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(54) Device for anchoring the blind fabric to a roller-blind roller and roller including said device

(57) A description is given of a device for anchoring the blind fabric to the roller of a roller blind, comprising a securing element which can be attached to a corresponding lateral edge of the fabric and can be housed and retained in a seating extending axially in the roller, so as to secure the edge to the roller-blind roller, in which the

securing element comprises a hook appendage which can be inserted frontally into the seating, transversely to the direction of axial development of the roller and having a form such as to be retained in the seating when the fabric is rolled onto or unrolled from the roller-blind roller so as to anchor the edge of the fabric to the roller.

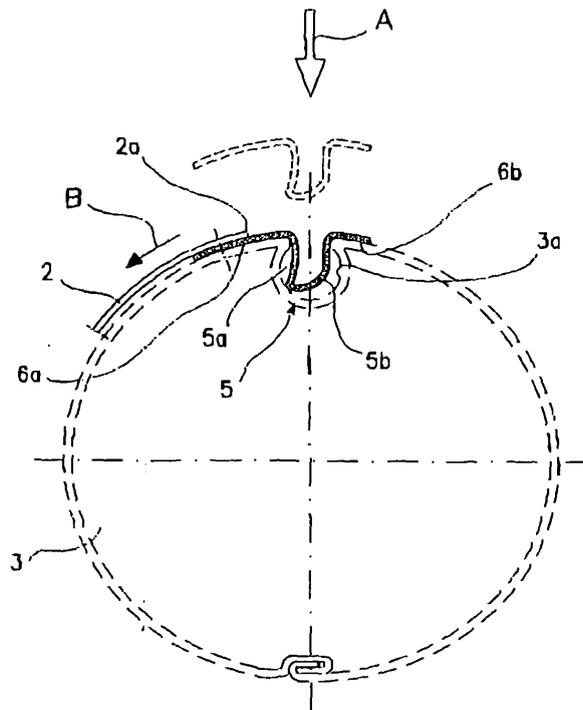


Fig. 2

Description

[0001] The present invention relates to a device for anchoring the blind fabric to a roller-blind roller according to the characteristics set out in the preamble to the main claim.

[0002] In the field of roller blinds, it is known practice to provide suitable means in the roller-blind roller to secure one end edge of the blind fabric to the outer casing of the roller, this anchorage being typically provided along a longitudinal generating line of the roller.

[0003] A known solution provides for the preparation in the roller of a channel-shaped seating extending longitudinally in the roller between its opposite axial ends and open at these ends and also capable of housing and retaining a securing element of cylindrical shape. The latter is in turn housed in a pocket made in the blind fabric by folding one end side of the fabric so that the pocket and the securing element inserted into it are retained in the channel and can slide axially but cannot be removed in a transverse direction.

[0004] A disadvantage encountered in this known anchorage system lies in the fact that to remove the securing element (to replace the blind fabric, for example) it is necessary to take off at least one of the end stops of the blind provided at the axial ends of the roller, so as to slide this element axially until it is completely withdrawn from the channel. This operation is particularly inconvenient in roller blinds where the roller is housed in a box structure, since removal involves taking off the roller-blind roller from and refitting it to the box structure of the blind.

[0005] The problem addressed by the present invention is that of making available a device for anchoring the blind fabric to the corresponding roller-blind roller structurally and functionally designed to overcome the troublesome limitations noted with reference to the known technology.

[0006] This problem is solved by the invention by means of a device produced according to the claims which follow.

[0007] Other characteristics and advantages of the invention will become clear from the following detailed description of a preferred example of embodiment illustrated purely by way of non-limiting example with reference to the appended drawings in which:

- figure 1 is a perspective view at an enlarged scale of a device for anchoring the blind fabric to a roller-blind roller according to the present invention,
- figure 2 is a view in side elevation of the device in figure 1 shown in combination with a roller-blind roller and roller blind fabric,
- figure 3 is a view corresponding to that in figure 2 and relating to a known application,
- figure 4 is a schematic perspective view of a roller blind provided with a device produced according to the invention.

[0008] With reference to the drawings cited, the number 1 indicates as a whole a device for removably anchoring the blind fabric 2 to a roller-blind roller 3 of a roller blind 4.

5 **[0009]** The device 1 comprises a securing element 1a arranged to be attached to a lateral edge 2a of the fabric and to be housed and retained in a seating 3a made in the roller-blind roller, as will be explained in detail further on in the description.

10 **[0010]** According to a principal characteristic of the invention, the securing element 1a comprises a hook appendage 5 which can be inserted frontally into the seating 3a in the roller, transversely to the direction of longitudinal development of the roller, indicated by X in the drawings.
15 The direction of frontal insertion is indicated by the arrow A in figure 2.

