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(54) **Safety cord connector**

Sicherheitsschnurkupplung

Connexion pour une corde de sécurité

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(73) Proprietor: **HUNTER DOUGLAS INDUSTRIES B.V.**
3008 AB Rotterdam (NL)

(72) Inventor: **Dekker, Nico**
2993 CN Barendrecht (NL)

(74) Representative: **Smith, Samuel Leonard**
J.A. Kemp & Co.
14 South Square
Gray's Inn
London WC1R 5JJ (GB)

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WO-A-99/37875 **US-A- 5 735 329**

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Description

[0001] This invention relates to a device for connecting a plurality of operating cords of an architectural covering, such as a window covering, to a single pull cord. In particular, the invention relates to a connector for releasably holding operating cords, so as to safeguard children who might become entangled between the cords.

[0002] Such cord connectors are described in US 5,562,140, US 5,592,983 and US 5,560,414, each having two hingedly connected parts. A pull cord is connected to the bottom of each connector, and a plurality of operating cords are clamped between its closed, hingedly connected parts. If the head of a child becomes entangled between the operating cords, the outward directed force on the cords causes the parts to move apart and hingedly open. The cords are then no longer clamped between the two parts and are released, thereby releasing the child's head.

[0003] One drawback of such known cord connectors is that the operating cords have to be clamped sufficiently tightly between the two hingedly connected parts of each of them, so that the cords are not pulled out of the grip of the two parts when its blind is being operated normally by pulling on its pull cord. Such a minimum clamping force between the two hingedly connected parts must, however, be overcome to open the connector when a child is entangled in its cords. Unfortunately, this minimum clamping force is usually too great for the connector to be considered "child-safe". This is because the grip of the connector parts usually exceeds the maximum force which an entangled child would be likely to exert against the cords.

[0004] WO 99/37875, upon which the precharacterising portion of appended claim 1 is based, relates to a cord connecting device for Venetian blinds and the like. It is of the type mentioned above, designed to safeguard children who might become entangled between the cords. It consists of two hollow half shells. To each shell there is loosely connected one of the cords that pass upwards out of the connector to attach to the blinds. The two hollow half shells attach by means of a snap connection. There is also provided a further cord that passes out of the bottom of the connector which the user may use to operate the blinds. In the case that the cords running upwards connected to the blinds are moved apart with some force, for example by a child trapped in them, the two hollow half shells separate from each other and release the loosely attached cords that run upwards to the blinds, thereby removing any loops in the cords.

[0005] US 5,735,329 relates to a connector for pull cords. The cords attached to the blinds run into the connector through a slit in the top. Excess cord length can be wound around a cord core stored inside the connector. A second cord runs out the bottom of the connector. The user may use this cord to control the blinds.

[0006] In order to overcome the disadvantages of such existing cord connectors and provide an alternative con-

connector which is easier to assemble and less expensive, the invention provides a connector as defined by appended claim 1.

[0007] Advantageously, the free ends of the operating cords are wound about the retainer when the retainer is in the interior space of the closed connector and are unwound from the retainer when the retainer is released from the interior space of the open connector. In this regard, it is especially advantageous that the walls of the interior space prevent the rotation of the retainer within the closed connector, and it is particularly advantageous that the retainer has the general form of an S with the free ends wound about its middle section, quite particularly between its top and bottom sections.

[0008] Also advantageously, a pull cord is attached to a bottom portion of one of the members, and one of the connections is a hinged connection between bottom portions of the members. Thereby when an other one of the connections is disconnected, the one member is moved, relative to the other member, about the hinged connection, to open the connector, so that the retainer is released from the interior space and can rotate and the free ends of the operating cords can then become detached from the retainer. In this regard, it is especially advantageous that the other one of the connections is between top portions of the members and there is an elongated slit in the top of one of the members, through which the free ends of the operating cords extend in a side-by-side relationship into the retainer, and it is particularly advantageous that the elongation of the opening and the side-by-side relationship extend in a direction perpendicular to the hinged connection. In this regard, it is particularly advantageous that the other one of the connections is a frictional connection between top portions of the members, quite particularly a locking groove on one member and a mating locking pin that is on the other member and is vertically aligned with the locking groove. It is also especially advantageous that, when the connector is closed, the retainer is within an inner one of the members that is within the other member.

[0009] Further aspects of the invention will be apparent from the detailed description below of particular embodiments and the drawings thereof, in which:

- Figure 1 is a front perspective view of a part of a window covering with the cord connector of the invention;
- Figure 2 is an exploded view of the two parts of the connector;
- Figure 3 a front perspective view of the connector in its closed position with lift cords and an operating cord attached to it;
- Figure 4 is a cross-section of the connector in its closed position with its attached lift and operating cords and its cord retainer, about which its lift cords are wound within it;
- Figure 5 is a front perspective view of the connector in its open position with its lift cords wound fully about

- its retainer but outside of the connector; and
- Figure 6 are perspective views of the connector's retainer, showing the retainer with the lift cords wound fully about it as in Figure 5 and with the lift cords partially unwound from it.

[0010] Figure 1 shows the right side of a conventional horizontal venetian blind 1 with a longitudinally-extending head rail 3 and bottom rail 5. A plurality of a longitudinally-extending slats 7, between the head rail and bottom rail 3, 5, can be raised and lowered by means of a pair of conventional operating cords 9, 9' (shown in dotted lines in Figure 1). Ladder cords, which are usually provided in conventional horizontal venetian blinds, have not been shown in Figure 1 for the sake of simplicity. From an opening 11 in the front of the head rail 3, a plurality of lift cords 13 extend downwardly to a cord connector 15 of the invention. A single pull cord 17 extends downwardly from the bottom of the cord connector 15, and a tassel 19 is connected to the bottom of the pull cord 17. When a user of the blind 1 moves the tassel 19 vertically, such movement is transmitted in a conventional manner to the pull cord 17, the connector 15, the lift cords 13 and the operating cords 9, 9'.

