



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
03.01.2007 Bulletin 2007/01

(51) Int Cl.:
E06B 9/17 (2006.01)

(21) Application number: **06380146.8**

(22) Date of filing: **30.05.2006**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR
Designated Extension States:
AL BA HR MK YU

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(30) Priority: **27.06.2005 ES 200501469**

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(54) **Improved slat blind**

(57) Improved slat blind, constituted by a plurality of slats (2) joined in articulated manner to each other and successively by their larger edges to form an articulated blind panel (1) capable of being successively rolled and unrolled, alternated between at least two adjacent slats of said blind panel (1), at least one connection device made up of at least one connection profile, one complementary connection profile and at least one locking mechanism (8), that includes at least one articulated arm (12), arranged to poke outwards to the exterior in order to constitute a stop against the aperture of the blind housing access cover, preventing the ascension of the blind panel (1), the articulated arm (12) having a locking position in which it is housed in said at least one blind connection profile in order to permit the rolling up or unrolling of the blind and that, besides, at least one articulated arm (12) has its front end joined by a first joint to the rear end of the safety element and where appropriate, a rear end joined by means of a second joint, to the front end of a complementary arm that is joined by its rear end to said at least one connection profile by means of a third joint.

FIG. 1

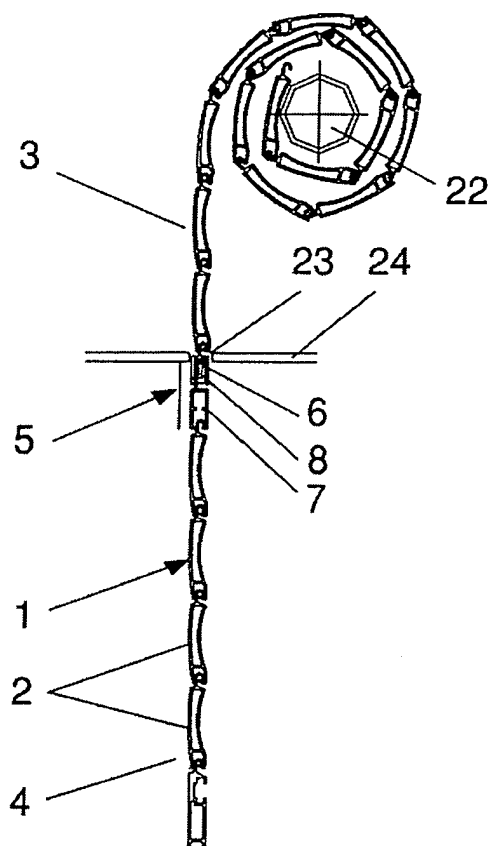
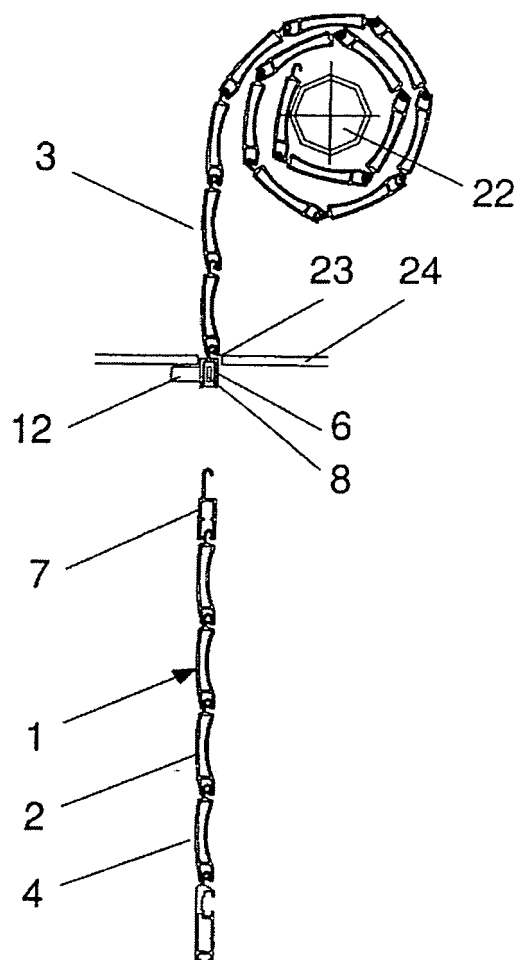


FIG. 2



Description

[0001] The present invention refers to a slat blind that has been improved as regards those already in existence. The improved blind is especially applicable in cases when it is desired that light from the outside penetrates inside spaces where the blind has been installed at the light-span, and where, nevertheless, privacy is required to be kept inside said spaces.

