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(54) **HANDLING SYSTEM FOR MOBILE SCREEN CURTAINS**

(57) Handling system (100) for mobile screen curtains (200) provided with a handle bar (203) having an internal guide (203a) and a movable carriage (206) comprising at least a first module (206a), the handling system (100) comprising a plurality of guiding elements (101) and at least one connector element (102) interposed between the guiding elements (101) and the at least one first module (206a). The guiding elements (101) form a

head body being connected between them by means of at least one pair of pins (103) and at least an elastic element (104) interposed between the pins (103) and that the at least one connector element (102) is connected to the last guiding element (101) of the head body by means of at least a couple of other pins (103) and at least another resilient element (104) interposed between the other pins (103).

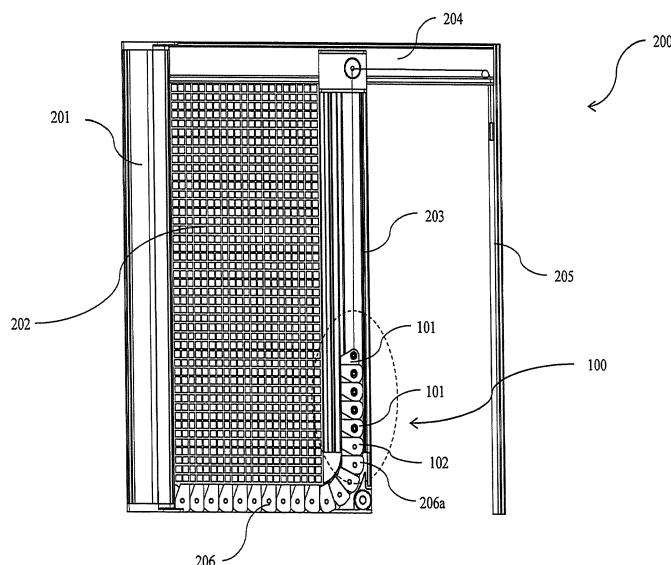


Fig.1

Description

[0001] The present invention relates to a device for handling mobile screen curtains.

[0002] In particular, the present invention relates to a handling system for mobile screen curtains of the type of roll-up or fold away screen, usable even without a lower fixed guide and able to slow the screen rolling-up.

[0003] As it is known, the handling systems used for moving curtains and window screens are generally constituted by a frame coupled to an installation place, a winder assembled on one side of the frame, a movable handle bar and a cloth in order to separate two spaces, fixed at one end to the movable handle bar. By activating the movable handle bar, the user can stretch or roll up the cloth vertically or horizontally, according to the type of installation.

[0004] Nevertheless, a problem of these systems is that the cloth is automatically rolled up in the winder after the handle bar has been activated. In fact, it's not possible to stop it in any intermediate position nor is possible to slow the rolling up movement in order to avoid possible damages to the cloth and to the winder. A solution to the above-mentioned problem is suggested in the Italian patent application BO 2011A000443 published on 27 January 2003, in the name of MV LINE SPA. The patent document describes a handling system for window screen, curtains and sheet layer covering that allows the stable positioning of the handle in any position, by using interposed magnets among the components of a drive mechanism and a handle bar.

[0005] Though, one of the problem of the above mentioned patent application is that each kind of drive mechanism needs a specific geometry of magnets and, moreover, said magnets are easy to unfasten from their housing during the operation.

[0006] Moreover, the use of semi-permanent magnets leads to production cost increase, and often the magnets lose their strength.

[0007] Purpose of the present invention is to provide a handling system for mobile screen curtains, that allows, in an economical way and without using any magnets, to fix and stop the handle bar in any intermediate position avoiding violent automatic roll-up, to be ease to assembly and disassembly, therefore having features such as to overcome the limits of the above described systems.

[0008] According to the present invention, a handling system for mobile screen curtains is provided, as defined in claim 1.