[0011] The connector 15 releasably connects the lift cords 13 to the pull cord 17. Under normal operating conditions, the connector 15 securely holds the lift cords 13 together, so that a user can pull the pull cord 17 and tassel 19 vertically, particularly downwardly, without the lift cords becoming disconnected from the connector.

[0012] Figure 2 shows the connector 15 without its cord retainer 21 that is shown in Figures 4-6. The connector 15 is preferably a box-like structure that has a vertically-extending left or inner member 23 and a vertically-extending right or outer member 25. When the inner member 23 is within the outer member 25, the members close the connector and its hollow interior 27, within the inner member 25, and can accommodate the retainer 21 with the lift cords 13 attached to it in the interior 27.

[0013] As seen from Figures 2-5, the inner member 23 has a pair of opposite, front and rear, interior walls 29, 30 which are connected by a left side wall 31, and the outer member 25 has a pair of opposite, front and rear, exterior walls 32, 33 which are connected by a right side wall 34. In the closed connector, its interior 27 is between the front and rear walls 29, 30 of the inner member and between the left side wall 31 of the inner member and the right side wall 34 of the outer member 25. Bottom portions of the members 23, 25 are preferably hingedly connected to each other by means of a pair of frontwardly- and rearwardly-extending pivots 35 that are on bottom portions of the front and rear, interior walls 29, 30 of the inner member 23 and that extend through frontwardly- and rearwardly-extending bores 36 in bottom portions of the front and rear, exterior walls 32, 33 of the outer member 25. The inner member 23 can pivot about the hinged connection 35, 36, out of the outer member 25, to open the connector 15 when the lift cords 13 are pulled apart,

for example by a child entangled in them, as described below.

[0014] As also seen from Figures 2-5, the upper free end of the operating cord 17 extends into the bottom of the inner member 23. In this regard, the bottom wall of the inner member 23 includes a vertical opening 37, through which the upper free end of the operating cord 17 is inserted. A knot 17A is provided in the upper free end of the operating cord 17 to prevent it from being separated from the inner member 23 and the connector 15 when the pull cord or the tassel 19 is pulled vertically, particularly downwardly.

[0015] As further seen from Figures 2-5, the inner and outer members 23, 25 of the connector 15 are frictionally connected to one another to keep the inner member within the outer member and thereby keep the connector closed under normal operating conditions of the blind 1. Preferably, the top of the front and rear, interior walls 29, 30 of the inner member 23 each include a locking indent or groove 39, 41, and the top portions of the interior sides of the front and rear, exterior walls 32, 33 of the outer member 25 each include a mating locking pin or abutment 43, 45 (shown only in Figure 4). The locking pins 43, 45 are vertically aligned with the locking grooves 39, 41, respectively. Preferably, the locking pins 43, 45 extend towards each other from the interior sides of the front and rear, exterior walls 32, 33, just below the top wall 47 of the outer member. As a result, the locking pins 43, 45 nest in the locking grooves 39, 41 and are frictionally held there, under normal operating conditions of the blind 1 and its pull cord 17 and tassel 19, when the inner member 23 is within the outer member 25 and the connector is closed as shown in Figures 1, 3 and 4

[0016] As still further seen from Figures 2-5, the top wall 47 of the outer member 25 includes an elongated slit 49, the length of which is perpendicular to the pivotal connection 35, 36 of the connector members 23, 25 and parallel to the front and rear, exterior walls 32, 33. The slit 49 is only wide enough to accommodate the free ends of the lift cords 13 in side-by-side relationship as the lift cords extend downwardly through the slit 49 into the closed connector. The left lengthwise end 51 of the slit 49 extends to the left end of the top wall 47 and is open, so that the lift cords can move outwardly of the slit 49, through its open end 51, when the connector is open. The free ends of the lift cords 13, extending through the slit 49 into the interior 27 of the closed connector 15, are releasably attached to the retainer 21 within the connector's interior 27 under normal operating conditions of the blind 1 and its pull cord 17 and tassel 19. The top wall 52 of the inner member 23 abuts against the open end 51 of the slit 49 in the top wall 47 of the outer member when the connector is closed. Thereby, the top wall 52 of the inner member prevents the lift cords 13 from moving lengthwise out of the slit 49, through its open end 51, when the connector is closed.

[0017] As seen from Figures 4-6, the retainer 21 is a generally rectangular, rigid web 53 with a pair of length-

