(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 555 384 B1

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
13.12.2006 Bulletin 2006/50

(51) Int Cl.:
E06B 9/90 *(2006.01)* ***E06B 9/42*** *(2006.01)*

(21) Application number: **04077738.5**

(22) Date of filing: **08.10.2004**

(54) **Device for raising and lowering a window covering**

Hebe- und Senkeinrichtung für eine Fensterabdeckung

Dispositif de relevage et d'abaissement d'une couverture de fenêtre

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PL PT RO SE SI SK TR

(30) Priority: **13.01.2004 NL 1025225**

(43) Date of publication of application:
20.07.2005 Bulletin 2005/29

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EP 1 555 384 B1

Printed by Jouve, 75001 PARIS (FR)

Description

[0001] The invention relates to a device for raising and lowering a flexible element which can for instance be rolled up under spring tension, such as a fabric, a sheet, a gauze or the like, which can serve as window covering, for instance a roller blind, a roller screen, a sunblind, a window decoration, which device comprises:

two vertical, prismatic profiles lying at a chosen mutual distance, for instance of extruded aluminium, at least a part of which has a cross-section with a general U-shape, the openings of these U's being directed toward each other;
two gliders which are slidable up and downward in the respective U's and between which there extends a rod which is connected to the lower edge of the flexible element;
a winding rod which is arranged on the upper side of the profiles and is rotatable, for instance under spring load, and onto which the flexible element can be wound in upward direction by the spring load.

[0002] Such a device is known from e.g. WO-A-94/13923 and WO-A-/2004/031524.

[0003] In these prior art documents devices for raising and lowering a window covering are disclosed, in which the gliders do not positively guide and fix, respectively, the lower rod.

[0004] In order to remove this disadvantage of the prior art the device according to the invention is characterized in that each glider (7, 8) has two protrusions (19, 20) which co-act with a profile (3, 4) and which both engage on the respective side surfaces of a leg (18) of the relevant U (3), wherein the one protrusion (19) is slightly V-shaped and can be pivoted between the two positions defined thereby, and the other protrusion (20) has a form such that in the free position it presses with negligible pressure on the other leg (16) of the U (3) or is clear thereof, and in the blocked position presses with force against this other leg (16),
in a way such that said gliders (7, 8) have two stable pivot positions relative to the U's (3, 4), in the one of which positions the gliders (7, 8) can glide in the U's (3, 4) with negligible friction, and in the other of which positions the gliders (7, 8) are blocked against displacement such that the position of the flexible element (23) is fixed relative to the profiles (3, 4).

[0005] The invention will now be elucidated with reference to annexed drawings of a random exemplary embodiment. In the drawings:

Fig. 1 shows a tilt window, in the frame of which a device according to the invention is accommodated;
Fig. 2 shows the tilt window of Fig. 1, wherein a part of the device according to the invention is drawn in detached position;
Fig. 3 shows a cross-section through a vertical guide profile;
Fig. 4A is a perspective view of a glider;
Fig. 4B is a perspective view of the glider of Fig. 4A from a different angle;
Fig. 5A shows a schematic representation of a profile onto which the two protrusions of the glider of Fig. 4 engage in the free position;
Fig. 5B shows a view corresponding to Fig. 5A of the situation in which the glider is tilted relative to the position shown in Fig. 5A, and has thus taken up its blocked position;
Fig. 6A is an exploded view of a rod with the gliders; and
Fig. 6B shows the assembled construction according to Fig. 6A.

[0006] Fig. 1 shows a roof light 1 with a frame 2 bearing two vertical guide profiles 3, 4. A roll-up mechanism 5 for a sunblind fabric 23 is situated on the upper side. Fabric 23 can be wound onto a winding rod (not shown) which is loaded by means of spring means such that the sunblind fabric is pulled upward to the shown opened position while being wound onto said rod. Attached to the underside of the fabric is a rod 6 which carries a glider 7, 8 respectively on both sides, which gliders 7, 8 can co-act in sliding respectively blocking manner with the profiles 3, 4 respectively.

[0007] Fig. 2 shows the manner in which wind-up unit 5 can be removed from the construction of the frame 2. For this purpose the internal mechanism of the frame has recesses 9, 10 for accommodating the ends of wind-up unit 5. Unit 5 can be secured by means of cams 11, 12; 13, 14. This must take place such that guides 7, 8 are brought into co-action with profiles 3, 4 in the correct manner, as will be described below.

