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(54) **Outdoor curtain with means for stabilising windbreaking elements**

(57) An outdoors curtain (1) comprises a sheet (6) able to be folded in packet fashion, a frame (2) to support the sheet (6), a plurality of rod-like windbreak elements (7), applied transversely to the sheet (6) and slidable between longitudinal elements (4) of the frame (2), and stabilisation means for preventing relative rotation between the longitudinal elements (4) and each rod-like element (7), applied to each rod-like element (7) and to at least one longitudinal element (7). Said stabilisation means in turn comprise a groove (10) and a projection (11) slidably engaged in the groove (10).

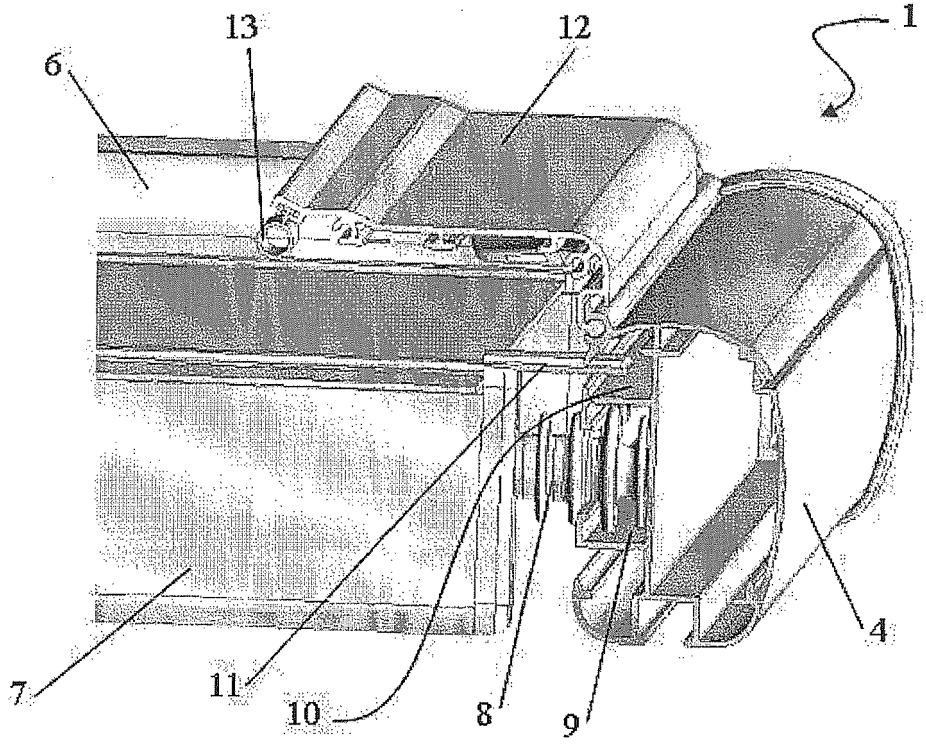

FIG. 3

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Description

[0001] The present model relates to an outdoors curtain with means for stabilising windbreak elements, of the kind comprising:

- a sheet able to be folded in packet fashion;
- a frame to support the sheet;
- a plurality of substantially rigid rod-like elements, applied to the sheet transversely and able to slide between longitudinal elements of the frame.

[0002] The field is that of outdoor curtains, i.e. curtains able to serve as roofs, to protect persons or objects from the sun and the weather. These curtains comprise a sheet and a frame to support the sheet.

[0003] Within this field, use is frequent of curtains able to be operated in two different operative conditions, depending on whether the shelter provided by the curtain is to be utilised or not; in a first operative condition, the sheet is in extended position, whilst in a second operative condition the sheet is in retracted / closed position. Therefore, said curtains also comprise means for actuating the sheet from one position to the other, said sheet being movable (possibly in slidable fashion) relative to two longitudinal elements of the frame.

[0004] In this light, different technical solutions are known. In particular, in some curtains, the sheet is retracted / re-closed in a manner called "in packets" (or "packing"), i.e. in such a way that the sheet, in the retracted position, is substantially folded back onto itself. In a curtain of this kind, to the sheet are often transversely applied rigid elements, called windbreaks.

