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(54) Adjustable protective construction for making covering arrangements

(57) An adjustable protective construction (1), for making covering arrangements, characterized in that said construction comprises a plurality of swinging blade elements (2) mounted on a supporting framework (3) including at least two side beams (4), said side beams (4) supporting respective side gutters (5) and said blade elements (2) being latched to said side gutters (5) through latching pins thereby being able of rotating, all simultaneously, about a longitudinal rotary axis thereof, under a driving force applied by said side gutters (5), each said blade element (2) comprising a section member having a cell pattern cross section and defining a tilted or cambered arrangement.

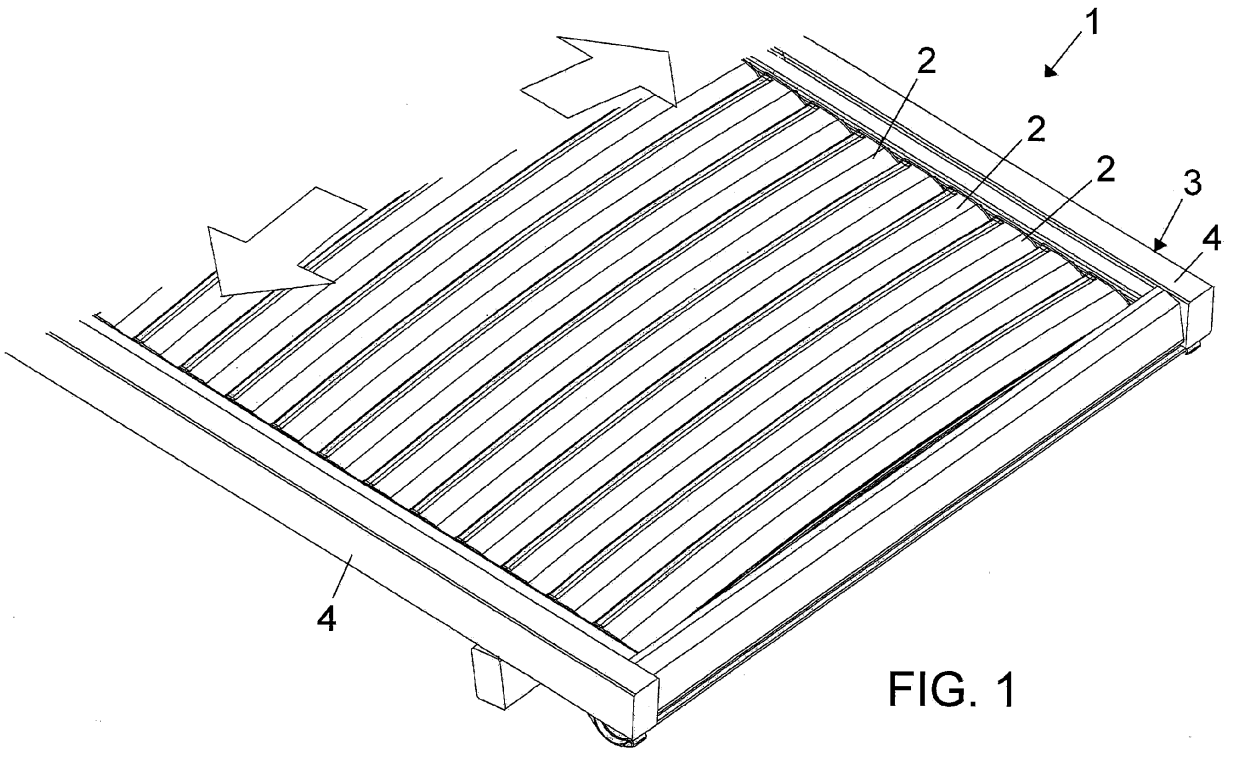

FIG. 1

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Description

BACKGROUND OF THE INVENTION

[0001] The present invention relates to an adjustable protective construction, particularly for making covering arrangements.

[0002] The adjustable protective construction according to the present invention has been specifically designed for gradually protecting against sun rays and atmospheric precipitation, in environments such as terraces, pergolas, gardens, verandas and the like.

[0003] Several covering systems or arrangements, to be used in open or partially open spaces, to provide a substantial protection from sun rays are already known.

[0004] The most commonly used protective systems comprise covering arrangements constituted by canes, curtains, roof tiles and so on.

[0005] Blade covering arrangements, both of a fixed or an adjustable type, constituted by covering blade elements have been already recently proposed: however, the latter covering arrangements are affected by several drawbacks.