[0008] Fig. 3 shows a cross-section through profile 3. It is noted that profile 4 has a mirror-symmetrical form relative to this profile 3. The body of the U is designated with 15, while the legs have the reference numerals 16 and 17 respectively. On its end zone the leg 17 has a widened portion 18. This is the part onto which engage the protrusions, to be described below, of the relevant glider.

[0009] Fig. 4A and 4B show glider 7. This comprises a body 21 with a first protrusion 19, a second protrusion 20 and a third protrusion 22. The third protrusion 22 serves for coupling to the bottom rod 6 which is connected to the lower edge of sunblind fabric 23 which, in the situation shown in Fig. 2, is wound almost fully onto wind-up unit 5. It is noted that in the view of Fig. 4B the other side of body 21 is clearly visible. This body has a structure such that it is suitable for a clamping, firm coupling to rod 6.

[0010] Protrusion 19 is slightly V-shaped and protrusion 21 has a cam 24 on its outside. The upper inner surface 25 of the first protrusion 19 is flat, as is the inner surface 26 of the second protrusion 20. These flat surfaces are mutually parallel and have a mutual distance

which substantially corresponds with the thickness of the widened portion 18 of profile 3 (see Fig. 3).

[0011] For the purpose of elucidation reference is now made to Fig. 5A and 5B.

[0012] These figures show schematically protrusions 19 and 20 in co-action with the widened portion 18 of leg 17 and leg 16 of the U-shaped part 15, 16, 17, 18 of profile 3 (see Fig. 3).

[0013] Fig. 5A shows the manner in which protrusions 19, 20 co-act with the widened portion 18. The flat surfaces 25, 26 lie on either side against the side surfaces of the widened portion 18.

[0014] By exerting a pressure force 27 on the lower part of the first protrusion 19 a tilting takes place around the rotation axis 28 which is defined by the slight V-shape of protrusion 19. A tilting of the second protrusion 20 hereby also takes place as according to an arrow 29.

[0015] As a result of this tilting the protrusion 20 is tilted upward from the position shown in Fig. 5A out of the drawn position in which it has negligible contact with leg 16. The upper edge 30, which according to Fig. 5A is situated below the pivot axis 28, is now displaced upward and takes up the position drawn in Fig. 5B. Here the upper edge 30 is situated above pivot axis 28, and cam 24, which in the free situation of Fig. 5A exerts negligible force on leg 16, is displaced to a position in which it presses with force against leg 16 and even presses the leg aside in slightly elastic manner. This causes a very firm clamping whereby the position of glider 7 in the situation shown in Fig. 5B is wholly fixed relative to profile 3.

[0016] Fig. 6A shows an exploded view, wherein the lower bar 6, gliders 7 and 8 and a rubber fixation element 31 for fabric 23 are drawn at a mutual distance from each other.

[0017] Fig. 6B shows the assembled situation which is also shown in Fig. 2.

Claims

1. Device for raising and lowering a flexible element (23) which can for instance be rolled up under spring tension, such as a fabric, a sheet, a gauze or the like, which can serve as window covering, for instance a roller blind, a roller screen, a sunblind, a window decoration, which device comprises:

   two vertical, prismatic profiles (3, 4) lying at a chosen mutual distance, for instance of extruded aluminium, at least a part of which has a cross-section with a general U-shape, the openings of these U's being directed toward each other;
   two gliders (7, 8) which are slidable up and downward in the respective U's (3, 4) and between which there extends a rod (6) which is connected to the lower edge of the flexible element (23);
   a winding rod which is arranged on the upper side of the profiles (3, 4) and is rotatable, for instance under spring load, and onto which the flexible element (23) can be wound in upward direction by the spring load;
   characterized in that
   each glider (7, 8) has two protrusions (19, 20) which co-act with a profile (3, 4) and which both engage on the respective side surfaces of a leg (18) of the relevant U (3), wherein the one protrusion (19) is slightly V-shaped and can be pivoted between the two positions defined thereby, and the other protrusion (20) has a form such that in the free position it presses with negligible pressure on the other leg (16) of the U (3) or is clear thereof, and in the blocked position presses with force against this other leg (16),
   in a way such that said gliders (7, 8) have two stable pivot positions relative to the U's (3, 4), in the one of which positions the gliders (7, 8) can glide in the U's (3, 4) with negligible friction, and in the other of which positions the gliders (7, 8) are blocked against displacement such that the position of the flexible element (23) is fixed relative to the profiles (3, 4).