wise parallel slits 55 and 57. The retainer is preferably provided within the interior 27 of the closed connector 15 with its web 53 extending generally vertically and one of its slits 55 above its other slit 57. The slits 55, 57 are open only on opposite widthwise sides of the web 53, whereby the retainer has a generally S-shape with a middle section 58 between the slits and top and bottom sections 56, 60 above and below the slits. The end portion 13A of the free end of each lift cord 13 can be threaded through the web 53: initially through its lower slit 57, then around its middle section 58 and through its upper slit 59, and then again around its middle section 58 and through its lower slit (as shown in Figure 5). Preferably, the end portion 13A of the free end of each lift cord is threaded through the web 53: initially through its upper slit 59, then around its middle section 58 and through its lower slit 57, and then the web is rotated transversely of its middle section (as indicated by the arrow 4 in Figure 6), so that its upper slit 59 is on top, thereby winding the end portion of the lift cord another half turn about its middle section 58. The retainer and the wound end portions 13A of the lift cord can then be placed in the hollow interior 27 of the open connector 15 (as shown in Figure 5) and the lift cords 13 can be urged through the open end 51 of the slit 49, so that the lift cords extend upwardly through the slit in side-by-side relationship. Then, the connector can be closed by urging its inner member 23 to pivot about its pivotal connection 35, 36 and to move within its outer member 25 until the locking pins 43,45 nest in the locking grooves 39, 41, to frictionally hold the members together and hold the connector closed (as shown in Figures 3 and 4) under normal operating conditions. When closed, the front and rear wall 29, 30 of the connector's inner member abut against both the front and rear sides of the retainer 21 and prevent it from rotating within the interior 27, so that the lift cords 13 cannot unwind from the retainer.

[0018] In normal operation of the blind 1, the connector 15 remains closed with the locking pins 43,45 nesting in the locking grooves 39, 41, regardless of the downward force exerted on the pull cord 17 and tassel 19 by a user of the blind and on the bottom of the connector by the pull cord. Within the closed container, the free ends of the lift cords remain wound about the retainer 21.

[0019] However if an infant became entangled in the lift cords 13, the weight and force of the infant would urge the lift cords to move apart from their side-by-side relationship within the slit 49 in the top wall of the outer member 25 (as indicated by the arrows 1 in Figure 3). As a result, some of the lift cords would move lengthwise within the top wall slit 49, towards its open end 51, and would abut against the top wall 52 of the inner member 23. This would cause the inner member 23 to begin to pivot about the pivotal connection 35, 36 away from the outer member 25, then cause the locking pins 43,45 to come out of the locking grooves 39, 41, and then cause the inner member to pivot out of the outer member, thereby opening the connector 15 (as indicated by the arrows 2 in Figure 5). Then, all the lift cords 13 would move length-

wise within the top wall slit 49 and then out of its open end 51 and then out of the open connector. Then, the connector members 23, 25 would fall, along with the pull cord 17 and the tassel 19, away from the retainer 21 and the end portions 13A of the lift cords, which are wound about it (as indicated by the arrow 3 in Figure 5). Then, the retainer would rotate transversely of its middle section 58 (as indicated by the arrow 4 in Figure 6), thereby allowing the lift cords to unwind from the retainer and then to be pulled out of the retainer slits 55, 57 by the pull of the entangled infant (as indicated by the arrows 5 in Figure 6). Thereby, the free ends of the lift cords would become separated from one another and the infant would be freed from the entanglement of the lift cords.

[0020] This invention is, of course, not limited to the above-described embodiments which may be modified without departing from the scope of the invention or sacrificing all of its advantages. In this regard, the terms in the foregoing description and the following claims, such as "left", "right", "longitudinally", "bottom", "top", "inner", "outer", "upper", "lower", "perpendicular", "parallel", "length", "width", "vertical", "horizontal", "upwardly" and "downwardly", have been used only as relative terms to describe the relationships of the various elements of the cord connector of the invention for window coverings. For example, the cord connector 15 could be used for a vertical venetian blind or a pleated blind, rather than a horizontal venetian blind 1. Also, the left member 23 could be an outer member with bores 36 and the right member 25 could be an inner member with pivots 35. Further, other frictional means, besides the engagement of the locking pins 43,45 and locking grooves 39, 41, can be used to hold the connector closed under normal operating conditions.

Claims

1. A cord connector (15) for releasably connecting the free ends of a plurality of lift cords (13) of a window covering (1) to a single operating cord (17) wherein the connector comprises:

- an openable and closeable structure formed by pair of vertically-extending members (23, 25) which are relatively movable between an open and closed condition and between which, in the closed condition, the structure forms an interior space (27); **characterized in that** the connector (15) further comprises:

- a cord retainer (21) which is enclosable in the interior space (27) and onto which the free ends of the lift cords can be removably attached;

- wherein in the open condition of the members (23, 25), the retainer (21) with the free ends of the lift cords (13) attached thereto

