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(71) Applicant: **Industrias Auxiliares, S.A.**
20808 Getaria (ES)

(72) Inventor: **RIOJA CALVO, Miguel Angel**
20800 Zarautz (Guipuzcoa) (ES)

(74) Representative: **Boden, Keith McMurray**
Fry Heath & Spence LLP
The Gables
17 Massetts Road
Horley
Surrey RH6 7DQ (GB)

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(54) **SECURING ANTI-DERAILMENT BY SQUARING AN UPPER CARRIAGE OF AN EXTERNAL SLIDING DOOR**

(57) Means of securing anti-derailment for an external sliding door, in which the upper carriage of an external sliding door (1) incorporates an upper groove (2) with a toothed rack (3) on at least one of the sides thereof capable of receiving a guided sliding part (4), said guided sliding part (4) being provided with linkage lugs (5) and an L-shaped security projection (6) at the end thereof and a circular cavity (7) in the lower portion thereof that interferes with the toothed rack (3); the circular cavity (7) is of a suitable size to receive the point of a screwdriver with notches coinciding with the toothed rack (3) and capable of positioning the L-shaped security projection (6) beneath a profiled projection (12) of the upper rail profile (11), the linkage lugs (5) being situated in the operating position with the automatic door closure (10).

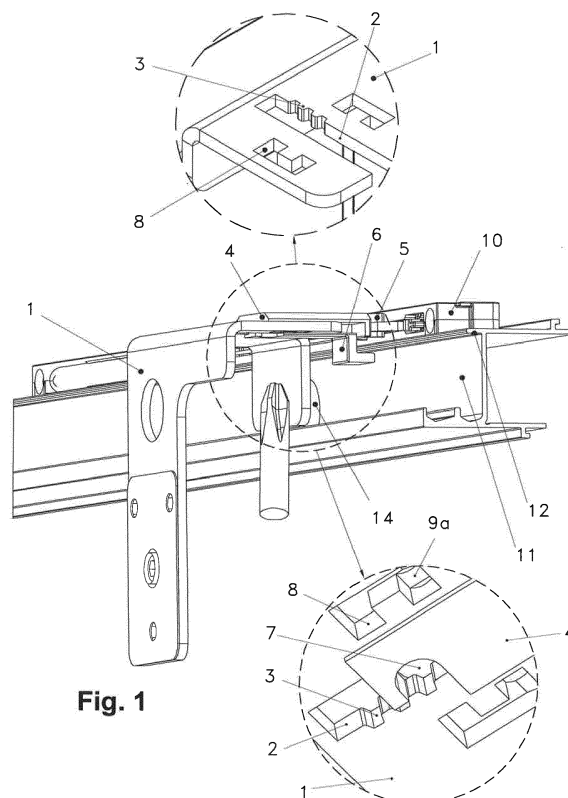


Fig. 1

Description

FIELD OF THE INVENTION

[0001] This invention relates to means of securing anti-derailment for an external sliding door, in particular a means of securing anti-derailment installed at right angles to the upper carriage that holds the external sliding door.

PRIOR ART

[0002] At present, with reference to the prior art, it is conventional and known in furnishing units consisting of sliding doors for means of securing anti-derailment to be used for external sliding doors.

[0003] Means of securing anti-derailment for external sliding doors available on the market have some drawbacks. Firstly, a large number of the systems consist of various elements, many of them of small size, which may lead to the loss of said elements and result in more complex systems. Furthermore, access for working on said elements can be very awkward as the adjustment components are contained in the upper portion, which is not very accessible, given that the safety device is in the upper carriage of the external sliding door.

