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(54) **Improved roll-out awning with extending arms**

(57) A roll-out awning with extending arms (5) is described and comprises a winding device (3) for a fabric structure (4) and a front beam (6) fixed to the arms (5) at the opposite end to the winding device so that the fabric structure (4) is capable of extending between the winding device (3) and the front beam (6) as a result of the extended opening of the arms (5). The fabric structure (4) comprises first and second portions of fabric (4a, 4b) capable of extending one above the other, from and towards the extended position of the arms (5), each of the portions of fabric being thus extended between the winding device and the opposing front beam, the arms (5) being interposed between the first and second portions of fabric (4a, 4b), so as to be substantially covered on both sides by the portions of fabric when the fabric is unwound/wound up.

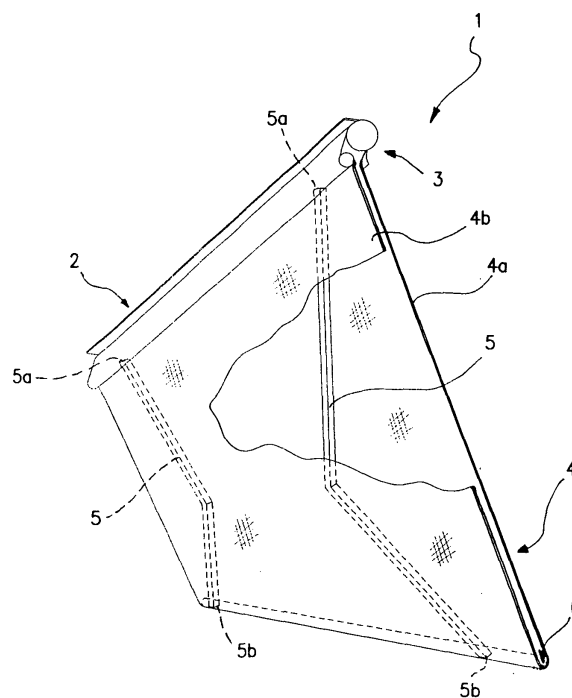


Fig. 1

Description

[0001] The present invention concerns a roll-out awning with extending arms according to the characteristics described in the preamble of the main claim. In the technical field of roll-out awnings with arms, the awning fabric typically has an end edge attached to a front beam which is opposed in parallel to the winding roller so that, on unwinding the fabric, the forced extending opening of the arms (by springs or similar means) pulls the front beam away from the roller and consequently extends the fabric.

[0002] In some currently known solutions, the awning's extending arms are positioned underneath the awning fabric and, when the awning is extended, remain clearly visible and without any cover on the side facing the area protected by the awning. Other solutions are also known where the arms are positioned on top of the awning fabric, remaining visible in that upper part.

[0003] One of the main aims of the present invention is to provide a roll-out awning with extending arms which is structurally and operationally designed to improve the awning's protective and screening capability, at the same time guaranteeing greater and better protection as well as covering for the awning's extending arm structure.

[0004] This and other aims which will emerge more clearly later are achieved by the invention by means of a roll-out awning with folding arms made according to the claims below.

[0005] Further characteristics and advantages of the invention will be better explained by the following detailed description of two of its preferred embodiments, illustrated by way of a non-limiting example, with reference to the attached drawings in which:

- Figure 1 is a schematic view in perspective of a roll-out awning with extending arms, with the awning fabric structure in partial section, according to a first embodiment of the present invention;
- Figure 2 is an enlarged side elevation of a detail of the roll-out awning shown in Figure 1;
- Figure 3 is a view corresponding to that of Figure 2 relating to a second embodiment of the invention;
- Figure 4 is an enlarged-scale view of another detail of Figure 3.

[0006] With reference to the above figures, 1 denotes as a whole a roll-out sun awning with arms, made according to a first embodiment of the present invention.

[0007] The roll-out awning 1 comprises a frame 2 to support a winding device 3 for a fabric structure 4 of an awning. It also comprises a pair of extending arms 5 having a first respective end 5a hinged to the frame 2 and an opposing second respective end 5b hinged to a front beam 6 extending parallel to the longitudinal axis of frame 2.

[0008] Each arm 5 has two or more sections hinged together and urged into the extended position (Fig. 1) by springs or other similar biasing means which are conven-

tional *per se* and not shown, such as those typically used in awnings with extending arms.

