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

Führungsschiene eines Rollos zur Verdunkelung

Coulisse d'un rideau pour obscurcissement

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GB-A- 1 020 785	US-A- 2 354 489
US-A- 4 649 981	US-A- 5 117 892

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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 provided 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 pre-defined 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 biased 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 provided 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 biased 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 from 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.

5 [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
10 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.

15 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 an insert (30, 130) positioned within the recess of the channel section (26, 126) adjacent the inner, outer and side walls (20, 22, 120, 122);
25 **characterized in that** said insert (30, 130) is a light absorbing substantially non-reflective insert.

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 (26, 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). 5
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). 10
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. 15
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. 20
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. 30
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). 35
12. A black-out blind assembly (4) including: 40
 - a frame having at least one frame section (6, 8, 10) according to one of the preceding claims; and
 - a black-out blind (12) moveable within the frame. 45

Patentansprüche

1. Führungsschiene (6, 10) eines Rahmens für eine Verdunkelungsrollo-Anordnung (4), der ein Verdunkelungsrollo (12) trägt, welches innerhalb des Rahmens zwischen offenen und geschlossenen Positionen bewegt werden kann, die Führungsschiene umfassend: 50
 - Innen- und Außenwände (20, 22, 120, 122), die sich von einer Seitenwand (24, 124) aus erstrecken, um einen Kanalabschnitt (26, 126) zu bil-

den, welcher eine Aushöhlung definiert, in der ein Teil eines Verdunkelungsrollos (12) aufgenommen wird; und
 ein Einsatzteil (30, 130), das innerhalb der Aushöhlung des Kanalabschnitts (26, 126) an der Innenwand, der Außenwand und der Seitenwand (20, 22, 120, 122) anliegend angeordnet ist, **dadurch gekennzeichnet, dass** besagtes Einsatzteil (30, 130) ein lichtabsorbierendes, im Wesentlichen nicht reflektierendes Einsatzteil ist.

2. Führungsschiene gemäß Anspruch 1, bei der das Einsatzteil ein flächiges Gebilde (30, 130) ist, das sich zwischen einer ersten Kante und einer zweiten, im Allgemeinen parallel verlaufenden Kante (32, 34, 132, 134) erstreckt und so verformt ist, dass es sich von der ersten Kante (32, 132) an der Innenwand (20, 120) entlang, dann um die Innenseite des Kanalabschnitts (26, 126) herum und dann an der Außenwand (22, 122) entlang zur zweiten Kante (34, 134) erstreckt.
3. Führungsschiene gemäß Anspruch 1 oder 2, bei der innerhalb der Aushöhlung des Kanalabschnitts (26, 126) die Innenwand und die Außenwand mit Halterungen (40, 42, 140, 142) versehen sind, um die erste bzw. zweite Kante des Einsatzteils aufzunehmen.
4. Führungsschiene gemäß Anspruch 3, bei der eine oder mehrere der Halterungen (40, 42, 140, 142) Vorsprünge umfassen, die in die Aushöhlung des Kanalabschnitts (6, 126) hineinragen, um zu verhindern, dass sich die Kanten des Einsatzteils (30, 130) aus dem Kanalabschnitt heraus bewegen.
5. Führungsschiene gemäß Anspruch 3 oder 4, bei der eine oder mehrere der Halterungen (40, 42, 140, 142) entsprechende Öffnungen definieren, welche zum Inneren der Aushöhlung des Kanalabschnitts (26, 126) weisen, um die Kanten (32, 34, 132, 134) des Einsatzteils (30, 130) aufzunehmen.
6. Führungsschiene gemäß Anspruch 3, 4 oder 5, bei der eine oder mehrere der Halterungen längliche Kanäle (142) bilden.
7. Führungsschiene gemäß einem der vorstehenden Ansprüche, bei der das Einsatzteil (30, 130) zumindest teilweise elastisch ist, so dass es, nachdem es in die Aushöhlung des Kanalabschnitts (26, 126) eingesetzt ist, nach außen gegen die Innenwand, die Außenwand und die Seitenwand (20, 22, 24, 120, 122, 124) drückt. 55
8. Führungsschiene gemäß einem der vorstehenden Ansprüche, bei der das Einsatzteil (30, 130) aus ei-

nem schwarzen Material, beispielsweise aus einem Vliesmaterial, einem Papier, einem Webstoff, einem Faservlies, einer extrudierten Flachfolie oder einer extrudierten Folie in bestimmter Form besteht.

