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(54) **A ROOF WINDOW WITH AN IMPROVED HINGE AND COVERING ASSEMBLY, AND A METHOD OF PROVIDING SUCH A HINGE AND COVERING ASSEMBLY**

(57) Provided is a hinge and covering assembly (50) for a roof window having a frame (1) and a sash (2). The hinge and covering assembly comprises a frame side covering element (1b) and a sash side covering element (2b) each arranged to cover said hinge (10), and further-

more a snap connection (60, 70) configured to couple the covering arrangement to the hinge. The snap connection (60, 70) comprises a snap anchor (80) and a holding clip (90) arranged to receive said snap anchor (8).

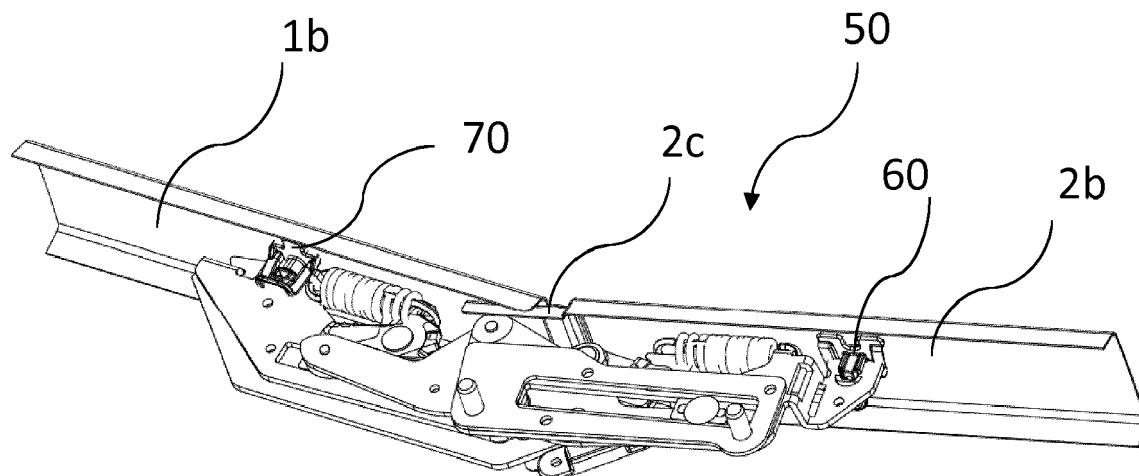


Fig. 2

DescriptionField of the invention

[0001] The present invention relates to a roof window having a frame and a sash, comprising a set of hinges, each hinge including a frame hinge part and a sash hinge part configured to assume an angle relative to the frame hinge part, a covering arrangement including a frame side covering element and a sash side covering element arranged to cover at least said hinge, and a hinge and covering assembly for mounting the covering arrangement on the hinge including at least one snap connection. The invention furthermore relates to a method of providing a hinge and covering assembly.

Background art

[0002] Basically, roof windows may be provided in a number of varieties and include more or less complicated structures in order to allow opening of the sash and to fulfil other functions, such as ventilation, while permitting cleaning of the outside of the pane from inside the building. The varieties include roof windows of the pivoting type, the hinge axis being either located at the centre or displaced from the centre of the window, and top-hung roof windows that pivot for cleaning by means of an intermediate frame.

[0003] These requirements are made possible by the provision of a hinge with a particular pattern of movements, which in turn makes it possible to establish an overlap between the covering element fastened to the frame and the counterpart covering element fastened to the sash in the closed position of the roof window. In such a hinge, the covering elements thus generally comprise at least two parts, one for covering the sash hinge part and one covering the frame hinge part. The covering elements are designed to protect the hinge and interior parts of the window from amongst other things weather, dirt and grime, since this may cause the hinge to rust and in worst case cause the window to leak rain water and thereby possibly cause damage. The two covering elements are designed to allow an angular motion relative to each other, while opening and closing the window. During installation of the window, it is often necessary to disassemble the covering elements from the window in its supply condition and then connect them again, thus requiring several steps. In prior art roof windows, the covering elements are most often attached by fastening the covering element onto the corresponding parts of the hinge, or the frame or sash itself, by fastening elements such as screws.

[0004] One example of a roof window incorporating an improved fastening means is shown in Applicant's EP 2 751 354 B1. In this arrangement, a male part of the fastening means connected to the covering element engages the female part in the form of a plastic fitting connected to the hinge. In order to allow the disassembly and reas-

sembly of the covering elements, both the male and the female part are made of a plastic material, of which the male part is attached to the covering element by means of a rivet, typically a blind or pop rivet. Further examples are shown in documents WO 2013/050043 A1, corresponding to the closest prior art, and EP 2507588 A2.

[0005] Common to the above-mentioned fastening solutions is that they affect the surface of the covering elements, either in the form of an aperture to receive the screw, or by the rivet holding the male part, which makes it challenging to provide the desired finishing. Furthermore, the connection between the male and female fastening means, and to the hinge itself, may be cumbersome, leaving room for improvement.

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Summary of the invention

[0006] With this background it is an object of the present invention to improve a roof window with respect to manufacturing and installation conditions.

[0007] In a first aspect, this and further objects are met by the provision of a roof window of the kind mentioned in the introduction which is furthermore characterised in that the snap connection of the hinge and covering assembly comprises at least one snap anchor connected to the covering arrangement and configured for releasable connection directly to at least one holding clip integral with the hinge and arranged to receive said at least one snap anchor.

[0008] This is an advantage since the mounting procedure of the covering arrangement is rendered considerably faster than if the covering arrangement would be fastened by additional fastening elements. Also, the manufacture and factory assembly of the roof window is facilitated, as the snap anchor replaces both the plastic fitting connected to the hinge and the male part of the snap connection of the prior art arrangement. The snap anchor thus has more built-in functionalities. In this way, a snap anchor may be pre-mounted onto a covering element in advance and snapped in place when the hinge has been installed. A hinge and covering assembly of this type may be formed in any suitable way to fit the specific covering arrangement and hinge to be used. The other components of the hinge with an integral holding

clip may be of a kind featured in Applicant's co-pending application with the same filing date as the current application, although the hinge and covering assembly may be adaptable to basically any type of hinge to improve installation of the covering elements, as long as the hinge is modified accordingly. Finally, the need for tools and additional elements while installing the covering arrangement is reduced.

[0009] In a second aspect, a method of providing a hinge and covering assembly in a roof window having a frame and a sash is provided.

[0010] Other presently preferred embodiments and further advantages will be apparent from the following detailed description and the dependent claims.

Brief description of drawings

[0011] The invention will be described in more detail below by means of non-limiting examples of embodiments and with reference to the schematic drawing, in which

Fig. 1 is a perspective view of a prior art roof window;
 Fig. 2 is a perspective view of a hinge and covering assembly of a roof window in a first embodiment of the invention;
 Fig. 3 is a perspective view of an embodiment of the hinge of the embodiment of Fig. 2, with the frame and sash covering elements removed;
 Figs 4 and 5 show partial front views of details of the embodiment of Figs 2 and 3;
 Figs 6 to 13 show perspective views from different angles of details of the hinge and covering assembly of the first embodiment of the roof window according to the invention;
 Figs 14 and 15 are exploded perspective views from different angles of another embodiment of the cover snap arrangement according to the invention;
 Fig. 16 is a partial front view of details of a hinge and covering assembly of a roof window in a still further embodiment of the invention; and
 Fig. 17 is a partial perspective and break-out view of the still further embodiment hinge and covering assembly of Fig. 16.