- is separated and released from the structure and the free ends of the lift cords can become detached from the retainer.
2. The cord connector of claim 1 wherein the free ends of the lift cords (13) are wound about the retainer (21) when the retainer is in the interior space (27) of the closed connector and are unwound from the retainer when the retainer is released from the interior space of the open connector.
 3. The cord connector of claim 1 or 2 wherein the walls (29, 30) of the interior space (27) prevent rotation of the retainer (21) within the closed connector.
 4. The cord connector of any one of claims 1-3 wherein the retainer (21) has the general form of an S with the free ends of the lift cords (13) wound about a middle section (58) of the retainer.
 5. The cord connector of any one of claims 1-4 wherein the free ends are wound between top and bottom sections of the retainer (21).
 6. The cord connector of any one of claims 1-5 wherein a pull cord (17) is attached to a bottom portion of one of the members (23), and there is a releasable hinged connection (35, 36) between bottom portions of the members (23, 25), whereby when the hinged connection (35, 36) is released, the one member (23) is moved, relative to the other member (25), about the hinged connection, to open the connector, so that the retainer is released from the interior space (27) and can rotate and the free ends of the lift cords can then become detached from the retainer.
 7. The cord connector of claim 6 wherein there is a second connection (39, 41, 43, 45) between top portions of the members (23, 25) and there is an elongated slit (49) in the top of one of the members, through which the free ends of the lift cords (13) extend in a side-by-side relationship into the retainer (21).
 8. The cord connector of claim 7 wherein the slit (49) is elongated and the side-by-side relationship extends in a direction perpendicular to the hinged connection (35, 36).
 9. The cord connector of claim 8 wherein the second connection (39, 41, 43, 45) is a frictional connection between top portions of the members (23, 25).
 10. The cord connector of claim 9 wherein the frictional connection comprises a locking groove (39, 41) on one member (23) and a mating locking pin (43, 45) that is on the other member (25) and is vertically aligned with the locking groove.
 11. The cord connector of claim 10 wherein the frictional connection comprises a pair of locking grooves (39, 41) on opposite sides of one member (23) and a mating pair of locking pins (43,45) that are on opposite sides of the other member (25) and are each vertically aligned with one of the locking grooves.
 12. The cord connector of any one of claims 6-11 wherein, when the connector is closed, the retainer (21) is within an inner one of the members (23) that is within the other member (25).
 13. The cord connector of claim 1 wherein the retainer (21) is a generally rectangular web (53) about which the free ends of the lift cords (13) can be wound with at least a single full winding.
 14. The cord connector of claim 13 wherein said interior space (27) is of a shape and dimension for preventing the retainer (21) from rotating about any axis that coincides with the web (53) and thereby preventing the free ends of the lift cords (13) from unwinding from the retainer.
 15. The cord connector of any one of claims 1, 13 and 14 wherein a first one of the pair of vertically extending members (23) is box-shaped and a second one of the pair of vertically extending members (25) is shaped as a cover.
 16. The cord connector of any one of claims 1 and 13-15 wherein the pair of vertically-extending members (23, 25) are hinged to one another.

Patentansprüche

1. Schnurkupplung (15) zur lösbaren Verbindung der freien Enden mehrerer Hubschnüre (13) einer Fensterabdeckung (1) zu einer einzigen Betätigungsschnur (17), wobei die Kupplung:
 - ein zu öffnendes und zu schließendes Gebilde umfasst, das aus einem Paar von sich vertikal erstreckenden Konstruktionsteilen (23, 25) besteht, welche im Verhältnis zueinander zwischen einem offenen und einem geschlossenen Zustand beweglich sind und zwischen denen das Gebilde in geschlossenem Zustand einen Innenraum (27) bildet, **dadurch gekennzeichnet, dass** dieKupplung(15)weiter
 - einen Schnurhalter (21) umfasst, der in dem Innenraum (27) eingekapselt werden kann und an dem die freien Enden der Hubschnüre lösbar befestigt werden können,
 - wobei in offenem Zustand der Konstruktionsteile (23, 25) der Halter (21) mit den daran befestigten freien Enden der Hubschnüre (13) von

- dem Gebilde getrennt und aus diesem herausgelöst ist und die freien Enden der Hubschnüre vom Halter abgenommen werden können.
2. Schnurkupplung gemäß Anspruch 1, bei der die freien Enden der Hubschnüre (13) um den Halter (21) gewickelt sind, wenn sich der Halter im Innenraum (27) der geschlossenen Kupplung befindet, und vom Halter abgewickelt werden, wenn der Halter aus dem Innenraum der offenen Kupplung herausgelöst ist. 5
 3. Schnurkupplung gemäß Anspruch 1 oder 2, bei der die Wände (29, 30) des Innenraums (27) eine Drehung des Halters (21) innerhalb der geschlossenen Kupplung verhindern. 10
 4. Schnurkupplung gemäß einem der Ansprüche 1 bis 3, bei der der Halter (21) die allgemeine Form eines S hat, wobei die freien Enden der Hubschnüre (13) um ein mittleres Teilstück (58) des Halters gewickelt werden. 15
 5. Schnurkupplung gemäß einem der Ansprüche 1 bis 4, bei der die freien Enden zwischen den oberen und unteren Abschnitten des Halters (21) aufgewickelt sind. 20
 6. Schnurkupplung gemäß einem der Ansprüche 1 bis 5, bei der eine Zugschnur (17) an einem unteren Abschnitt von einem der Konstruktionsteile (23) befestigt ist und eine lösbare, gelenkige Verbindung (35, 36) zwischen unteren Abschnitten der Konstruktionsteile (23, 25) besteht, wodurch beim Lösen der gelenkigen Verbindung (35, 36) das eine Konstruktionsteil (23) im Verhältnis zum anderen Konstruktionsteil (25) um die gelenkige Verbindung herum bewegt wird, um die Kupplung zu öffnen, so dass der Halter aus dem Innenraum (27) herausgelöst wird und sich drehen kann und die freien Enden der Hubschnüre daraufhin vom Halter abgenommen werden können. 25
 7. Schnurkupplung gemäß Anspruch 6, bei der eine zweite Verbindung (39, 41, 43, 45) zwischen oberen Abschnitten der Konstruktionsteile (23, 25) vorhanden ist und in der Oberseite von einem der Konstruktionsteile ein länglicher Schlitz (49) vorgesehen ist, durch welchen sich die freien Enden der Hubschnüre (13) in einer Nebeneinanderanordnung in den Halter (21) erstrecken. 30
 8. Schnurkupplung gemäß Anspruch 7, bei der der Schlitz (49) länglich ist und sich die Nebeneinanderanordnung in einer Richtung senkrecht zu der gelenkigen Verbindung (35, 36) erstreckt. 35
 9. Schnurkupplung gemäß Anspruch 8, bei der die zweite Verbindung (38, 41, 43, 45) eine reibschlüssige Verbindung zwischen oberen Abschnitten der Konstruktionsteile (23, 25) ist. 40
 10. Schnurkupplung gemäß Anspruch 9, bei der die reibschlüssige Verbindung eine Arretierungsrinne (39, 41) auf einem Konstruktionsteil (23) und einen dazu passenden Arretierungsstift (43, 45) umfasst, der auf dem anderen Konstruktionsteil (25) vorgesehen und vertikal auf die Arretierungsrinne ausgerichtet ist. 45
 11. Schnurkupplung gemäß Anspruch 10, bei der die reibschlüssige Verbindung ein Paar von Arretierungsrinnen (39, 41) auf entgegengesetzten Seiten eines Konstruktionsteils (23) und ein dazu passendes Paar von Arretierungsstiften (43, 45) umfasst, die auf entgegengesetzten Seiten des anderen Konstruktionsteils (25) vorgesehen sind und jeweils vertikal auf eine der Arretierungsrinnen ausgerichtet sind. 50
 12. Schnurkupplung gemäß einem der Ansprüche 6 bis 11, bei der sich der Halter (21) in geschlossenem Zustand der Kupplung innerhalb eines inneren der Konstruktionsteile (23) befindet, welches innerhalb des anderen Konstruktionsteils (25) angeordnet ist.
 13. Schnurkupplung gemäß Anspruch 1, bei der der Halter (21) ein im Allgemeinen rechtwinkliger Steg (53) ist, um welchen die freien Enden der Hubschnüre (13) mit mindestens einer einzigen vollständigen Windung gewickelt werden können.
 14. Schnurkupplung gemäß Anspruch 13, bei der der besagte Innenraum (27) eine Form und Abmessungen aufweist, die verhindern, dass sich der Halter (21) um irgendeine Achse dreht, die mit dem Steg (53) zusammenfällt, und damit verhindern, dass sich die freien Enden der Hubschnüre (13) vom Halter abwickeln.
 15. Schnurkupplung gemäß einem der Ansprüche 1, 13 und 14, bei der ein erstes Konstruktionsteil (23) des Paares von sich vertikal erstreckenden Konstruktionsteilen kastenförmig ist und ein zweites Konstruktionsteil (25) des Paares von sich vertikal erstreckenden Konstruktionsteilen als Abdeckung geformt ist.
 16. Schnurkupplung gemäß einem der Ansprüche 1 und 13 bis 15, bei der die ein Paar bildenden, sich vertikal erstreckenden Konstruktionsteile (23, 25) aneinander angelenkt sind.

