to prevent escape of the cords 15.

The tubular element 20 is a rigid element, such as a light alloy extrusion, which can be curved together with the connection element 14 and aids to maintain the determined position.

The connection element 14 is provided in its body with suitable shaped recesses in the form of partial cuts 26, which enable it to be easily curved.

If the slider 19 acts as a curtain draw element it comprises a through aperture 28 in its upper portion 27, partly inserted into the longitudinal slot 16. The support element 24 for the fixing element 25 is inserted through the through aperture 28.

The fixing element 25, such as a U-shaped double arched needle, engages, together with the end of the support element 24, in one of the two

channels 22 and 23 of the tubular element 20. As can be seen from the figures, the support element 24 has one end 29 shaped as an open sleeve in a manner complementary to at least one portion of an inner surface of the channels 22 and 23 of the tubular element 20. The thus shaped end 29 inserted into the tubular element 20 collaborates with the free ends of the needle 25 to lock a drawing cord element 15 and hence prevent its escape from the tubular element 20.

The support element 24 and fixing element 25 are rigidly joined together inside the through aperture 28 of the slider 19 after the needle has been inserted into the drawing element. This can be achieved by seating the central part of the constituent U of the needle 25 in a recess in the support element 24 which is provided with locking portions for the needle.

In this manner the fixing element 25 and support element 24 are made rigid with the slider 19 in such a manner as to form a single piece.

As can be seen from Figures 2 and 3 the fixing element 25 can be located in two different ways. In a first example shown in Figure 2, its concave portion faces the region 18a of the connection element 14 or the upper part of the section bar 13, and hence enables the end 29 of the support element 24 to be inserted into the channel 22. Figure 3 shows the second example, in which the needle 25 is positioned specular to the first example, ie the concave portion faces the region 18b and hence the end 29 of the support element 24 is inserted into the lower channel 23.

In this manner, end draw sliders are fixed onto different branches of the drawing cord element 15. It is consequently possible to open and close the curtains by pulling the drawing cord element 15 to draw the slider 19 in the desired direction. A single draw slider 19 could instead be present with a single fixing for operating a single curtain.

The main advantage of the present invention is the simple structure of the rail and in particular of the tubular element inserted into the rail and comprising a lateral longitudinal aperture with two slits 21. These two slits 21 provided in the tubular element 20 comprising two channels 22 and 23 firstly allow easy insertion of the support elements 24 with their relative fixing elements 25 contained in the body of the draw sliders for fixing to the curtain drawing element or operating cord. In addition by solving the problems of the known art, the longitudinal aperture with slits 21 ensures free sliding of the sliders and other support elements within the longitudinal slot in the rail, even along the curved rail portions in the connection element 14.

The special curved wall portion 30 of the channels 22 and 23, which extends into the region facing the slot 16, is such as to prevent accidental

escape of the cords 15 from the channels of the tubular element, both when curved and when straight.

In the illustrated embodiment, improved guiding of the draw sliders 19 comprising support elements 24 with respective fixing elements 25 is also determined by the sleeve-shaped end 29 of said support element. In this respect, this shaped end acts as a further guide element in sliding from the extractable section bar 12, 13 to the connection element 14.

Claims

1. A curvable slide rail for a curtain support and/or draw slider, in which said rail consists of at least one rectilinear section bar and at least one curvable connection element provided with recesses in the form of partially penetrating cuts, both having an essentially C-shaped cross-section defining a continuous lateral longitudinal slot for housing a portion of at least one slider, within said connection element there being embedded at least one tubular element enabling drawing cord elements to pass, characterised in that said at least one tubular element is open longitudinally towards said slot, said tubular element being arranged to receive one end of a support element for an element for fixing said slider to said drawing elements of at least one end of a curtain.
2. A curvable rail as claimed in claim 1, characterised in that said tubular element is a rigid element able to be curved together with said connection element, which is partially insertable into said section bar.
3. A curvable rail as claimed in claim 1 or 2, characterised in that said tubular element has a cross-section essentially of "3" shape open towards said slot in said rail.
4. A curvable rail as claimed in claim 3, characterised in that said tubular element essentially consists of two side-by-side channels open longitudinally towards said slot.
5. A curvable rail as claimed in claim 4, characterised in that said two channels of said tubular element have a curved wall portion extending into the region facing said slot.
6. A curvable rail as claimed in claim 1, characterised in that said fixing element and said support element can be inserted through a through aperture provided in that portion of said slider partly inserted into said slot.