Detailed description of the invention

[0012] In a manner known *per se*, the window comprises a sash 2 carrying a glazing in the form of a pane 3 and a frame 1. The window is intended to be built into a surface, which is inclined with respect to the horizontal, typically a roof, and the window will in the following be referred to as roof window. At a position between the top and centre of the window, there is a hinge connection between the frame 1 and the sash 2. The hinge connection in Fig. 1 comprises a set of two prior art hinges, of which one hinge 10' is visible. The frame 1 and sash 2 is each formed by four members of which one frame side member 1 a and one sash side member 2a are indicated. The sash 2 is openable with respect to the frame 1, as the sash 2 may be moved from a closed position, in which e.g. the sash side member 2a is substantially parallel with the frame side member 1 a, to an open position, in which the sash side member 2a forms an angle with the frame side member 1 a. During this movement the sash 2 rotates about a hinge axis α situated at the hinge connection. As indicated in Fig. 1, the hinge axis α is located between a centre axis and the top of the roof window, preferably in the interval 1/3 to 2/3 of the distance between the centre axis and the top, most preferred substantially at 1/2 of the distance between the centre axis and the top. Other positions of the hinge axis are of course conceivable, for instance at the centre of the roof window.

[0013] The same operation as described above and from here on is also true for the type of hinge described in the Applicant's pending Danish patent application No. PA2015 70717 filed on 06 November 2015. Other hinges that the invention is applicable to include pivot hinges are for instance disclosed in Applicant's EP 1 038 083 B1 and EP 1 781 883 B1, which are very versatile as regards operational areas and adaptation of components. Examples of roof windows incorporating such adapted hinges are shown in Applicant's published European patent applications EP 2 770 146 A1 and EP 2 770 149 A1. From a closed position, the user operates the operating device of the window. The operating device typically comprises a handle (not shown) connected with the sash bottom member and/or an operating and locking assembly including a ventilation flap at the sash top member with a lock mechanism to interact with a striking plate on the frame top member. As will be described in further detail below, the hinge 10 exerts a moment on the sash 2, and in combination with the force, and hence moment, exerted by the user operating the operating device, the moment resulting from the weight of the sash 2 and pane 3 is overcome, along with any frictional forces present. All in all, the opening operation entails that the sash 2 is moved from a closed position to an open position as represented by Fig. 1, in which the sash plane forms an opening angle with the frame plane. Closing the window from the open position entails the opposite movement of the sash 2. It is possible to position the sash 2 in a number of arbitrary opening positions, in which the sash 2 is held stable relative to the frame 1. The sash 2 is also able to be rotated substantially through 180° to allow cleaning of the outside of the pane 3 from the inside of the building in which the roof window is installed.

[0014] To protect the interior and the components of the window itself and to ascertain weather-proof transition to the surrounding roofing, the roof window comprises a covering, including flashing members (not shown), cladding and covering elements of which a frame side covering element 1 b' and sash side covering element 2b' are shown. The parts of the covering of the prior art roof window are connected to the frame and the sash, and to the hinge in a hinge and covering assembly as described in detail in the above-mentioned embodiment of EP 2 751 354 B1.

[0015] Referring now to Figs 2 and 3, a first embodiment of a hinge and covering assembly 50 of the roof window according to the invention will be described in detail.

[0016] When referring to the Figures, the terms up, down, upwards, downwards, top and bottom are taken relative to how the figures are displayed, that is having the frame arranged in a lying position with the covering elements facing upwards. A front view is taken from the hinge and viewing towards the frame. A view from behind is therefore taken as viewed from the frame towards the hinge. A direction longitudinal is, if nothing else is mentioned, longitudinal along the length of the frame. It is to

be understood that the arrangement shown in a horizontal orientation is not the normal orientation as the window is installed.

[0017] The hinge 10 comprises a frame hinge part 100 and a sash hinge part 200 configured to assume an angle relative to the frame hinge part 100. The hinge 10 forms part of a set of hinges, of which the frame hinge part 100 of each hinge 10 is configured to be fastened to the frame side member 1a of the frame 1 of the window at a location chosen to provide the desired position of the hinge axis α , and the sash hinge part 200 is correspondingly configured to be fastened to the sash side member 2a. The frame hinge part 100 comprises a base plate 110 and the sash hinge part 200 a base plate 210. Fastening of the hinge to the respective frame and sash side members may take place in any suitable manner, for instance as in Applicant's co-pending patent application having the same filing date as the present application.

[0018] As seen in Figs 2 and 3, connection of the frame side covering element 1b and sash side covering element 2b to the respective hinge part 100, 200 is carried out by a snap connection 60, 70. In the following, it will be described in more detail (cf. in particular Figs 4 to 7) how the snap connection 70 is carried out by introducing a snap anchor 80 connected to the covering element 1b into a holding clip 90 connected to the base plate 110 of the frame hinge part 100 of the hinge 10.

[0019] The snap anchor 80 is generally pre-mounted onto a covering element 2b, 1b and the covering element may subsequently, after successfully installing the hinge 10, be snapped in place. This operation may save a lot of time to the installer, as well as the need for loose fastening elements is eliminated. Referring back to Fig. 2, in which it also emerges how the frame side covering element 1b and sash side covering element 2b interact with each other; a cranked portion 2c of the sash side covering element 2b ensures a tight and flush transition between the sash side covering element 2b and the frame side covering element 1b in the closed position of the roof window. At the same time, the movement pattern of the hinge allows that the sash side covering element 2b is able to be retracted from its position under the frame side covering element 1b during the opening movement of the sash 2 relative to the frame 1, and conversely, be inserted under the frame side covering element 1b at the final stage of the closing movement.

[0020] Referring now to Figs 4 to 7, detailed views of a snap connection 60, 70 are illustrated. Fig. 4 shows a snap connection 70 of the base plate 110 of the frame hinge part 100. Generally, the snap connection 60 may be identical on the sash hinge part 200, and therefore a view of any of the snap connections 60, 70 is representative. In that way, the same snap anchor 80 can be used on either of the holding clips 90. However, the snap connections 60, 70 may be arranged in different angles or orientations depending on where the connections are to be. The holding clips 90 are preferably also symmetrical. The snap anchor 80 is thus connected to the covering

arrangement 1b, 2b and configured for releasable connection directly to a respective holding clip 90 integral with the hinge 10 and arranged to receive the respective snap anchor 80. However, variations may occur without compromising the idea underlying the invention.

[0021] In Fig. 4 it is shown how the snap anchor 80 is to be arranged in the corresponding holding clip 90.

[0022] In the embodiment shown, the frame hinge part 100 and the sash hinge part 200 each comprises a base plate 110, 210, and the holding clip 90 is formed in the base plate 110, 210 of the respective hinge part 100, 200.

[0023] Each holding clip 90 comprises a receiving portion 91 and an anchor engagement portion 92. The receiving portion 91 of the holding clip 90 is here substantially U-shaped and comprises two opposing supporting surfaces 93 extending between a respective upper end surface 95 and the anchor engagement portion 92. Introduction of the snap anchor 80 into the holding clip 90 is facilitated if at least one of the opposing surfaces 93 is provided with a rounded edge 94 at the transition between the respective upper end surface 95 and the supporting surface 93. The holding clip 90 furthermore has a front side 90a and a back side 90b.

[0024] The anchor engagement portion 92 of each holding clip 90 is in the embodiment shown formed as an offset section comprising at least one side surface 96 and a lower end surface 97. Here, there are two symmetrically arranged side surfaces 96 to end in the lower end surface 97, and the offset section has a front surface 98a, a back surface 98b and also an inclined upper surface 99.

[0025] It is noted that the function and configuration of the holding clip 90 on the frame hinge part base plate 110 is substantially identical as the holding clip on the sash hinge part base plate 210, preferably also symmetrical. Variations are conceivable though.

[0026] Turning now to a description of preferred embodiments of the snap anchor with further reference to Figures 8 to 11, the snap anchor 80 comprises a top surface 85 configured to abut a lower side of the respective covering element 1b, 2b, a guide portion 81 and an engagement portion 82.

[0027] The guide portion 81 of the snap anchor 80 comprises two opposing guide surfaces 83 to interact with the two opposing supporting surfaces 93 of the receiving portion 91 of the holding clip 90. In order to facilitate the mounting process, each guide portion 81 may as shown be provided with a rounded lower edge 81a. Furthermore, and in particular for improving the retention of the snap anchor 80 in the holding clip 90, a protruding side wall portion 81b is also provided at both sides of the guide portion 81.

