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(71) Applicant: **MS Metalsystem, S.L.**
**17162 Bescano (Girona) (ES)**

(72) Inventor: **BARRABES RIBAS, JOSE LUIS**
**17160 ANGLES (GIRONA) (ES)**

(74) Representative: **Durán-Corretjer, S.L.P.**
**Còrsega, 329**
**(Paseo de Gracia/Diagonal)**
**08037 Barcelona (ES)**

## (54) RAPID HORIZONTALLY OPENING ROLLABLE DOOR PROVIDED WITH LINEAR GUIDES

(57) Rapid horizontally opening rollable door provided with linear guides (2a, 2b) comprising a fixed guide crosspiece (1) arranged horizontally, carrying the linear guides (2a, 2b), and a suspended support for a door sheet element capable of sliding along the said linear guides (2a, 2b), wherein said suspended support carries the door sheet element with the intermediary of a swivel joint (9, 11) and adjustable stop device, said device comprising a threaded pin and nut (13) for adjusting the vertical position (direction +/-Z) and an adjustable stop (14) for adjusting the tilt of the said rollable horizontal door element (direction +/-X).

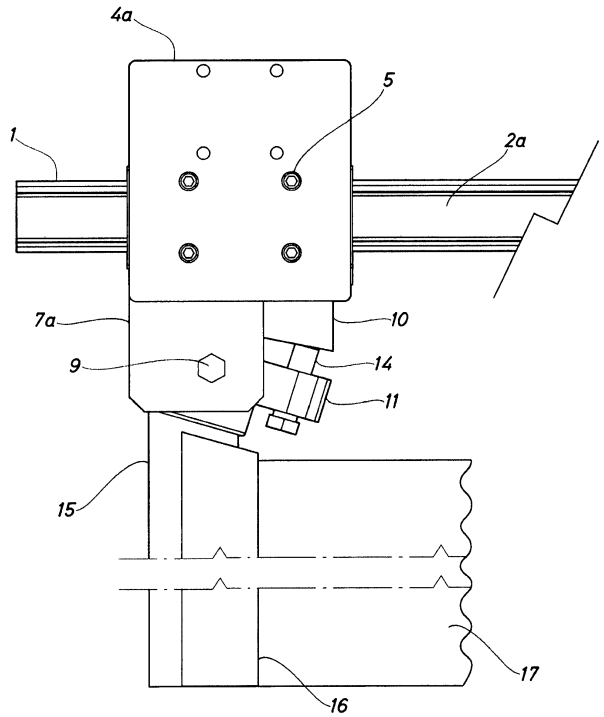



Fig.2

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## Description

**[0001]** The present invention aims to describe a rapid horizontally opening rollable door provided with linear guides, along which the sheet element or elements that form the door move.

**[0002]** In the current state of the art, many types of door are known for the openings of interior areas of industrial plants, separating different compartments at a same level, in such a way that during the handling of transport means, for example forklift trucks or similar, the said doors providing access from certain compartments to others must be opened and closed as rapidly as possible in order not to impede the circulation of the said transport means.

**[0003]** The door systems currently known in practice are mainly those involving doors that rotate about vertical axes, in which the door leaf or leaves rotates or rotate about vertical axes positioned in the sides of the opening, leaving the opening clear, and other systems involving doors that move vertically, in which there is essentially an upper rolling drum, above the lintel of the opening to be closed, and a closing element which generally consists of a canvas or similar that is suitable for closing the opening, being guided by its lateral edges into fixed lateral guides, and that is capable of being moved upwards and rolling up in the drum provided for this purpose, leaving the opening clear, and that can be moved downwards when closing. Laterally sliding types of doors are also known.

**[0004]** Although the said types of door satisfy the basic functions for which they are intended, namely the opening and closing of the openings to be controlled, they present a series of disadvantages originating essentially in the relative slowness of their handling, particularly in sliding and swinging doors, since the series of movements necessary in order to leave the opening clear requires a considerable length of time, bearing in mind the reduced handling times desired for transport means such as trolleys and the like. Rapid vertically opening doors, for their part, do not allow the passage of fixed rails for the internal transport of goods.