Patentansprüche

1. Vorrichtung zum Anheben und Absenken eines flexiblen Elements (23), das beispielsweise unter Federkraft eingerollt werden kann, wie ein Stoff, ein Tuch, ein Gewebe oder ähnliches, das als Fensterabdeckung dienen kann, beispielsweise ein Rollladen, ein Rollschirm, eine Sonnenblende, eine Fensterdekoration, wobei die Vorrichtung enthält:

   zwei vertikale, prismatische Profile (3, 4), die in einem gewählten gegenseitigem Abstand angeordnet sind, beispielsweise aus extrudiertem Aluminium, wobei wenigstens ein Teil von diesen einen gewöhnlichen U-förmigen Querschnitt aufweist und die Öffnungen dieser U-Formen aufeinander gerichtet sind;
   zwei Gleiter (7, 8), die in den entsprechenden U-Formen (3, 4) nach oben und unter verschiebbar sind, wobei sich zwischen diesen ein mit dem unteren Rand des flexiblen Elements (23) verbundener Stab (6) erstreckt;
   ein an der oberen Seite der Profile (3, 4) angeordneter Aufwickelstab, der beispielsweise unter einer Federkraft drehbar ausgestaltet ist und auf den das flexible Element (23) in Aufwärtsrichtung durch die Federkraft gewickelt werden kann;
   dadurch gekennzeichnet, dass
   jeder Gleiter (7, 8) zwei Vorsprünge (19, 20) aufweist, die mit einem Profil (3, 4) zusammenwir-

ken, wobei beide an entsprechenden Seitenflächen eines Schenkels (18) der entsprechenden U-Form (3) angreifen und der eine Vorsprung (19) leicht V-förmig ausgebildet ist und zwischen den zwei dadurch gebildeten Positionen geschwenkt werden kann, wobei der andere Vorsprung (20) eine Form aufweist, so dass dieser in der freien Position mit vernachlässigbarem Druck auf den anderen Schenkel (16) der U-Form (3) drückt oder frei von diesem liegt und in der blockierten Position mit Kraft gegen diesen anderen Schenkel (16) drückt,
derart, dass die Gleiter (7, 8) zwei stabile Schwenkpositionen relativ zu den U-Formen (3, 4) aufweisen, wobei die Gleiter (7, 8) in einer der Positionen in den U-Formen (3, 4) mit vernachlässigbarer Reibung gleiten können und die Gleiter (7, 8) in der anderen der Positionen gegen Verschiebung blockiert sind, so dass die Position des flexiblen Elements (30) relativ zum Profil (3, 4) fixiert ist.

Revendications

1. Dispositif destiné à élever et abaisser un élément flexible (23) qui peut par exemple s'enrouler sous l'effet d'une tension de ressort, tel qu'un tissu, une feuille, une gaze ou similaire, qui peut servir de revêtement de fenêtre, par exemple un volet roulant, un écran roulant, un store, une décoration de fenêtre, lequel dispositif comprend :

deux profils prismatiques verticaux (3, 4) situés à une distance mutuelle choisie, par exemple d'aluminium extrudé, dont au moins une partie a une coupe transversale en forme générale de U, les ouvertures de ces « U » étant dirigées les unes vers les autres ;
deux coulisseaux (7, 8) qui peuvent coulisser vers le haut et vers le bas dans les « U » respectifs (3, 4) et entre lesquels s'étend une tige (6) qui est reliée au bord inférieur de l'élément flexible (23) ;
une tige d'enroulement qui est agencée sur le côté supérieur des profils (3, 4) et qui peut tourner, par exemple sous l'effet d'une charge de ressort, et sur laquelle l'élément flexible (23) peut s'enrouler dans une direction ascendante sous l'effet de la charge de ressort ;
caractérisé en ce que
chaque coulisseau (7, 8) possède deux saillies (19, 20) qui coopèrent avec un profil (3, 4) et qui s'engagent toutes les deux sur les surfaces latérales respectives d'une patte (18) du « U » correspondant (3), dans lequel une saillie (19) est légèrement en forme de V et peut pivoter entre les deux positions définies par celle-ci, et l'autre saillie (20) a une forme telle que, dans la position libre, elle appuie avec une pression négligeable sur l'autre patte (16) du « U » (3) ou est dégagée de celle-ci, et dans la position bloquée, appuie avec force contre cette autre patte (16),
d'une manière telle que lesdits coulisseaux (7, 8) ont deux positions de pivotement stables par rapport aux « U » (3, 4), dans une desquelles positions les coulisseaux (7, 8) peuvent coulisser dans les « U » (3, 4) avec un frottement négligeable, et dans l'autre desquelles positions le déplacement des coulisseaux (7, 8) est bloqué de sorte que la position de l'élément flexible (23) soit fixe par rapport aux profils (3, 4).