[0011] In cross-section, the hook appendage 5 has the form of a tooth-shaped section such as to ensure that it is retained in the seating 3a once it has been inserted
20 into said seating and the fabric 2 is tensioned tangentially to the roller in the operation of unrolling from or rolling onto the roller.

[0012] More particularly, the tooth-shaped section of the appendage 5 is formed by a first and a second wall
25 5a, 5b, converging at the vertex edge 5c of the toothed shape, which have a respective curved shape in cross-section. Advantageously the curved shapes in section of the walls 5a, 5b have a curvature with the concave side facing in the same direction, as shown in particular in
30 figures 1 and 2.

[0013] The walls 5a, 5b are in turn connected to respective flanges 6a, 6b of the securing element 1a capable of contact with the outer casing of the roller when the hook appendage 5 is inserted into the connecting
35 seating 3a in the roller. The securing element 1a is advantageously produced as an extrusion of plastics material of bar-shaped form with thin walls of open shape with mainly longitudinal development (in the direction transverse to the hook section). In this way the hook portion 5 with tooth-shaped section characterizes the secur-
40 ing element transversely along its entire longitudinal development.

[0014] In use, provision is made for the securing element 1a to be inserted frontally into the seating 3a in the roller in the direction of the arrow A until the hook section 5 is housed and retained inside the seating. In the fastened condition, the flanges 6a, 6b bear against corresponding surface portions of the outer casing of the roller, at an opening 3b in the seating 3a. This seating provided
45 in the roller may have a typical channel shape with a cavity of circular cross-section open at the opening 3b in the outer casing of the roller. This form of the seating 3 may reflect the typical form provided in roller-blind rollers of the conventional type and designed to house and retain
50 a cylindrical securing element 7 capable of sliding axially in the seating and housed in turn in a pocket 8 made in the fabric 2 of the blind. Figure 3 shows such a solution embodied according to known technology.

[0015] Returning to the invention, once the hook appendage 5 has been inserted frontally into the channel seating 3a, it remains hooked to and retained in the seating as soon as the fabric 2, previously attached firmly to the securing element 1a, is tensioned in the operation of rolling up or unrolling relative to the roller-blind roller (arrow B in figure 2). This tension is induced tangentially to the roller 3 at the edge 2a at which the fabric is attached to the securing element 1a. The fabric is attached along a first area of surface strip extending from the free end of the flange 6a, indicated by the reference number 9. The strip 9 is continued in a second surface area 10 which extends until it joins the wall 5a of the hook appendage 5. The area 9 is advantageously produced with greater flexibility and softness characteristics relative to the second area 10. This difference in flexibility makes it easy to attach the edge 2a of the fabric 2, by sewing or welding for example, while maintaining sufficient rigidity in the remaining part of the securing element 1a for the hook function which it has to perform.

[0016] Said difference in flexibility between areas 9 and 10 is preferably produced by appropriate co-extrusion by using plastics materials having components with suitable differences.

[0017] It should be noted that the attachment of the fabric edge 2a to the strip 9 of the securing element makes it possible to limit the total thickness to be rolled up, reducing this compared with the provision in known solutions (in figure 3) in which the flap of fabric (also made using a double fold) at the seam is normally such as to generate unwanted recurring marks on the unrolled fabric. Finally it should be noted how the shape of the hook appendage 5 is designed to prevent it from coming out of the seating 3a, even where the fabric is unrolled entirely and is rolled up in reverse onto the roller, in the opposite direction to that of the arrow B in figure 2.

[0018] Figure 4 shows a schematic view of a roller blind in which the roller-blind roller 3 is fitted in a box structure 11 between two opposite end stops 11a, 11b. According to a principal special feature of the invention, the fabric 2 is secured to the roller-blind roller by inserting the securing element 1a frontally (in the direction of the arrows shown in figure 4) into the channel seating 3a provided on the casing of the roller, so that it is not necessary to remove either of the end stops 11a, 11b of the blind or the box structure.

[0019] The invention thus solves the problem addressed and achieves the advantages claimed above compared with known solutions.

Claims

1. A device for anchoring the blind fabric (2) to the roller (3) of a roller blind (4), comprising a securing element (10) which can be attached to a corresponding lateral edge of the fabric (2) and can be housed and retained in a seating (3a) extending axially in the roller (3), so

as to secure said edge to the roller-blind roller, **characterized in that** said securing element comprises a hook appendage (5) which can be inserted frontally into the seating (3a), transversely to the direction of axial development of the roller (3) and having a form such as to be retained in said seating (3a) when the fabric (2) is rolled onto or unrolled from the roller-blind roller (3) so as to anchor the edge of the fabric (2) to the roller (3).