7. A curvable rail as claimed in claim 1, characterised in that said end of said support element insertable into said tubular element is in the form of a sleeve complementary to at least one portion of an inner surface of said tubular element. 5
8. A curvable rail as claimed in claim 1, characterised in that said fixing element is a double-arched needle. 10
9. A curvable rail as claimed in claim 1, characterised in that said fixing element and said support element are rigidly joined together by engaging locking portions of the one onto portions of the other. 15

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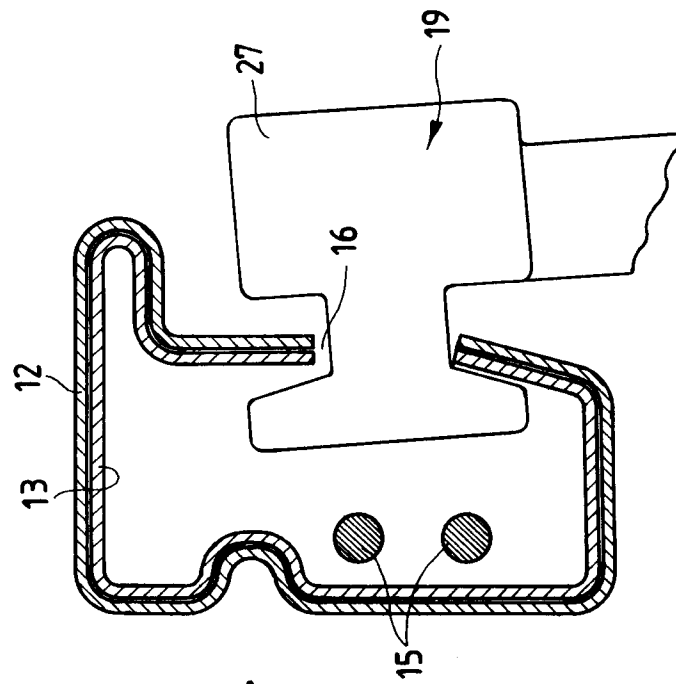
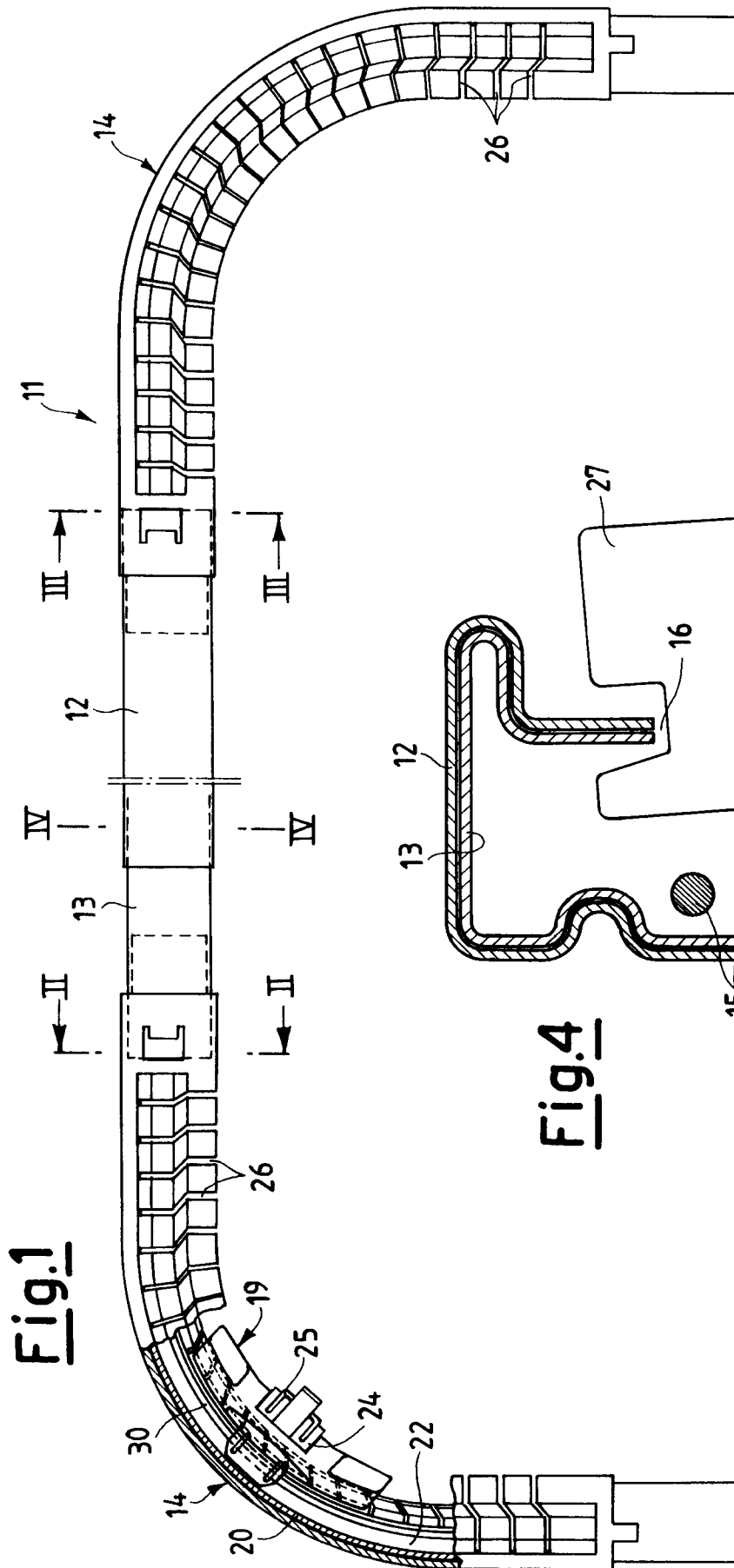
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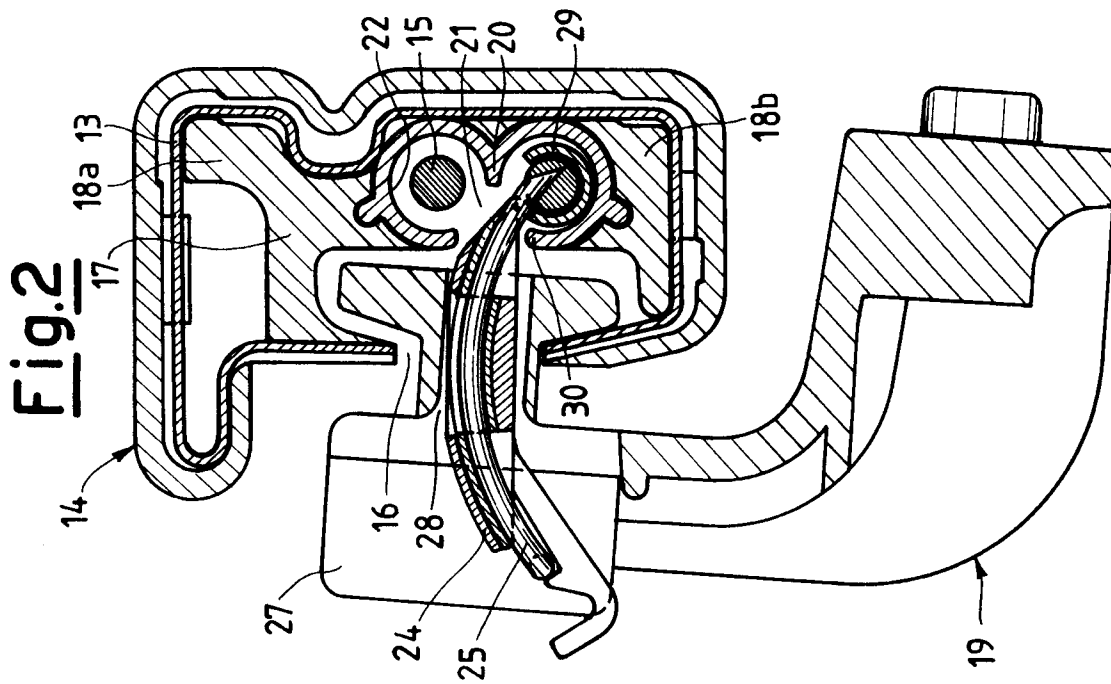
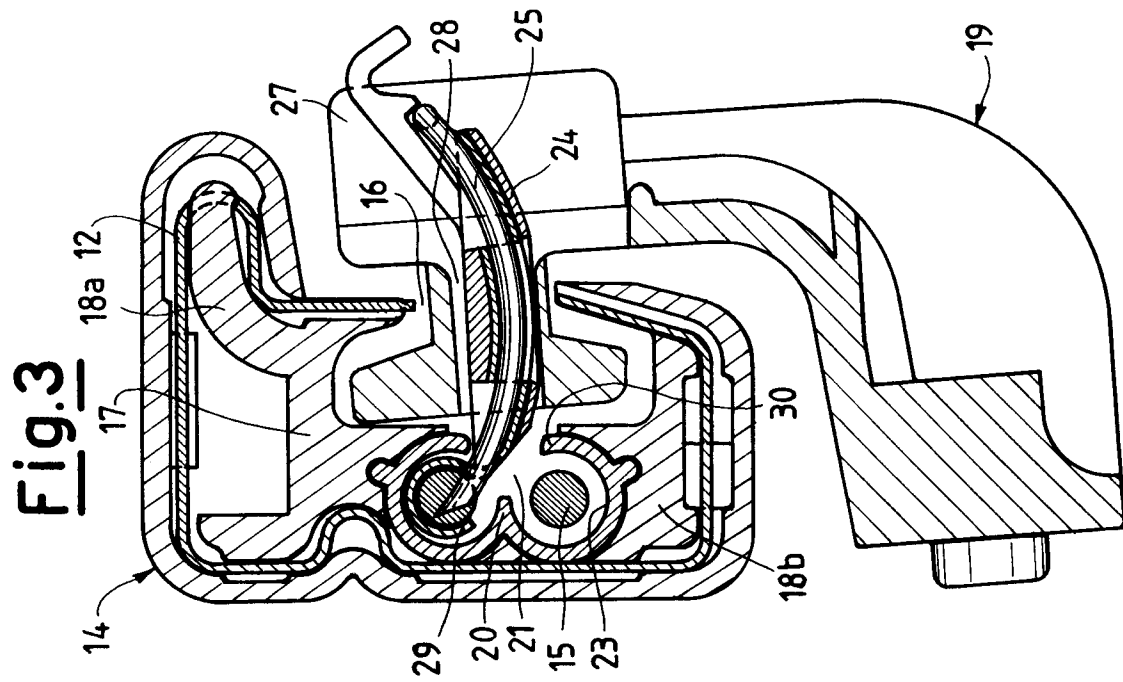
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EUROPEAN SEARCH REPORT

Application Number
EP 94 20 1466

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A,D	EP-A-0 473 211 (STANLEY WORKS S.R.L.) * column 3, line 16 - line 22 * * figures 4,5 * ---	1	A47H1/04
A	DE-A-42 00 286 (DÖRFLINGER) -----		
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			A47H
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 24 February 1995	Examiner Guthmuller, J
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			