[0028] The engagement portion 82 comprises a tongue 88 and two legs 87 extending from the top surface 85 of the snap anchor 80 and meeting in a lower point 87a such that a slot 89 is formed between the legs 87 and the tongue 88. The tongue 88 is in the embodiment shown formed integral with the guide portion 81 of the

snap anchor 80 and has a central aperture 88a. The central aperture 88a is present in order to facilitate the manufacturing process. The engagement between the engagement portion 82 of the snap anchor 80 and the anchor engagement portion 92 of the holding clip 90 will be described with particular reference to Figs 12 and 13, of which Fig. 13 is a partial perspective view on a larger scale.

[0029] As shown, the slot 89 of the engagement portion 82 of the snap anchor 80 surrounds the anchor engagement portion 92 of the holding clip 90 in the mounted condition shown in Fig. 13.

[0030] In the mounted condition, a back surface 88b of the tongue 88 abuts the front surface 98a of the offset section of the anchor engagement portion 92 of the holding clip.

[0031] In the embodiment shown and described, the legs 87 of the snap anchor 80 are pre-formed with a bias in a direction away from the tongue 88.

[0032] Furthermore, the snap anchor 80 comprises at least one resilient arm 86, here two resilient arms 86, connected at a transition portion 86a to the top surface 85 of the snap anchor 80 and having a free end portion 86b. As shown, the resilient arms 86 are in the embodiment shown located at a lower level than the top surface 85.

[0033] When mounting the covering elements 1b, 2b to which the snap anchors 80 have been connected, the snap anchor 80 is introduced into the holding clip 90 as indicated in the above and moved downwards in the receiving portion 91. In order to attain the releasable connection, the engagement portion 82 is moved further downwards until the lower part of the slot 89 is located below the lower end surface 97 of the offset section of the anchor engagement portion 92.

[0034] In the snap connection, a slight play is necessary in order to allow the slot 89 of the engagement portion 82 of the snap anchor 80 to be guided over the anchor engagement portion 92. Furthermore, unavoidable tolerances in the parts of the hinge including the holding clip 90, and in the snap anchor 80 itself, make it advantageous to incorporate resilient means into the connection. Such resilient means may take any suitable form, but here the required play and any tolerances are accommodated by the presence of the resilient arms 86 at the top surface 85 of the snap anchor 80. Once the engagement portion 82 has been brought into engagement with the anchor engagement portion 92, the free end portions 86a of the resilient legs 86 come into contact with the respective upper end surface 95 of the holding clip 90. When the resilient legs 86 bend, the relative movement will in turn pull the legs 87 upwards and thereby ensure abutment between the lower point 87a with the lower end surface 97 of the anchor engagement portion 92 of the holding clip 90.

[0035] In the mounted condition, and in the case of a pulling force acting on the associated covering element, either as a mechanical force when handling the window

or due to wind load, the configuration of the snap anchor 80 will support the snap engagement and prevent unwarranted release from the holding clip 90 of the hinge 10.

[0036] As a first measure to retain the snap engagement, this is obtained by the fact that a tensional load transmitted via the symmetrically arranged legs 87 gives rise to substantially radial reaction forces having as their centre a position in the offset section of the anchor engagement portion 92 defined by radius of curvature of the side surfaces 96 and the lower end surface 97 of the anchor engagement portion, thereby reducing stress caused by moment to an absolute minimum, leaving only tension stress in legs 87 and lower point 87a.

[0037] A further factor contributing to enforcing the snap engagement in the mounted condition is the configuration of the legs 87 with a pre-formed bias to force the legs 87 as close to the centre of the snap anchor 80 as possible. In this manner, the respective line of action of a pulling force acting substantially centrally in the snap anchor 80 on one hand and the reaction force between the legs 87 and lower point 87a with the anchor engagement portion 92 on the other will be located close to each other and hence the resulting moment will be minimized. Optimally, the lines of actions coincide.

[0038] Finally, stability of the snap anchor 80 in the holding clip 90 and in turn of the associated covering element 1 b is provided by the arrangement of suitable abutment surfaces between back sides of the legs 87 and front sides 90a of the holding clip 90 and between the protruding side wall portions 81b of the guide portion 81 and the back sides 90b of the holding clip 90. In an optimal configuration, these abutment surfaces are all plane and parallel to each other; however, this may be difficult to obtain in practice due to for instance practical considerations during moulding of the snap anchor 80. A sufficient stability is obtained if only opposing abutment surfaces are present though.

[0039] In case it is for some reason desirable to dismount the covering element from the hinge, release of the snap engagement is particularly easy as the snap anchor 80 as in the shown embodiment comprises a grip portion 84 formed at the ends of the legs 87 opposite the top surface 85.

[0040] The connection between the snap anchor 80 and the covering element 1 b, 2b may in principle be carried out in any suitable manner.

[0041] For instance, the connection is performed by fastening the snap anchor 80 to the covering element 1 b, 2b as shown in Fig. 14 by introducing a fastening element 55 such as a screw or rivet into the opening 85a in the top surface 85 of the snap anchor 80. Such a rivet would be for instance a blind or pop rivet on the covering element 1 b, 2b, further provided with an external thread to engage the opening 85a.

[0042] In case the snap anchor 80 is connected to the covering element 1b, 2b by an adhesive connection, this renders the presence of fastening means such as a screw or rivet redundant, and the snap anchor 80 is so to say

integral with the covering element as represented in for instance Figs 16 and 17. Further, Figs 16 and 17 also illustrate the snap connection as mounted. Fig. 17 is a break-out view of the snap connection 70 as seen through covering element 1 b.

[0043] It should be noted that the above description of preferred embodiments serves only as an example, and that a person skilled in the art will know that numerous variations are possible without deviating from the scope of the claims.

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10 α

93 supporting surface
 94 rounded edge
 95 upper end surface
 96 side surface of anchor engagement portion
 97 lower end surface of anchor engagement portion
 98a front surface of offset section
 98b back surface of offset section
 99 inclined upper surface
 hinge axis

List of reference numerals

[0044]

1	frame
	1a frame side member
	1b frame side covering element
2	sash
	2a sash side member
	2b sash side covering element
	2c cranked portion
3	pane
10	hinge
	100 frame hinge part
	110 base plate
	200 sash hinge part
	210 base plate
50	hinge and covering assembly
55	fastening element
60	snap connection
70	snap connection
80	snap anchor
	81 guide portion
	81a rounded lower edge of guide portion
	81b protruding side wall portion of guide portion
	82 engagement portion
	83 guide surface
	84 grip portion
	85 top surface
	85a opening
	86 resilient arm
	86a transition portion of resilient arm
	86b free end portion of resilient arm
	87 leg
	87a lower point
	88 tongue
	88a aperture in tongue
	88b back surface of tongue
	89 slot
90	holding clip
	90a front side of holding clip
	90b back side of holding clip
	91 receiving portion
	92 anchor engagement portion

Claims

- 15 1. A roof window having a frame (1) and a sash (2), comprising
 a set of hinges (10), each hinge (10) including a frame hinge part (100) and a sash hinge part (200) configured to assume an angle relative to the frame hinge part (100),
 a covering arrangement including a frame side covering element (1 b) and a sash side covering element (2b) arranged to cover at least said hinge (10), and a hinge and covering assembly (50) for mounting the covering arrangement on the hinge (10) including at least one snap connection (60, 70),
characterised in that
 the snap connection (60, 70) of the hinge and covering assembly (50) comprises at least one snap anchor (80) connected to the covering arrangement (1b, 2b) and configured for releasable connection directly to at least one holding clip (90) integral with the hinge (10) and arranged to receive said at least one snap anchor (80).
- 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145 150 155 160 165 170 175 180 185 190 195 200 205 210 215 220 225 230 235 240 245 250 255 260 265 270 275 280 285 290 295 300 305 310 315 320 325 330 335 340 345 350 355 360 365 370 375 380 385 390 395 400 405 410 415 420 425 430 435 440 445 450 455 460 465 470 475 480 485 490 495 500 505 510 515 520 525 530 535 540 545 550 555 560 565 570 575 580 585 590 595 600 605 610 615 620 625 630 635 640 645 650 655 660 665 670 675 680 685 690 695 700 705 710 715 720 725 730 735 740 745 750 755 760 765 770 775 780 785 790 795 800 805 810 815 820 825 830 835 840 845 850 855 860 865 870 875 880 885 890
2. A roof window according to claim 1, wherein the frame hinge part (100) and the sash hinge part (200) each comprises a base plate (110, 210), and wherein said holding clip (90) is formed in the base plate (110, 210) of the respective hinge part (100, 200).
3. A roof window according to claim 2, wherein each holding clip (90) comprises a receiving portion (91) and an anchor engagement portion (92).
4. A roof window according to claim 3, wherein the receiving portion (91) of the holding clip (90) is substantially U-shaped and comprises two opposing supporting surfaces (93) extending between a respective upper end surface (95) and the anchor engagement portion (92), preferably with a rounded edge (94) at the transition between the respective upper end surface (95) and the supporting surface (93).
5. A roof window according to any one of claims 2 and 3, wherein the anchor engagement portion (92) of each holding clip (90) is formed as an offset section

comprising at least one side surface (96) and a lower end surface (97), the offset section having preferably a front surface (98a), a back surface (98b), more preferably also an inclined upper surface (99)