**[0005]** For the reasons described above, one aim of the present invention is to describe a rapid horizontally opening rollable door that can be opened or closed far more rapidly than those of the currently known systems, and that allows the passage of rails for the transport of goods.

**[0006]** The present invention provides for a rapid horizontally opening rollable door provided with linear guides comprising a fixed guide crosspiece arranged horizontally, carrying the linear guides, and a suspended support for a door sheet element capable of sliding along the said linear guides, characterised in that said suspended support carries the door sheet element with the intermediary of a swivel joint and adjustable stop device, said device comprising a threaded pin and nut for adjusting the vertical position (direction +/-Z) and an adjustable stop for adjusting the tilt of the said rollable horizontal door element (direction +/-X). The tilt in the +/-X direction corresponds to the tilt of the door element in its movement plane.

**[0007]** The door may present an assembly comprising one or more leaves, preferably formed by canvases or the like, which rolls horizontally, being capable of incorporating the door in one or two leaves, and having firstly an upper crosspiece in the form of a flat profile situated above the lintel of the opening to be controlled, the said crosspiece being associated with a number of linear guides upon which can slide an equal number of linear skids that form part of a suspended support carrying the door sheet, with the intermediary of said swivel joint and adjustable stop device which allow adjustment of the position of the door sheet in terms of the vertical disposition and also in terms of the lateral tilting (directions +/-Z and +/X).

**[0008]** Optionally, the tilt stop is made up of a threaded position adjustment screw whose end butts up against a fixed limit stop of the suspended support of the door element, allowing the tilted position of the same.

**[0009]** In an embodiment of the invention, the guide crosspiece is made up of a flattened hollow rectangular profile to each of whose vertical sides are fixed linear guides for corresponding sliding skids fixed to the suspended support carrying the sheet element of the door.

**[0010]** Preferably, the linear guides fixed to the horizontal crosspiece have upper and lower grooves for the skids of the suspended support of the door element.

**[0011]** Optionally, the suspended support carrying the door element is provided with skids inserted on the sliding guides and capable of moving along the same.

**[0012]** Preferably, the suspended support of the door element is provided with plates fixed to the sliding skids and the said plates are associated with a lower bridge carrying a support arm of the swivel joint and adjustable stop device for adjusting the suspended door element. The sheet element of the door is suspended from the lower bridge with the intermediary of the swivel joint and adjustable stop device for adjustment in terms of tilt and rise/fall.

**[0013]** In an embodiment of the invention, the sheet door element is fixed via the intermediary of an adaptor profile to a vertical arm associated in a fixed manner with the carrying head of the adjusting swivel joint, said adaptor profile being optionally an aluminium profile.

**[0014]** Preferably, the rollable sheet door elements have recesses in their upper portion in order to allow the passage of transporter rails. In that way, The new door also allows the creation of recesses in the upper portion, preferably affecting both elements of the door, in order to allow the passage of transport rails or similar elements.

**[0015]** The arrangement envisaged in the invention allows rapid operation of the door, opening and closing the opening to be controlled. The extremely rapid handling of the door is made possible by the sliding of the suspended support along the system of fixed guides and

skids envisaged by the invention.

**[0016]** For a clearer understanding, some drawings of a preferred embodiment of a rapid horizontally opening door according to the present invention are attached by way of non-limitative explanatory example.

Figure 1 shows a transverse view of the upper crosspiece carrying the fixed guides and the assembly of the suspended support carrying the door.

Figure 2 shows a front elevation view of the same elements represented in Figure 1.

Figure 3 shows a partial perspective view of the main elements that comprise the upper crosspiece, and the fixed guides and skids of the suspended support and the carrier arm of the door element, which are not shown.

Figure 4 shows a perspective view corresponding to the elements of Figure 3 in their disassembled state.