9. Führungsschiene gemäß einem der vorstehenden Ansprüche, bei der die Führungsschiene (8, 10) dafür vorgesehen ist, eine Kante einer Bahn (12) aufzunehmen, welche ein Verdunkelungsrollo bildet, wobei die Kante entlang des Kanalabschnitts (26) gleitet, wenn das Verdunkelungsrollo (12) zwischen geöffneten und geschlossenen Positionen bewegt wird.
10. Führungsschiene gemäß einem der Ansprüche 1 bis 8, bei der die Führungsschiene (6) dafür vorgesehen ist, eine aufgerollte Bahn, welche ein Verdunkelungsrollo (12) bildet, aufzunehmen, wobei die Bahn von der Führungsschiene abgerollt und in die Führungsschiene (6) aufgerollt wird, wenn das Verdunkelungsrollo (12) zwischen offenen und geschlossenen Positionen bewegt wird.
11. Führungsschiene gemäß Anspruch 10, weiter umfassend Halterungen (60) an jedem von zwei Enden (16) der Führungsschiene (6), in denen eine zwischen ihnen angeordnete aufgerollte Bahn, die das Verdunkelungsrollo (12) bildet, drehbar gehalten wird.
12. Verdunkelungsrollo-Anordnung (4) umfassend:
 - einen Rahmen mit mindestens einer Führungsschiene (6, 8, 10) gemäß einem der vorstehenden Ansprüche; und
 - ein Verdunkelungsrollo (12), das innerhalb des Rahmens bewegbar ist.

Revendications

1. Section de cadre (6, 10) d'un cadre destiné à un ensemble de rideau d'obscurcissement (4) supportant un rideau d'obscurcissement (12) pouvant se déplacer à l'intérieur du cadre entre des positions ouverte et fermée, la section de cadre comportant :
 - des parois intérieure et extérieure (20, 22, 120, 122) s'étendant à partir d'une paroi latérale (24, 124) de façon à former une section de gorge (26, 126) définissant un évidement pour recevoir une partie du rideau d'obscurcissement (12) ; et une pièce d'insertion (30, 130) positionnée à l'intérieur de l'évidement de la section de gorge (26, 126) de façon adjacente aux parois intérieure, extérieure et latérale (20, 22, 120, 122) ; **caractérisée en ce que** ladite pièce d'insertion (30, 130) est une pièce d'insertion absorbant la lu-

mière et essentiellement non réfléchissante.

2. Section de cadre selon la revendication 1 dans laquelle la pièce d'insertion se présente sous la forme d'une plaque mince (30, 130) s'étendant entre des premier et second bords généralement parallèles (32, 34, 132, 134) et est déformée de façon à s'étendre à partir du premier bord (32, 132) adjacent à la paroi intérieure (20, 120) autour de l'intérieur de la section de gorge (26, 126) jusqu'au second bord (34, 134) adjacent à la paroi extérieure (22, 122).
3. Section de cadre selon la revendication 1 ou 2 dans laquelle, à l'intérieur de l'évidement de la section de gorge (26, 126), les parois intérieure et extérieure sont pourvues de supports respectifs (40, 42, 140, 142) destinés à recevoir les premier et second bords de la pièce d'insertion.
4. Section de cadre selon la revendication 3 dans laquelle un ou plusieurs des supports (40, 42, 140, 142) comportent des parties en saillie s'étendant dans l'évidement de la section de gorge (6, 126) de façon à empêcher les bords de la pièce d'insertion (30, 130) de se déplacer vers l'extérieur de la section de gorge.
5. Section de cadre selon la revendication 3 ou 4 dans laquelle un ou plusieurs des supports (40, 42, 140, 142) définit (définissent) des ouvertures respectives tournées vers l'intérieur de l'évidement de la section de gorge (26, 126) destinés à recevoir les bords (32, 34, 132, 134) de la pièce d'insertion (30, 130).
6. Section de cadre selon la revendication 3, 4 ou 5, dans laquelle un ou plusieurs des supports forment des gorges de forme allongée (142).
7. Section de cadre selon l'une quelconque des revendications précédentes dans laquelle la pièce d'insertion (30, 130) est au moins partiellement élastique de telle sorte que, une fois insérée dans l'évidement de la section de gorge (26, 126), la pièce d'insertion (30, 130) s'appuie vers l'extérieur contre les parois intérieure, extérieure et latérale (20, 22, 24, 120, 122, 124).
8. Section de cadre selon l'une quelconque des revendications précédentes dans laquelle la pièce d'insertion (30, 130) est un matériau noir, tel qu'un matériau non tissé, du papier, une étoffe tissée, une étoffe non tissée, sous forme d'un film plat extrudé et d'un film extrudé profilé.
9. Section de cadre selon l'une quelconque des revendications précédentes dans laquelle la section de cadre (8, 10) est agencée pour recevoir un bord d'une plaque mince (12) formant un rideau d'obscur-