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6. A roof window according to any one of claims 2 to 5, wherein the holding clip (90) on the frame side base plate (110) is substantially identical as the holding clip on the sash side base plate (210), preferably also symmetrical.

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7. A roof window according to any one of the preceding claims, wherein the snap anchor (80) comprises a top surface (85) configured to abut a respective covering element (1b, 2b), a guide portion (81) and an engagement portion (82).

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8. A roof window according to claims 4 and 7, wherein the guide portion (81) of the snap anchor (80) comprises two opposing guide surfaces (83) to interact with the two opposing supporting surfaces (93) of the receiving portion (91) of the holding clip (90), each guide portion (81) being preferably provided with a rounded lower edge (81a), more preferably also provided with a protruding side wall portion (81b).

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9. A roof window according to any one of claims 7 and 8, wherein the engagement portion (82) comprises a tongue (88) and two legs (87) extending from the top surface (85) of the snap anchor (80) and meeting in a lower point (87a) such that a slot (89) is formed between the legs (87) and the tongue (88).

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10. A roof window according to claims 5 and 9, wherein the slot (89) of the engagement portion (82) of the snap anchor (80) surrounds the anchor engagement portion (92) of the holding clip (90) in the mounted condition.

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11. A roof window according to claim 10, wherein the tongue (88) has a back surface (88b) and the offset section of the anchor engagement portion (92) has a front surface (98a), the back surface (88b) of the tongue (88) abutting the front surface (98a) offset section of the anchor engagement portion (92) in the mounted condition.

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12. A roof window according to any one of claims 9 to 11, wherein the legs (87) of the snap anchor (80) are pre-formed with a bias in a direction away from the tongue (88).

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13. A roof window according to any one of claims 9 to 12, wherein the snap anchor (80) comprises a grip portion (84) formed at the ends of the legs (87) opposite the top surface (85).

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14. A roof window according to any one of claims 7 to 13, wherein the snap anchor (80) comprises at least one resilient arm (86) connected at a transition portion (86a) to the top surface (85) of the snap anchor (80) and having a free end portion (86b), the at least one resilient arm (86) being preferably located at a lower level than the top surface (85).

15. A roof window according to any one of the claims 7 to 14, wherein the snap anchor (80) on the frame side covering element (1b) is substantially identical as the snap anchor on the sash side covering element, (2b) preferably also symmetrical.

16. A roof window according to any one of the preceding claims, wherein the snap anchor (80) is connected to the covering element (1b, 2b) by means of a fastening element (55) or by an adhesive connection.

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17. A method of providing a hinge and covering assembly (50) in a roof window having a frame (1) and a sash (2), comprising the steps of:

providing a set of hinges (10) with at least one integral holding clip (90),
 providing a covering arrangement including a frame side covering element (1b) and a sash side covering element (2b) arranged to cover at least said hinge (10),
 providing a snap connection comprising a snap anchor (80),
 connecting one snap anchor (80) to a respective covering element (1b, 2b), and
 connecting each snap anchor (80) with the respective holding clip (90) of the hinge (10).

