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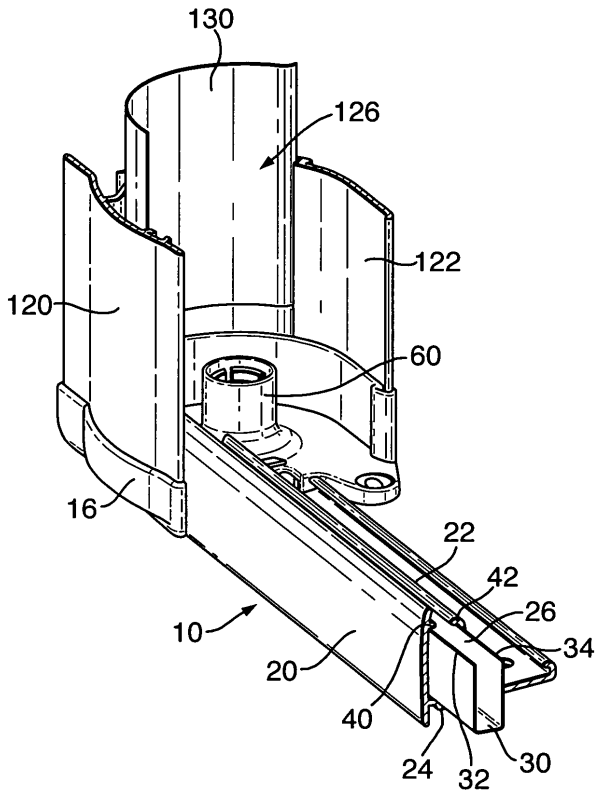
(54) Frame section for a black-out blind assembly

(57) A black-out blind assembly having a frame supporting a black-out blind moveable within the frame between open and closed positions wherein sections (6, 8, 10) of the frame have inner and outer walls extending from a side wall so as to form a channel section defining a recess for receiving part of a black-out blind (12). A light absorbing substantially non-reflective insert (30, 130) is positioned within the recess of the channel section (26, 126) adjacent the inner, outer and side walls so as to prevent scattered and reflected light passing around the sides of the black-out blind.

Fig.3.



EP 1 612 367 A1

Description

[0001] The present invention relates to a frame section of a frame for a black-out blind assembly, in particular for reducing the transmission of light through the blind assembly.

[0002] It is well known to provide black-out blinds for architectural openings. These blinds are used to cover openings, such as windows, to cover the opening and prevent ingress of any light. Examples of such blinds are described in US 2,354,489, US 5,117,892, DE 1 127 555 and DE 1 705 816.

[0003] Although the blinds themselves can be sufficiently opaque to produce the desired effect, there is a problem that light can be reflected within the frame supporting the blind, such that this light travels around the side of the blind.

[0004] To overcome this problem, the prior art proposes coating or painting inside surfaces of the frame of the black-out blind. However, the process of painting or coating the components in this way is undesirably complicated and expensive.

[0005] The present invention recognises this problem and has an object to at least reduce the problem.

[0006] According to the present invention, there is provide a frame section of a frame for a black-out blind assembly supporting a black-out blind moveable within the frame between open and closed positions, the frame section having:

> inner and outer walls extending from a side wall so as to form a channel section defining a recess for receiving part of a black-out blind; and
> a light absorbing substantially non-reflective insert positioned within the recess of the channel section adjacent the inner, outer and side walls.

[0007] In this way, it is not necessary to paint or coat inner portions of the frame which surround the sides of the black-out blind between the inside and the outside of the architectural opening. Painting and/or coating frame sections can be a problem, since, usually, it is only the innermost part of the frame section which needs to be light absorbing and non-reflective. It then becomes necessary to coat the frame section selectively.

[0008] By means of the present invention, it becomes a simple matter to prevent stray light from being reflected around the sides of the black-out blind. The separately manufactured insert can easily be inserted into the frame section.

[0009] Preferably, the insert is a sheet form extending between first and second parallel edges and is deformed so as to extend from the first edge adjacent the inner wall around the inside of the channel section to the second edge adjacent the outer wall.

[0010] By providing the insert as a sheet of appropriate width, it becomes very simple and inexpensive to manufacture the insert. Assembly of the frame section is not difficult, because it is only necessary to deform the sheet appropriately to fit it into the channel section.