cissement, le bord coulissant le long de la section de gorge (26) lorsque le rideau d'obscurcissement (12) est déplacé entre des positions ouverte et fermée.

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- 10.** Section de cadre selon l'une quelconque des revendications 1 à 8 dans laquelle la section de cadre (6) est agencée pour recevoir une plaque mince enroulée formant un rideau d'obscurcissement (12), la plaque mince étant déroulée à partir de, et enroulée dans, la section de cadre (6) lorsque le rideau d'obscurcissement (12) est déplacé entre des positions ouverte et fermée.

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- 11.** Section de cadre selon la revendication 10 comportant, de plus, des supports (60) au niveau de chacune des deux extrémités (16) de la section de cadre (6) pour supporter à rotation entre eux une plaque mince enroulée formant un rideau d'obscurcissement (12).

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- 12.** Ensemble de rideau d'obscurcissement (4) comportant :

un cadre ayant au moins une section de cadre (6, 8, 10) selon l'une des revendications précédentes, et
un rideau d'obscurcissement (12) pouvant se déplacer à l'intérieur du cadre.

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Fig.1.

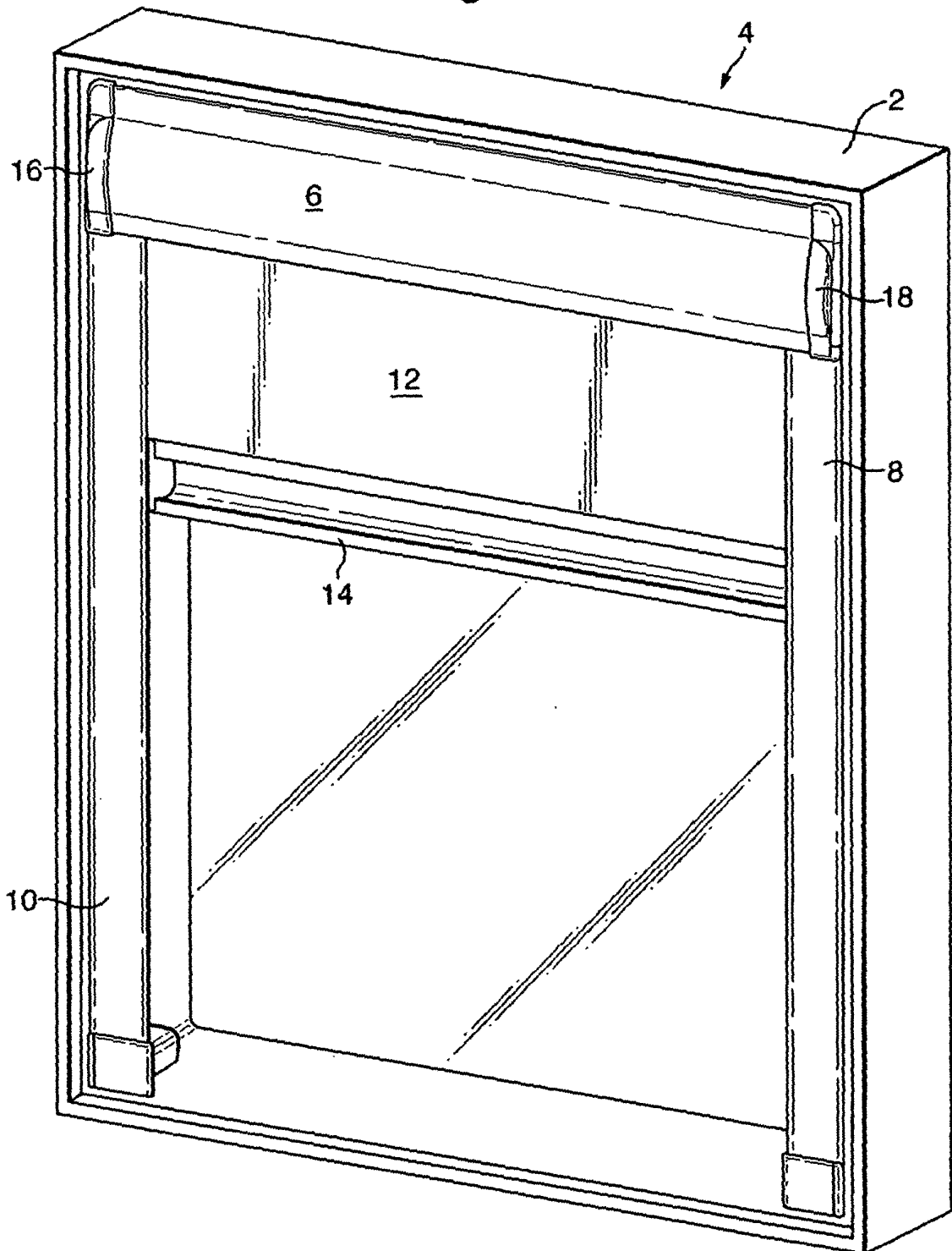


Fig.2.

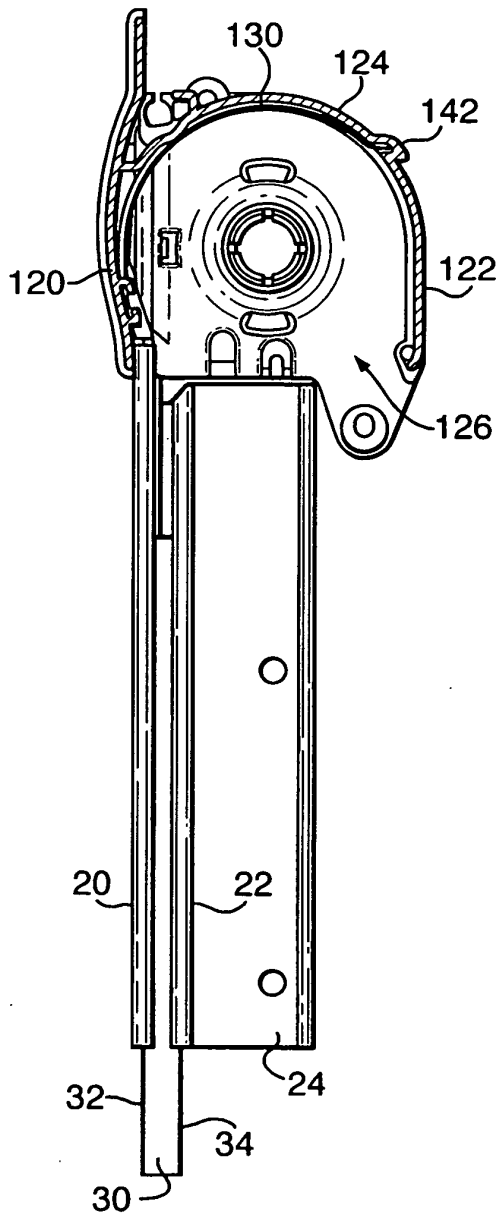


Fig.4.