Revendications

1. Dispositif de raccordement de cordons (15) destiné à raccorder de façon libérable les extrémités libres d'une pluralité de cordons de levage (13) d'une ouverture de fenêtre (1) à un cordon de fonctionnement

unique (17) dans lequel le dispositif de raccordement comporte :

- une structure pouvant être ouverte et fermée formée par une paire d'éléments s'étendant verticalement (23, 25), lesquels sont relativement mobiles entre une situation d'ouverture et une situation de fermeture et entre lesquels, dans la situation de fermeture, la structure forme un espace interne (27) ; **caractérisé en ce que** le dispositif de raccordement (15) comprend, de plus :
 - un organe de retenue de cordon (21) qui peut être enfermé dans l'espace interne (27) et sur lequel les extrémités libres des cordons de levage peuvent être fixées de façon amovible ;
 - dans lequel, dans la situation d'ouverture des éléments (23, 25), l'organe de retenue (21) présentant les extrémités libres des cordons de levage (13) fixées sur lui est séparé et libéré de la structure et les extrémités libres des cordons de levage peuvent être détachées de l'organe de retenue.
2. Dispositif de raccordement de cordons selon la revendication 1 dans lequel les extrémités libres des cordons de levage (13) sont enroulées autour de l'organe de retenue (21) lorsque l'organe de retenue se trouve dans l'espace interne (27) du dispositif de raccordement fermé et sont déroulées à partir de l'organe de retenue lorsque l'organe de retenue est libéré de l'espace interne du dispositif de raccordement ouvert.
 3. Dispositif de raccordement de cordons selon la revendication 1 ou 2 dans lequel les parois (29, 30) de l'espace interne (27) empêchent la rotation de l'organe de retenue (21) à l'intérieur du dispositif de raccordement fermé.
 4. Dispositif de raccordement de cordons selon l'une quelconque des revendications 1 à 3 dans lequel l'organe de retenue (21) présente la forme globale d'un S, les extrémités libres des cordons de levage (13 étant enroulées autour d'une section médiane (58) de l'organe de retenue.
 5. Dispositif de raccordement de cordons selon l'une quelconque des revendications 1 à 4 dans lequel les extrémités libres sont enroulées entre des sections supérieure et inférieure de l'organe de retenue (21).
 6. Dispositif de raccordement de cordons selon l'une quelconque des revendications 1 à 5 dans lequel un cordon de tirage (17) est fixé à une partie inférieure de l'un des éléments (23), et dans lequel il existe une connexion articulée libérable (35, 36) entre des parties inférieures des éléments (23, 25), de sorte que, lorsque la connexion articulée (35, 36) est libérée, le premier élément (23) se déplace, par rapport à l'autre élément (25), autour de la connexion articulée, afin d'ouvrir le dispositif de raccordement, de sorte que l'organe de retenue est libéré à partir de l'espace interne (27) et peut tourner et que les extrémités libres des cordons de levage peuvent alors être détachées de l'organe de retenue.
 7. Dispositif de raccordement de cordons selon la revendication 6 dans lequel il existe une seconde connexion (39, 41, 43, 45) entre les parties supérieures des éléments (23, 25) et dans lequel il existe une fente de forme allongée (49) dans la partie supérieure de l'un des éléments, à travers laquelle les extrémités libres des cordons de levage (13) s'étendent dans une relation de juxtaposition dans l'organe de retenue (21).
 8. Dispositif de raccordement de cordons selon la revendication 7 dans lequel la fente (49) est de forme allongée et dans lequel la relation de juxtaposition s'étend dans une direction perpendiculaire à la connexion articulée (35, 36).
 9. Dispositif de raccordement de cordons selon la revendication 8 dans lequel la seconde connexion (39, 41, 43, 45) est une connexion à friction entre les parties supérieures des éléments (23, 25).
 10. Dispositif de raccordement de cordons selon la revendication 9 dans lequel la connexion à friction comporte une gorge de verrouillage (39, 41) sur un élément (23) et une broche de verrouillage correspondante (43, 45) qui se trouve sur l'autre élément (25) et est alignée verticalement avec la gorge de verrouillage.
 11. Dispositif de raccordement de cordons selon la revendication 10 dans lequel la connexion à friction comporte une paire de gorges de verrouillage (39, 41) sur les côtés opposés d'un élément (23) et une paire correspondante de broches de verrouillage (43, 45) qui se trouvent sur les côtés opposés de l'autre élément (25) et qui sont, chacune, alignées verticalement avec l'une des gorges de verrouillage.
 12. Dispositif de raccordement de cordons selon l'une quelconque des revendications 6 à 11 dans lequel, lorsque le dispositif de raccordement est fermé, l'organe de retenue (21) se trouve à l'intérieur de l'un interne des éléments (23) qui se trouve à l'intérieur de l'autre élément (25).
 13. Dispositif de raccordement de cordons selon la revendication 1 dans lequel l'organe de retenue (21) est une bande plate centrale généralement rectangulaire (53) autour de laquelle les extrémités libres