DISCLOSURE OF THE INVENTION AND ADVANTAGES

[0004] In this state of affairs, the present invention relates to a means of securing anti-derailment for an external sliding door, of the type installed at right angles to the upper carriage which holds the external sliding door, in which the upper carriage of an external sliding door incorporates at right angles thereto an upper groove with a toothed rack on at least one of the sides thereof, said upper groove being of a suitable size to receive a guided sliding part housed in the upper groove, said guided sliding part being provided with lugs for linking with the automatic door closure and an L-shaped security projection at the end thereof and a circular cavity in the lower portion thereof that interferes with the toothed rack of the upper groove; the circular cavity is of a suitable size to receive the point of a screwdriver with notches coinciding with the toothed rack and capable when rotated of positioning the L-shaped security projection beneath a profiled projection of the upper rail profile, the linkage lugs being simultaneously situated in the operating position with the automatic door closure.

[0005] With the aid of this configuration, a simple system is obtained in a single means of securing anti-derailment element for external sliding doors, through an L-shaped security projection which remains beneath a profiled projection which emerges from the upper rail profile and which, if the external sliding door falls outwards, would impact on the lower face of the upper rail profile, preventing it from derailing. Moreover, the position of the

guided sliding part can be easily adjusted using a Phillips screwdriver until the linkage lugs that emerge from the end thereof coincide and connect with an automatic door closure for actuation thereof.

[0006] Another characteristic of the invention is that the guided sliding part incorporates at least one slide limit stop which can be linked with the guide channel of the upper carriage of the external sliding door.

[0007] With the aid of this configuration, the guided sliding part can be operated without said part being able to leave its position at right angles to the upper carriage of the external sliding door, since the slide limit stop is housed in the guide channel and limits the horizontal sliding thereof. Furthermore, a positioning projection is located close to the slide limit stop to define the basic positions of the device.

DRAWINGS AND REFERENCES

[0008] For a better understanding of the nature of the invention, the accompanying drawings show an industrial embodiment which is purely illustrative and non-limiting in nature.

Fig. 1 is an isometric view of the upper carriage of an external sliding door (1) which incorporates the guided sliding part (4), on the upper rail profile (11), with enlarged details of the upper carriage of the external sliding door (1) seen from below and above.

Fig. 2 is an exploded isometric view of the upper carriage of an external sliding door (1) and of the guided sliding part (4).

Fig. 3 is an isometric view of the upper carriage of an external sliding door (1) which incorporates the guided sliding part (4) in which the lower portion of said upper carriage of an external sliding door (1) can be seen, with a detail of the slide limit stops (9).

Fig. 4a and 4b are respectively an isometric view of the upper carriage of an external sliding door (1) from below with the guided sliding part (4) being operated by a screwdriver and a side view of the upper carriage of an external sliding door (1) on the upper rail profile (11).

Fig. 5 is an isometric view of the guided sliding part (4).

Fig. 6a and 6b are both side views which show how the guided sliding part (4) is actuated once fitted on the upper carriage of an external sliding door (1).

Fig. 7a and 7b are views in elevation which show the movement performed by the guided sliding part (4) when actuated.

1. Upper carriage of an external sliding door.
2. Upper groove.
3. Toothed rack.
4. Guided sliding part.
5. Linkage lugs.
6. L-shaped security projection.
7. Circular cavity.
8. Guide channel.
9. Slide limit stop.
- 9a. Positioning projection
10. Automatic door closure.
11. Upper rail profile.
12. Profile projection.
13. External sliding door.
14. Wheel.

DESCRIPTION OF A PREFERRED EMBODIMENT

[0009] A preferred embodiment of the subject matter of the invention is shown in the accompanying drawings referring to the drawings and references listed above, relating to a means of securing anti-derailment for an external sliding door, of the type installed at right angles to the upper carriage which holds the external sliding door (1) incorporates at right angles thereto an upper groove (2) with a toothed rack (3) on at least one of the sides thereof, said upper groove (2) being of a suitable size to receive a guided sliding part (4) housed in the upper groove (2), said guided sliding part (4) being provided with lugs (5) for linking with the automatic door closure (10) and an L-shaped safety projection (6) at the end thereof and a circular cavity (7) in the lower portion thereof that interferes with the toothed rack (3) of the upper groove (2); the circular cavity (7) is of a suitable size to receive the point of a screwdriver with notches coinciding with the toothed rack (3) and capable when rotated of positioning the L-shaped safety projection (6) beneath a profiled projection (12) of the upper rail profile (11), the linkage lugs (5) being simultaneously situated in the operating position with the automatic door closure (10).