[0009] For a better understanding of the present invention it is now described a preferred embodiment, purely by way of non-limiting example, with reference to the accompanying drawings, in which:

- figure 1 shows a schematic front view of a handling system for mobile screen curtains installed on a screen curtain, according to the invention;
- figure 2 shows a schematic three-dimensional view

of the handling system for mobile screen curtains of figure 1, according to the invention;

- figure 3 shows a perspective top view of the handling system for mobile screen curtains of figure 1 and two detailed zoomed views, according to the invention;
- figures 4a-4b show respectively two perspective top views and a three-dimensional view of guiding elements coupled each other of the handling system for mobile screen curtains, according to the invention;
- figures 5a-5b show respectively two perspective top views and a three-dimensional view of the coupling between the guiding elements and the connector of the handling system for mobile screen curtains, according to the invention;
- figure 6 shows a schematic section view of the handling system for mobile screen curtains in the sliding step inside a handle bar of screen curtain, according to the invention.

[0010] With reference to these figures and, in particular, to figures 1 and 2, a first embodiment of a handling system for mobile screen curtains is shown, according to the invention.

[0011] In particular, the handling system 100 for mobile screen curtains is applied, by way of example, to a screen curtain 200 comprising a lateral winding 201, a cloth 202 horizontally scrolling, having a first end connected to the winding 201 and a second end connected to a handle bar 203, an upper guide 204, a vertical upright 205 placed on the side opposite to the winding 201, and a movable carriage 206.

[0012] More specifically, as better shown in figure 2, the handling system 100 for mobile screen curtains is connected to the movable carriage 206 and comprises a plurality of guiding elements 101, coupled each other so as to form a head body, and one connector element 102 coupled to the last of the guiding elements 101 of the head body and to the first module 206a of the movable carriage 206.

[0013] The whole handling system 100 is configured to be placed inside a guide 203a of the handle bar 203.

[0014] As better shown in figure 3 and in the respective enlarged views, each guiding element 101 of the head body comprises a pair of lateral protrusions 101a each comprising a front portion 101aa provided with a first through hole 101aaa and a rear portion 101ab provided with a second through hole 101aba having a diameter equal to the diameter of the first through hole 101aaa. The lateral protrusions 101a are interconnected each other by means of a central flat body 101b.

[0015] As better shown in figure 4, the front portion 101aa and the rear portion 101ab are shaped in such a way to couple respectively with the front portion 101aa and with a rear portion 101ab of another guiding element 101.

[0016] In particular, the front portion 101aa of a determined guiding element 101 couples to the rear portion 101ab of the next adjacent guiding element 101.

[0017] Furthermore, the connector element 102 of the head body comprises a pair of lateral protrusions 102a each comprising a front portion 102aa provided with a first through hole 102aaa and a rear portion 102ab provided with a second through hole 102aba, and a central flat body 102b configured to connect the lateral protrusions 102a.

[0018] As shown in figure 5, the front portion 102aa of the connector element 102 is shaped so as to be coupled with the rear portion 101ab of the last guiding element 101 of the head body, while the rear portion 102ab of the connector element 102 is shaped so as to engage the front portion of the first module 206a of the movable carriage 206 of the screen curtain 200.

[0019] According to an aspect of the invention, a guiding element 101 and a consecutive guiding element 101 of the head body are connected by means of a couple of pins 103, each inserted between the first through hole 101aaa of each front protrusion 101a of the guiding element 101 and the second through hole 101aba of each rear protrusion 101ab of the next guiding element 101 and by an elastic element 104 inserted between said pins 103, as better shown in figure 4.

[0020] In the same way, as shown in figure 5, the last guiding element 101 of the head body and the connector element 102 are coupled by means of a further couple of pins 103, each inserted between the second through hole 101aba of each rear protrusion 101ab of the last guiding element 101 and the first through hole 102aaa of the front portion 102aa of the protrusion 102a of the connector element 102.

[0021] According to another aspect of the invention, the pins 103 comprise a cylindrical body 103a disposed on a circular base 103b and provided with a head 103c. The cylindrical body 103 is configured to be inserted within the holes 101aaa, 101aba and 102aaa while the head 103c is configured for coming out of them.

[0022] Advantageously according to the invention, the elastic element 104 is configured to maintain the pair of pins 103 in their position, in particular, so that the cylindrical body 103a is always inserted within the holes 101aaa, 101aba and the 102aaa.