[0005] Said windbreak elements are slidably engaged in the longitudinal elements of the frame. The presence of the windbreak elements causes the sheet, in the extended position, to be particularly strong even in adverse weather conditions. For this reason, curtains with their sheet foldable in packet fashion and windbreak elements are particularly suitable in applications where shelter is required against adverse weather conditions, especially against strong wind.

[0006] The windbreak elements are provided with rotating members engaged in grooves defined on the lateral elements; this favours the sliding of the windbreak elements during the folding or extension of the sheet.

[0007] However, this kind of coupling between the windbreak elements and the longitudinal elements of the frame does not promote the stability of the windbreak elements, which are subject to oscillations, even when the sheet is in the extended position. The oscillations whereto a windbreak element is subjected essentially consist in rotations of the element around its own axis, or in the plane comprising the element and perpendicular to the longitudinal elements or, otherwise, in the plane defined by the sheet of the curtain. Said oscillations are absolutely undesired, because they cause a defective packing (i.e. a folding of the sheet in packet fashion), and they reduce the overall performance of the curtain. Moreover, any rotations of the windbreak elements entail problems when actuating the sheet. When actuating the sheet, it is important for the windbreak elements to be mutually parallel and orthogonal to the longitudinal elements between which they slide.

[0008] Known curtains, of the kind with the sheet able to be folded in packet fashion, which provide for the use of windbreak elements, are subject to said drawbacks linked to the oscillations/rotations of the windbreak elements.

[0009] An object of the present invention is to eliminate the aforesaid drawbacks and to make available a reliable and strong outdoors curtain, in which vibrations and oscillations are minimised even in the presence of strong wind.

[0010] Said objects are fully achieved by the curtain of the present invention, which is characterised by the content of the claims set out below and in particular in that it comprises stabilisation means to prevent relative rotations between the longitudinal elements and each rod-like element.

[0011] This and other characteristics shall become more readily apparent from the following description of a preferred embodiment, illustrated purely by way of non limiting example in the accompanying drawing tables, in which:

- Figure 1 shows a perspective top view of a curtain according to the present invention, with the sheet in the extended position;
- Figure 2 shows a perspective bottom view of a curtain according to the present invention, with the sheet in the extended position;
- Figure 3 shows a section view of a portion of the curtain according to the present invention;
- Figure 4 shows the section of Figure 3, but in semi-transparency.

[0012] In the figures, the reference number 1 designates a curtain according to the present invention. The curtain 1 comprises a support frame 2, able to be associated to a wall or to various (substantially known) support elements. The frame 2, in turn, comprises a fixed transverse element, preferably but not necessarily constituted by a box body 3, and two longitudinal elements 4, fastened to the ends of the box body 3 (or of said fixed transverse element) and substantially perpendicular relative to it.

[0013] The longitudinal elements 4 define guides (or grooves) in which a transverse bar 5 is slidably engaged. Said guides (or grooves) are defined by the longitudinal elements 4 in preferably lateral position, i.e. on mutually opposite surfaces, facing each other, of the longitudinal elements 4.

[0014] The curtain 1 also comprises a sheet 6, applied to the transverse bar 5 and connected, at an opposite end, to a fixed portion of the frame 2. The sheet 6 is

movable relative to the frame 2 and in particular relative to the box body 3 and to the longitudinal elements 4, from an extended position, in which the frame 6 is tensioned, to a retracted position, in which the sheet 6 is folded back, and vice versa.

[0015] The motion of the sheet 6 is correlated to the sliding of the transverse bar 5. The sheet 6 has an end applied to the transverse bar 5; an opposite end (in the longitudinal sense) of the sheet 6 is connected to a fixed portion of the frame 2 or to a load-bearing structure. Thus, the sheet 6 is movable between two operative positions: an extended position (Figures 1 and 2), in which the sheet is tensioned and covers the underlying area, and a retracted position, in which the sheet is folded back and it leaves the underlying area uncovered. In the folded back position, the sheet 6 assumes a "packet" or "accordion" configuration, said configuration being known in itself within the field of outdoors curtains.

[0016] The sheet 1 comprises at least one substantially rigid rod-like element 7, applied to the sheet 6 transversely. Said rod-like element 7, called windbreak, is able to confer particular strength to the sheet 6, especially in case of adverse weather conditions. In a preferred embodiment, the curtain 1 comprises a plurality of rod-like elements 7. Each rod-like element 7 is slidable between the longitudinal elements 4.