[0002] There is knowledge of the existence of roll-up blinds that consist of slats joined to each other in articulated manner which helps them to be rolled up in a draw-up roll to which one of the end slats has been attached; the hook of the lowest slat of the blind and the corresponding female slat designed in the next slat and arranged higher up on the blind, are coupled by means of a solution which consists of slide-drawing on tracks so as to form the rollable blind panel. Since the material it consists of is opaque and the arrangement of the slats that make up the blind panel constitutes an air-tight closure inside the spaces they protect, it is advisable, whenever it is required to let light in or to adjust the airing inside the space, to roll up part of the blind in a drawn-up roll in order to raise the blind panel up to the required height so as to permit the above, maintaining, nevertheless, the privacy of the spaces. Generally, the optimization in the selection of said three variations is not achieved.

[0003] With the purpose of maintaining privacy inside a space whilst permitting however, that light or air penetrates inside the same in a comfortable and additionally economical manner, the existence of slat blinds are known, in which the articulated panel that configurate them, is made up of at least two blind panels, a top and a bottom one, which may be separated in the light-span they cover, or rejoined to form one single panel depending on the wish of the user. The separation between the two blind panels is produced so immediately and rapidly, that the user is not capable of retaining the top blind panel that suddenly escapes through the aperture of the housing or box of the blind, in order to be rolled up in the soliciting roll-up drum, the whole entering inside the blind housing or box and forcing the user to recover it by opening the access cover, which is undesirable.

[0004] In order to facilitate the retention of the top blind panel and to avoid completely rolling it up inside the drum, it is advised to integrate arrangements or devices in the blind panel, that will prevent or restrict the undesired raising of the top blind panel. Thus, the invention proposes and adopts as objective, the provision of a stop device at the top blind panel, that may transversally project from the panel in order to present an encounter against the walls adjacent to the blind housing access cover opening and to constitute an obstacle that prevents the passage of the top panel through the opening and so that it may return to its initial hidden position in the actual panel after joining the bottom blind panel when it is desired that the assembly passes through the opening.

[0005] To achieve this, a connection device is joined,

during the assembly of the slats of a blind that presents a division zone determining the two blind panels, top and bottom, to the bottom end slat of the group of slats that constitute the top panel adjacent to the roll-up, by means of drawing by sliding and in an articulated manner, in similar way as the rest of the slats that integrate the top panel or the group of articulated slats that shall constitute the bottom panel that is subsequently formed. In the embodiment of the blind panel, the union between the top panel adjacent to the roll-up and the bottom panel adjacent to the closure of the blind is carried out by means of a locking mechanism provided in the connection device, housed in the connection profile and in the slat adjacent to the group of slats that constitute the bottom blind panel. However, when a connection device formed by two connection profiles, respectively tied-down to one or other panel is used, the locking mechanism is made to act against both connection profiles.

[0006] According to a preferred embodiment of the invention, the blind panel of articulated slats is made up of at least two panel parts configurated independently though with the possibility of an easy and rapid union to each other, each part being respectively constituted by groups of slats joined to each other by means of a solution consisting in drawing up by sliding. The slats, the bottom one of the top panel and adjacent to the roll-up and the top one of the next and bottom panel and adjacent to the closure, are confronted to each other by their longitudinal edges and in opposition, in which, by means of drawing up by sliding, corresponding connection profiles are coupled, designed for their rapid joining or detaching in the respective formation or division of the blind panel with the collaboration of one or various locking mechanisms integrally contained in the connection profile provided at the bottom of the top panel.

[0007] According to the invention, the locking mechanism includes a box in which the safety element slides in order to retain or release the complementary connection profile at its entrances and exits. The end of the safety element opposed to the leading one, is joined in articulated manner to a articulated arm, the rear end of which is joined by a second joint, to the front end of a complementary arm that is joined by its rear end and also articulated, to a rear point of the connection profile or to a shim attached to the same.

[0008] Substantially, according to the invention, the articulated arm is contained in the connection profile of the blind in its passive, non-performance position and in which the rolling or unrolling of the blind is permitted, though it could also be housed in a housing arranged in said profile. The arm is arranged in such a manner that when required by the safety locking mechanism, it may poke out in order to be constituted into a stopping device against the adjacent walls of the blind housing access cover opening so as to prevent the ascension of the panel.