[0023] According to an aspect of the invention, the elastic element 104 is configured to maintain the head 103c always in contact with the surface of the guide 203a of the handle bar 203 resulting creeping during handling of the handle bar 203, as shown in figure 6, and so, advantageously according to the invention, slowing the movement of the handle bar 203.

[0024] When in use, assuming the screen curtain is totally stretched and the handle bar is placed in correspondence of the vertical upright 205, when the user moves the handle bar 203 in order to wind back the screen curtain 200, the handling system 100 for mobile screen curtains inserts itself in the handle bar 203 allowing pins 103, by means of heads 103c creeping on the surface of the guide 203a.

[0025] Consequently, as a result of the creeping oc-

curing between heads 103c and the surface of the guide 203a a braking action is produced, so as to resist to the winder elastic force consequently slowing down the motion of the handle bar 203.

[0026] Advantageously according to the invention, the handling system for mobile screen curtains avoids damages occurring on all the screen components due to a violent automatic roll-up.

[0027] According to an aspect of the invention, a second embodiment of the handling system 200 for mobile screen curtains, which is not shown in any of the figures, comprises a plurality of guiding elements having a shape similar to the shape of guiding elements 101 described in the first embodiment, coupled respectively to each other by means of pins in order to build a single body and configured in such a way to insert itself in a guide rail of the handle bar.

[0028] Therefore, the handling system for mobile screen curtains, according to the invention allows to obtain much more stability in the carriage sliding.

[0029] Another advantage of the handling system for mobile screen curtains, according to the invention, consists in the fact that the handle bar can be stopped in any intermediate opening position.

[0030] Another advantage of the handling system for mobile screen curtains according to the invention is that it is easy to assembly/disassembly the guiding elements and connector element.

[0031] Another advantage of the handling system for mobile screen curtains according to the invention is that it's easy to be repaired.

[0032] Finally, the handling system for mobile screen curtains according to the invention is low cost.

[0033] Finally, it is clear that the handling system for mobile screen curtains here described and illustrated may be subject to modifications and variations without thereby departing from the scope of the present invention, as defined in appended claims.

Claims

1. Handling system (100) for mobile screen curtains (200) provided with a handle bar (203) having an internal guide (203a) and a movable carriage (206) comprising at least a first module (206a), the handling system (100) comprising a plurality of guiding elements (101) and at least one connector element (102) interposed between the guiding elements (101) and the at least one first module (206a), **characterized in that** the guiding elements (101) form a head body being connected between them by means of at least one pair of pins (103) and at least an elastic element (104) interposed between the pins (103) and that the at least one connector element (102) is connected to the last guiding element (101) of the head body by means of at least a couple of other pins (103) and at least another resil-

ient element (104) interposed between the other pins (103).

2. Handling system (100) for mobile screen curtains (200) according to claim 1, **characterized in that** the pins (103) comprise a cylindrical body (103a) disposed on a circular base (103b) and a head (103c). 5
3. Handling system (100) for mobile screen curtains (200) according to claim 1, **characterized in that** each of the guiding elements (101) comprises a pair of lateral protrusions (101a) interconnected by a central flat body (101b) and each comprising a front portion (101aa) provided with a first through hole (101aaa) and a rear portion (101ab) provided with a second through hole (101aba). 10 15
4. Handling system (100) for mobile screen curtains (200) according to claim 3, **characterized in that** the front portion (101aa) and the rear portion (101ab) of a given guiding element (101) are shaped in such a way to couple respectively with the rear portion (101ab) and with the front portion (101aa) of another guiding element (101) adjacent and consecutive to the given guide element (101). 20 25
5. Handling system (100) for mobile screen curtains (200) according to claim 1, **characterized in that** the at least one connector element (102) comprises a pair of lateral protrusions (102a) interconnected by a central flat body (102b) and each comprising a front portion (102aa) provided with a first through hole (102aaa) and a rear portion (102ab) provided with a second through hole (102aba) . 30 35
6. Handling system (100) for mobile screen curtains (200) according to claims 4 and 5, **characterized in that** the head body comprises a last guiding element (101) having a rear portion (101ab) able to be coupled to the front portion (102aa) of the connector element (102). 40
7. Handling system (100) for mobile screen curtains (200) according to claim 5, **characterized in that** the rear portion (102ab) of the connector element (102) is shaped in such a way as to engage the front portion of the first module (206a) of the movable carriage (206) of the curtain (200) . 45
8. Handling system (100) for mobile screen curtains (200) according to claim 3, **characterized in that** the pair of pins (103) is configured to be inserted between the first through hole (101aaa) of each front protrusion (101a) of the guiding element (101) and the second through hole (101aba) of each rear protrusion (101ab) of the next guiding element (101). 50 55
9. Handling system (100) for mobile screen curtains