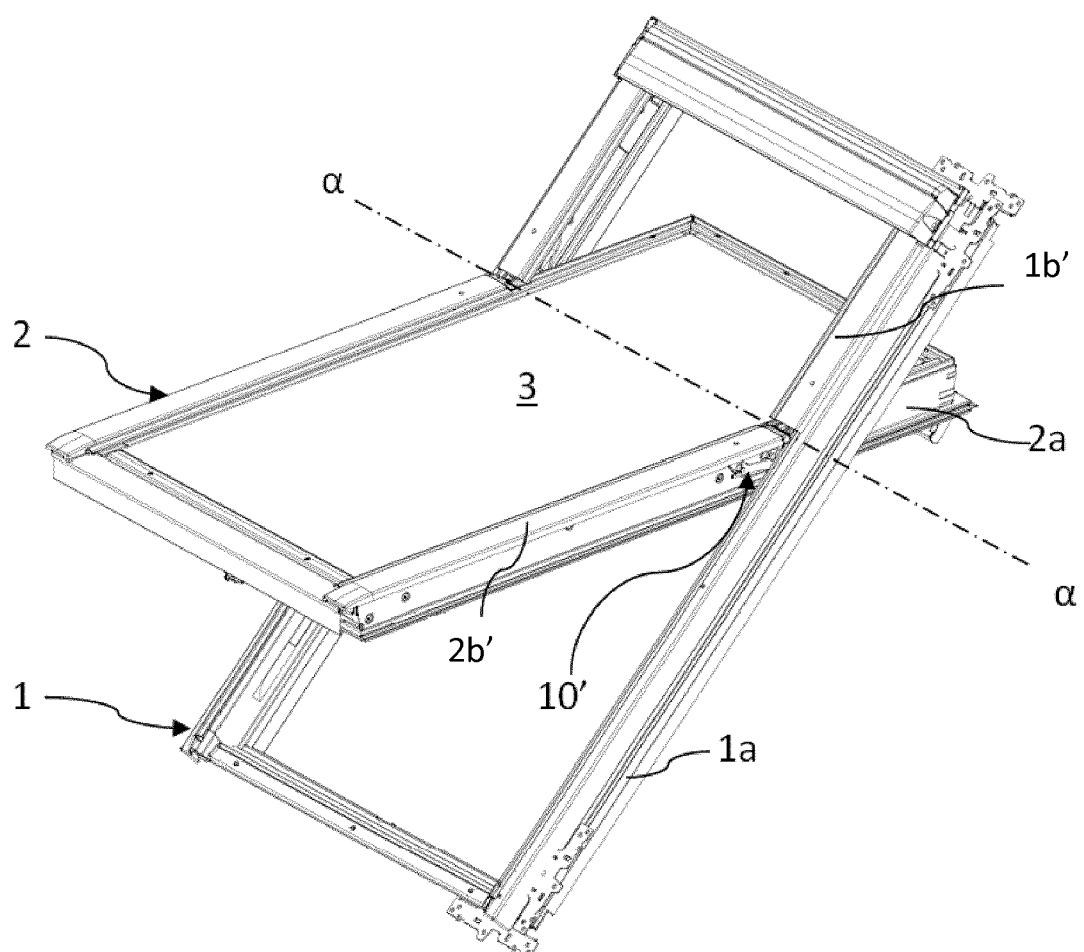
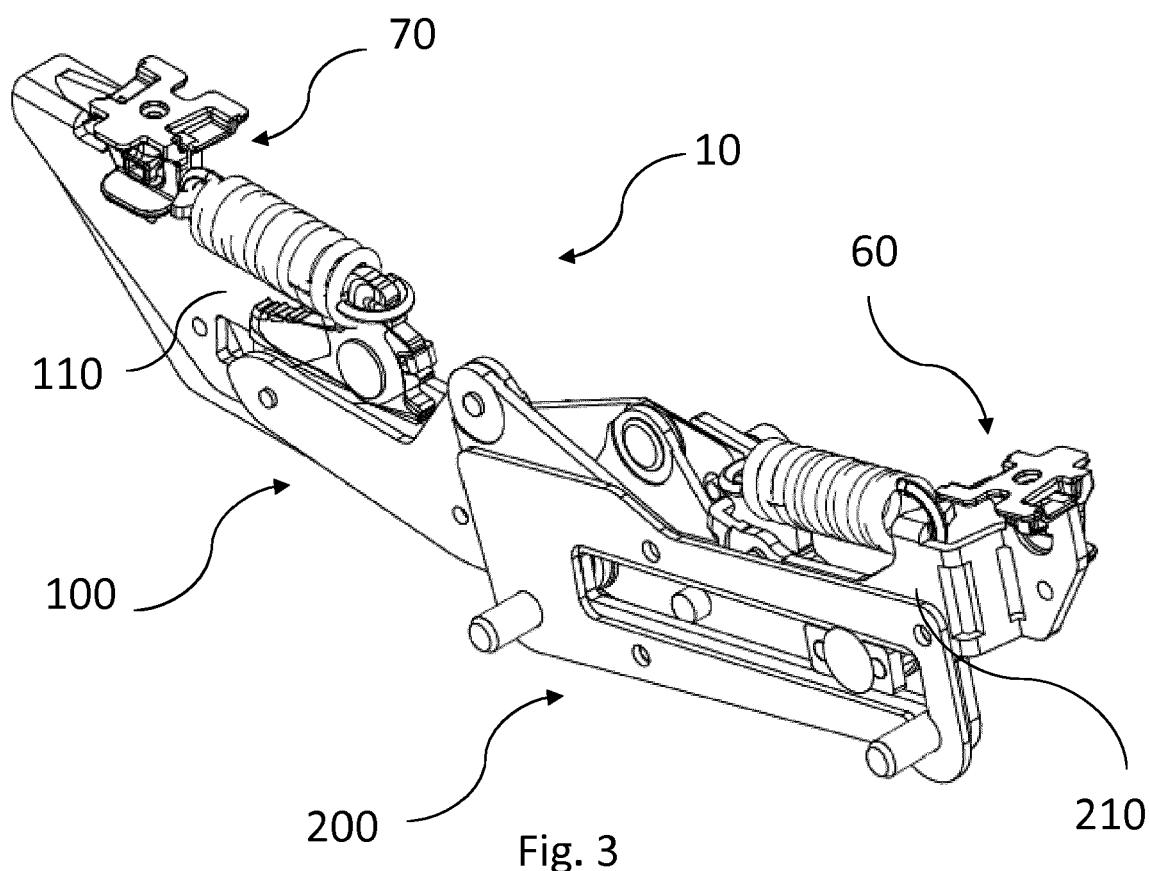
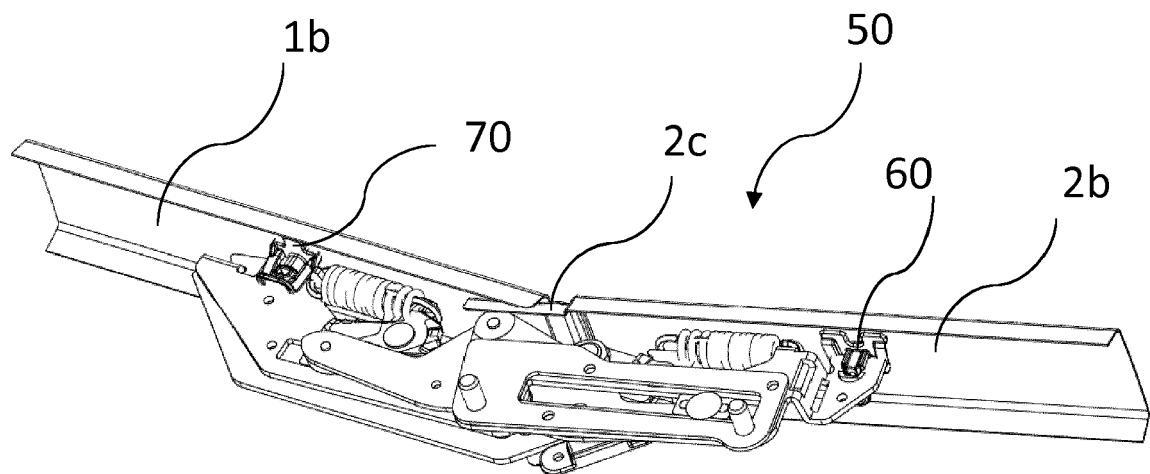


Fig. 1 (Prior art)