[0011] Preferably, within the recess of the channel section, the inner and outer walls are provided with respective supports for receiving the first and second edges of the insert.

[0012] In this way, the insert is easily and securely held in place within the channel section.

[0013] The supports can include protrusions extending into the recess of the channel section so as to prevent the edges of the insert moving outwardly of the channel section.

[0014] The supports need not in themselves fix the edges of the insert to the inner and outer walls. By preventing the edges from moving outwardly of the channel section, the insert is effectively held securely in place. This is because it extends around the inside of the channel section and, hence, as a whole, cannot move such that its edges move inwardly of the channel section.

[0015] The supports can define respective openings facing inwardly of the recess of the channel section for receiving the edges of the insert.

[0016] The openings can prevent the edges not only moving outwardly of the channel section, but also from moving away from the inner and outer walls.

[0017] The supports can form elongate channels.

[0018] The edges of the insert fit into the elongate channels so as to secure them in place with respect to the inner and outer walls.

[0019] Preferably, the insert is at least partly resilient such that, once inserted in the recess of the channel section, the insert presses outwardly against the inner, outer and side walls.

[0020] In this way, it is not necessary to form accurately the insert before it is located in the channel section. The resilience of the insert causes it to follow generally the form of the channel section automatically. This also ensures that the insert does not interfere with the space of the recess or movement of the black-out blind within the recess.

[0021] The insert is preferably a black material. It may be made of a non-woven material, paper, woven fabric, non-woven fabric, extruded flat film, extruded film in shape, etc.

[0022] Frame sections of the present invention may be used for the sides of frames where a rolled black-out blind is unrolled from one end to the other along the length of the sides. In this case, a frame section can be arranged to receive an edge of a sheet forming a black-out blind, the edge sliding along the channel section as the black-out blind is moved between open and closed positions.

[0023] Frame sections can also be used for ends of the frame.

[0024] Hence, the frame section can be arranged to receive the rolled sheet forming a black-out blind, the sheet being unrolled from and rolled into the frame section as the black-out blind is moved between open and

closed positions.

[0025] Since a black-out blind will generally have a predefined thickness, it is possible to design the sides of a frame with channel sections having a width corresponding to the thickness of the blind and, hence, minimising any scattered/reflected light around the sides of the black-out blind. However, particularly for the end part of the frame in which the blind is rolled and unrolled, there is a problem of light reflection. The end part has to have a sufficiently large recess to accommodate a fully rolled black-out blind. As a result, when the blind is unrolled, there is a large space within the recess around which light can be reflected.

[0026] The present invention provides a very effective arrangement for overcoming this problem.

[0027] Preferably, where the frame section is arranged to receive a rolled sheet, the frame section further includes a rotatable support at each of two ends of the frame section for supporting therebetween a rolled sheet forming a black-out blind.

[0028] According to the present invention, there is also provided a black-out blind assembly, including a frame having at least one frame section as described above, together with a black-out blind moveable within the frame.

[0029] The invention will be more clearly understood from the following description, given by way of example only, with reference to the accompanying drawings, in which:

Figure 1 illustrates a black-out blind assembly in which the present invention may be embodied;
Figure 2 illustrates a cross section through the head rail of the assembly of Figure 1 showing also a top portion of the side guide; and
Figures 3 and 4 illustrate perspective views of the portion of Figure 2.

[0030] The present invention is described with reference to an embodiment of a black-out blind assembly for a window opening, but can, of course, be used with any architectural opening. Indeed, it is described with reference to a blind which unrolls from the top of the frame. It will be appreciated that the frame can be positioned in any orientation and the black-out blind deployed in any appropriate direction.

[0031] As illustrated in Figure 1, within a window frame 2 is mounted a black-out blind assembly 4.

[0032] The black-out blind assembly 4 includes a head rail 6 mounted at the top of the frame 2 and two side guides 8 and 10 which extend respectively from each end of the head rail 6 along opposite sides of the frame 2. A black-out blind 12 may be deployed downwardly from the head rail 6 with its two opposing edges contained within channel sections of the side guides 8 and 10.