(200) according to claims 1-3 and 5, **characterized in that** the elastic element (104) is configured to maintain the pair of pins (103) in their position so that the cylindrical body (103a) of each pin (103) is always inserted within the holes (101aaa), the holes (101aba) and the holes (102aaa) and that the head (103c) is always in contact with the surface of the guide (203a) of the handle bar (203), resulting creeping during handling of the handle bar (203) and slowing the movement of the handle bar (203).

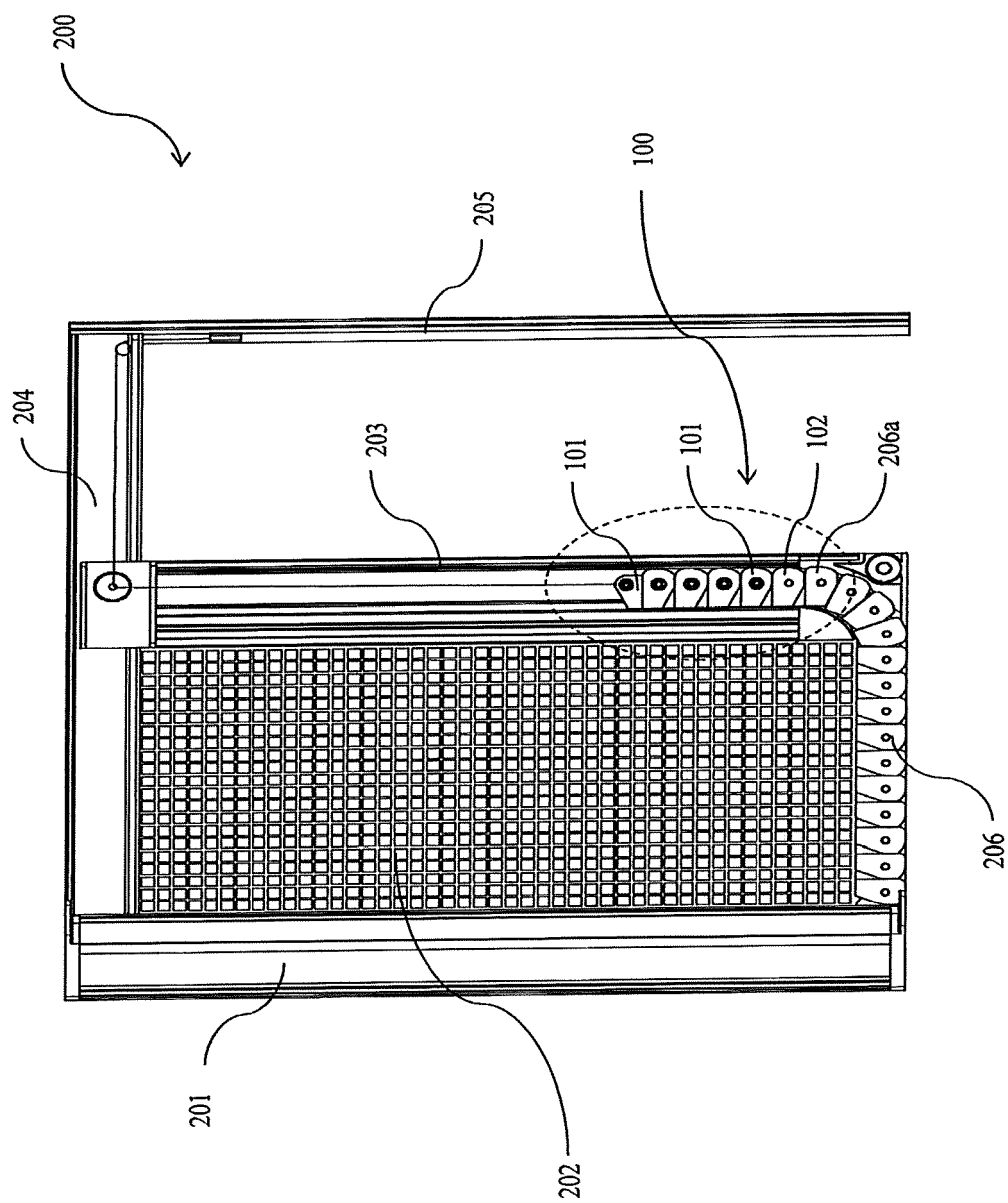


Fig. 1

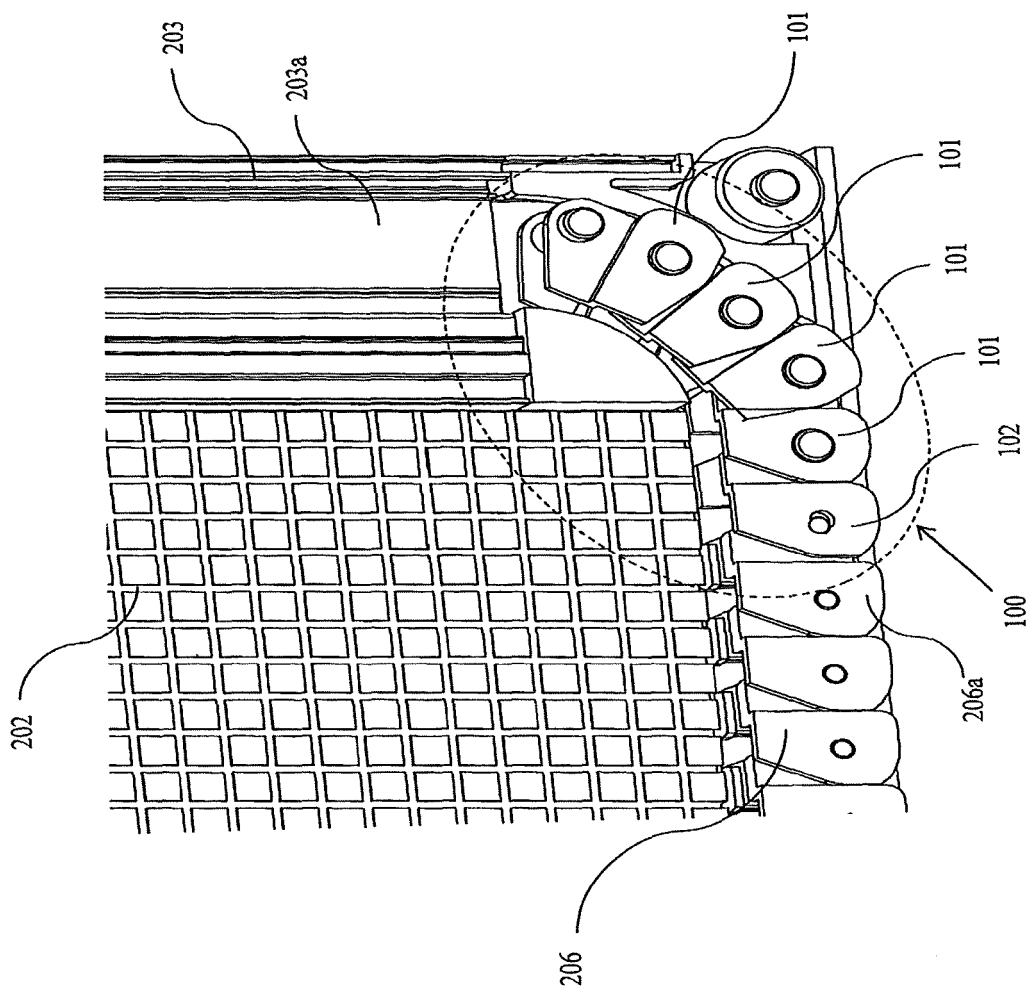


Fig.2

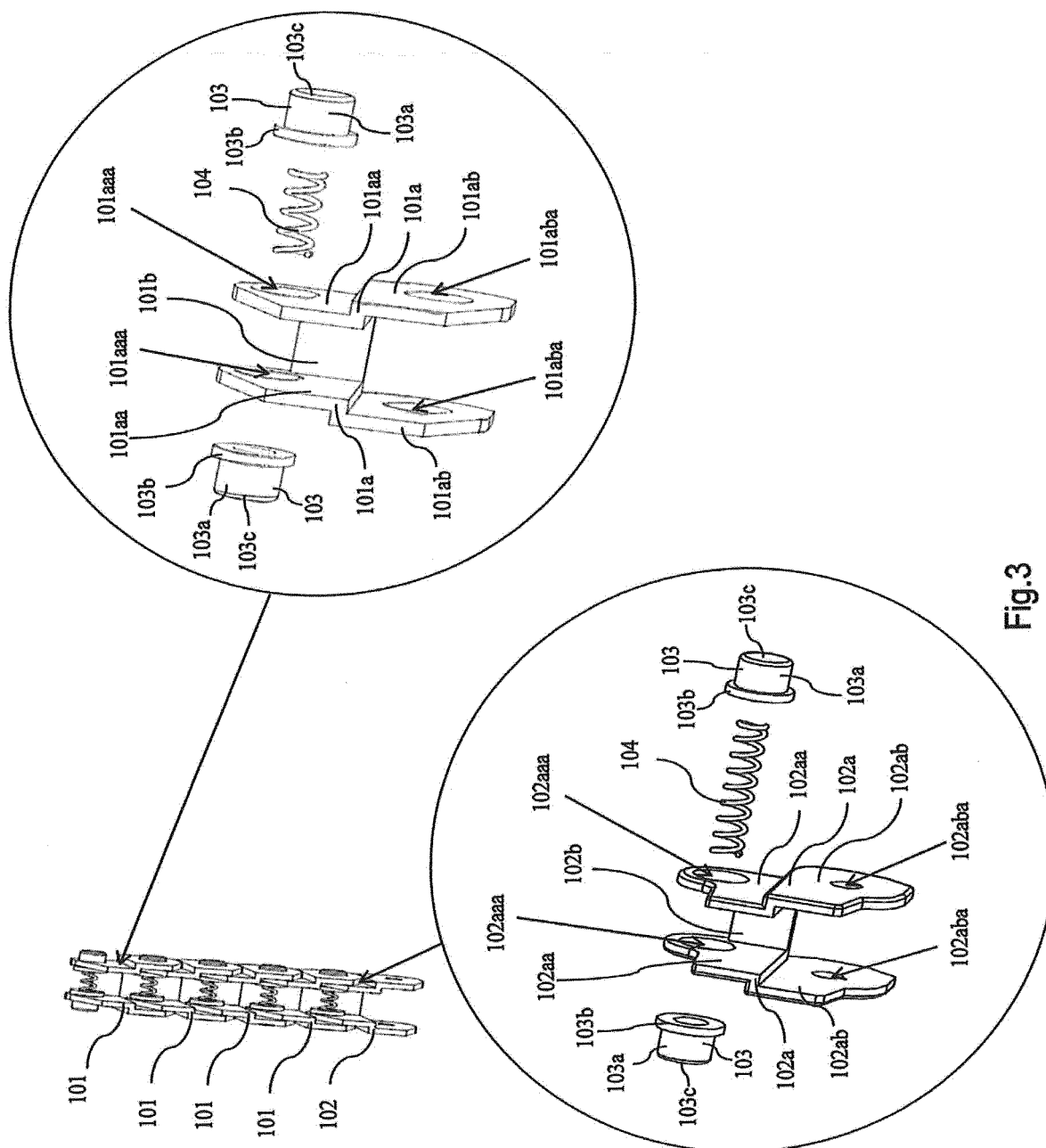


Fig. 3