[0009] In order to understand more clearly what has been disclosed, a set of drawings are enclosed, repre-

senting a preferred embodiment of the object of the invention, this example or the drawings enclosed, not constituting any restrictions on the specific characteristics of this application.

[0010] Thus, Figure 1 shows, in order to aid the observation, an exploded view of the profile of a blind panel made up of two parts of a panel, a top panel and a bottom panel, that are joined by a connection device respectively attached between the end and adjacent slats of both panels and with the top part of the top blind panel partially rolled up in a roll-up drum of the blind. The thickness of the blind panel is homogenous or appreciably homogeneous at its passage through the blind housing access cover opening, represented by means of two confronted longitudinal strips. The connection device that collects both panels includes a connection profile and a complementary connection profile. A locking mechanism is contained between both profiles that are kept joined whilst maintaining its position of closure.

[0011] In correspondence with Figure 1, Figure 2 shows the blind panel profile, separated into two parts of the panel, a top panel and a bottom panel, once the opening of the locking mechanism is produced, though it also represents a position that is previous to the union of both parts of the blind panel with the subsequent closure of the locking mechanism. The top blind panel can be observed with the articulated arm of the locking mechanism projecting outwardly and constituted as retention stop during the ascent of the top blind panel in its action against the walls that are immediately adjacent to the blind housing access cover opening, whilst the bottom blind panel is observed descending towards the floor.

[0012] Since both parts present the same thickness, the sudden rolling-up of the top panel over the blind housing access cover opening and the dropping towards the floor of the bottom panel faced with the absence of a braking or retention device that impedes this, is to be understood.

[0013] Figure 3 shows, by means of a perspective front view representing the assembly at a greater scale than in Figures 1 and 2, the two parts of the connection device to be alternated between the blind panel slats, in position prior to their coupling and subsequent adaptation between the end slats of the top and bottom blind panels. The Figure additionally represents, the opening position of the locking mechanism, with the safety element and the outward exit of the articulated arm retracted in order to provide the stop element which, during its advance against the adjacent walls of the blind housing access cover or blind box access cover, prevents the undesired raising of the top blind panel.

[0014] Figure 4 shows a perspective front view, representing the assembly at a greater scale than in Figures 1 and 2, the components of the connection device to be alternated between the panel slats of the blind, in a position prior to their coupling and subsequent adaptation between the end slats of both top and bottom panels of the blind. The Figure additionally represents the closure

position of the locking mechanism with the safety element in advanced position on the complementary connection profile and the extended position of the articulated arm.

[0015] Especially observing Figures 1 and 2, it can be seen that the blind panel (1) is made up of slats (2) grouped together to form two parts of the panel, top (3) and bottom (4), between which, the connection device (5) can be observed, which, as is shown in the drawings, and can be especially seen in Figure 2, is constituted by a connection profile (6) and by a complementary connection profile (7) interrelated by means of a locking mechanism (8), the closure of which keeps them joined.

[0016] According to the example, and as can be better appreciated from Figures 3 and 4, the locking mechanism (8) has been provided with a box (9) into which the safety element (10) slides with the activating pushbutton (11) and includes the articulated arm (12) the front end of which can be seen joined by the first joint (14) to the rear end of the safety element (10) and its rear end is joined by means of the second joint (15) to the front end of the complementary arm (13) that joins its rear end by means of the third joint (16) to the appropriate shim (17) for its incorporation to the connection profile (6).

[0017] There is an appreciable improvement in Figures 3 and 4 of the connection profile (6) which presents an opening (18) made on its front face and sized in correspondence with the box (9) of the locking mechanism (8) though with smaller size, in order to facilitate the sliding of the activating pushbutton (11) of the safety element (10) integrated in the example as one single part.

[0018] A second opening (19) is provided on the rear face of the connection profile (6) to permit the exit of the articulated arm (12).

[0019] A complementary connection profile (7) presents a flange (20) for coupling to the connection profile (6), provided with a gap (21) with appreciably similar dimensions though larger than those of the box (9) of the locking mechanism (8), housed by the connection profile (6).

[0020] The rolling up of the blind panel is pretended on the rolling axis or rolling-up drum (22), by means of the intervention of a mechanism, for example that of a tape activator, activated by the user, as the slats of the blind panel (1) rise and pass through the opening (23) of the blind housing access cover (24).

[0021] It is easily understood from what has been disclosed, that the connection device (5) joins together by means of the locking mechanism (8), the connection profile (6) and the connection profile (7) that are presented longitudinally superimposed in such a manner, that the coupling flange (20) of the profile (7) remains housed inside the connection profile body (6).