[0033] As illustrated, a hand rail 14 is provided to enable a user to move the black-out blind up or down.

[0034] The black-out blind 12 is opaque such that, once fully deployed with the hand rail 14 at the bottom of the frame 2, the black-out blind assembly prevents light from travelling past the frame 2.

[0035] Figures 2, 3 and 4 illustrate further details of the side guide 10 and head rail 6 in the top left hand corner of the frame illustrated in Figure 1.

[0036] The side guide 10 has an inner wall 20, on the inside face of the blind assembly 4, an outer wall 22, on the outside face of the blind assembly 4, and a side wall 24 from which these two generally parallel walls extend.

[0037] Thus, as illustrated, the inner, outer and side walls form a channel section 26. The channel section 26 defines an elongate recess along which an edge of the black-out blind may slide up and down (as illustrated in Figure 1).

[0038] Inevitably, in practice, there will be slight gaps between the outside surface of the black-out blind and the face of the outer wall 22 which faces the channel section 26. Hence, it is possible that light will enter into the channel section 26. This light could reflect off the surfaces of the outer wall 22, side wall 24 and inner wall 26 before escaping on the opposite side of the black-out blind through slight gaps between the inner wall 20 and the inside surface of the black-out blind 12.

[0039] To overcome this problem, an insert 30 is provided within the channel section 26.

[0040] The insert 30 has a light absorbing substantially non-reflective surface and is, for instance, matt black.

[0041] The insert 30 could be pre-formed of any suitable material for insertion into the channel section 26. However, in a preferred embodiment, the insert 30 is formed as an elongate sheet extending between a first edge 32 and a second edge 34. The sheet is merely deformed in the manner of bending or folding to insert it into the channel section 26.

[0042] As illustrated, the first edge 32 is positioned adjacent the inner wall 20 whilst the second edge 34 is positioned adjacent the outer wall 22. The sheet then extends around the periphery of the channel section 26 providing the required light absorbing properties without interfering with the sliding motion of the edge of the black-out blind in the channel section 26.

[0043] By providing the sheet as a resilient member, it will inherently be biassed outwardly and, hence, conform to the inner profile of the channel section 26.

[0044] Thus, in the preferred embodiment, the insert 30 is a black non-woven relatively resilient material.

[0045] As illustrated, the inner wall 26 and outer wall 22 are provided with respective flanges 40 and 42 which extend towards one another and inwardly with respect to the channel section 26. These flanges 40 and 42 form supports for the edges 32 and 34 of the insert 30. In particular, flange 40 prevents the edge 32 from moving outwardly of the channel section and flange 42 prevents the edge 34 from moving outwardly of the channel section. Hence, the insert 30 is held securely in place within the channel section 26.

[0046] It will be appreciated that, in this preferred embodiment, the side guide 8 has a similar form and is pro-

vided with a corresponding insert.

[0047] The head rail 6 also has a similar arrangement with an inner wall 120 on the inside of the frame 2 and a generally parallel outer wall 122 on the outside of the frame 2. A side wall 124 joins the inner wall 120 and outer wall 122, but, as compared with the side guide 10, these walls form a channel section 126 which has a partially circular cross section as compared with the more rectangular cross section of the channel section 26.

[0048] The recess defined by the channel section 126 forms a space in which the black-out blind 12 may be rolled. In this respect, an end cap 16, 18 is provided at each respective end of the guide rail 6. As illustrated most clearly in Figure 3, an inner portion of each end cap 16, 18 is provided with a support 60 on which a roll of black-out blind may be rotatably mounted. Although not of direct relevance to the present invention, the blind assembly may additionally be provided with mechanisms for retracting the black-out blind by re-rolling it or, indeed, mechanisms for motorised operation of the blind.

[0049] Similarly to with the side guide 10, an insert 130 is provided within the recess of the channel section 126. The insert 130 is light absorbing and substantially non-reflective. As with the insert 30, the insert 130 could be pre-formed for insertion and constructed of any suitable material. However, in the preferred embodiment, the insert 130 has a sheet form extending from a first edge 132 to a second edge 134. The first edge is positioned adjacent the inner wall 120 and the second edge is positioned adjacent the outer wall 122.