SUMMARY OF THE INVENTION

[0006] Accordingly, the aim of the present invention is to provide such an adjustable protective construction, specifically designed for covering environments such as terraces, pergolas, gardens, verandas and the like, which is improved both from an aesthetic and an operating standpoint with respect to prior covering arrangements.

[0007] Within the scope of the above mentioned aim, a main object of the invention is to provide such a protective construction which is adapted to provide an efficient adjustable protection both against sun rays and atmospheric precipitations.

[0008] Another object of the present invention is to provide such a protective construction allowing to make covering arrangements with a substantial extension without hindering, even partially, useful functions such as the handling characteristics of the blades, and the impermeability of a covering arrangement to rain water.

[0009] Yet another object of the present invention is to provide such a protective construction preventing insects and small birds from nesting therein.

[0010] Yet another object of the present invention is to provide such a protective construction allowing to easily make a covering arrangement having an optimum mechanical strength, even in the presence of snow.

[0011] Yet another object of the present invention is to provide such a protective construction which, owing to its specifically designed structural features, is very reliable and safe in operation.

[0012] Yet another object of the present invention is to provide such a protective construction which may be easily made starting from easily available elements and materials and which, moreover, is very competitive from a mere economic standpoint.

[0013] According to one aspect of the present invention, the above mentioned aim and objects, which will become more apparent hereinafter, are achieved by an adjustable protective construction, particularly for making covering arrangements, characterized in that said construction comprises a plurality of swinging blade elements mounted on a supporting framework including at least two side beams.

[0014] Said side beams support respective side gutters and said blade elements being latched to said side gutters through latching pins thereby being able of rotating, all simultaneously, about a longitudinal rotary axis thereof, under a driving force applied by said side gutters.

[0015] Each said blade element comprises a section member having a cell pattern cross section and defining a tilted or cambered arrangement.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] Further characteristics and advantages of the present invention will become more apparent from the following detailed disclosure of a preferred, though not exclusive, embodiment of the invention, which is illustrated, by way of an indicative, but not limitative, example in the accompanying drawings, where:

Figure 1 is a partial perspective view of a covering arrangement made by using the protective construction according to the present invention;

Figure 2 is a partially exploded isometric view of a pair of blade elements included in the subject protective construction;

Figure 3 is yet another perspective view showing an operating step for applying end plug elements on the supporting side beams;

Figure 4 is yet another perspective view, similar to figure 3, showing the plug elements at an operating position thereof in a ready status for receiving the gutter element;

Figures 5-8 are schematic side views of the subject protective construction allowing a sequence of nap assembling steps for snap assembling the gutter element about the plug elements;

Figure 9 is a perspective view of the blade element showing the tilted or cambered arrangement thereof; and

Figure 10 is yet another perspective view schematically showing a drawing step of the blade element after the extrusion thereof, to provide the tilted or cambered arrangement of said blade element.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0017] With reference to the number references of the above mentioned figures, the protective construction according to the present invention, which has been gener-

ally indicated by the reference number 1, comprises a plurality of swinging blade elements 2 mounted on a supporting framework 3 constituted by two side beams 4.

[0018] Said side beams 4 support respective side gutters 5.

[0019] As shown, the blade elements 2 are latched to the side gutters through latching pins, thereby being able of rotating, all simultaneously, about a longitudinal rotary axis thereof, under a driving force applied by said side gutters.

[0020] Each said blade element 2 is constituted by a section member preferably made of aluminium, having a cell pattern cross section.

[0021] The blade element comprises moreover a recess for engaging a rubber "ball" sealing gasket therein, generally indicated by the reference number 6, said recess extending through the overall longitudinal dimension of said blade element.

[0022] Said gasket 6 has a drop and wind locking, silencing bearing and oscillation cushion element function.

[0023] Said blade element 2 further comprises end plug elements 7, preferably made of a plastic material, preventing insects and small birds for entering said construction while reducing noise and friction between metal parts of said construction.

[0024] According to the present invention, said blade elements 2 are provided with a tilted or cambered arrangement achieved by a cambering process carried out downstream of an extruding process, which provides to use a drawer or drawing device, generally indicated by the reference number 8 and schematically shown in figure 10.

[0025] More specifically, the machining process for making each blade 2 provides to make an extruded half-finished product, generally indicated by the reference number 22 in figure 10.

[0026] Such a semi-finished product, which practically constitutes a right blade element, is so bent as to provide a cambering of about 2 cm for linear meter.

[0027] The above machining process does not crash the extruded product, owing to the cell pattern of the cross-section of the latter, and may also be performed after a painting operation.