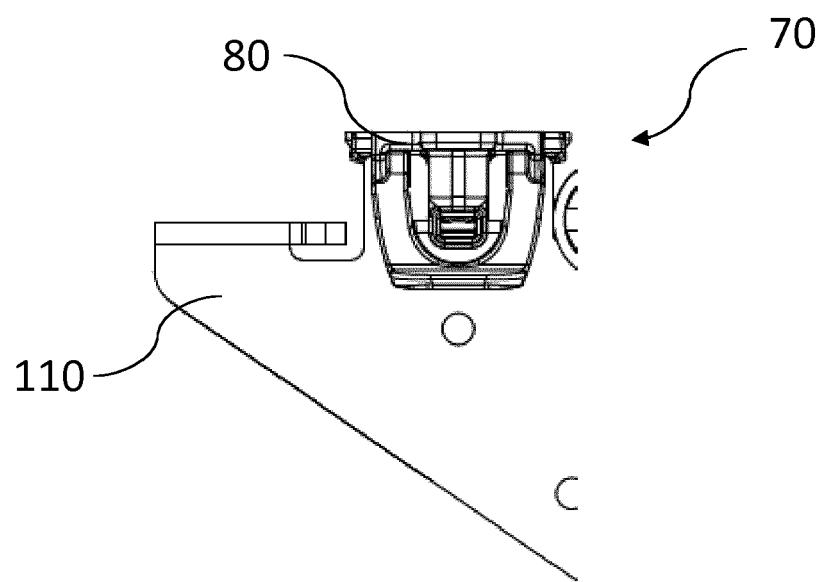


Fig. 4

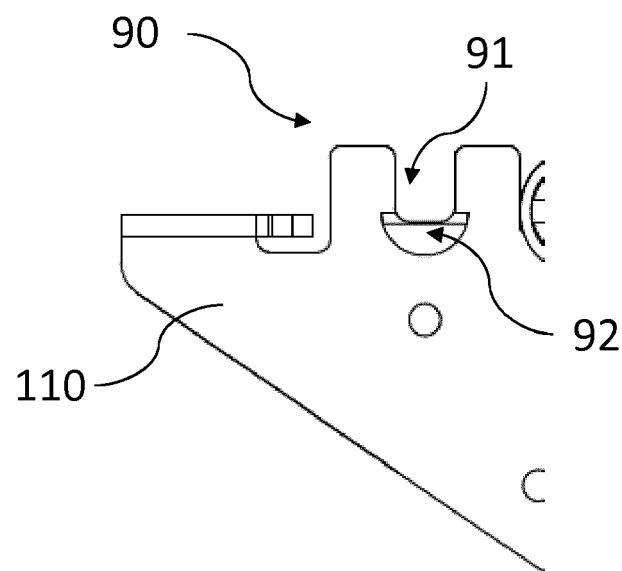


Fig. 5

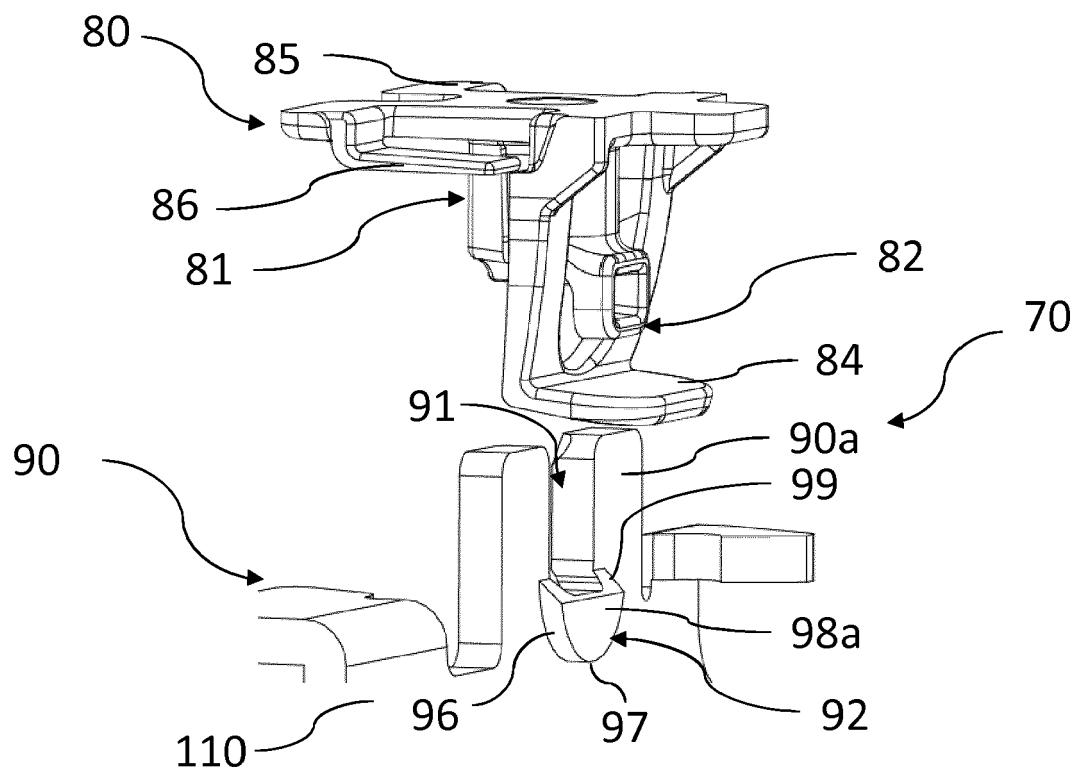


Fig. 6

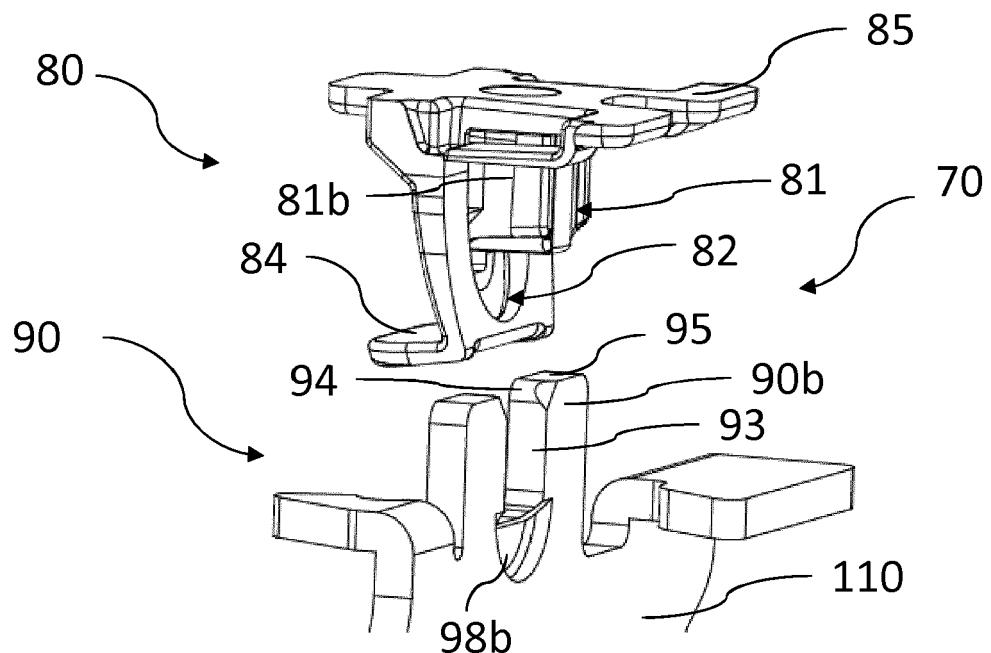


Fig. 7

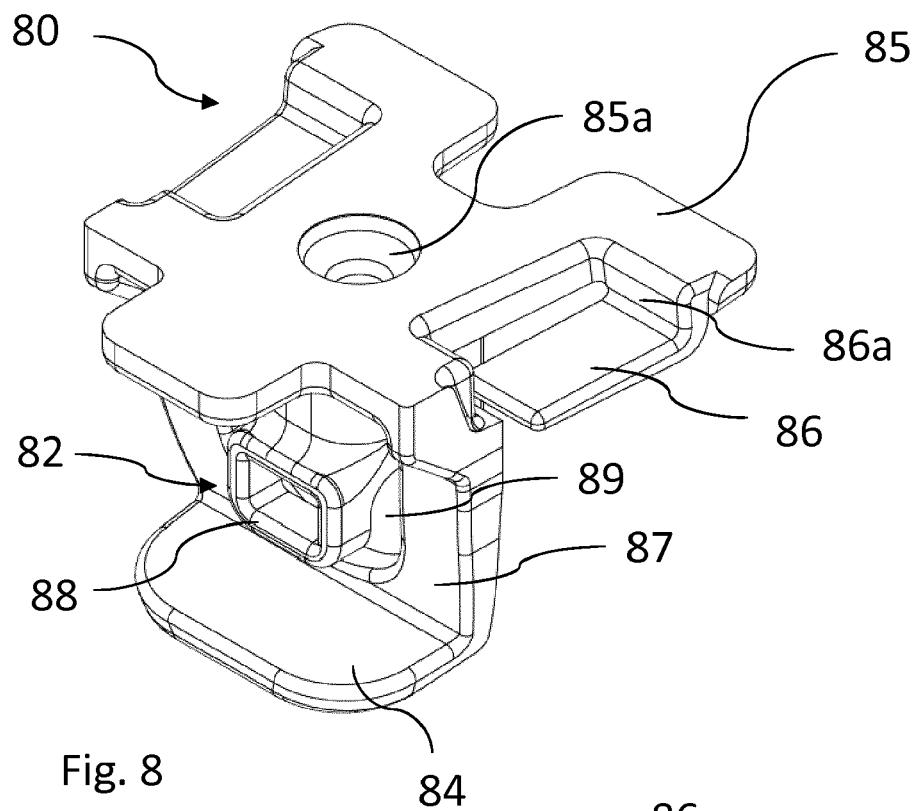


Fig. 8

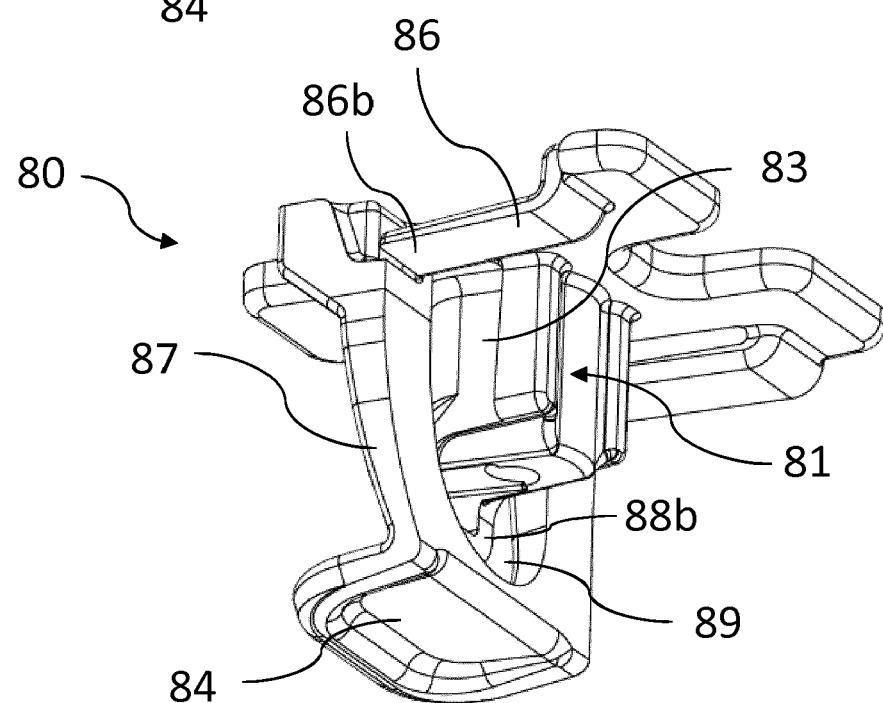


Fig. 9

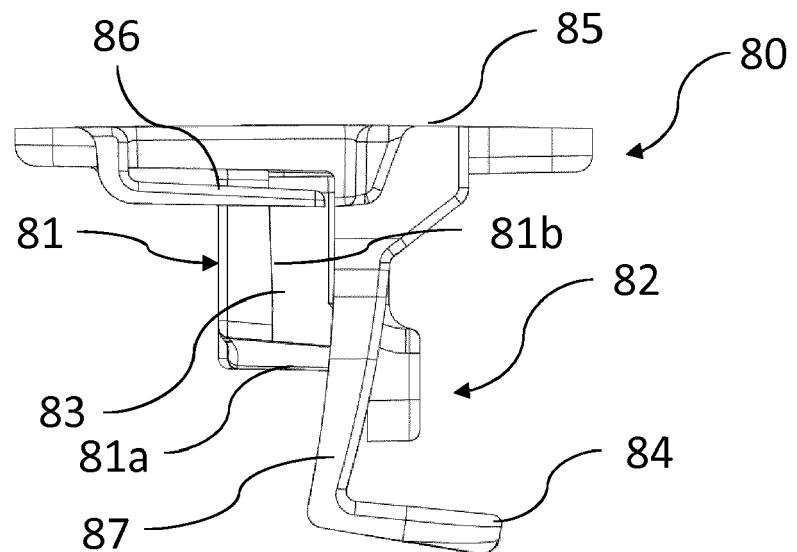