[0010] In Fig. 1, the position that each of the elements forming part of or related to the means of securing anti-derailment can be seen, in particular, the upper carriage of an external sliding door (1), the sliding part (4), the upper rail profile (11) and the automatic door closure (10).

[0011] As can be seen in Fig. 2 and 3, the guided sliding part (4) is inserted in the upper groove (2), the circular cavity (7) being visible inside the upper carriage of an external sliding door through which the point of a screwdriver is inserted which engages with the toothed rack (3) located in the contour of the upper groove (2) in order to move the guided sliding part (4) horizontally.

[0012] Fig. 6a and 6b show the movement performed by the guided sliding part (4), which moves horizontally on being actuated in the circular cavity (7) thereof with a screwdriver, the linkage lugs (5) being in position to con-

nect with the automatic door closure (10) and the L-shaped safety projection just beneath the profiled projection (12) which emerges from the upper rail profile (11). Said L-shaped safety projection (6) is what prevents a possible derailment of the external sliding door (13) in case of derailment, since should said door fall outwards, it would be held in the profiled projection (12) which emerges from the lower portion of the upper rail profile (11).

[0013] To ensure that when actuated in the circular cavity (7) the guided sliding part (4) moves correctly and cannot leave its position, said guided sliding part (4) is provided with slide limit stops (9) which are housed in the guide channels (8) incorporated in the upper carriage of an external sliding door (1), so that on reaching the limit positions, said slide limit stops (9) prevent the guided sliding part (4) from moving forward. Moreover, there is a positioning projection (9a) close to the slide limit stop (9) which is also housed in the guide channel (8) and helps define the basic positions that the guided sliding part (4) will adopt.

[0014] Variations in the materials, form size and arrangement of the component elements, which are described in a non-limiting manner, do not change the basic nature of this patent.

Claims

1. Means of securing anti-derailment for an external sliding door, of the type installed at right angles to the upper carriage which holds the external sliding door, **characterised in that** the upper carriage of an external sliding door (1) incorporates at right angles thereto an upper groove (2) with a toothed rack (3) on at least one of the sides thereof, said upper groove (2) being of a suitable size to receive a guided sliding part (4) housed in the upper groove (2), said guided sliding part (4) being provided with lugs (5) for linking with the automatic door closure (10) and an L-shaped security projection (6) at the end thereof and a circular cavity (7) in the lower portion thereof that interferes with the toothed rack (3) of the upper groove (2); the circular cavity (7) is of a suitable size to receive the point of a screwdriver with notches coinciding with the toothed rack (3) and capable when rotated of positioning the L-shaped security projection (6) beneath a profiled projection (12) of the upper rail profile (11), the linkage lugs (5) being simultaneously situated in the operating position with the automatic door closure (10).
2. Means of securing anti-derailment for an external sliding door, according to the first claim, **characterised in that** the guided sliding part (4) incorporates at least one slide limit stop (9) which can be linked with the guide channel (8) of the upper carriage of an external sliding door (1).