[0028] The thus cambered blade element does not affect the mechanical operation of the assembled construction since, during the opening and closing operations, the blade elements 2, having all a same bent arrangement, do not interfere one against another in any manner.

[0029] At a horizontal position, that is with the covering arrangement being closed, the blade elements 2 will loose a portion of their cambering arrangement, in an amount of 55%, because of their weight.

[0030] For example, a blade element having a length of 400 cm, and a camber of 2 cm per meter (4 x 2 = 8 ; 8 - 55% = 3.6) will be, at a horizontal position, higher at the vertex of the cambering arch, by only 3.6 cm.

[0031] Owing to the above characteristic, it is possible to make covering constructions including blade elements having a length up to 420 cm, which could not be made by prior constructions.

[0032] In the presence of a very high load, for example in the presence of snow, the blade elements will abut against their side guides, without any risks of causing their pivot pins to exit the related holes, as schematically shown in figure 1.

[0033] Thus, owing to the above mentioned small bilateral slope, it is always possible to allow an even rain water exit flow.

[0034] The protective construction comprises moreover a gutter channel, indicated by the reference number 9, arranged downstream of the covering.

[0035] Said gutter channel 9 is designed to collect all water coming from the two side gutters, and to provide a finished aesthetic aspect to the construction front part.

[0036] The gutter 9, also operating as a finishing casing, may be easily mounted between the beams 4 supporting the overall covering construction.

[0037] As schematically shown in figures 3-8, the gutter 9 is snap assembled, owing to the elastic properties of its metal material, on the end plug elements 10, connected to the beams 4.

[0038] It has been found that the invention fully achieves the intended aim and objects.

[0039] In fact, the invention has provided an adjustable protective construction specifically designed for making "small weight" covering arrangements, as conventionally included in terrace and garden furnitures.

[0040] Moreover, the protective construction according to the present invention is characterized in that it comprises a plurality of swinging aluminium blade elements which are mutually overlapped from upstream to downstream.

[0041] Said blade elements have a cellular S cross section designed for engaging a rubber gasket and have their longitudinal axis suitably bent or curved.

[0042] In practicing the invention, the used materials, as well as the contingent size and shapes, can be any, depending on requirements.

Claims

1. An adjustable protective construction, for making covering arrangements, **characterized in that** said construction comprises a plurality of swinging blade elements mounted on a supporting framework including at least two side beams, said side beams supporting respective side gutters and said blade elements being latched to said side gutters through latching pins thereby being able of rotating, all simultaneously, about a longitudinal rotary axis thereof, under a driving force applied by said side gutters, each said blade element comprising a section member having a cell pattern cross section and defining a tilted or cambered arrangement.

2. An adjustable protective construction, according to claim 1, **characterized in that** each said blade element comprises a recess for engaging a rubber "ball" sealing gasket therein, said recess extending through the overall longitudinal dimension of said blade element, and operating as a drop and wind locking element, and a silencing bearing and an oscillation cushion element.

3. An adjustable protective construction, according to claim 1, **characterized in that** each said blade further comprises end plug elements preventing insects and small birds from entering said construction while reducing noise and friction between metal parts of said construction.

4. An adjustable protective construction, according to claim 1, **characterized in that** each said blade element is made by drawing a half-finished extruded member.

5. An adjustable protective construction, according to one or more of the preceding claims, **characterized in that** each said blade has a camber of about 2 cm for linear meter.

6. An adjustable protective construction, according to one or more of the preceding claims, **characterized in that** said half-finished member is drawn upon having painted it.

7. An adjustable protective construction, according to one or more of the preceding claims, **characterized in that** said construction comprises a gutter channel, arranged downstream of said covering element.

8. An adjustable protective construction, according to one or more of the preceding claims, **characterized in that** said gutter channel is designed to collect water coming from side gutters, and to provide a finished aesthetic aspect to the construction front part.

9. An adjustable protective construction, according to one or more of the preceding claims, **characterized in that** said gutter is resiliently snap engaged on said end plug elements affixed to said side beams.