2. A device according to claim 1, in which said hook appendage (5) has a tooth-shaped section in a cross-section transverse to the longitudinal direction of development of the securing element (1a).

3. A device according to claim 2, in which the tooth-shaped section of said appendage (5) is formed by a first (5a) and by a second wall (5b) converging at the vertex (5c) of the tooth-shaped form which have curved shapes in cross-section.

4. A device according to claim 3, in which said walls (5a, 5b) have curvatures with respective concave sides both facing in the same direction.

5. A device according to claim 3 or 4, in which said walls (5a, 5b) are extended by respective flanges (6a, 6b) of the securing element (1a) capable of contact with the outer casing of the roller (3) when the appendage (5) is inserted into the seating (3a), at the opening (3b) of said seating (3a).

6. A device according to one or more of the preceding claims in which the securing element (1a) is obtained by extrusion.

7. A device according to claim 5, in which at least one (6a) of said flanges has an area with differences in flexibility.

8. A device according to claim 7, in which a first area (9) of greater flexibility extending from the free end edge of said flange (6a) is provided in at least one (6a) of said flanges, said first area (9) being continued in a second area (10) of lesser flexibility.

9. A device according to claim 8, in which said first area (9) is obtained by a step of co-extrusion onto said second area (10) of the securing element.

10. A roller blind (4) comprising a roller-blind roller (3) for the blind fabric (2) and a device (1) for anchoring the fabric (2) to the roller (4) produced according to one or more of the preceding claims.