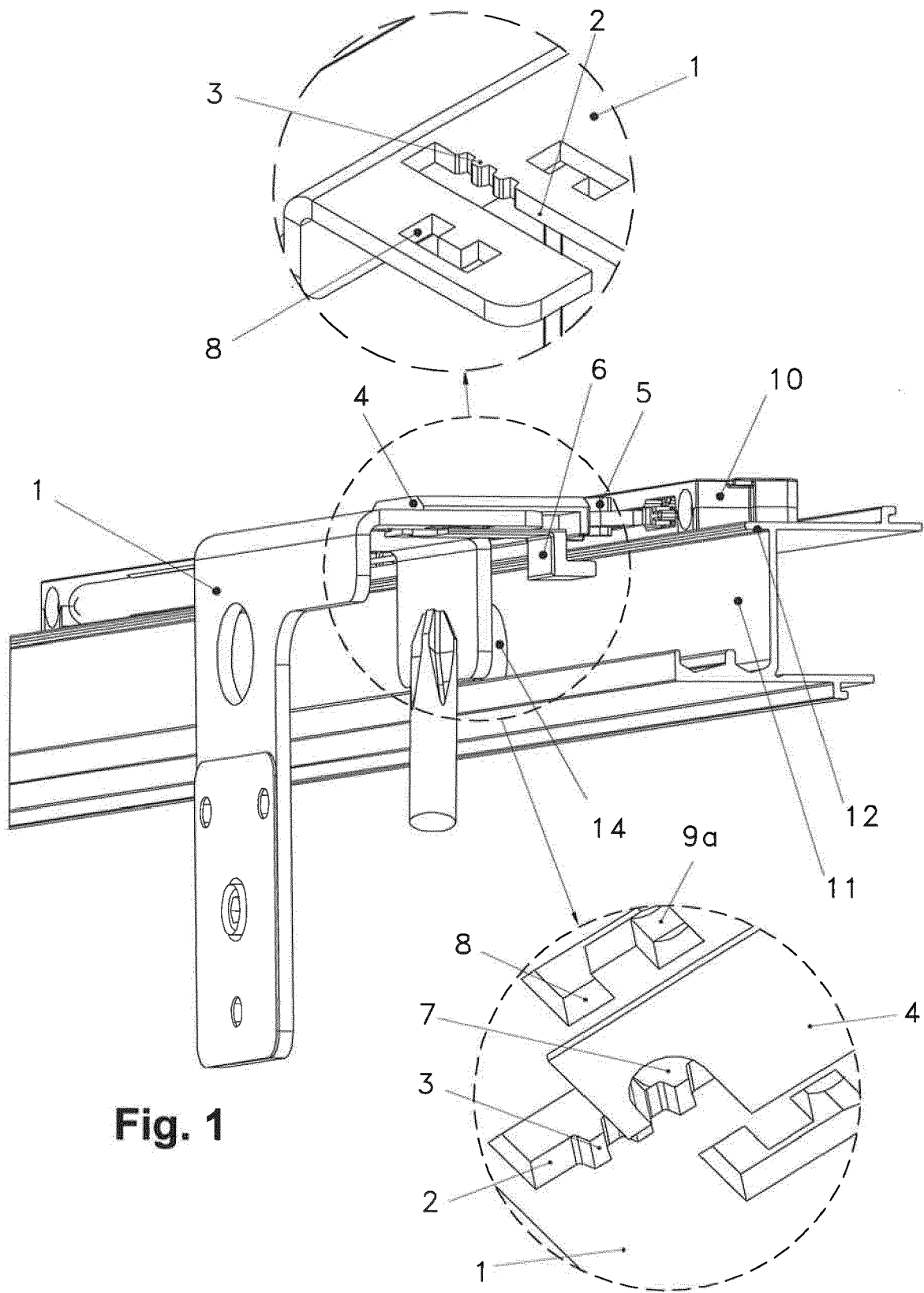