Fig. 10

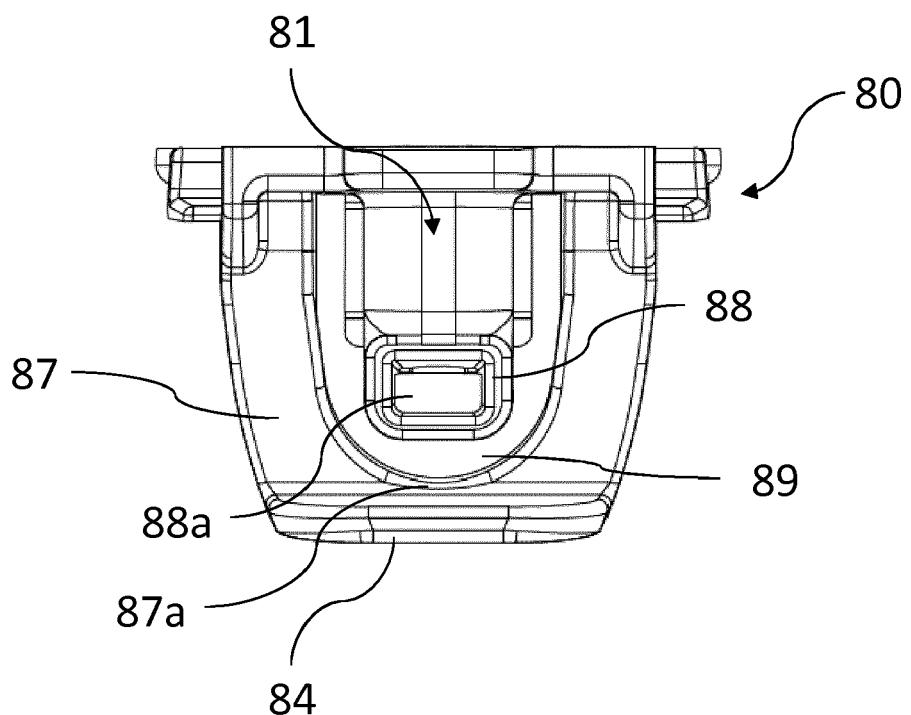


Fig. 11

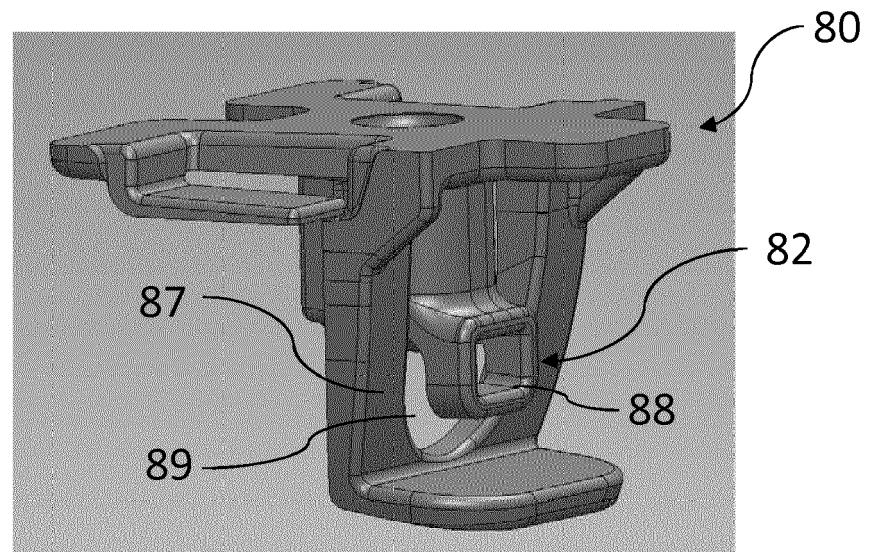


Fig. 12

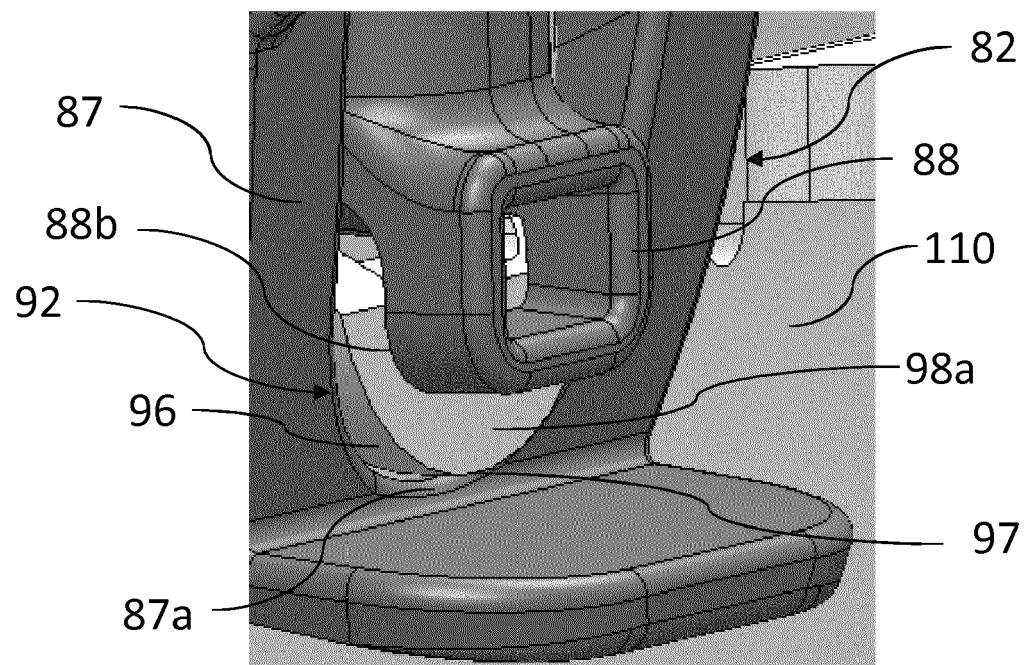


Fig. 13

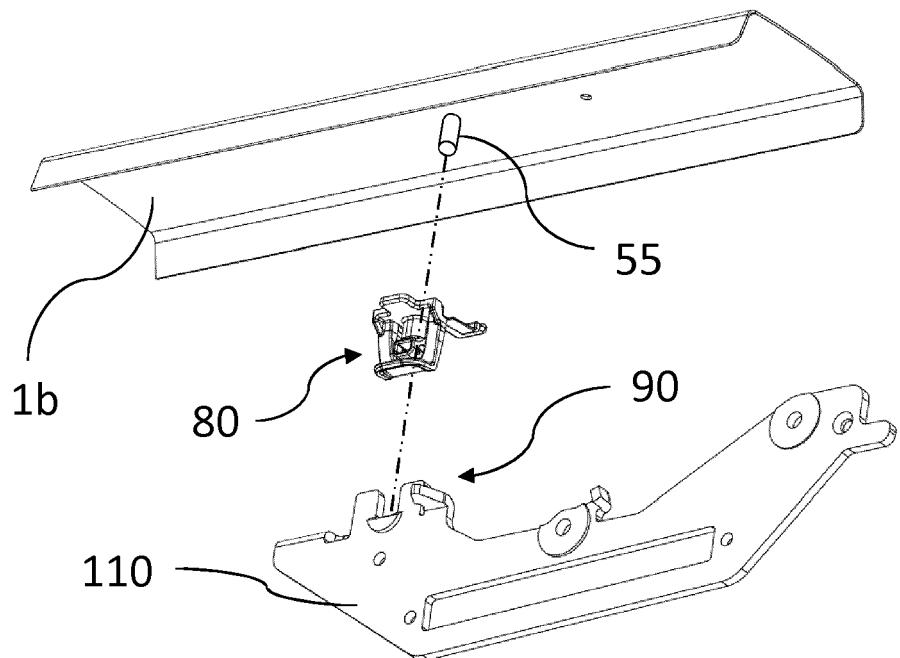


Fig. 14

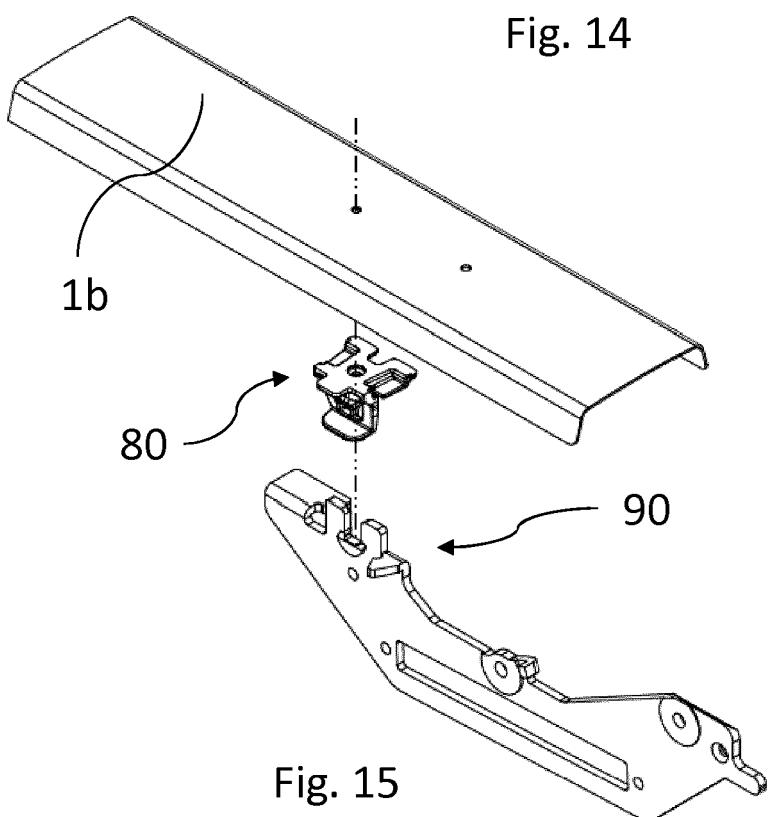


Fig. 15

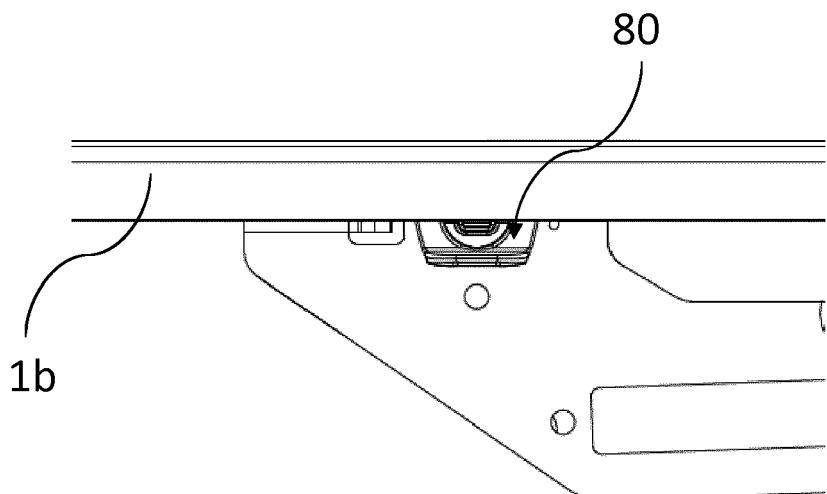