[0009] According to a main characteristic of the invention, the fabric structure 4 has a first and second portion of fabric, denoted by 4a and 4b respectively, structurally independent of each other, each of which is connected to a separate winding roller 3a, 3b of device 3. The fabric portions 4a, 4b are capable of extending one above the other, from and towards the extended position of the arms 5, each portion of fabric being thus extended between the corresponding winding roller 3a, 3b and the opposing front beam 6. Rollers 3a, 3b are also arranged on opposite sides in relation to arms 5, as shown in Figure 2, so that the said arms are consequently interposed between the fabric portions 4a, 4b. As a consequence, the arms 5 are thus substantially covered on both sides by the portions of fabric 4a, 4b, when the fabric is unwound/wound up, as is clearly shown in Figure 1.

[0010] More particularly, the top roller 3a has a motor means or a winch for rotating the roller and the portion of fabric 4, which can be wound onto the this roller, is connected by its front edge to one end 6a of the front beam 6. By contrast, the bottom roller 3b has only a spring-return means, not shown, to wind up the portion of fabric 4b which is connected by its front edge to one end 6b of the beam 6. Rollers 3a, 3b are supported so as to be able to rotate on the frame 2 by respective pairs of supporting elements, denoted by 3c and 3d respectively. According to this structure, as a result of the rotation of the roller 3a in the unwinding direction of the top fabric 4a, the consequent forced opening of the arms 5 pushes the front beam 6 out, at the same time pulling out the bottom fabric 4b, until the extended position of the arms is reached, in which the portions of fabric 4a, 4b are extended, with a preset state of resilient tension, juxtaposed to each other, substantially covering the arms 5.

[0011] Conversely, on winding up fabric 4, by means of a reverse rotation of the roller 3a, the portion of fabric 4a is wound onto the corresponding roller and at the same time the return spring associated with the bottom roller 3b causes the bottom fabric 4b to be rewound back onto the said roller, until the arms 5 reach the closed position, the portions of fabric 4a, 4b being completely rewound onto their respective rollers (Fig. 2).

[0012] With particular reference to Figures 3 and 4, 10 denotes as a whole a second embodiment of the roll-out awning according to the invention, in which parts similar to those in the previous embodiment are indicated by the same numerical references.

[0013] The roll-out awning 10 differs mainly from the previous embodiment in that the two portions of fabric 4a, 4b belong to a single fabric structure 4. The said portions therefore identify those parts of fabric, top and bottom respectively, extended between the winding device 3 and the front beam 6.

[0014] More particularly, the fabric structure 4 is capable of winding exclusively onto just one winding roller 3a, equipped with motor means or a winch, not shown, as a

result of the corresponding rotational movement. From roller 3a, the fabric 4 is guided in sliding contact around a front part 6c of beam 6 so as to attach, at its front end edge, to a profiled section 9 extending parallel to the frame 2 and connected to the latter by means of a supporting element 9a. As clearly illustrated in Figure 3, profiled section 9 is located on the opposite side to roller 3a in relation to the position of arms 5, so that the latter are interposed between the two portions of fabric 4a, 4b defined by the front beam. Note how the surface of the front wall 6c of beam 6, subject to relative sliding with the fabric 4, conveniently comprises an undulating transverse section, obtained by a plurality of depressions 6d extending longitudinally, parallel to each other and spaced apart. This arrangement enables the area of mutual contact between wall 6c and fabric 4 to be limited, resulting in less frictional resistance between the surfaces in relative sliding contact.

[0015] During operation, as a result of the rotation of the roller 3a in the unwinding direction of the fabric 4, the consequent forced opening of the arms 5 pushes the front beam 6 out, and by sliding the fabric 4 around the beam, the extended position of the arms is achieved, in which the portions of fabric 4a, 4b are extended overlapping each other in a preset state of resilient tension, the arms 5 substantially being covered on each side by the portions of fabric.

[0016] Conversely, on winding up the fabric 4, by means of the rotation of roller 3a, the fabric is rewound back onto the said roller (with relative sliding between the fabric and the front wall of the beam) until the arms 5 reach the closed position and the fabric is completely rewound onto the roller (Fig. 3).

[0017] In this second embodiment, each portion of fabric 4a, 4b can comprise a series of horizontal sectors (strips running parallel to the beam 6) alternating with transparent or shading material and covering material. Due to the effect of the transparent part of the fabric overlapping (for example over the top) a similar or different material of the other part of the fabric (for example underneath), shielding with shade/light is achieved by increasing or reducing the extension of the arms.

[0018] The invention thus achieves the proposed aims by offering numerous advantages compared to traditional roll-out awnings with arms.

[0019] In particular, one of the advantages is that the awning according to the invention has a better capacity to shield against solar rays, thanks to the double-fabric structure provided, thus affording greater protection.