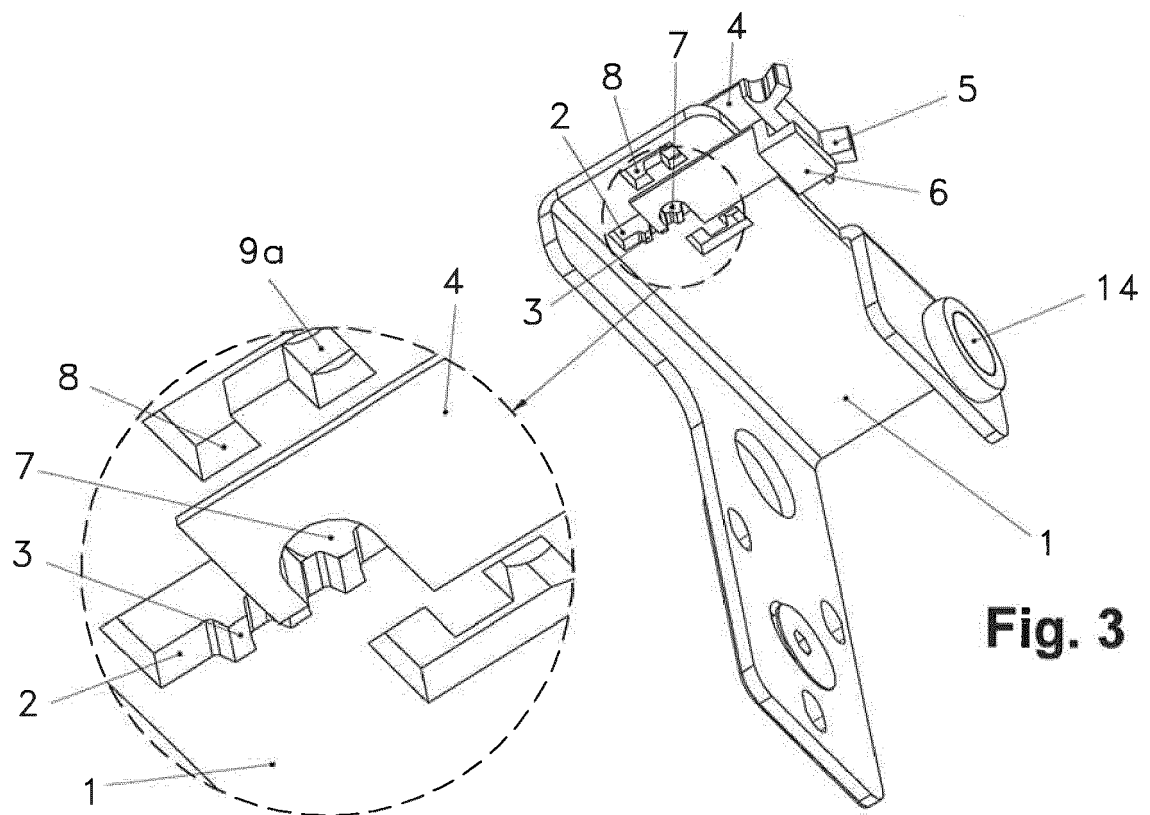