Fig. 16

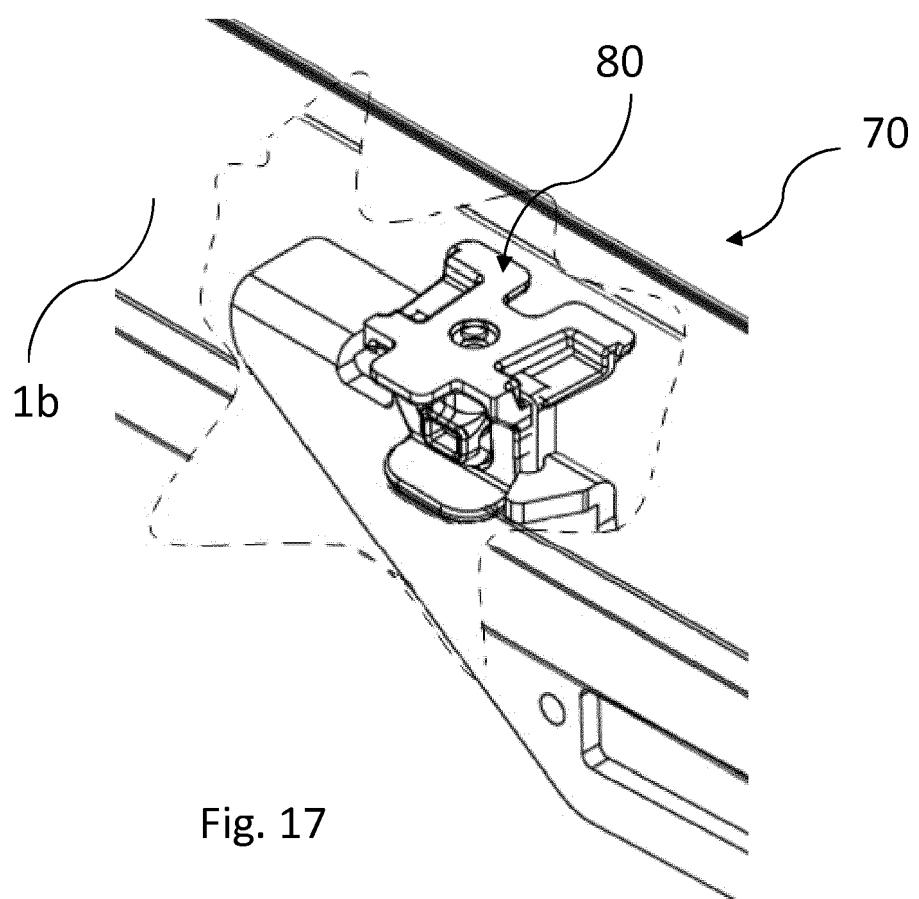


Fig. 17



EUROPEAN SEARCH REPORT

Application Number

EP 17 17 3584

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55	Place of search The Hague	Date of completion of the search 12 September 2017	Examiner Tran, Kim Lien
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