[0050] It will be noted that, for the arrangement of the side guide 10 in the preferred embodiment, the insert extends along substantially all of the depth of the inner and outer walls 20 and 22. However, as is clear from Figure 2, it is not always necessary for the insert to extend up the entire wall. In particular, for Figure 2, the second edge 134 of the insert 130 extends only as far as the innermost part of the outer wall 122.

[0051] As with the insert 30, the insert 130 is preferably at least partly resilient. In this way, as illustrated, the insert 130 is naturally biassed so as to conform to the inner surface of the channel section 126.

[0052] The inner wall 120 is provided with a flange 140 which projects inwardly of the channel section 126. This provides a step against which the first edge 132 of the insert 130 abuts. The flange 140 thus forms a support which prevents the first edge 132 from moving outwardly of the channel section 126.

[0053] The outer wall 122 is formed with an inwardly facing elongate channel 142 into which the second edge 134 of the insert 130 is mounted. In this way, the elongate channel 142 provides a support for preventing the second edge 134 for moving outwardly of the channel section 126.

[0054] The insert 130 is thus easily held in place with the channel section 126. By conforming generally to the inner surface of the channel section 126, the insert 130 does not interfere with rolling or unrolling of the black-out blind and yet still provides the necessary properties for preventing or at least reducing reflection of light.

[0055] It will be appreciated that the supports for the edges of the inserts can be provided in other ways using any suitable form of rib, flange, groove, etc.

[0056] It will also be appreciated that similar inserts can be provided with side guides and head rails of other cross sections. For instance, similar inserts could be used with the frame sections described in EP 1 045 111 and also EP 0 841 461, DE 44 06 287, US 4,357,978 and GB 2 235 005 to which it refers.

[0057] International Design No. DM/052193 of 5 August 1999 illustrates other frame cross sections in which the present invention could be embodied.

Claims

1. A frame section (6, 10) of a frame for a black-out blind assembly (4) supporting a black-out blind (12) moveable within the frame between open and closed positions, the frame section having:

   inner and outer walls (20, 22, 120, 122) extending from a side wall (24, 124) so as to form a channel section (26, 126) defining a recess for receiving part of a black-out blind (12); and
   a light absorbing substantially non-reflective insert (30, 130) positioned within the recess of the channel section (26, 126) adjacent the inner, outer and side walls (20, 22, 120, 122).

2. A frame section according to claim 1 wherein the insert is a sheet (30, 130) form extending between first and second generally parallel edges (32, 34, 132, 134) and is deformed so as to extend from the first edge (32, 132) adjacent the inner wall (20, 120) around the inside of the channel section (26, 126) to the second edge (34, 134) adjacent the outer wall (22, 122).

3. A frame section according to claim 1 or 2 wherein, within the recess of the channel section (26, 126), the inner and outer walls are provided with respective supports (40, 42, 140, 142) for receiving the first and second edges of the insert.

4. A frame section according to claim 3 wherein one or more of the supports (40, 42, 140, 142) include protrusions extending into the recess of the channel section (6, 126) so as to prevent the edges of the insert (30, 130) moving outwardly of the channel section.

5. A frame section according to claim 3 or 4 wherein one or more of the supports (40, 42, 140, 142) define respective openings facing inwardly of the recess of the channel section (26, 126) for receiving the edges (32, 34, 132, 134) of the insert (30, 130).

6. A frame section according to claim 3, 4 or 5, wherein one or more of the supports from elongate channels (142).

7. A frame section according to any preceding claim wherein the insert (30, 130) is at least partly resilient such that, once inserted in the recess of the channel section (26, 126), the insert (30, 130) presses outwardly against the inner, outer and side walls (20, 22, 24, 120, 122, 124).

8. A frame section according to any preceding claim wherein the insert (30, 130) is a black material, such as a non-woven material, paper, woven fabric, non-woven fabric, extruded flat film and extruded film in shape.

9. A frame section according to any preceding claim wherein the frame section (8, 10) is arranged to receive an edge of sheet (12) forming a black-out blind, the edge sliding along the channel section (26) as the black-out blind (12) is moved between open and closed positions.

10. A frame section according to any one of claims 1 to 8 wherein the frame section (6) is arranged to receive a rolled sheet forming a black-out blind (12), the sheet being unrolled from and rolled into the frame section (6) as the black-out blind (12) is moved between open and closed positions.