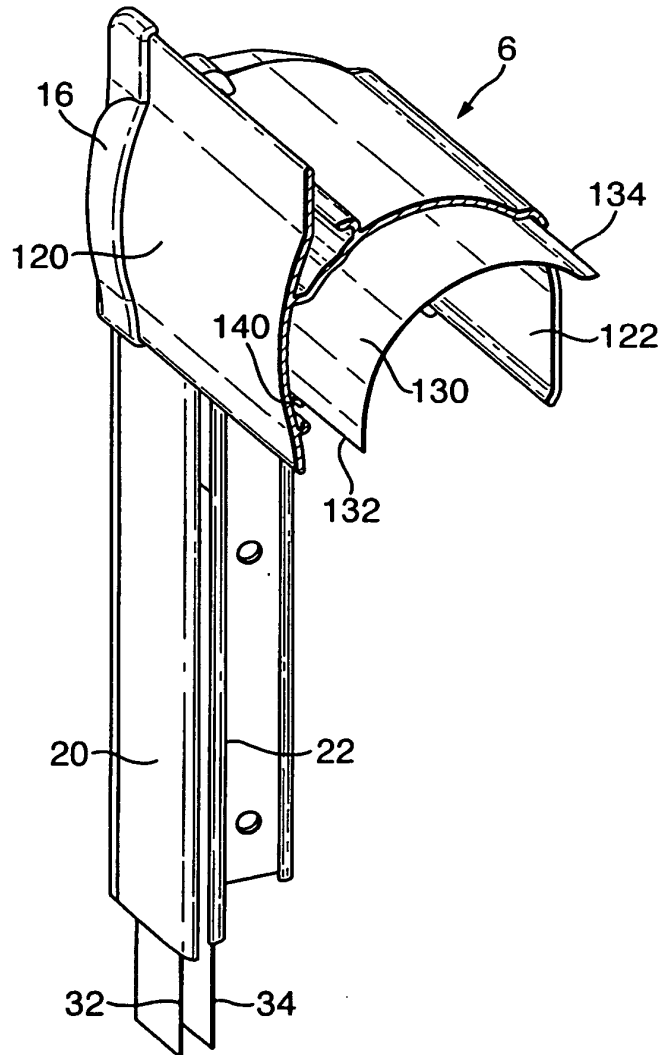
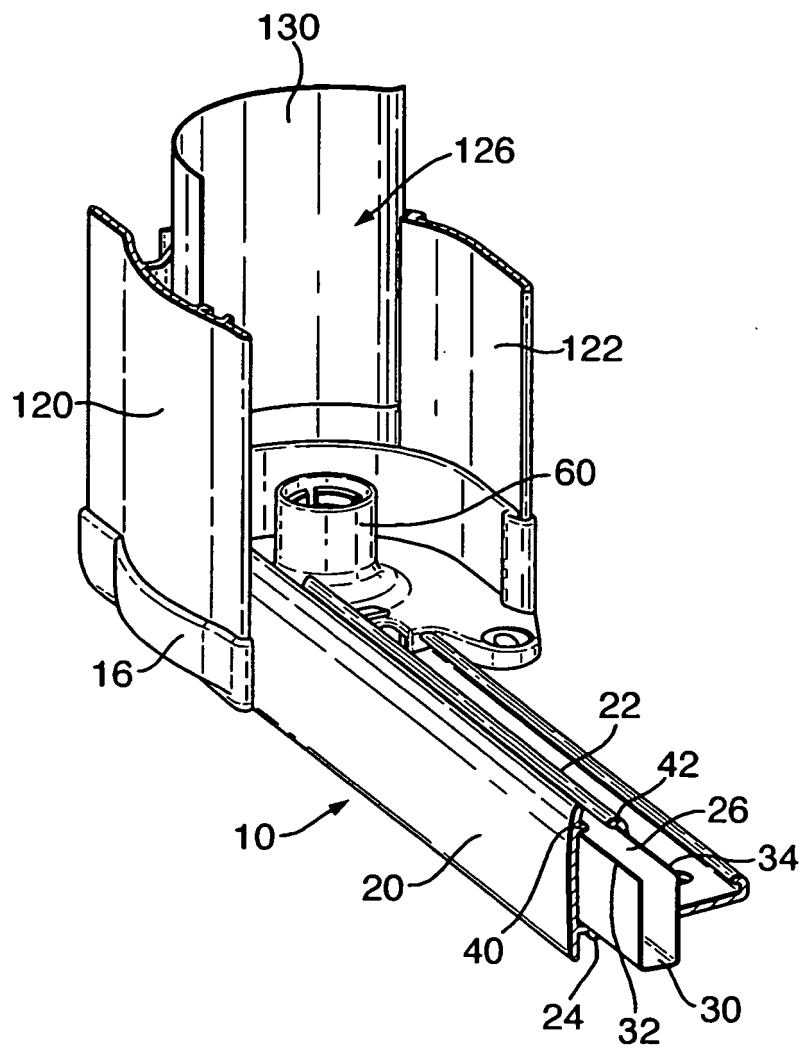


Fig.3.



REFERENCES CITED IN THE DESCRIPTION

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