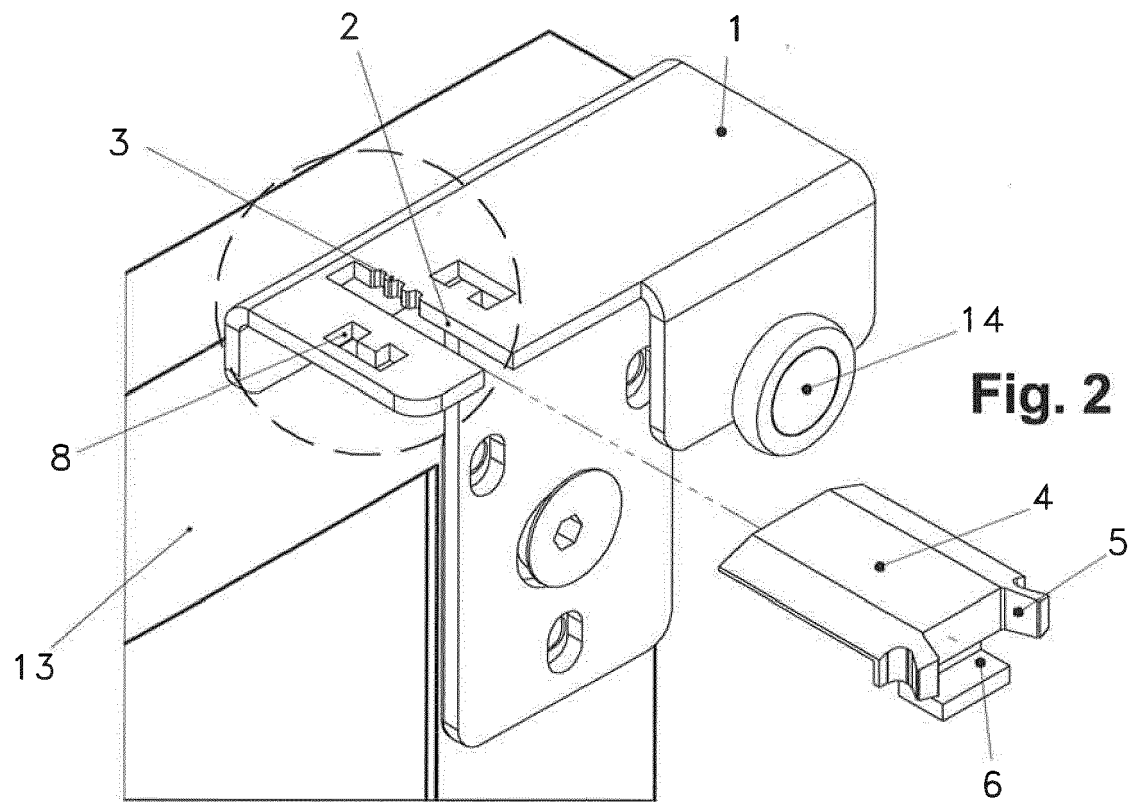