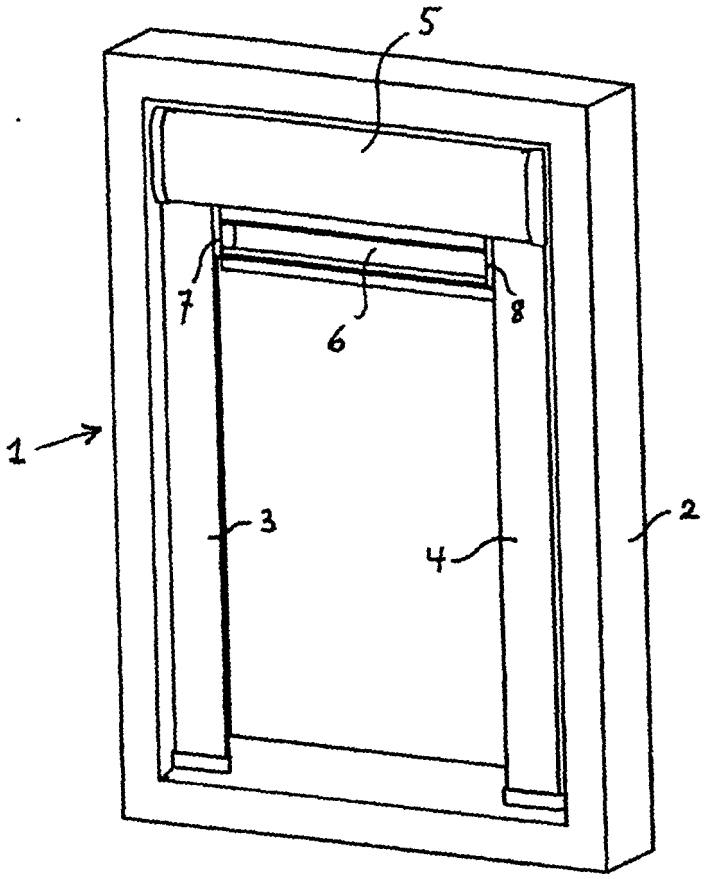

Fig. 1

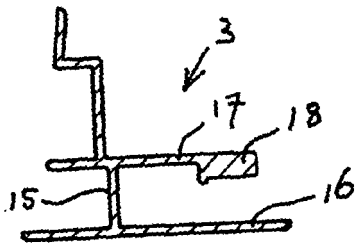

Fig. 3

