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(54) **FLASHING ARRANGEMENT FOR A WINDOW, WINDOW WITH A FLASHING ARRANGEMENT,
AND METHOD OF PROVIDING A WEATHER-TIGHT TRANSITION BETWEEN A WINDOW AND
SURROUNDING ROOFING WITH SUCH A FLASHING ARRANGEMENT**

VERKLEIDUNGSANORDNUNG FÜR EIN FENSTER, FENSTER MIT EINER
VERKLEIDUNGSANORDNUNG UND VERFAHREN ZUR BEREITSTELLUNG EINES
WETTERFESTEN ÜBERGANGS ZWISCHEN EINEM FENSTER UND EINEM UMGEBENDEN DACH
MIT SOLCH EINER VERKLEIDUNGSANORDNUNG

AGENCEMENT DE SOLIN POUR UNE FENÊTRE, UNE TELLE FENÊTRE ET PROCÉDÉ DE
FOURNITURE D'UNE TRANSITION RÉSISTANT AUX INTEMPÉRIES ENTRE UNE FENÊTRE ET
UNE TOITURE ENVIRONNANTE AVEC UN TEL AGENCEMENT

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Description

[0001] The present invention relates to a flashing arrangement for a window having a supply condition and a mounted condition in an inclined roof comprising a roof construction, the flashing arrangement defining a middle axis adapted to be parallel to the inclination of the roof in the mounted condition and to form, in the mounted condition, a transition assembly between a frame of the window and a surrounding roofing having an asymmetrical profiling relative to the roof inclination, said flashing arrangement comprising a gutter element, an apron element and a plurality of intermediate side elements adapted to extend, in the mounted condition, between the gutter element and the apron element substantially in directions parallel to said middle axis. The invention furthermore relates to a system comprising a window and a flashing arrangement, and to a method of providing a weather-tight transition between a window and a surrounding roofing.

[0002] Such transition assemblies make it possible to achieve satisfactory connections between the window and the surroundings, namely typically with the interior, the roof construction and the surrounding roofing, from an installation point of view, including constructional, aesthetic, climate-proofing, and weather-tightening considerations.

[0003] When installing windows in a roof, it is particularly essential that the transition to the surrounding roof is weather-tight. The position of the window in an inclined roof renders the installation conditions more complicated. This is applicable, whether the window and the window lining are intended for installation in a newly erected building, during complete refurbishing including several parts of the roof construction and/or the interior, or for renovation purposes involving replacement of as few components as possible.

[0004] To meet this need, flashing arrangements are used for providing a substantially weather-tight transition between a roof penetrating building structure, i.e. typically the frame of a window, and the surrounding roofing material. Such flashing arrangements typically comprise a number of flashing elements to provide a flashing frame surrounding the roof penetrating building structure. At the bottom of the window, the flashing element normally comprises a plate or rail element to be attached to the window and an apron element adapted for resting on the outer surface of the roofing material. The apron element is important with regard to securing a well-fitting, stable and secure sealing of the joint between the window and the roof surface, particularly when using an undulated roofing material such as tiles. The apron shall ideally provide for an easy mounting procedure, which ensures that the apron is firmly and closely mounted onto the roofing and stays in this position for the entire lifetime of the flashing. In order to achieve this, the apron is traditionally made of a material, which is easy to bend, preferably by hand, and which has a relatively high weight and a low

elasticity. At the sides and top of the roof penetrating structure, as seen in the inclination of the roof, the flashing elements typically comprise plate-shaped material of for instance metal.

[0005] The installation process is particularly challenging in the case of roofs having a profiled roofing material such as undulated tiles. Such tiles are well-known in the art and a wide variety of profiles are available, such as pantiles, S-shaped pantiles, Roman tiles, double Roman tiles, interlocking tiles, Spanish tiles etc. Traditional tile materials are ceramics, clay and concrete, but also plastic and metal materials are known. Also roofing elements of for instance sheet metal imitating a number of interconnected tiles are commercially available. Common to all tiles is that the profiling comprises complementary interlocking border portions to engage with adjacent tiles. Hence, this entails that the profiling of the roofing is asymmetrical relative to the roof inclination.

[0006] In combination with the requirements to satisfactory transitions as regards tightness and accurate positioning, the installation of a window and the connection to parts of the surrounding roofing present great challenges, and, in turn, the adaptation of the flashing arrangement to the roofing is normally troublesome and problematic.