[0017] In a preferred embodiment (the one illustrated herein), the rod-like elements 7 are provided with rotating member 8 engaged in guides / grooves 9 defines on the mutually facing lateral surfaces of the longitudinal elements 4 of the frame 2.

[0018] The curtain 1 also comprises, originally, stabilisation means able to prevent relative rotations between the longitudinal elements 4 and each rod-like element 7.

[0019] Said stabilisation means preferably comprise a groove 10 and a projection 11 slidably engaged in the groove 10. Said stabilisation means are applied to each rod-like element 7 and to at least one longitudinal element 4. To assure particular effectiveness, the stabilisation means are applied to each rod-like element 7 and to both the longitudinal elements 4 of the frame 2.

[0020] In the illustrated embodiment, the stabilisation means provide for the groove 10 to be defined on a surface of the longitudinal element 4 and the projection 11 to be defined on each rod-like element 7. In particular, each rod-like element comprises two projections 11, located at opposite ends of the rod-like element 7 and able to be engaged in two different grooves 10, each defined on one of the two longitudinal elements 4 of the frame 2. In the illustrated embodiment, the projection 11 is extended in substantially transverse direction and it is inserted into the groove 10, which is defined on a lateral surface of the longitudinal element 4. Therefore, in said embodiment the groove 10 is substantially adjacent to the guide / groove 8 defined on each longitudinal element 4. Each projection 11 is preferably constituted by at least one tooth made integral to the rod-like element 7 and having, in particular, flattened shape.

[0021] In an alternative embodiment (not shown), the groove 10 (or the grooves 10, if there are two) is defined on a surface of the rod-like element 7, whilst the projection 11 (or the projections, if there are two) is defined on the longitudinal element 4. In this embodiment, the stabilisation means assure a coupling between the longitudinal elements 4 and the rod-like elements 7 of an equivalent type, with respect to the case described for the illustrated embodiment.

[0022] In other embodiments (not shown), there are projections defined by (or associated to) the rod-like elements 7, able to be inserted in grooves defined by the longitudinal elements 4 on any one of their surfaces, or even on more than one surface at the same time.

[0023] Note that the curtain shown in Figures 3 and 4 also comprises a movable profile 12, applied to the longitudinal element 4 and comprising a gasket 13 pressing on the sheet 6; said profile 12 is able to prevent water infiltrations between the sheet 6 and the longitudinal element 4.

[0024] The curtain 1 of the invention advantageously enables to prevent undesired oscillations, vibration or off-axis conditions of the rod-like elements 7, thanks to the fact that it comprises stabilisation means operatively active on the rod-like elements 7 themselves.

[0025] Therefore, the curtain 1 is, advantageously, particularly quiet and strong in the presence of wind, and particularly reliable when actuating the roofing sheet.

Claims

1. Outdoors curtain (1), comprising:

- a sheet (6) able to be folded in packet fashion;
- a frame (2) to support the sheet (6);
- a plurality of substantially rigid rod-like elements (7), applied to the sheet (6) transversely and able to slide between longitudinal elements (4) of the frame (2),

characterised in that it comprises stabilisation means able to prevent relative rotations between the longitudinal elements (4) and each rod-like element (7).

2. Curtain as claimed in claim 1, wherein the longitudinal elements (4) of the frame (2) define on their lateral surfaces, facing each other, guides / grooves (9) in which a transverse bar (5) and the rod-like elements (7) are slidably engaged.

3. Curtain as claimed in claim 1 or 2, **characterised in that** the stabilisation means comprise a groove (10) and a projection (11) slidably engaged in the groove (10), said stabilisation means being applied to each rod-like element (7) and to at least one longitudinal element (4).

4. Curtain as claimed in any of the previous claims, **characterised in that** the stabilisation means are applied to each rod-like element (7) and to both the longitudinal elements (4).

5. Curtain as claimed in claim 3 or 4, **characterised in that** said groove (10) is defined on a surface of the longitudinal element (4) and said projection (11) is defined on each rod-like element (7).