11. A frame section according to claim 10 further including supports (60) at each of two ends (16) of the frame section (6) for rotatably supporting therebetween a rolled sheet forming a black-out blind (12).

12. A black-out blind assembly (4) including:

a frame having at least one frame section (6, 8, 10) according to preceding claim; and
a black-out blind (12) moveable within the frame.

Fig.1.

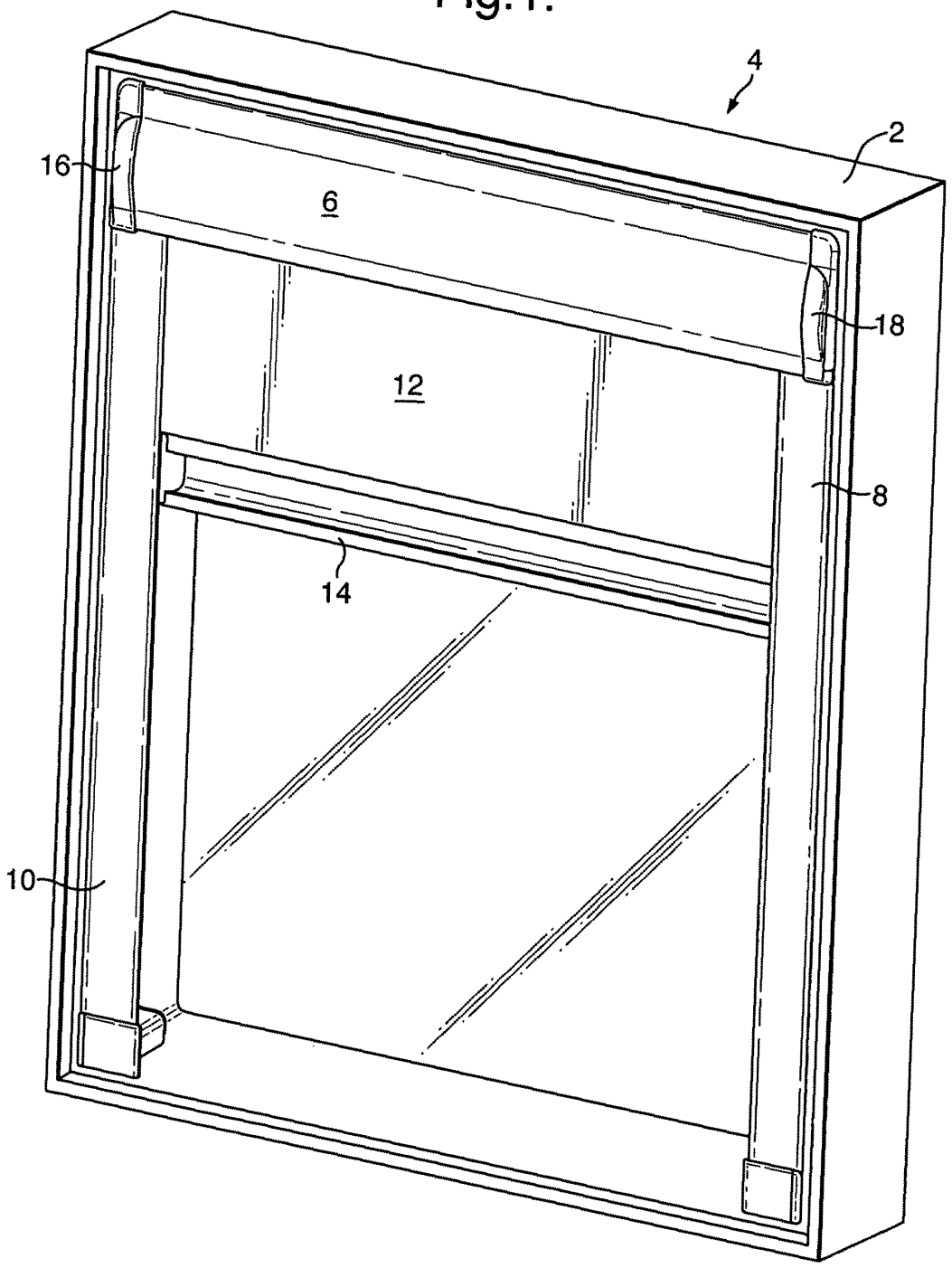


Fig.2.