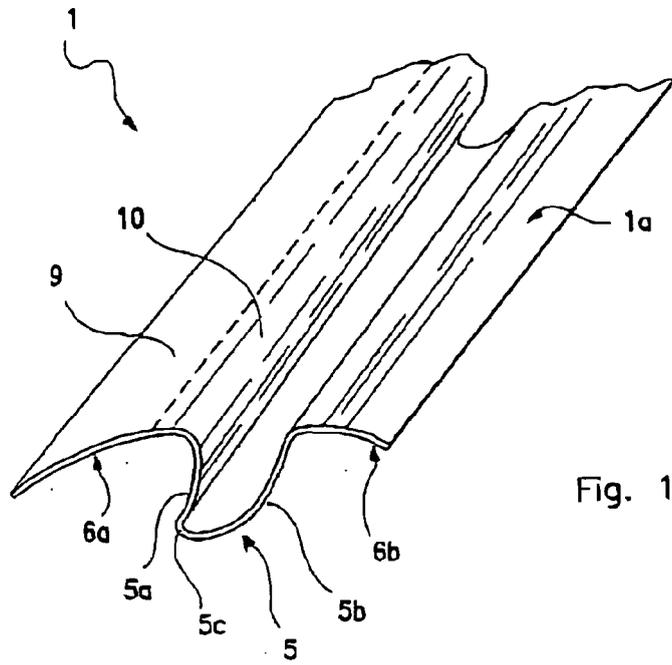


Fig. 1

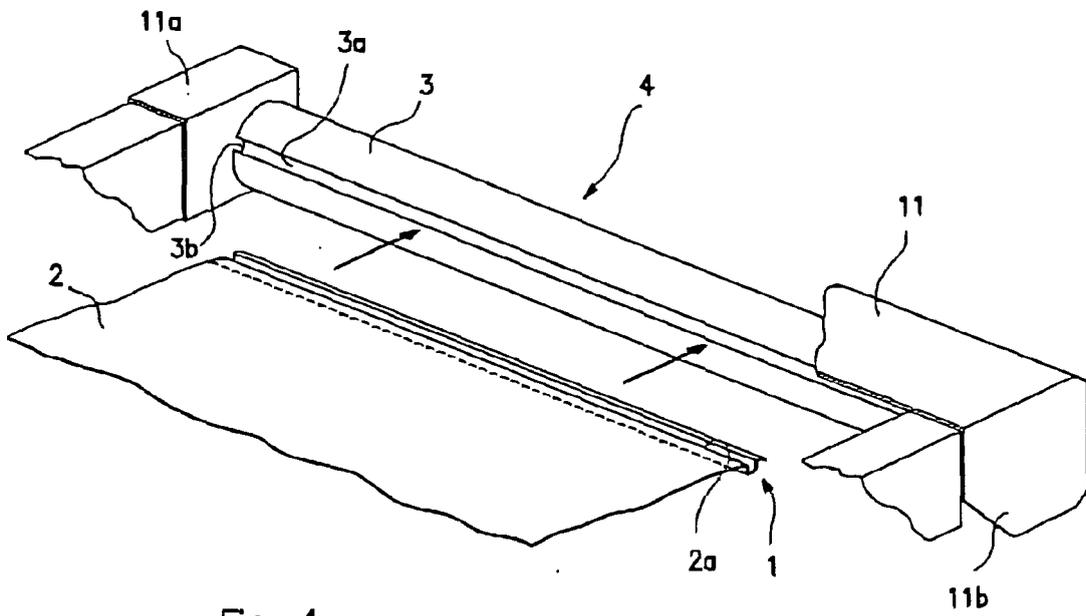


Fig. 4

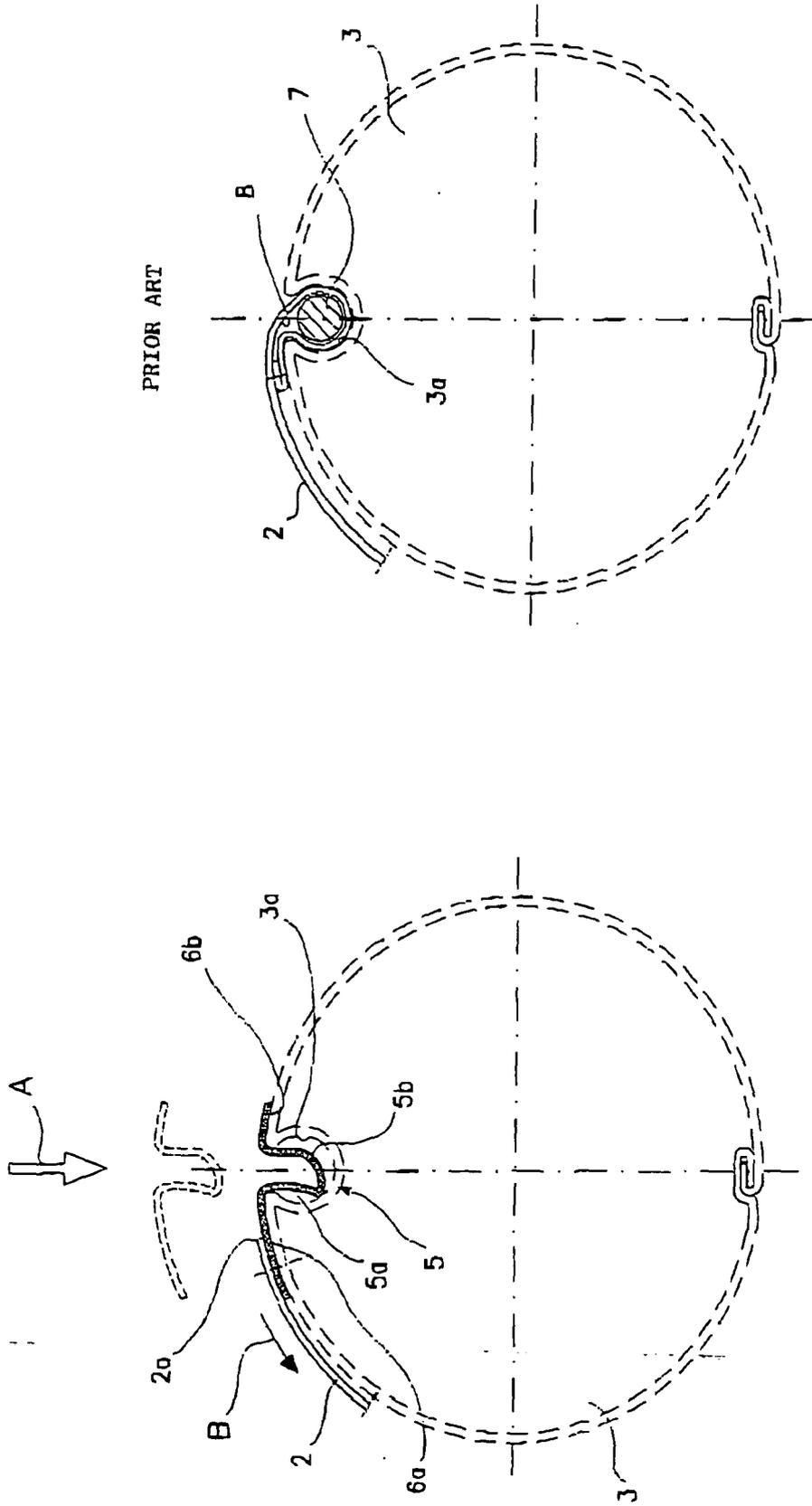


Fig. 2

Fig. 3



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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
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A	EP 0 389 104 A (URQUHART, PETER JOHN) 26 September 1990 (1990-09-26) * the whole document *	1	TECHNICAL FIELDS SEARCHED (Int.Cl.7) E06B
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 20 July 2005	Examiner Knerr, G
<p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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</p>			

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EPC FORM 1503 03/82 (P04/C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 05 01 3926

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 The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

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