6. Curtain as claimed in claim 3 or 4, **characterised in that** said groove (10) is defined on a surface of the rod-like element (7) and said projection (11) is defined on each longitudinal element (4).

7. Curtain as claimed in any of the previous claims 3 through 6,
characterised in that it said projection (11) is extended in substantially transverse direction.

8. Curtain as claimed in claim 5, wherein said projection (11) is constituted by at least one tooth made integral to the rod-like element (7).

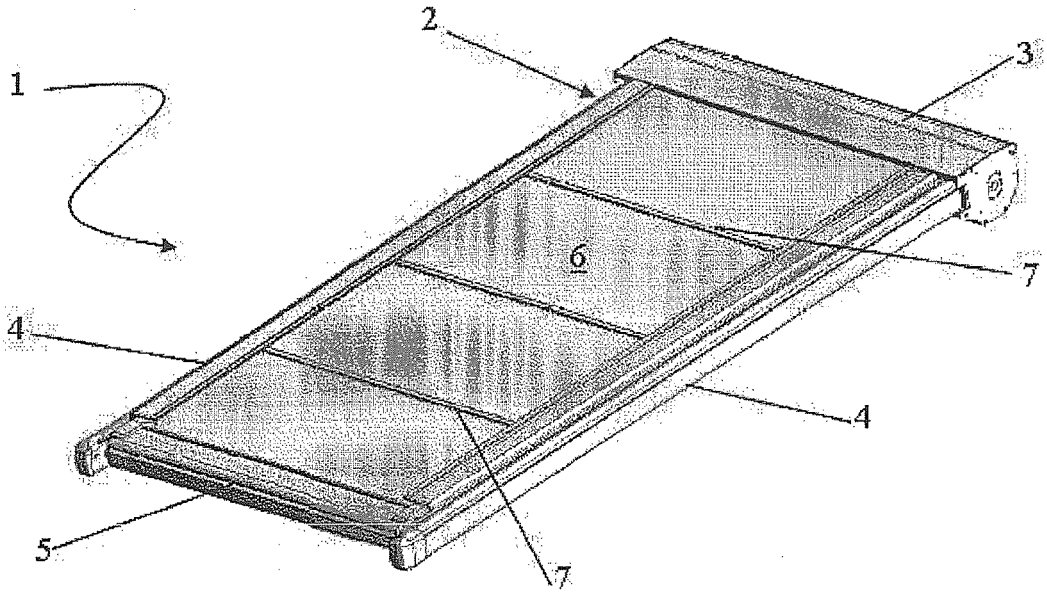

FIG. 1

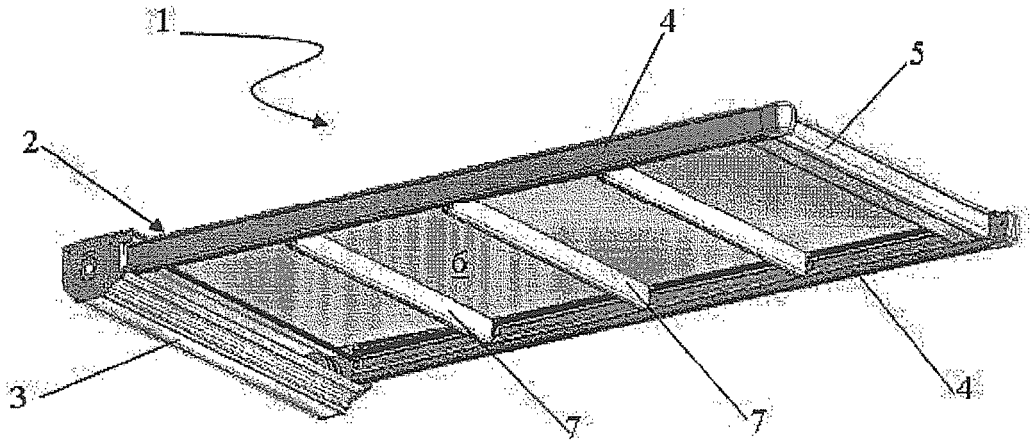

FIG. 2

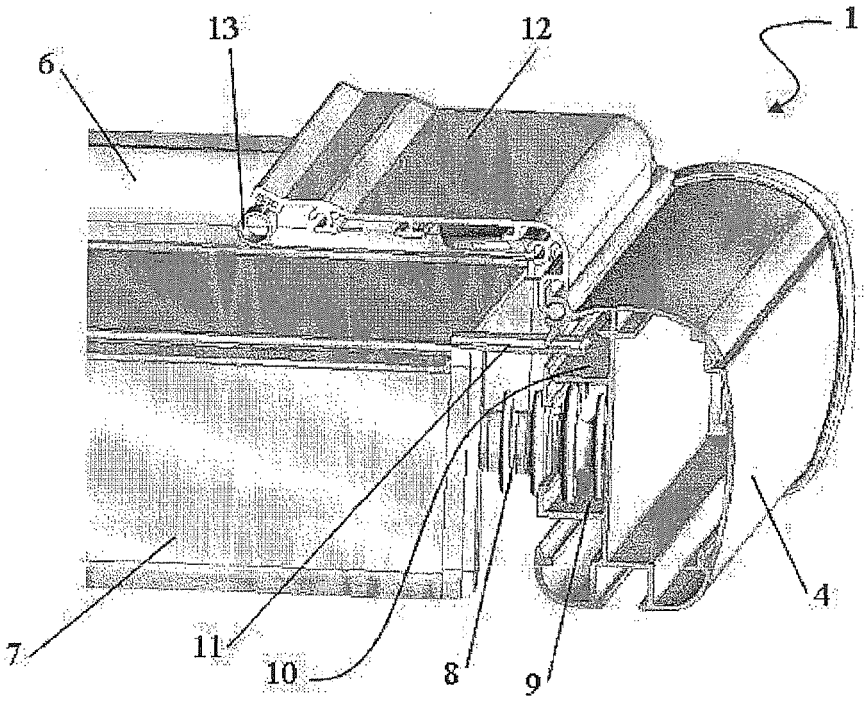

FIG. 3

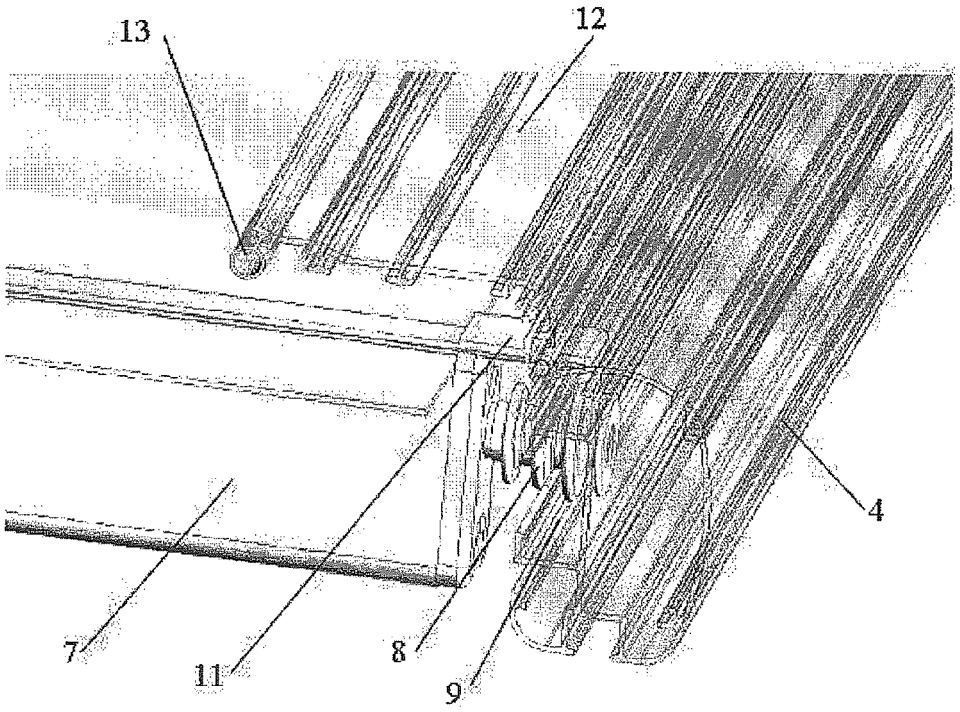

FIG. 4