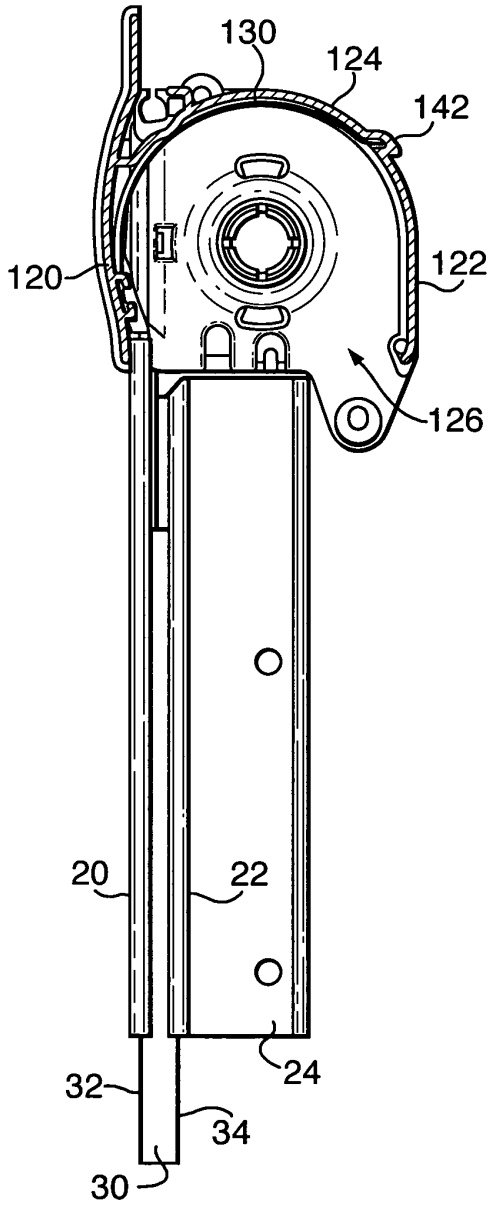

130
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Fig.4.