**[0017]** As shown in the drawings, the door as a whole is made up of a horizontal upper crosspiece -1- which may have the structure of a flattened hollow rectangular profile, with two lateral surfaces to which are fixed the linear guides -2a- and -2b- by means of securing screws -6-. On the said guides -2a- and -2b- slides a suspended support carrying the rolling sheet element of the door -17-, Figure 2, the said support having a general suspended structure with respect to the guides -2a- and -2b- and a structure that may be variable and which, in the concrete case shown, has the skids -3a- and -3b- connected to the guides -2a- and -2b- respectively and capable of sliding along the same, the said suspended support comprising the lateral plates -4a- and -4b- fixed by means of screws -5- to the skids -3a- and -3b- and joined beneath by a bridge -8- from which is suspended the door in the form of a rollable sheet element, for example made from canvas or other material, associated with a profile -16-, particularly an aluminium profile, connected to a vertical arm -15- which in turn is connected to the bridge -8- via the intermediary of a swivel joint and an adjustable stop, which will be explained below and which allow upward, downward and tilting movements for adjusting the position of the sheet element of the door. As can be seen, the sliding guides fixed to the horizontal crosspiece have upper and lower grooves for the skids of the suspended support of the door element, and the suspended support carrying the door element is provided with skids inserted in the sliding guides and capable of moving along the same.

**[0018]** The said swivel-joint suspension unit as a whole is made up of the lateral anchoring arms -7a- and -7b- fixed to the bridge -8- and carriers by means of screws -9- of the head of the swivel joint -11- which is locked by means of a threaded pin and the upper nut -13- and which at its end is provided with the adjusting screw -14- which butts up against a fixed limit stop -10-. This arrangement makes it possible to adjust the position of the door both vertically upwards or downwards and in terms of tilt (directions +/-Z and +/-X) in order to obtain an appropriate position of the door.

**[0019]** The construction of the door allows the creation of recesses in its upper portion in order to allow the passage of transporter rails or the like. In a concrete embodiment, the arm -15- could have an extension on the closing edge, opposite the sheet element -17-, which will leave an upper portion open for the passage of one or more overhead rails.

**[0020]** As will be understood, the makeup of the rapid horizontally opening rollable door forming the subject of the present invention provides an appropriate construction for a very rapid operation, improving the handling capacity of the internal transport means of a factory or similar, while simultaneously allowing the provision of recesses for the passage of transporter rails.

**[0021]** It will be understood that although a preferred example of embodiment of the door according to the invention has been depicted, many variants could be introduced into the practical implementation of the said door without departing from the scope of the present invention, as set out in the following claims.

## Claims

1. Rapid horizontally opening rollable door provided with linear guides comprising a fixed guide crosspiece arranged horizontally, carrying the linear guides, and a suspended support for a door sheet element capable of sliding along the said linear guides, **characterised in that** said suspended support carries the door sheet element with the intermediary of a swivel joint and adjustable stop device, said device comprising a threaded pin and nut for adjusting the vertical position (direction +/-Z) and an adjustable stop for adjusting the tilt of the said rollable horizontal door element (direction +/-X).

2. Rapid horizontally opening rollable door provided with linear guides, according to claim 1, **characterised in that** the tilt stop is made up of a threaded position adjustment screw whose end butts up against a fixed limit stop of the suspended support of the door element, allowing the tilted position of the same.

3. Rapid horizontally opening rollable door provided with linear guides, according to any of the preceding claims, **characterised in that** the guide crosspiece is made up of a flattened hollow rectangular profile to each of whose vertical sides are fixed linear guides for corresponding sliding skids fixed to the suspended support carrying the sheet element of the door.

4. Rapid horizontally opening rollable door provided with linear guides, according to any of the preceding claims, **characterised in that** the linear guides fixed to the horizontal crosspiece have upper and lower grooves for the skids of the suspended support of the door element.

5. Rapid horizontally opening rollable door provided with linear guides, according to any of the preceding claims, **characterised in that** the suspended support carrying the door element is provided with skids inserted on the sliding guides and capable of moving along the same.