des cordons de levage (13) peuvent être enroulées avec au moins un seul tour complet.

14. Dispositif de raccordement selon la revendication 13, dans lequel ledit espace interne (27) est d'une configuration et d'une dimension permettant d'empêcher l'organe de retenue (21) de tourner autour d'un axe quelconque qui coïncide avec la bande plate centrale (53) et, de ce fait, d'empêcher les extrémités libres des cordons de levage (13) de se dérouler à partir de l'organe de retenue. 5
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15. Dispositif de raccordement de cordons selon l'une quelconque des revendications 1, 13 et 14, dans lequel un premier élément de la paire d'éléments s'étendant verticalement (23) est configuré en forme de boîtier et un second élément de la paire d'éléments s'étendant verticalement (25) est configuré sous la forme d'un couvercle. 15
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16. Dispositif de raccordement de cordons selon l'une quelconque des revendications 1 et 13 à 15 dans lequel les deux éléments s'étendant verticalement (23, 25) sont articulés l'un avec l'autre. 25

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Fig. 1.

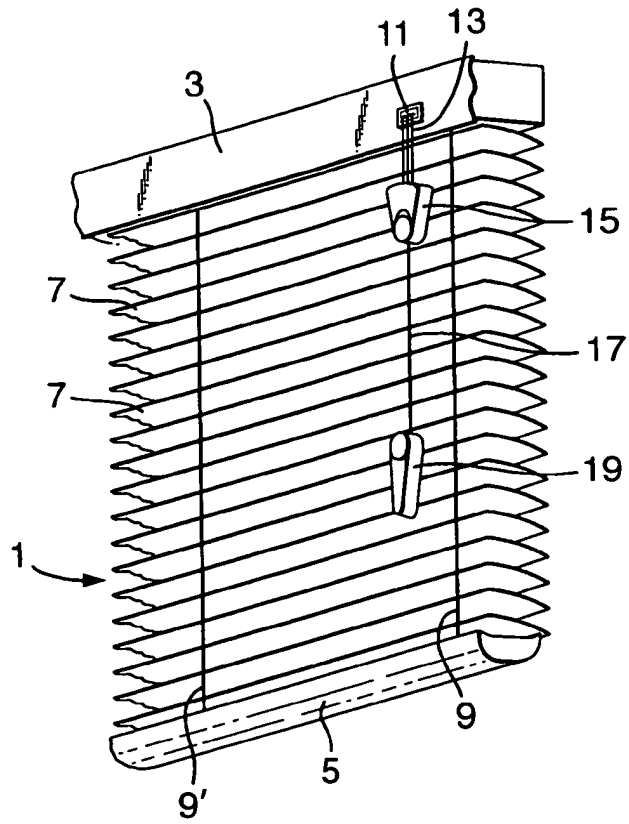


Fig. 2.

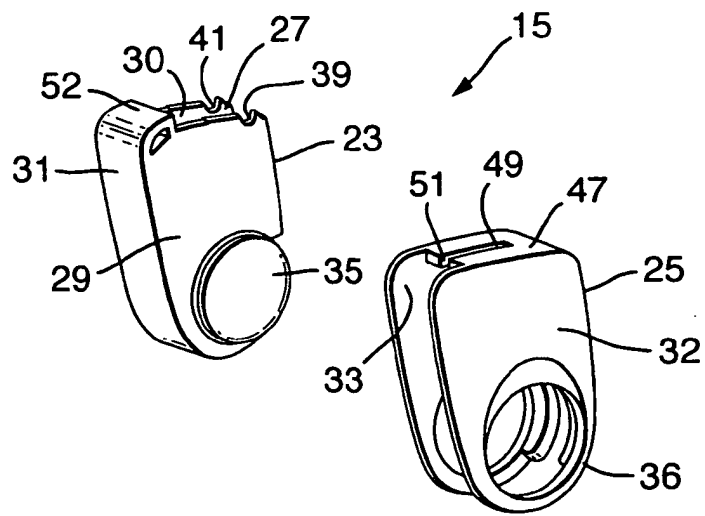


Fig.3.