[0022] As can be observed in Figure 1, the top blind panel (3) can be partially observed rolled up around a roll-up axis or drum (14) that appears represented in an exploded view in the Figure.

[0023] According to the invention and in view of what has been shown in Figure 2, it is easily understood that

the complementary connection profile (7) can present a plurality of gaps (21) appropriately spaced on its coupling flange (12) and with equivalent amount of openings (18 and 19) likewise provided, spaced along the connection profile (6), one and another in correspondence with the number of locking mechanisms (8) to be arranged on the connection profile (6) according to the width of the blind panel (1) to aid the collection or separation of the top (3) and bottom (4) panels, which will habitually be produced with the arrangement of at least two locking mechanisms (8).

[0024] It is also evident that the box (9) of the locking (8) mechanism shall be attached on the connection profile (6) with a position that faces the gap (21) of the complementary connection profile (7) coupling flange (20), for example, with an interference fit in the connection profile (6) and in such a manner, that the pushbutton (11) of the safety element (10) pokes out through the opening (18) in order to be manually accessible to the user, forcing, by means of its activation, the movement of the safety element (10) along the box (9).

[0025] According to the above it is necessary to provide the attachment of the free end of the articulated arm (12), and in the proposed example the free end of the complementary arm (13) to the connection profile (6), in such a manner, that during the advance and exit of the safety element (10) in the box (9), or in its retreat and entrance said attachment ensures the extension of the articulated arm (12), and such as has been described in the proposed example, also that of the complementary arm (13).

[0026] According to the invention, the blind panel (1) is made up of various groups of slats (2) joined by sliding, in such a manner, that each group defines a respective section of panel, top (3) and bottom (4), that may be separated or joined together by means of a connection device (65) integrated by a connection profile (6) and by a complementary connection profile (7) related to each other by means of at least one locking mechanism (8), of easy and comfortable operation, with the purpose of ensuring the joining or allowing the detachment of both parts of the panel (3) and (4).

[0027] From an initial position, coinciding with the one shown in Figure 1, in which both top (3) and bottom (4) blind panels are presented joined to each other by means of the connection device (5) in which the locking mechanism (8) retains the complementary connection profile (7) together with the connection profile (6), thus forming one single blind panel (1) and partially rolled up at the top one (3) on the roll-up axis or drum (14) and at the bottom one (4) separated from the floor, it is easy to understand that if light is required to enter inside the space where the blind has been installed on the light-span, though nevertheless maintaining privacy inside the space, it is necessary to unroll the blind up to its support on the floor and to separate both blind panels (3) and (4) so that it is only necessary to move the pushbutton (11) from one to the other end of the aperture (18) of the con-

nection profile (6), which subsequently produces the removal of the safety element (10) from its coupling on the internal part of the coupling flange (20) of the complementary connection profile (7) allowing its separation by the action of gravity from the connection profile (6). When a greater separation is desired between both blind panels, it is clear that the rolling up of the top section of the blind panel (3) is required.

[0028] With the removal of the safety element (10) from its coupling, the exit of the articulated arm (12) is also automatically produced, and in the example, that of the complementary arm (13) from its housing inside the connection profile (6) poking out through the second aperture (19) of the connection profile (6), with the purpose of restricting the raising of the top panel of the blind (3) after its encounter with the articulated arm (12) and the complementary arm (13) against the wall adjacent to the aperture (23) of the blind housing access cover (24).

[0029] It is sufficient to unroll the top panel (3) from its roll-up (22) to cease the pushing of the arms (12 and 13) against the walls adjacent to the aperture (23) of the blind housing access cover (24) and to produce its descent. The top panel (3) slides between the lateral guides that are common in this type of closures until it contacts with the bottom panel (4) in such a manner, that the bottom connection profile (6) provided at the end of the top panel (3) stops against the complementary connection profile (7) and its coupling flange (20) penetrates inside the open body of the connection profile (6).

[0030] On the front face of the connection profile (6), through the aperture (17), the activation pushbutton (11) is forced to move longitudinally in opposite direction to its seating, endeavouring the movement of the safety element (10) of the locking mechanism (8) in the same direction, in such a manner, that the safety element (10) slides outside the box (9) and its free end penetrates below the internal part of the hook of the coupling flange (20) supporting it, if it is endeavoured to roll up the blind and keeping the connection profile (6) and the complementary connection profile (7) joined, and in consequence, joining the blind panels (3) and (4). The movement of the safety element (10) towards the outside of the box (9) involves pulling the articulated arm (12), and also when appropriate, that of the complementary arm (13) which opens out at its respective joints (14, 15 and 16), the latter (16) attached to the shim (17) and in consequence, to the connection profile (6).