6. Rapid horizontally opening rollable door provided with linear guides, according to any of the preceding claims, **characterised in that** the suspended support of the door element is provided with plates fixed to the sliding skids and the said plates are associated with a lower bridge carrying a support arm of the swivel joint and adjustable stop device for adjusting the suspended door element.

7. Rapid horizontally opening rollable door provided with linear guides, according to any of the preceding claims, **characterised in that** the sheet door element is fixed via the intermediary of an adaptor profile to a vertical arm associated in a fixed manner with the carrying head of the adjusting swivel joint.

8. Rapid horizontally opening rollable door provided with linear guides, according to claim 7, **characterised in that** the adaptor profile is an aluminium profile.

9. Rapid horizontally opening rollable door provided with linear guides, according to any of the preceding claims, **characterised in that** the rollable sheet door elements have recesses in their upper portion in order to allow the passage of transporter rails.

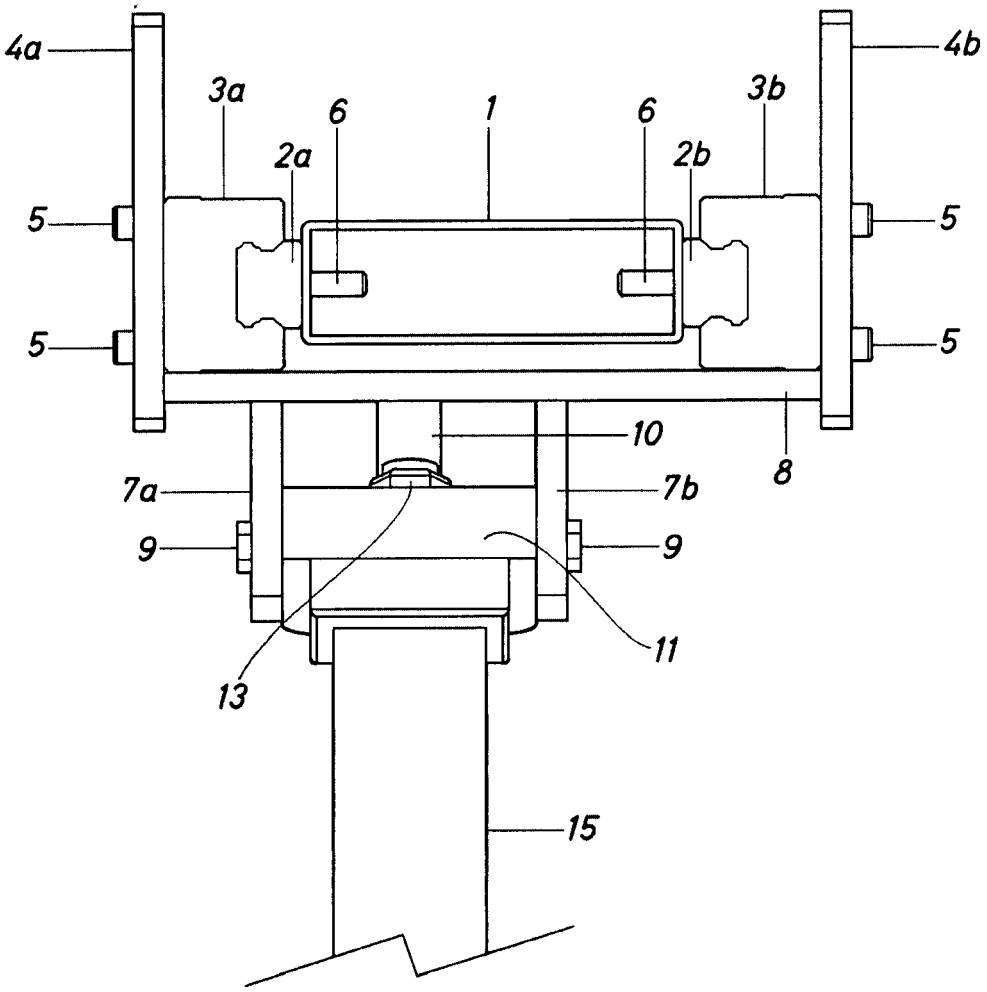



Fig.1

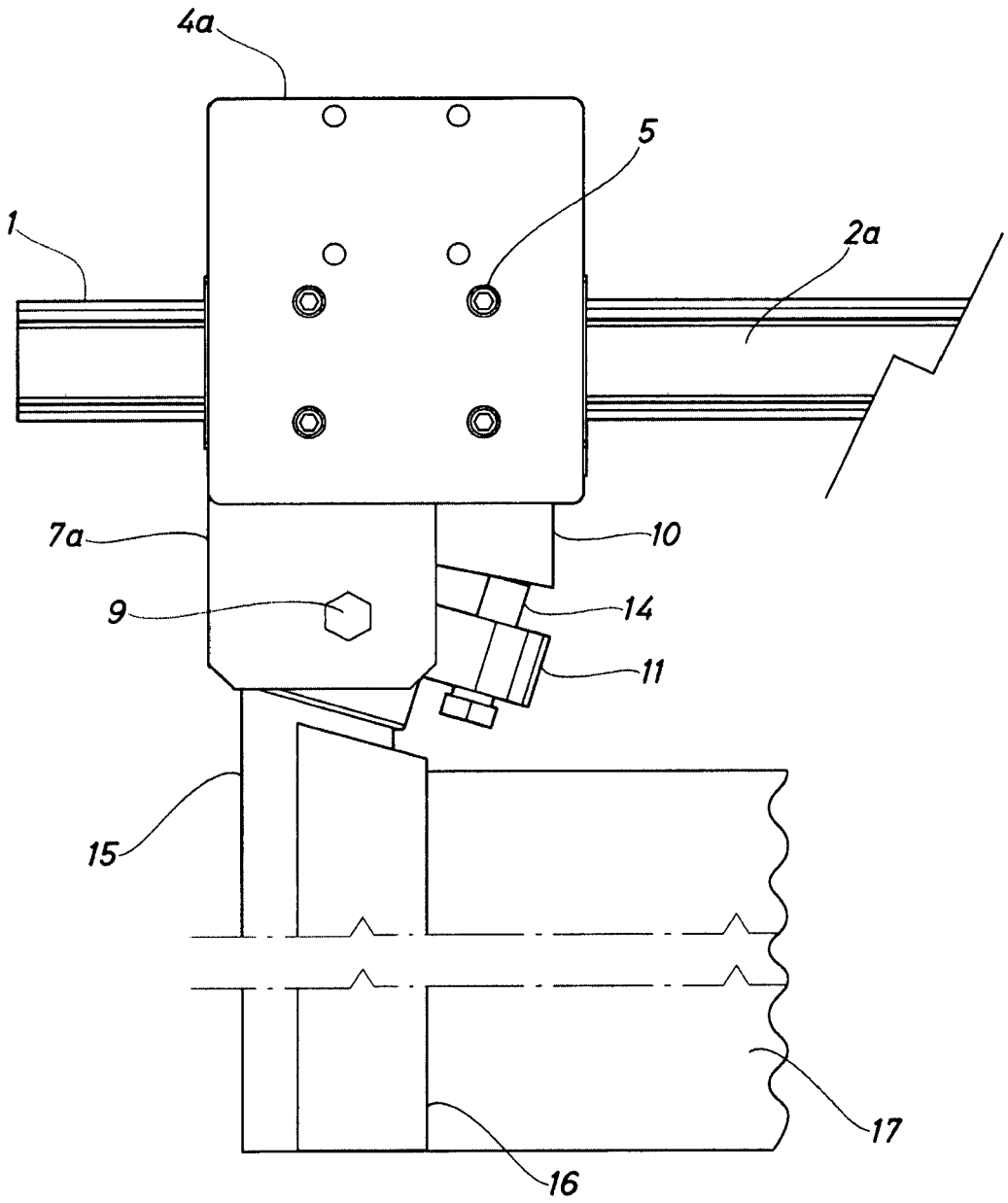



Fig.2

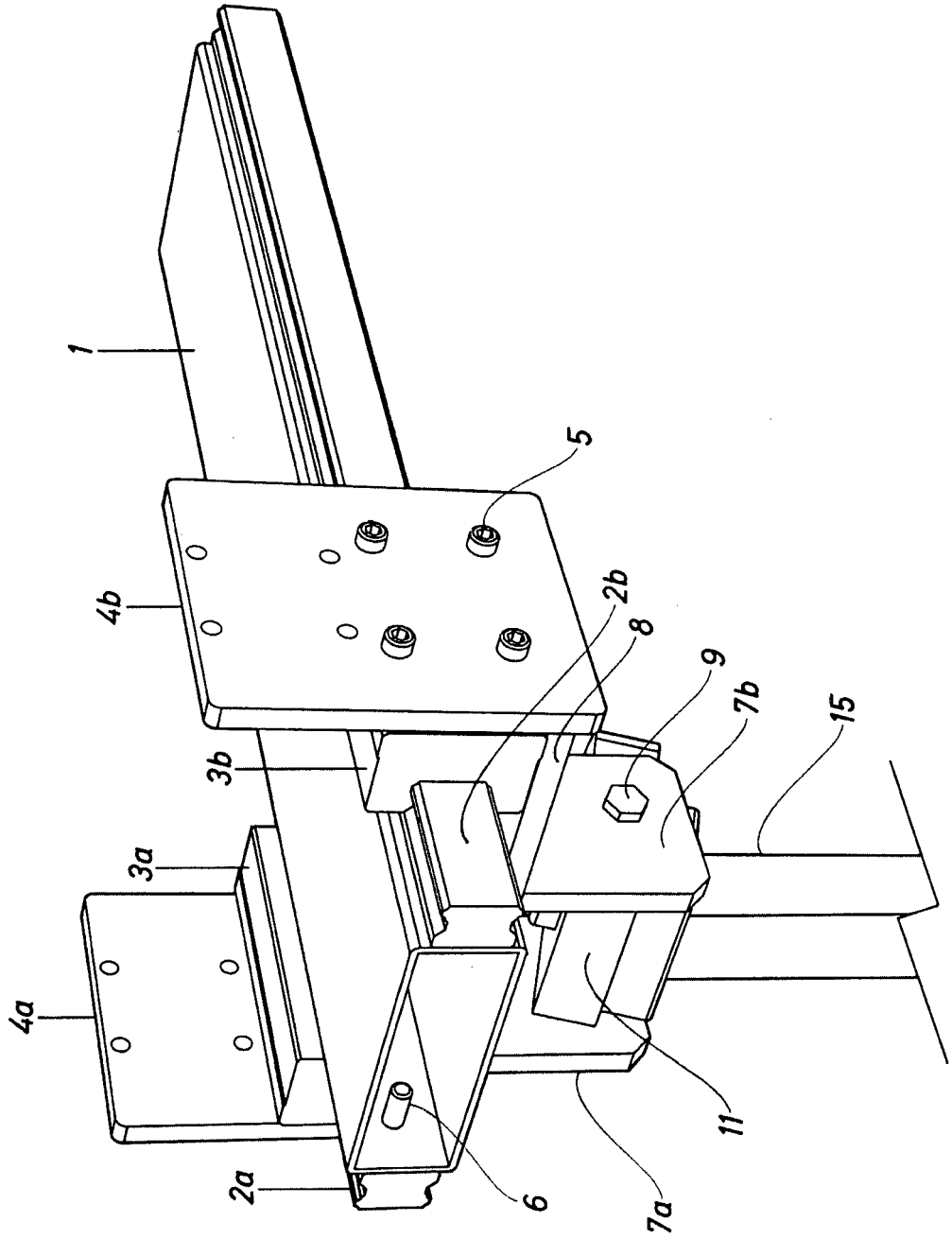



Fig.3

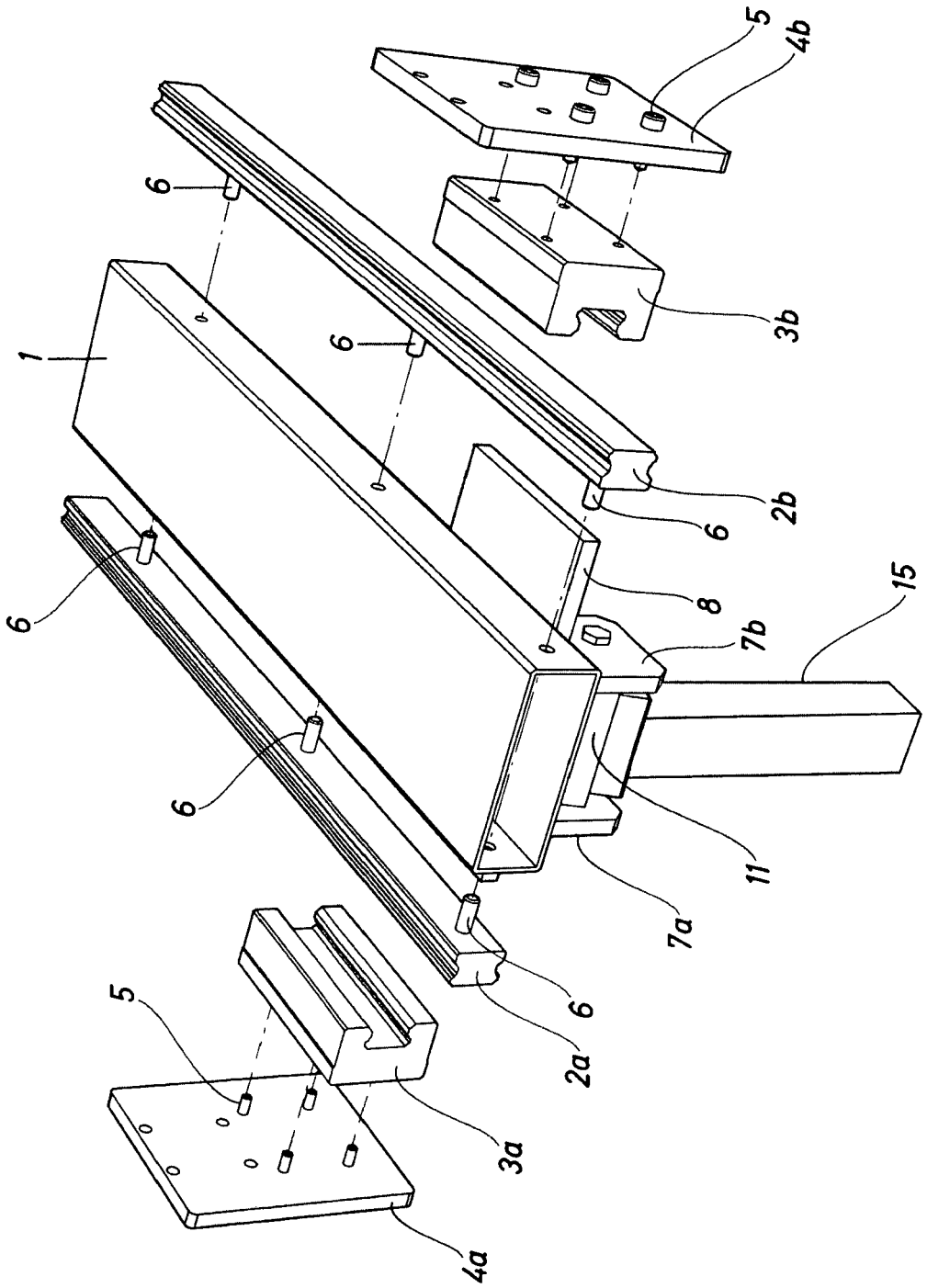



Fig.4

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# EUROPEAN SEARCH REPORT

Application Number
EP 15 38 2512

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| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (IPC) |
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The present search report has been drawn up for all claims

| Place of search | Date of completion of the search | Examiner |
|---|---|---|
| The Hague | 11 February 2016 | Mund, André |

CATEGORY OF CITED DOCUMENTS

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