[0020] Furthermore, thanks to the awning structure of the invention, the fabric-extension arms are also covered on the underside of the fabric, and are therefore better protected since they are no longer visible from the area below, protected by the awning, also affording an appreciable improvement in appearance.

[0021] It will also be noted that, according to the invention, the operating parts of the awning are also provided with a protective covering, particularly the extending

arms, even in the operating position in which the awning is fully open. Furthermore, advantageously, the double-fabric structure according to the invention can be operated by one single control.

Claims

1. Roll-out awning with extending arms (5) comprising a winding device (3) for a fabric structure (4) and a front beam (6) fixed to the arms (5) at the opposite end to the winding device so that the said fabric structure (4) is capable of extending between the winding device (3) and the front beam (6) as a result of the extended opening of the said arms (5), **characterised by** the fact that the said fabric structure (4) comprises first and second portions of fabric (4a, 4b) capable of extending one above the other, from and towards the extended position of the said arms (5), each of the said portions of fabric (4) being thus extended between the winding device and the opposing front beam (6) and by the fact that the said arms (5) are interposed between the said first and second portions of fabric (4a, 4b), so as to be substantially covered on both sides by the said portions of fabric when the fabric is unwound/wound up.
2. Roll-out awning according to claim 1, wherein both of the said first and second portions of fabric (4a, 4b) can be moved from and towards the extended position by one single control means to wind up/unwind the fabric.
3. Roll-out awning according to either claim 1 or claim 2, wherein the said first and second portions of fabric (4a, 4b) are structurally independent of each other, each portion being connected to its own winding roller (3a, 3b).
4. Roll-out awning according to claim 3, wherein each portion of fabric (4a, 4b) has a free edge capable of being attached to the front beam (6), the other opposing edge being fixed to the corresponding winding roller (3a, 3b).
5. Roll-out awning according to claim 4, wherein at least one of the said winding rollers (3a, 3b) has means for rotating the roller to wind up the respective portion of fabric (4a, 4b).
6. Roll-out awning according to claim 5, wherein the other one of the said winding rollers (3a, 3b) has a resilient means for returning the respective portion of fabric (4) in the winding direction.
7. Roll-out awning according to either claim 1 or claim 2, wherein the said first and second portions of fabric (4a, 4b) belong to a single fabric structure (4).

8. Roll-out awning according to claim 7, wherein the said single fabric structure (4) is guided in sliding contact around the front beam (6).
9. Roll-out awning according to either claim 7 or claim 8, wherein one edge of the said fabric structure (4) is attached to a winding roller (3a), the other opposing edge being attached to a profiled section (9) connected to the frame (2) supporting the winding roller, the said profiled section (9) being on the opposite side to the said roller in relation to the position of the extending arms.
10. Roll-out awning according to claim 8, wherein the surface of the front beam (6) in sliding contact with the fabric structure (4) has an undulating transverse section, to limit the frictional resistance in mutual sliding contact.
11. Roll-out awning according to claim 10, wherein the said undulating section is defined by a plurality of depressions (6d) extending longitudinally along the front beam (6).
12. Roll-out awning according to claims 7 to 11, wherein each portion of fabric (4a, 4b) comprises horizontal sectors or strips alternating with transparent or shading material and covering material.