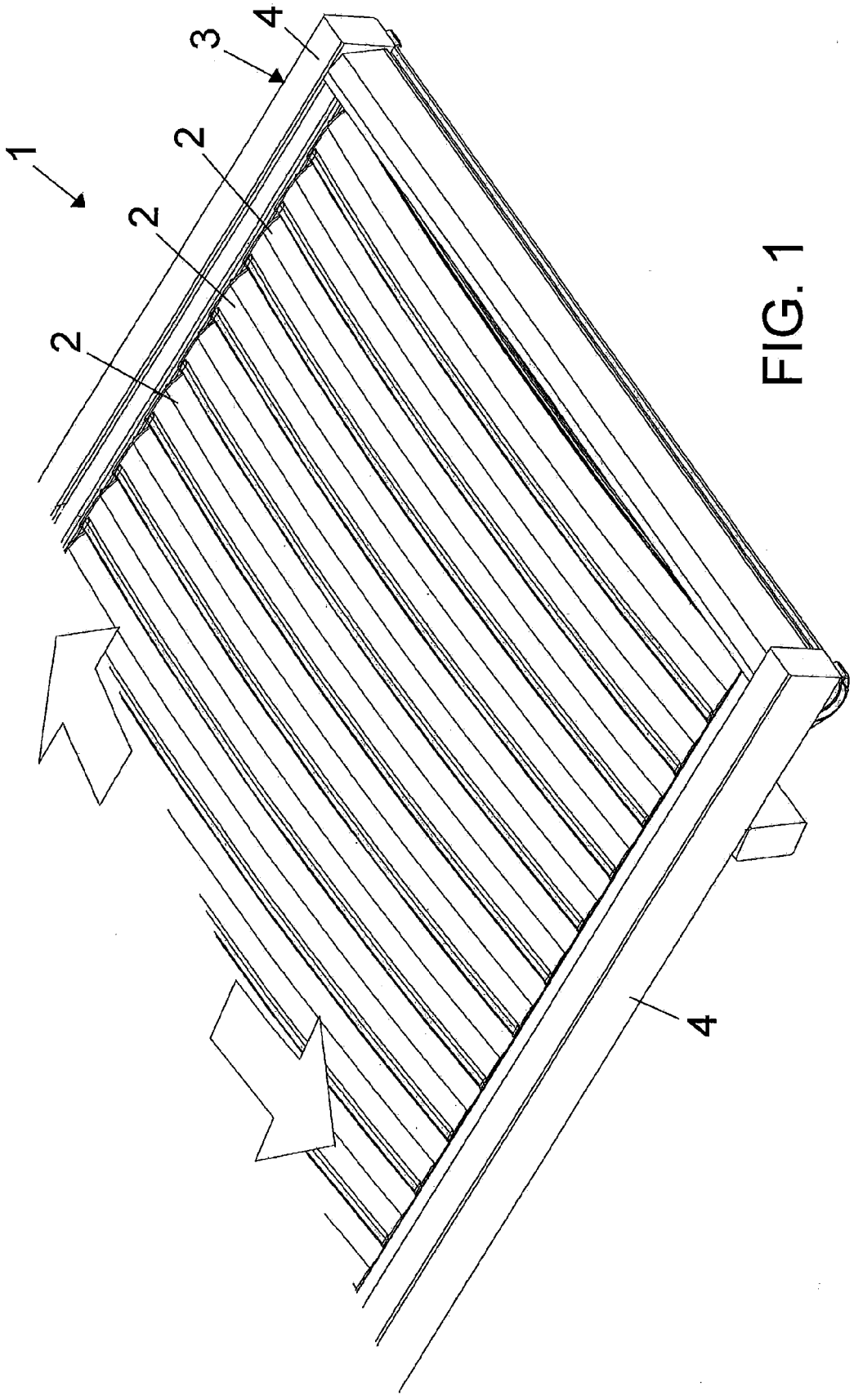

FIG. 1

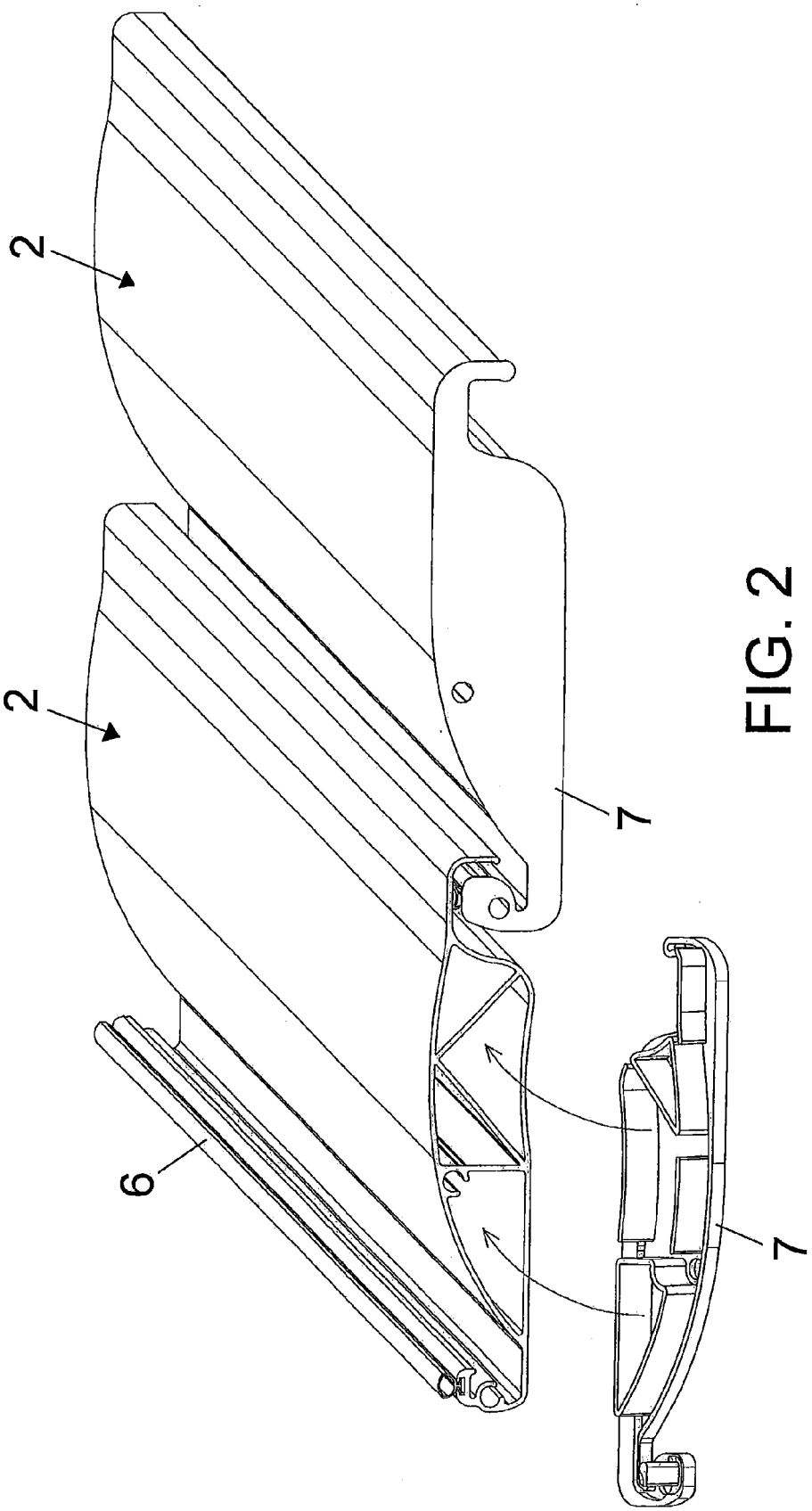

FIG. 2

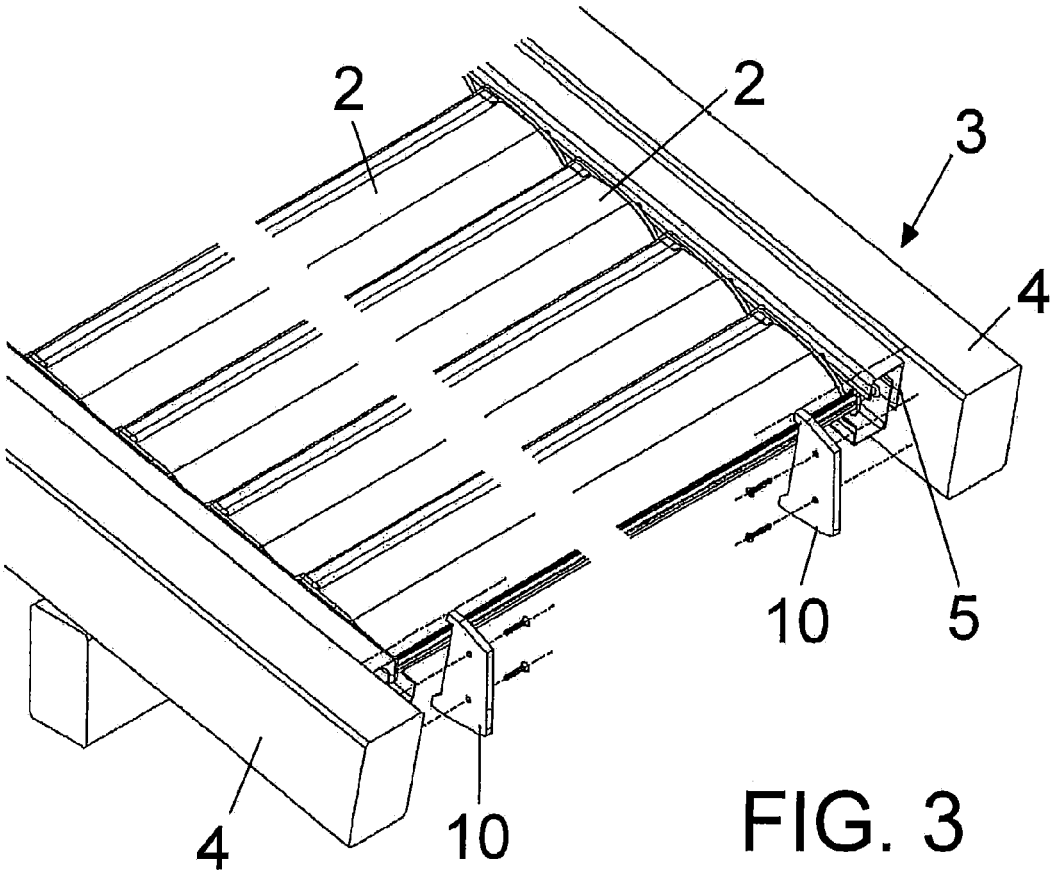

FIG. 3

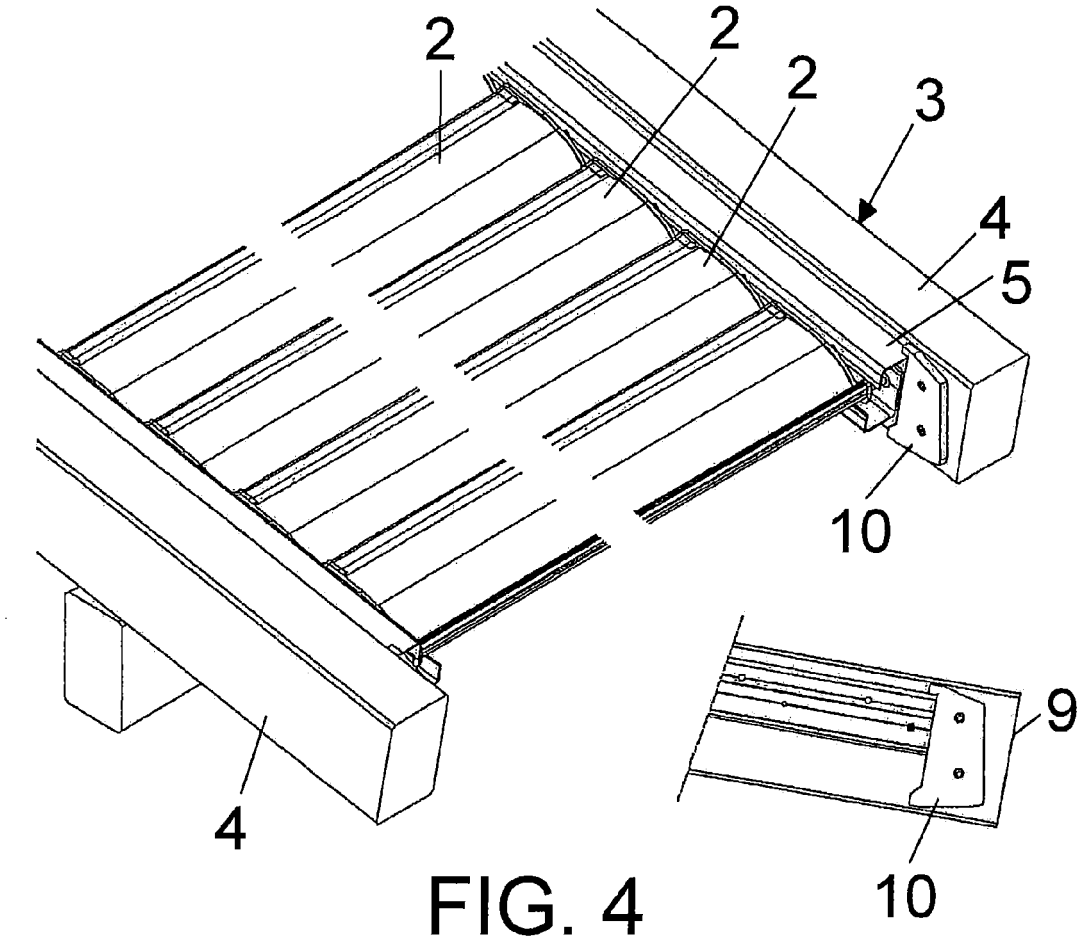

FIG. 4

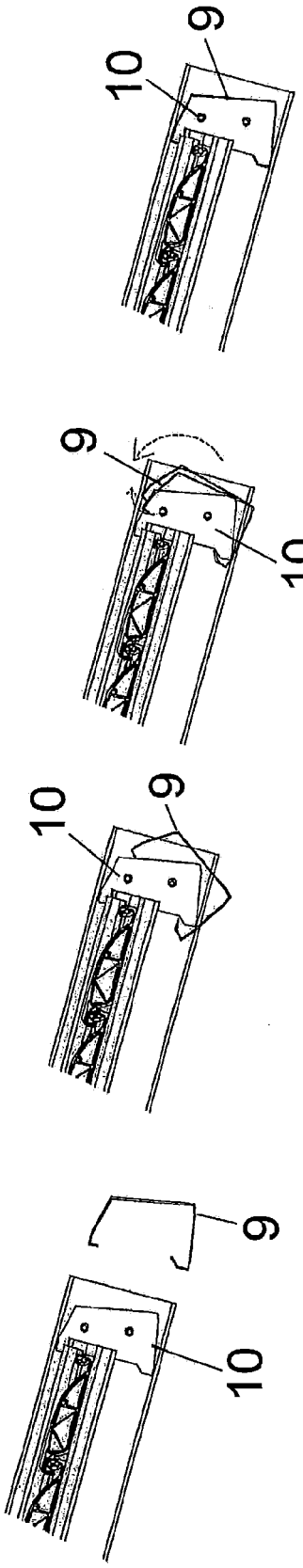

FIG. 5