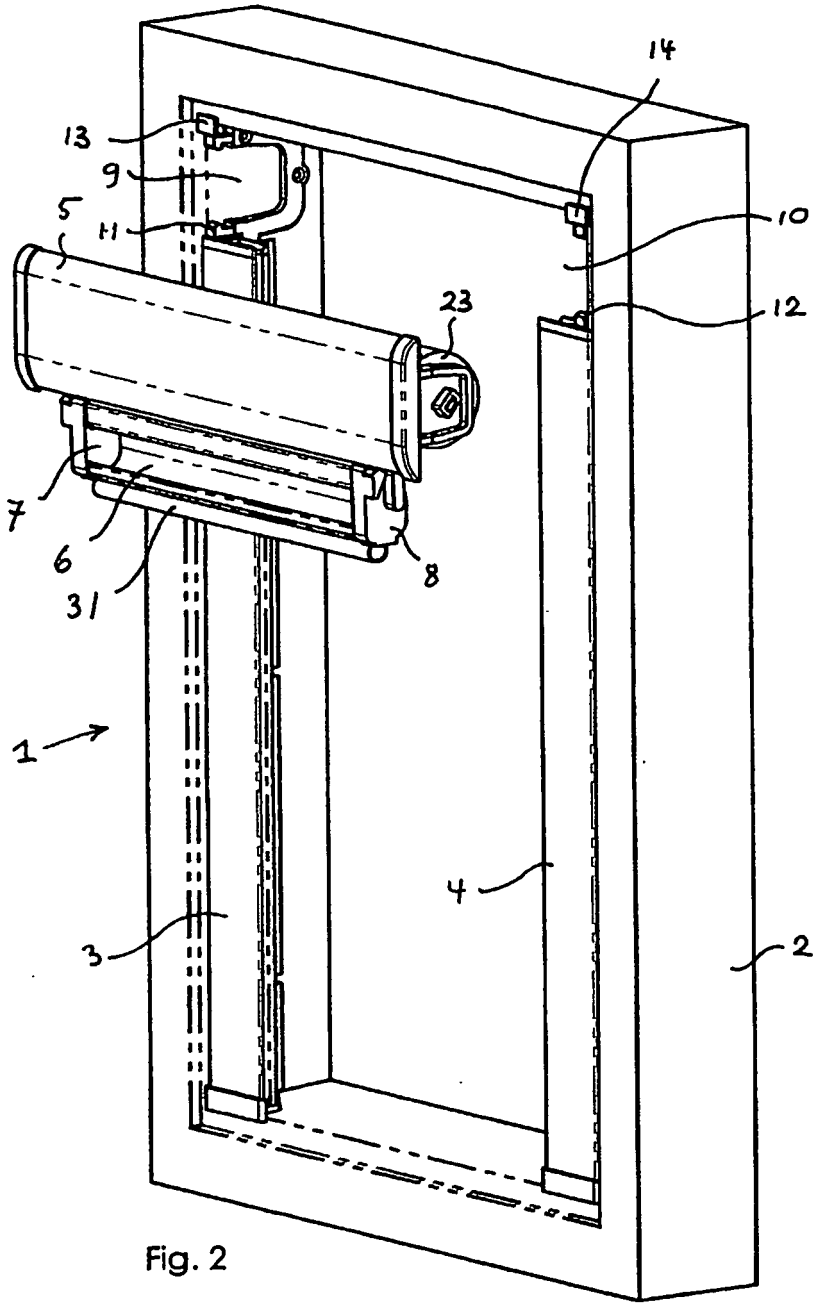

Fig. 2

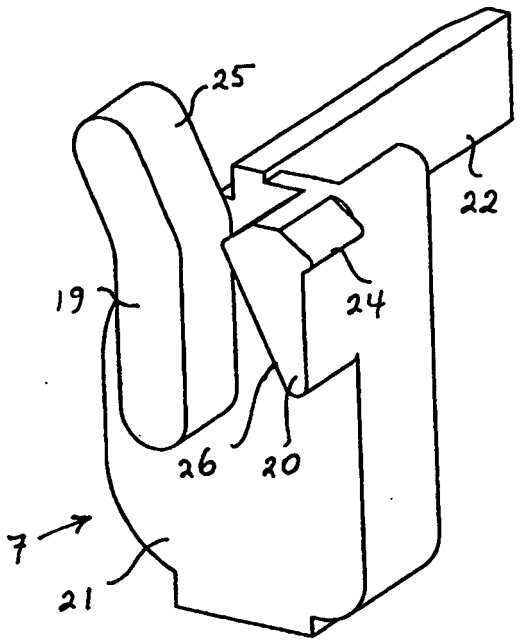

Fig. 4A