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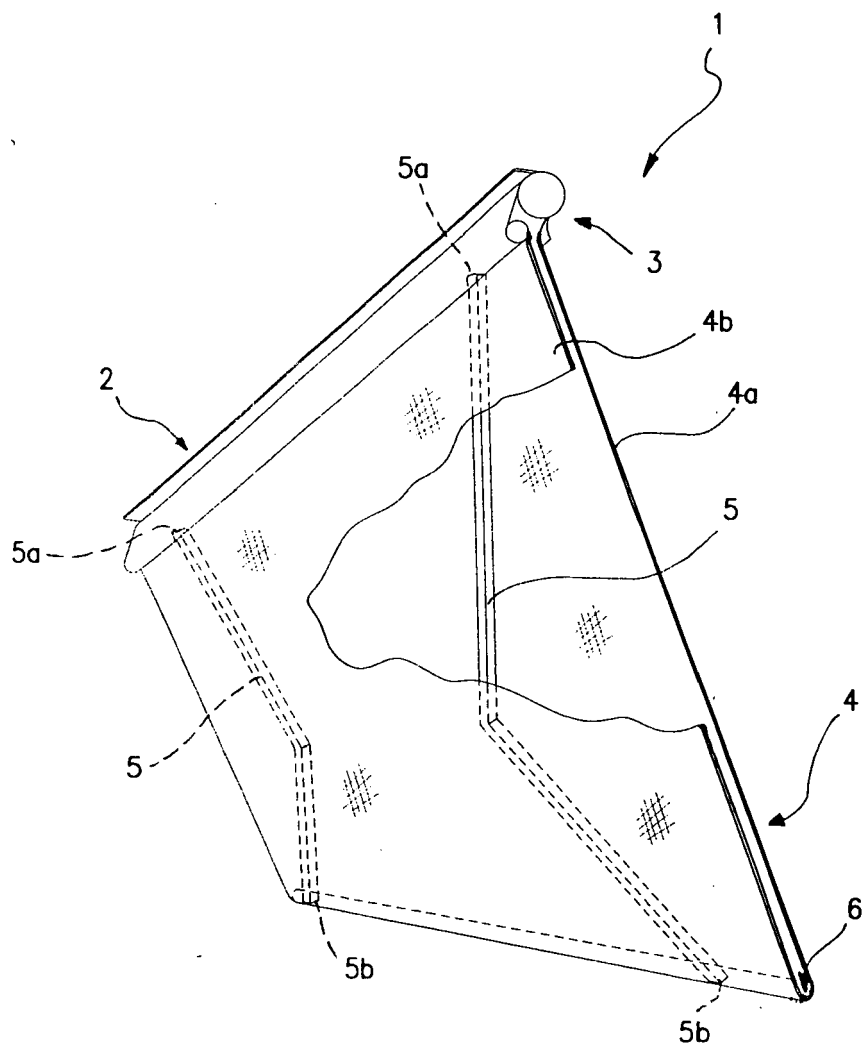


Fig. 1

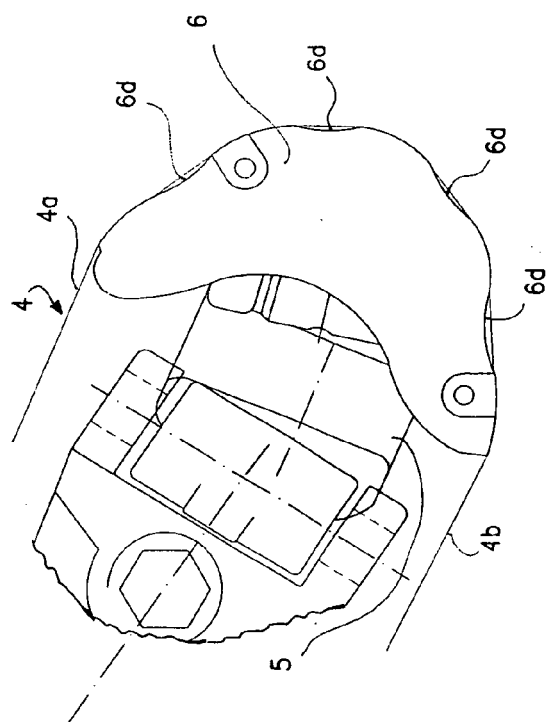


Fig. 4

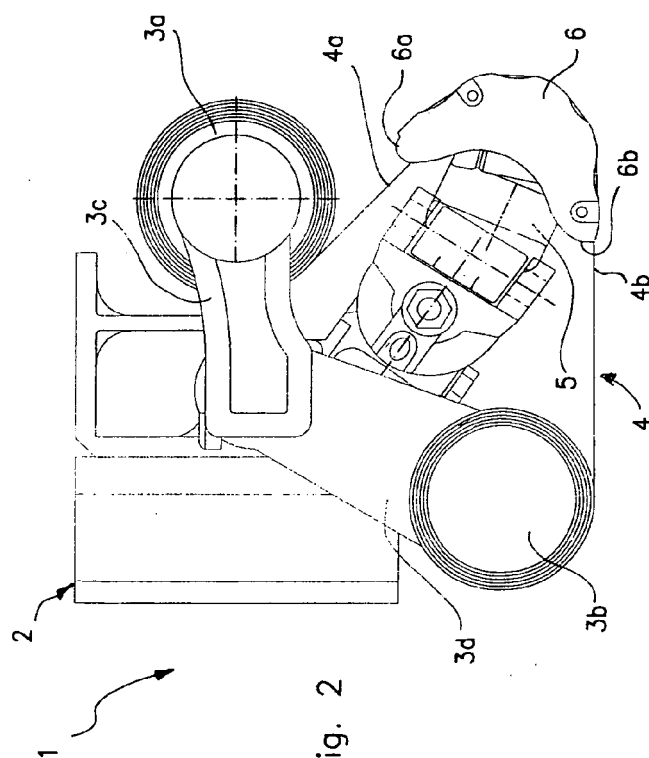


Fig. 2

Fig. 3