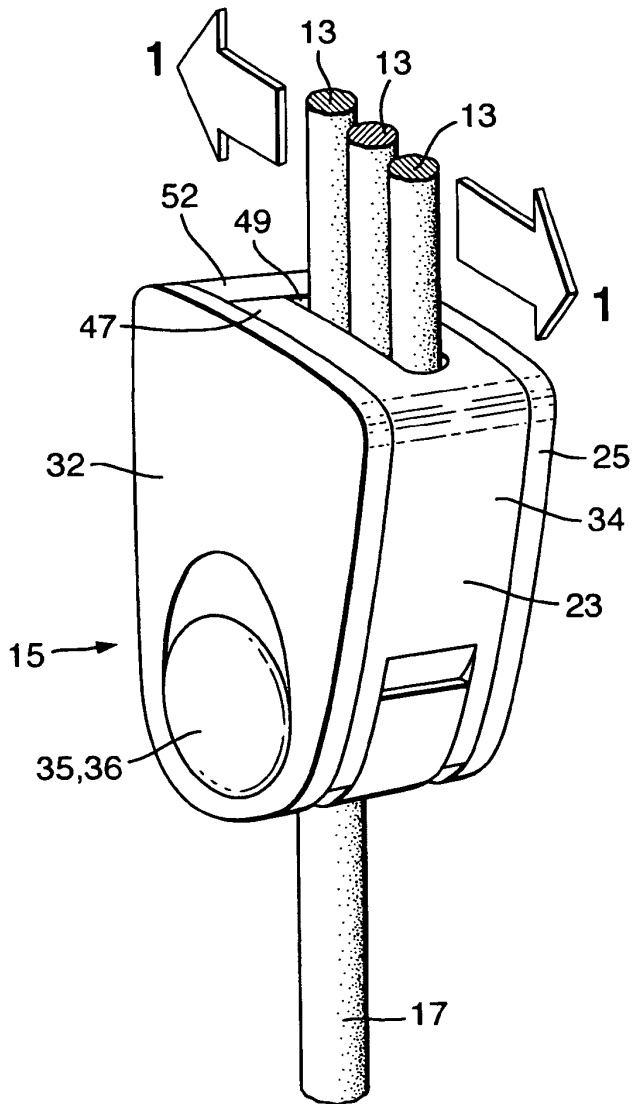


Fig.4.

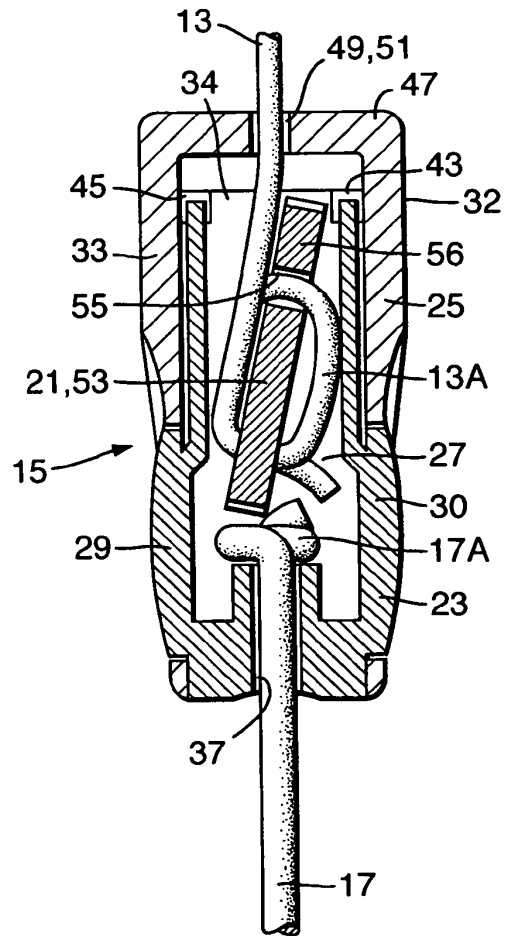


Fig.5.