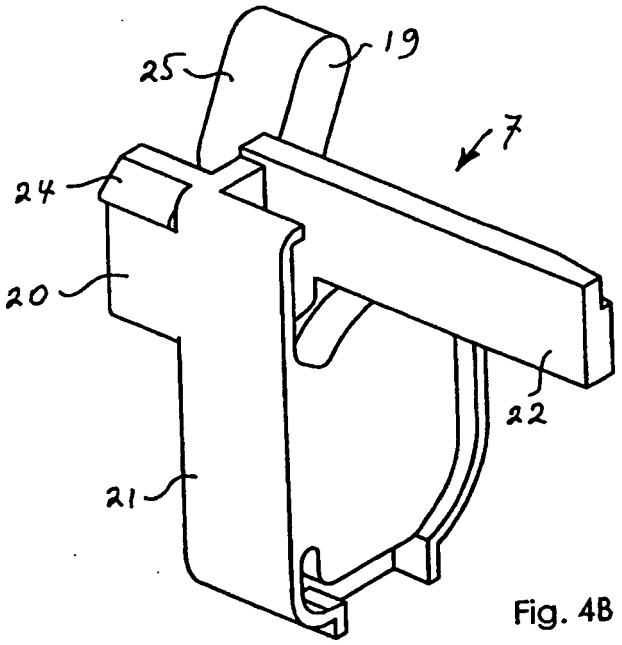

Fig. 4B

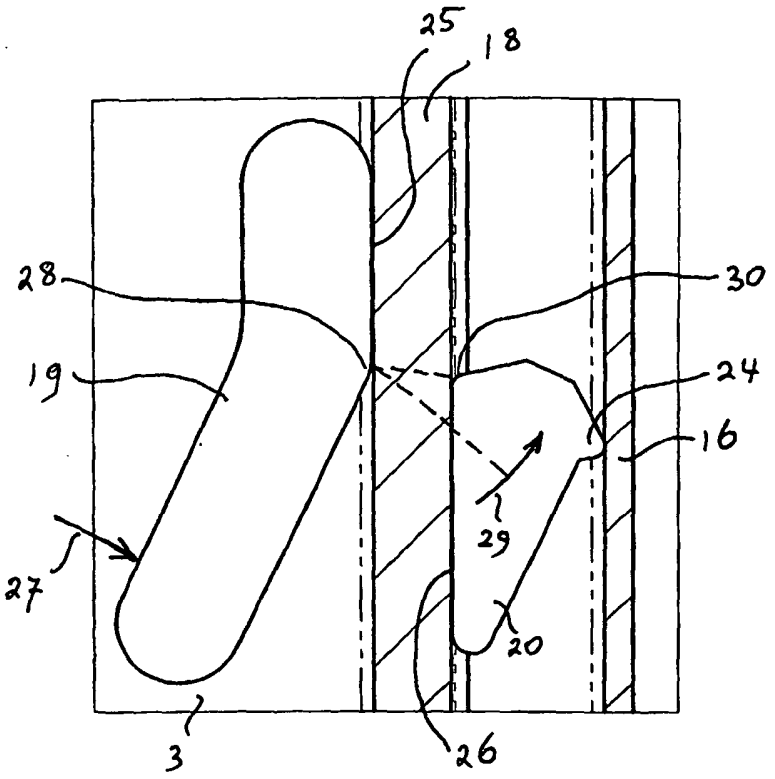

Fig.5A