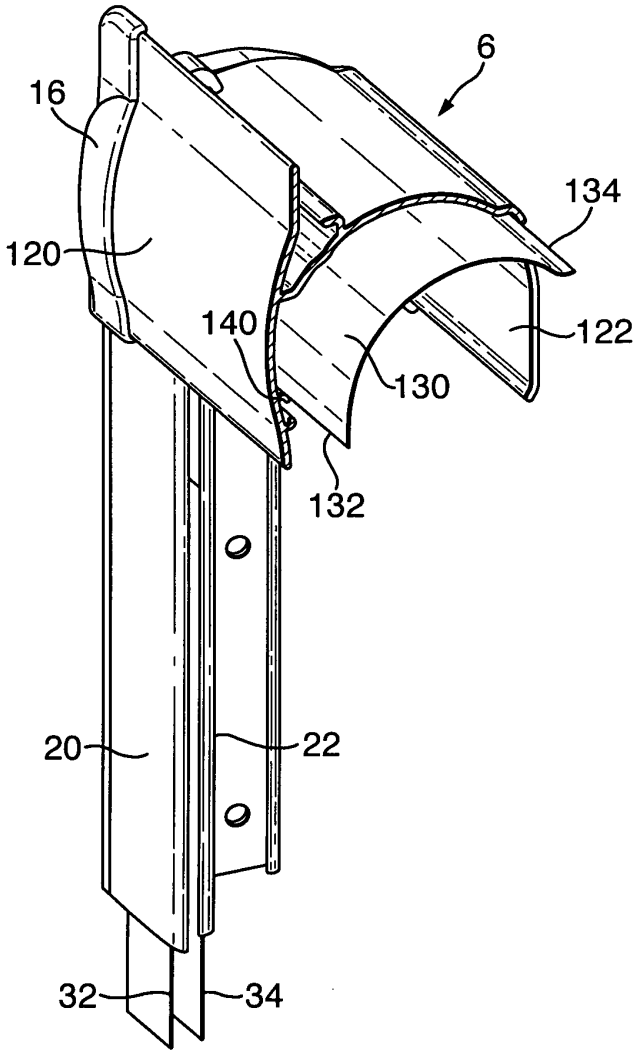
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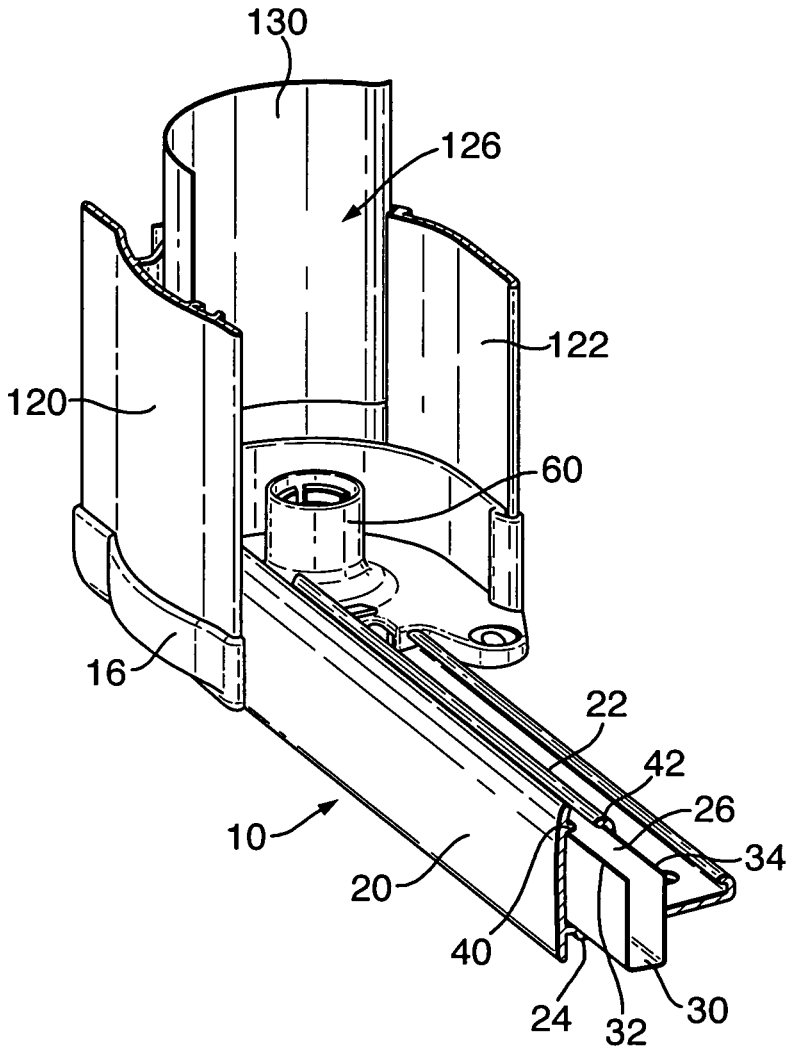
Fig.3.



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EUROPEAN SEARCH REPORT

Application Number
EP 05 25 3524

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.7)
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A,D	DE 11 27 555 B (HERBERT REPPERT) 12 April 1962 (1962-04-12) * column 4, lines 42-47; claim 1 * * column 3, lines 32-38; figures 4,5 * -----	1-12	
A	US 4 649 981 A (BIBEAU ET AL) 17 March 1987 (1987-03-17) * column 5, lines 47-52 * * column 4, lines 16-18; figure 3 * -----	1-12	
A	GB 1 020 785 A (THE ARTISTIC BLIND COMPANY LIMITED) 23 February 1966 (1966-02-23) * page 2, column 2, lines 90-96; figure 2 * -----	1-12	
A,D	US 2 354 489 A (TUCKER THOMAS T) 25 July 1944 (1944-07-25) * the whole document * -----	1-12	TECHNICAL FIELDS SEARCHED (Int.Cl.7) E06B
A,D	DE 17 05 816 U (EHAGE ROLLOFABRIK) 25 August 1955 (1955-08-25) * page 3; figure 3 * -----	1-12	

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	10 October 2005	Kofoed, P

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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10-10-2005

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