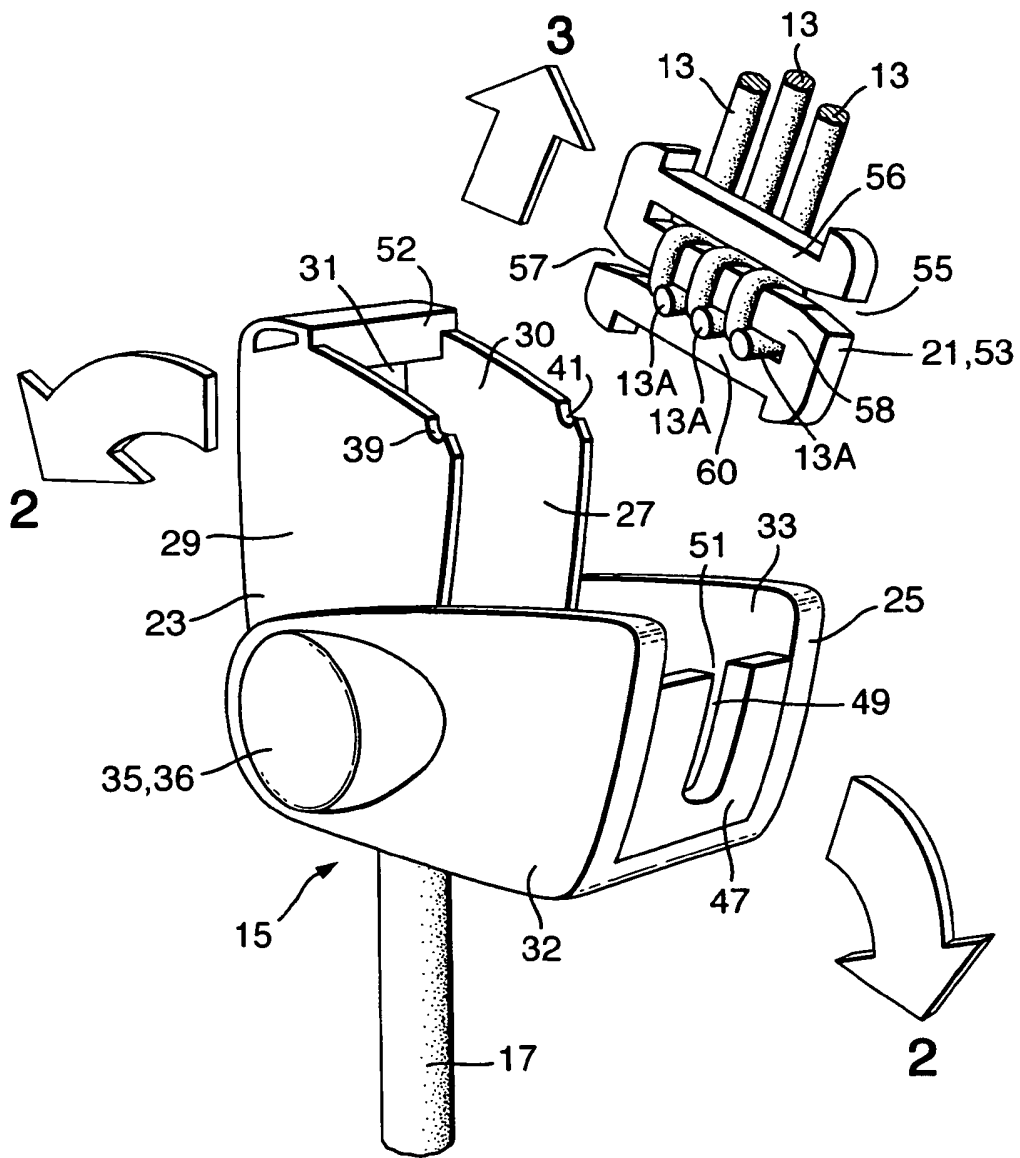
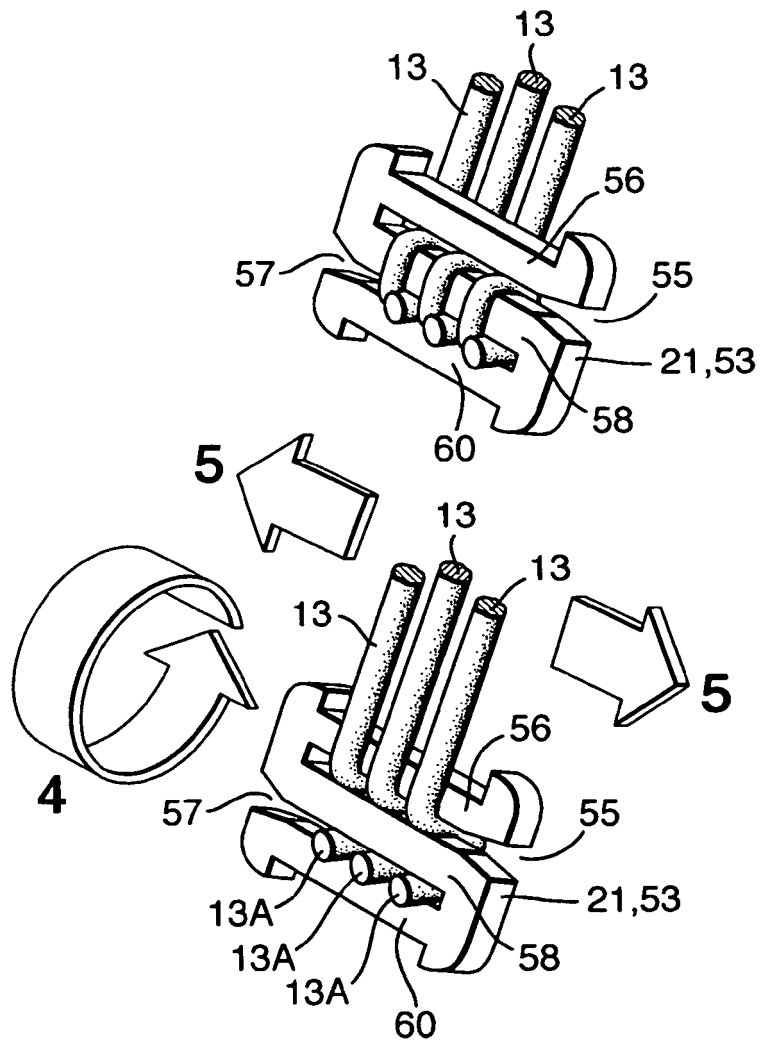


Fig.6.



REFERENCES CITED IN THE DESCRIPTION

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