Fig. 1



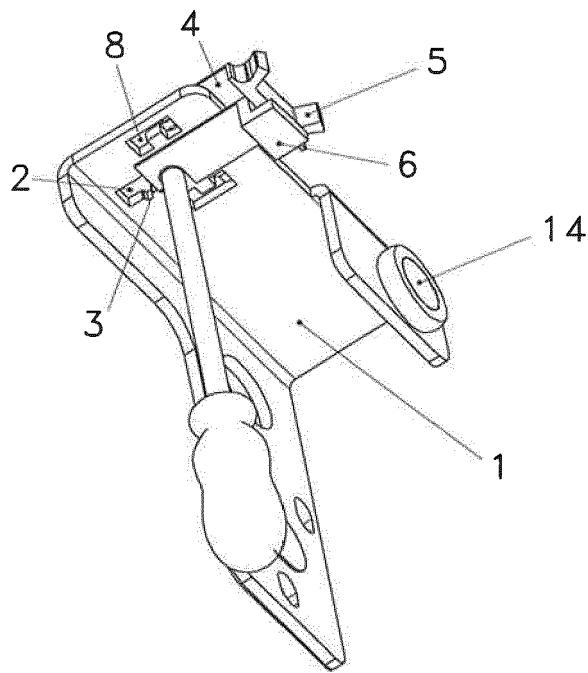


Fig. 4a

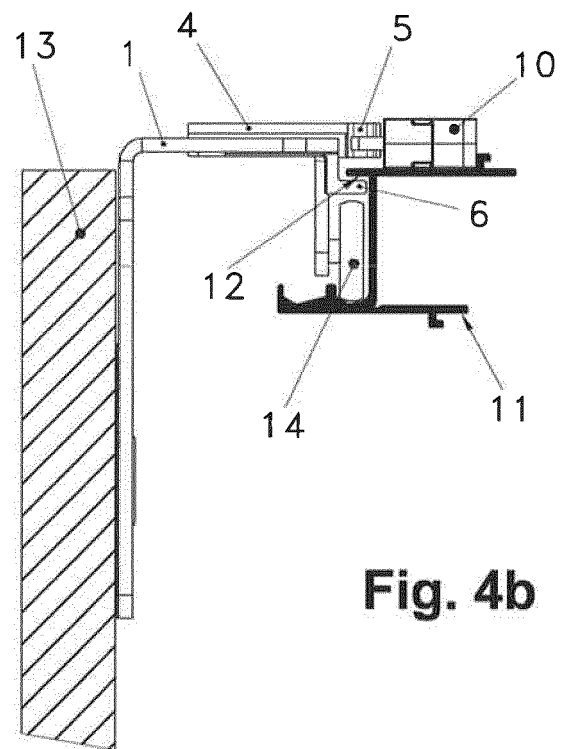


Fig. 4b

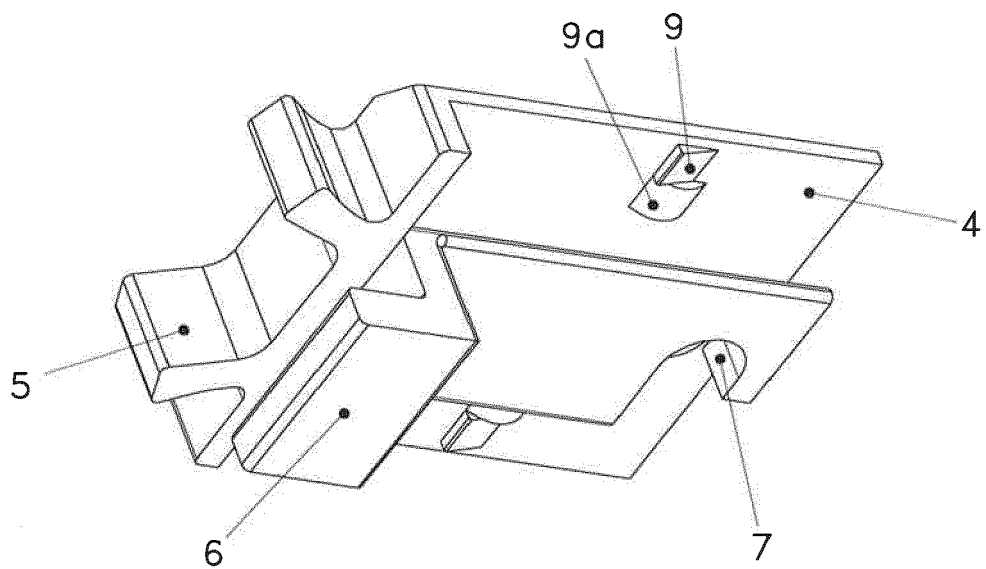


Fig. 5

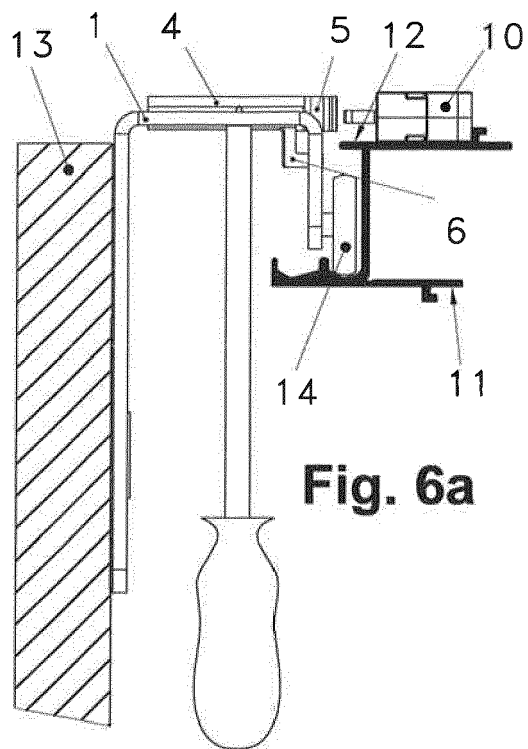


Fig. 6a

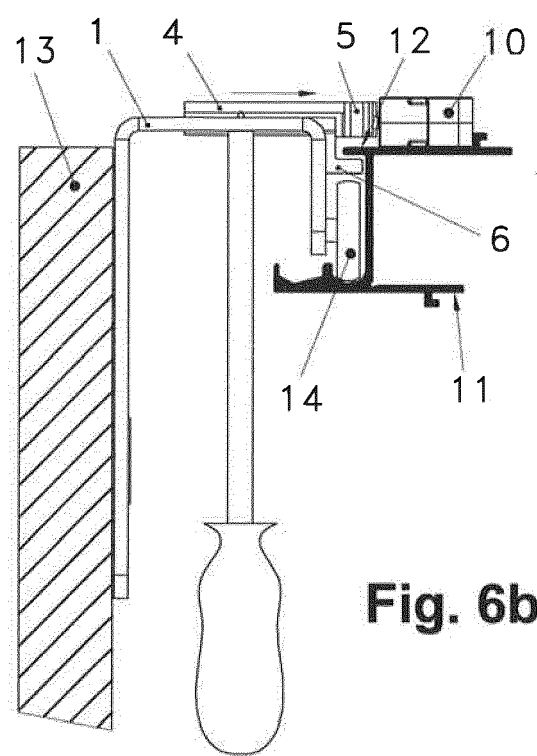


Fig. 6b

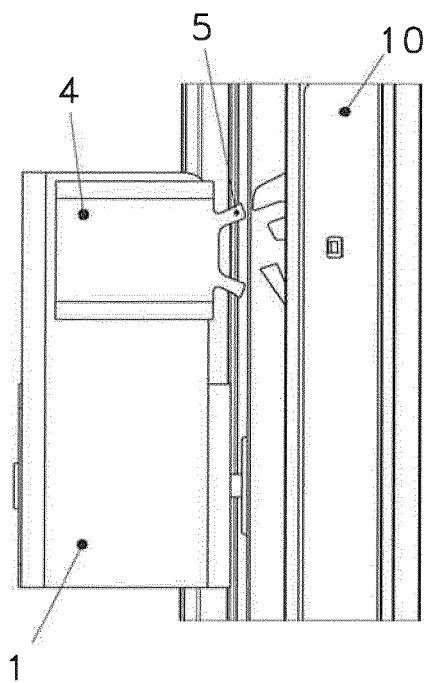


Fig. 7a

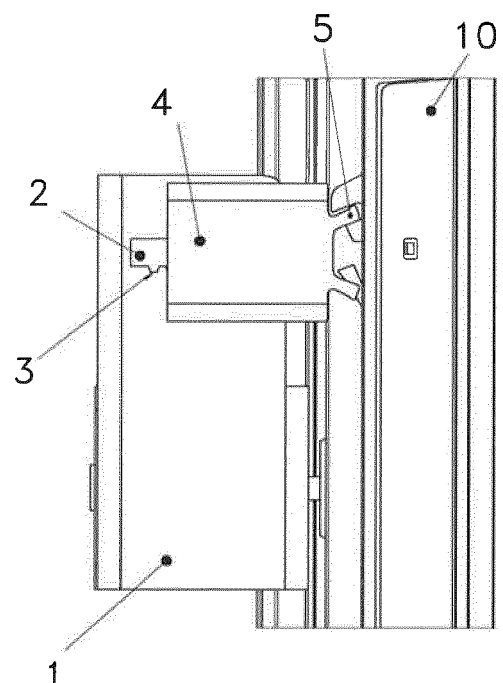


Fig. 7b



EUROPEAN SEARCH REPORT

Application Number
EP 16 17 0313

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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			TECHNICAL FIELDS SEARCHED (IPC)
			E05F E05D
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 19 October 2016	Examiner Klemke, Beate
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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EPO FORM 1503 03.02 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 16 17 0313

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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