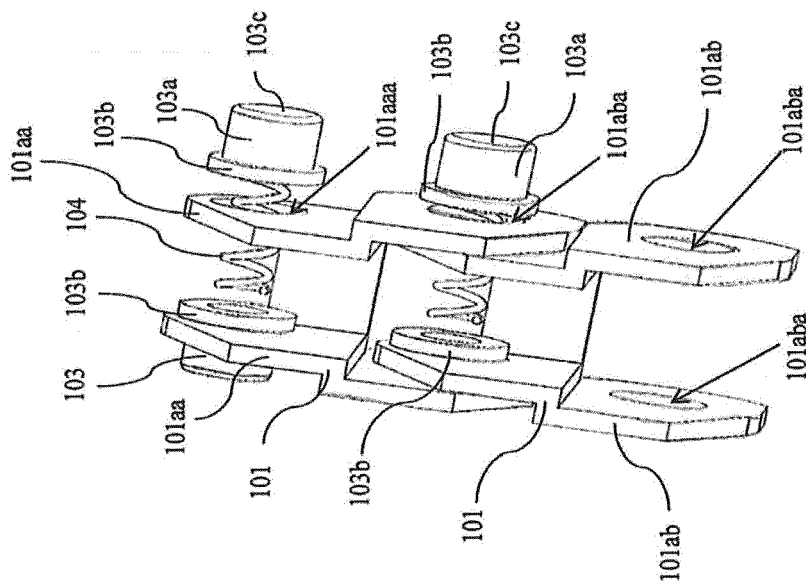


Fig.4b

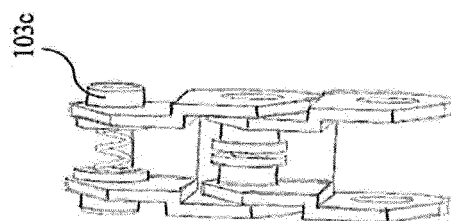


Fig.4

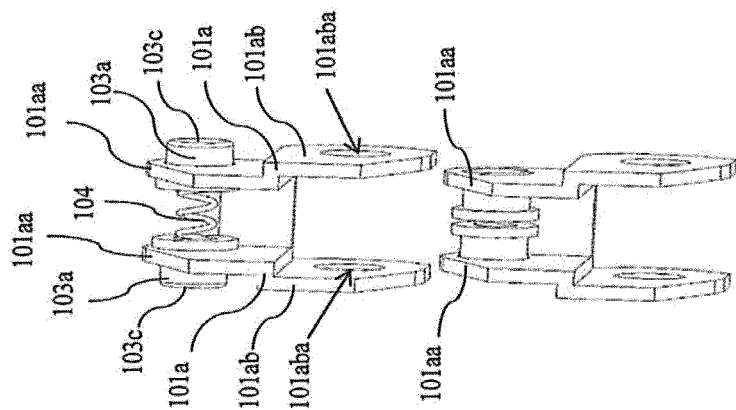
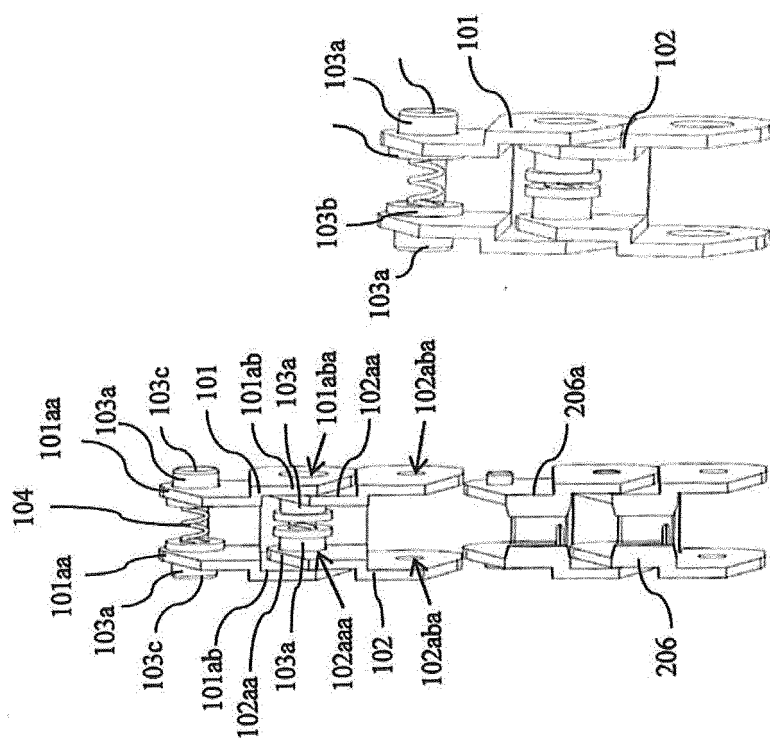
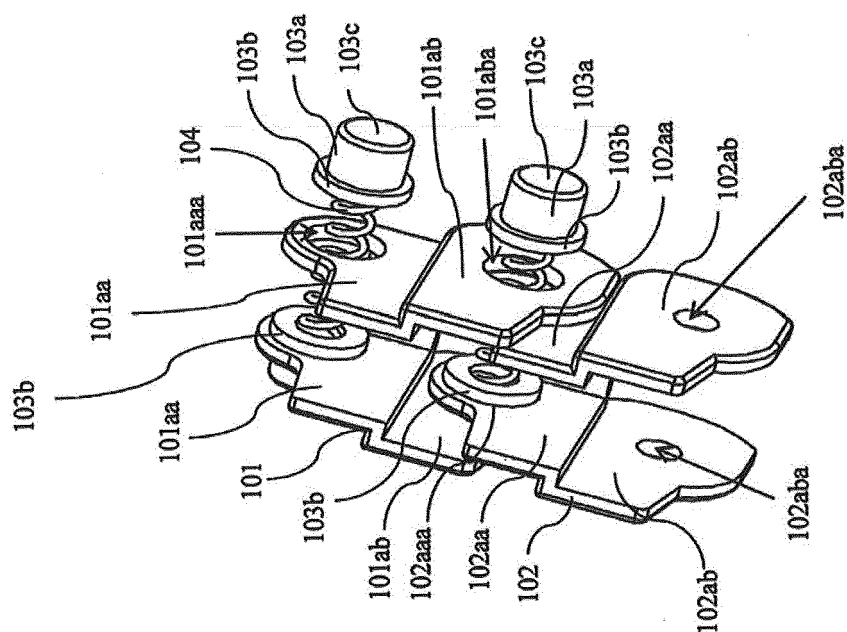