Claims

1. Improved slat blind, constituted by a plurality of slats joined in articulated manner to each other and successively by their larger edges to form an articulated blind panel capable of being successively rolled and unrolled, alternated between at least two adjacent slats of said blind panel, at least one connection device made up of at least one connection profile, one

complementary connection profile and at least one locking mechanism, **characterized in that** said at least one locking mechanism includes at least one articulated arm, arranged to poke outwards to the exterior in order to constitute a stop against the aperture of the blind housing access cover, preventing the ascension of the blind panel, the articulated arm having a locking position in which it is housed in said at least one blind connection profile in order to permit the rolling up or unrolling of the blind.

2. Improved slat blind, according to Claim 1, **characterized in that** said at least one articulated arm has its front end joined by a first joint to the rear end of the safety element and where appropriate, a rear end joined by means of a second joint, to the front end of a complementary arm that is joined by its rear end to said at least one connection profile by means of a third joint.

FIG. 1

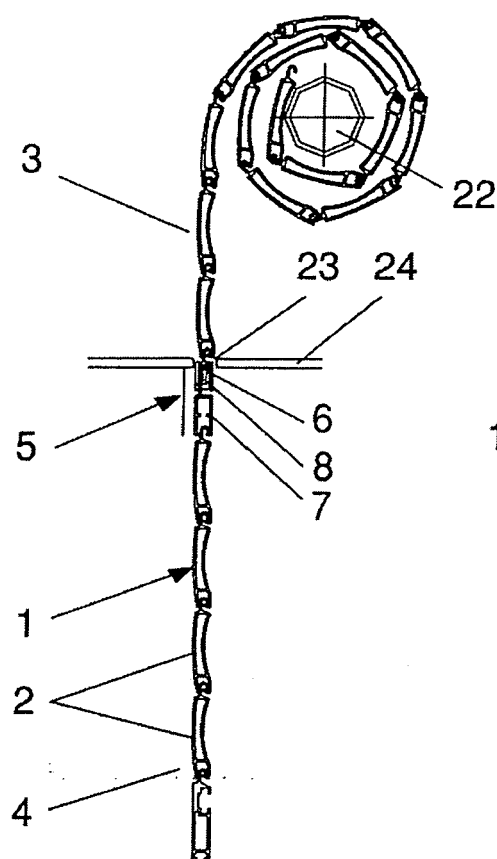


FIG. 2

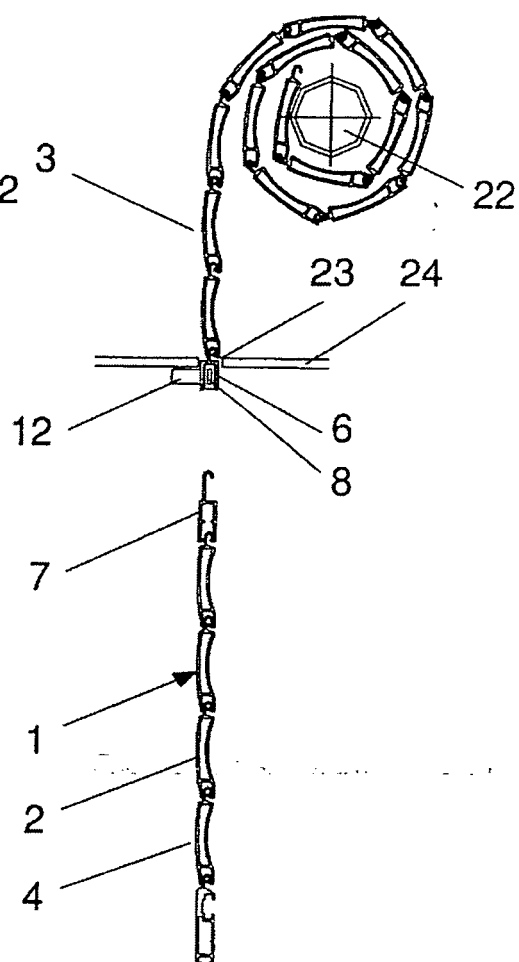


FIG. 3

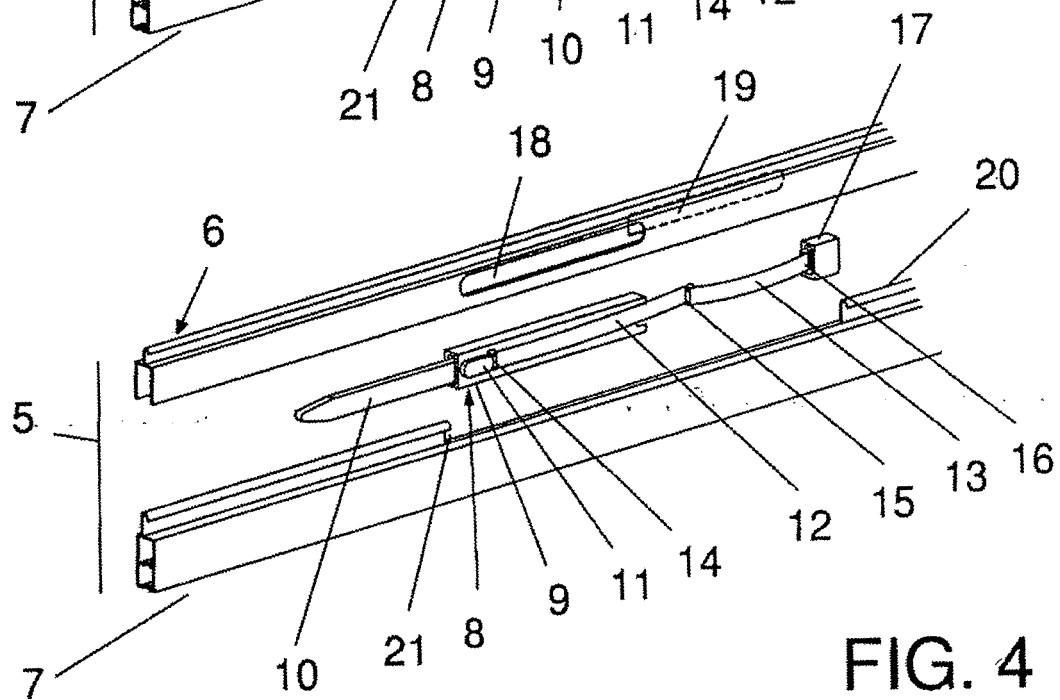
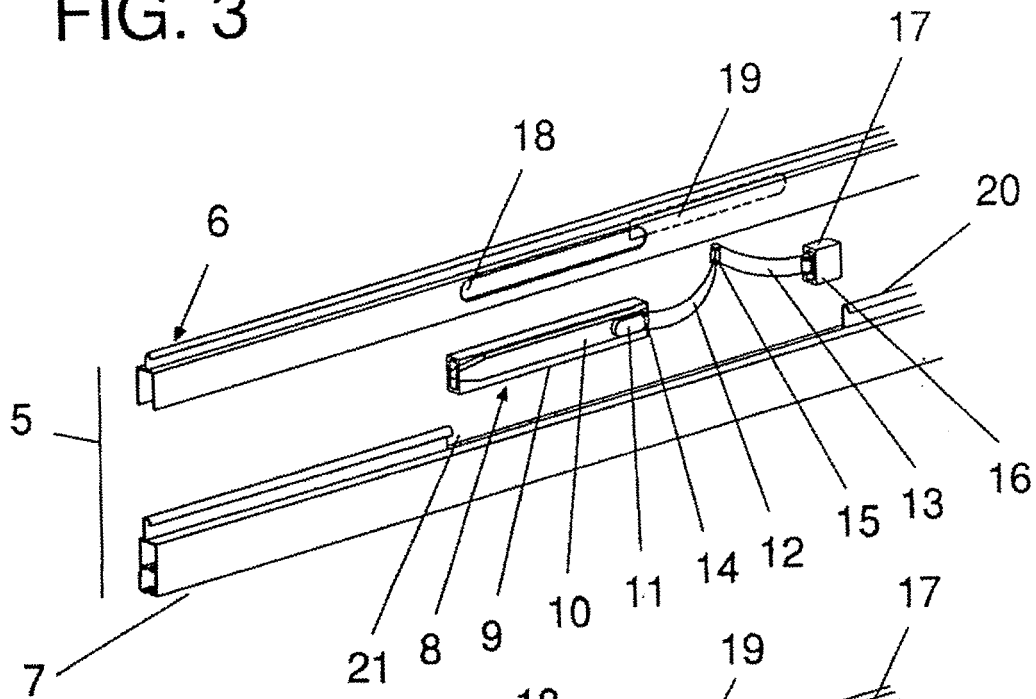


FIG. 4