FIG. 6

FIG. 7

FIG. 8

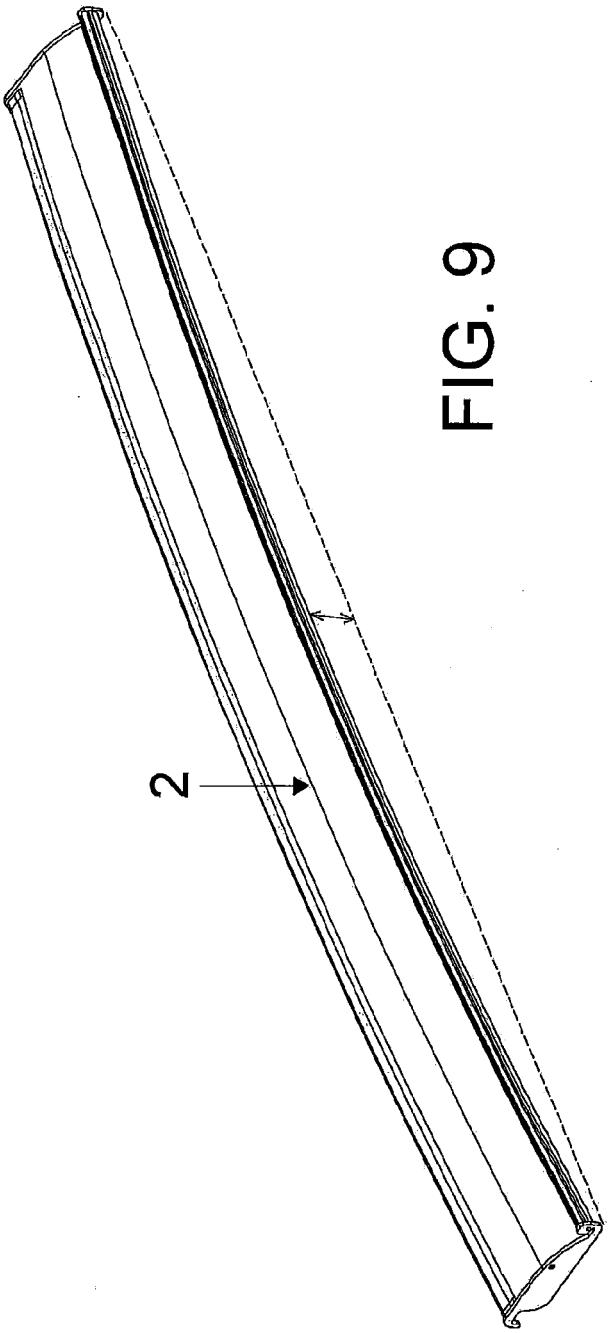

FIG. 9

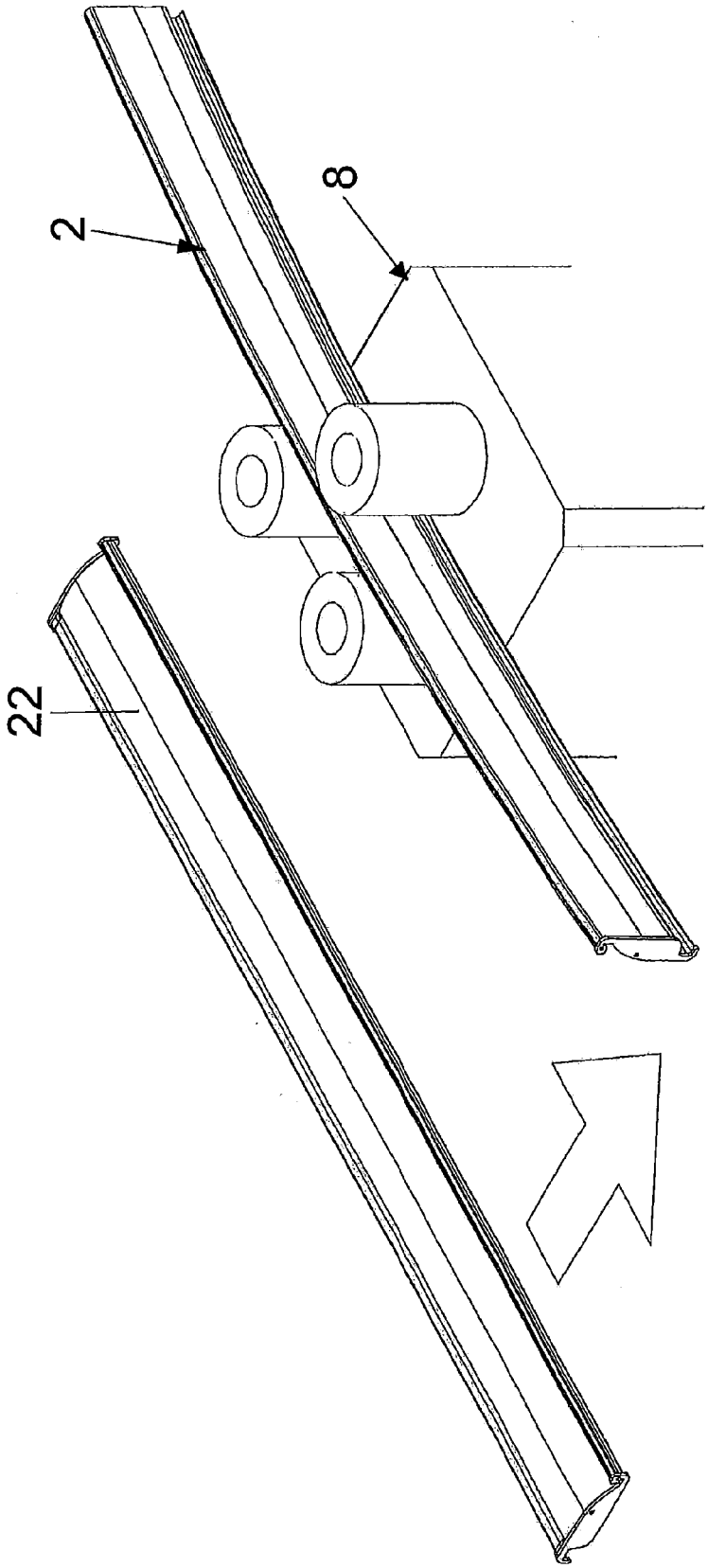

FIG. 10

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EUROPEAN SEARCH REPORT

Application Number
EP 11 18 1964

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	AT 9 653 U1 (SEER GERHARD [AT]) 15 January 2008 (2008-01-15) * page 2, line 28 - page 4, line 28; figures 1-3,5 * -----	1-9	INV. E04B7/16 E06B7/086
Y	EP 0 468 064 A1 (ITALSYSTEM S R L [IT]) 29 January 1992 (1992-01-29) * column 1, line 24 - column 2, line 3; figures 1-3,7,8 * * column 2, line 40 - column 4, line 53 * -----	1-9	

TECHNICAL FIELDS SEARCHED (IPC)

E04B
E06B
E04D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	16 December 2011	Hellberg, Jan

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 11 18 1964

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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16-12-2011

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82