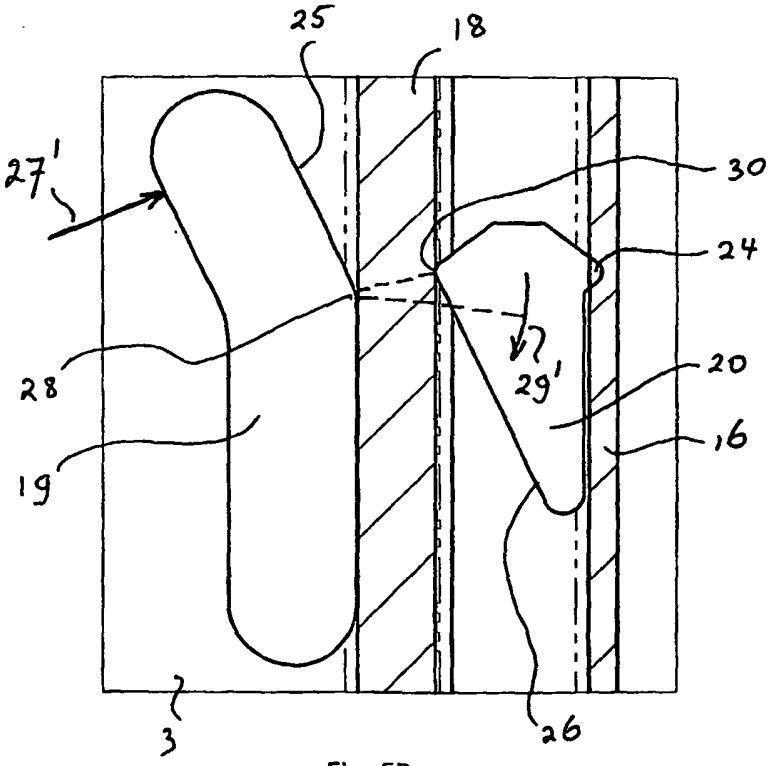

Fig.5B

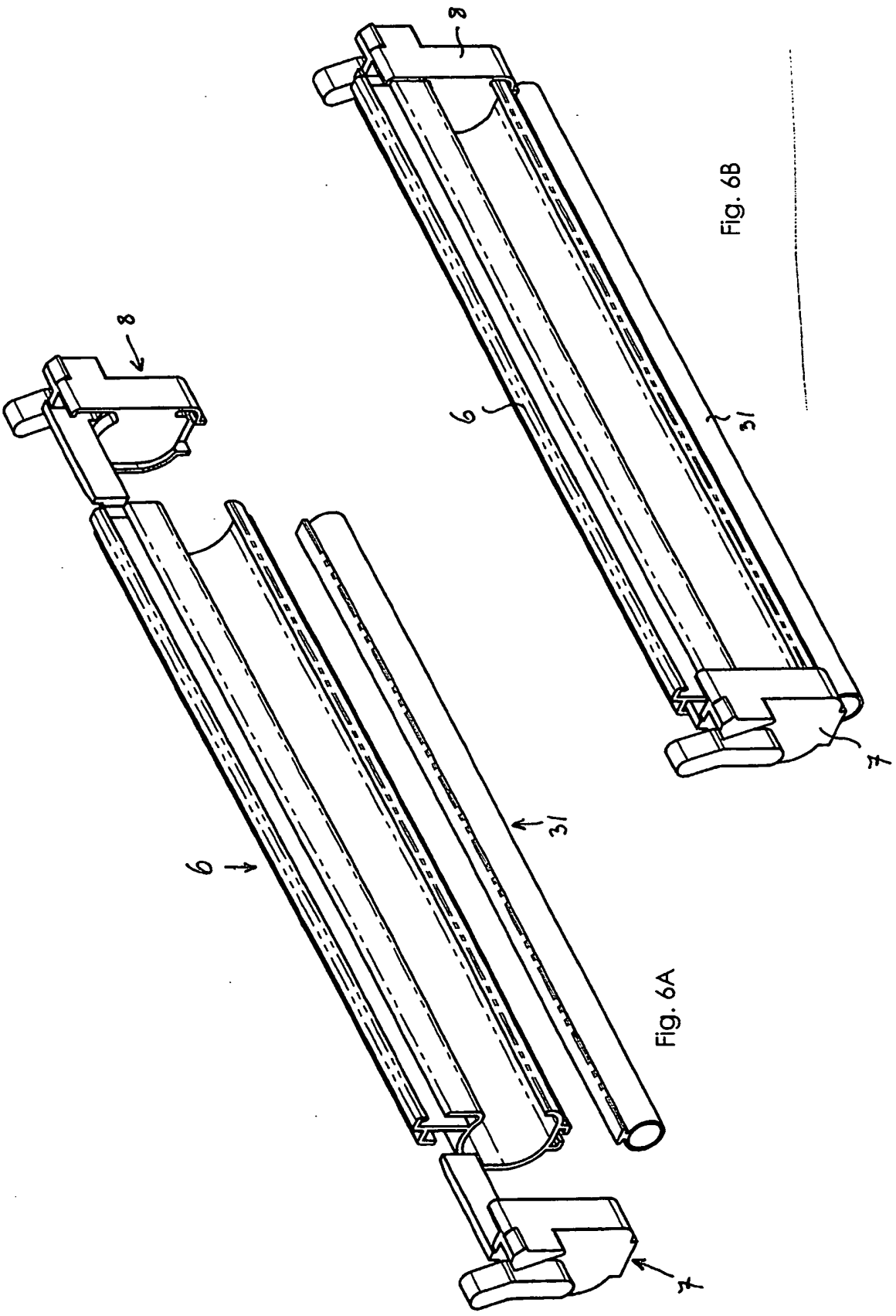

Fig. 6A

Fig. 6B