Fig.4a



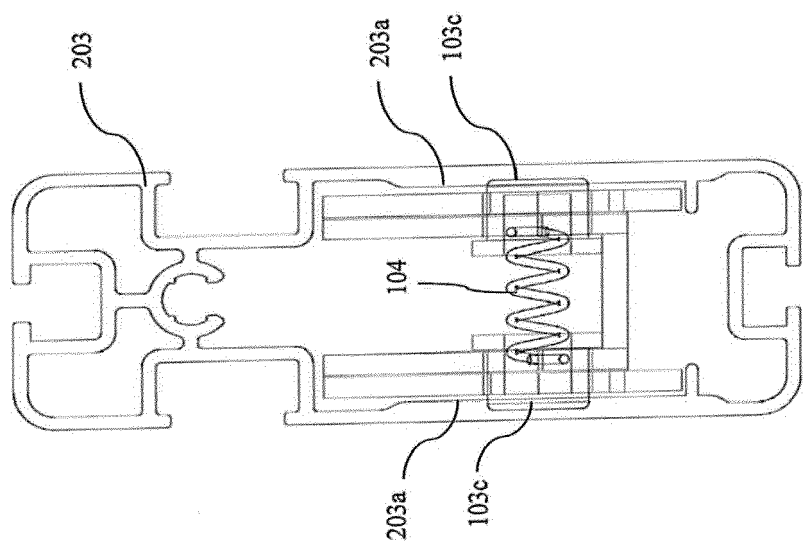


Fig.6



EUROPEAN SEARCH REPORT

Application Number
EP 18 15 7543

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DOCUMENTS CONSIDERED TO BE RELEVANT			
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A	WO 2013/015689 A1 (UNILUX IP B V [NL]; VAN LOOSBROEK PATRICK FRANCISCUS JOHANNES [NL]) 31 January 2013 (2013-01-31) * page 11, line 25 - page 13, line 14; figures 4-6 *	1-9	INV. E06B9/54
			TECHNICAL FIELDS SEARCHED (IPC)
			E06B
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 13 June 2018	Examiner Kofoed, Peter
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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