[0007] Applicant's Danish Patent No. 98982 and EP patents Nos 1 038 078 B1 and 1 019 598 B1 disclose examples of prior art flashings arrangements, while some other arrangements are known from EP 2481864 A1 which discloses the preamble of claim 1, from EP 2525014 A2 or from DE 1272513 B, and although many of the above-mentioned prior art flashing arrangements and windows provide well-functioning solutions, in particular as regards securing weather-tightness, they also entail a number of challenges.

[0008] With this background it is an object of the invention to provide a flashing arrangement which provides for a facilitated and improved installation process and an improved transition between a window and a surrounding roofing having an asymmetrical profiling.

[0009] In a first aspect, this and further objects are met by a flashing arrangement according to claim 1, in which the gutter element and the apron element are each asymmetrical relative to the middle axis and are each provided with a shape adapted to accommodate the surrounding roofing, and wherein the gutter element comprises a middle gutter piece adapted to be connected to the frame of the window, a roofing-supporting piece providing the shape to accommodate the surrounding roofing, and a left-hand gutter side piece and a right-hand gutter side piece asymmetrical relative to each other.

[0010] In this manner, a virtually fail-safe installation is ensured, and an excellent fit between the flashing arrangement and the roofing is provided. The provision of asymmetrically shaped flashing elements which furthermore provide for accommodation of the roofing has turned out to meet even the strictest demands to a flawless transition and inconspicuous appearance of the win-

dow in the roof in the mounted condition.

[0011] Further embodiments and advantages are set forth in the dependent claims, and will be apparent from the accompanying description of preferred embodiments.

[0012] In the following the invention will be described in further detail by means of examples of embodiments with reference to the schematic drawings, in which

Figs 1A and 1B are perspective views of a window with a flashing arrangement in an embodiment of the invention;

Fig. 2 is a view of the window of Figs 1A and 1B, with two tiles indicated schematically;

Figs 3, 4 and 5 are schematic, fragmentary perspective views, on a larger scale, of a window in one embodiment of the invention;

Fig. 6 is a perspective view of details of the window in the embodiment of Figs 3, 4 and 5;

Fig. 7 is a perspective view, on a larger scale, of a detail of Fig. 6;

Figs 8A and 8B are end views, on a larger scale, of the detail of Fig. 7 cooperating with a lining panel in two different installation situations;

Figs 9A to 9B and 10 are schematic perspective views of a window

Fig. 9c is a cross-sectional fragmentary view along the line IX-IX in Fig. 9A;

Fig. 11 is a schematic perspective view of an alternative window;

Fig. 12A is a perspective view of an underfelt collar of the window of Figs 9A-9B, 10 and 11;

Fig. 12B is a perspective view of a prior art underfelt collar;

Fig. 13 is a perspective view of a flashing arrangement of a still further embodiment of the system according to the invention;

Fig. 14 is an exploded perspective view of the flashing arrangement shown in Fig. 13;

Figs 15 and 16 are further exploded perspective views of details the flashing arrangement of Fig. 14; and

Figs 17 and 18 are perspective views, on a larger scale, of a detail of the flashing arrangement of Fig. 13.

[0013] In Figs 1A, 1B and 2, a window generally designated 1 is shown, in a position representing a mounted condition in an inclined roof with an undulated roofing material such as tiles represented by two tiles 10 in Fig. 2 in an array below and an array above the window 1, respectively, as seen in the direction of inclination of the roof. The supporting roof construction is not shown but typically includes rafters, battens and counter-battens. The frame 3 of the window 1 is connected to the supporting roof construction in any suitable manner, typically by means of a plurality of mounting brackets as is well-known in the art.

[0014] The window 1 comprises a sash 2 hingedly connected to a frame generally designated 3. The sash 2 carries a pane 4.

[0015] The frame 3 is adapted to cooperate with a set of transition assemblies to form a transition to the interior, to the roof construction and to the surrounding roofing, respectively.

[0016] According to the present invention, the transition towards the interior of the building below the window is provided in that the set of transition assemblies comprises a transition assembly in the form of a lining support arrangement 5 connected to the frame 3 and adapted to cooperate with a window lining including a set of lining panels 9 (cf. Figs 8A and 8B) to be described in further detail below with particular reference to Figs 3 to 8B.

[0017] In the embodiment shown in Figs 1A-1B and 2, the window 1 furthermore comprises another transition assembly in the supply condition to form a climate-proofing transition between the window 1 and the roof construction in the mounted condition. In the specific constructions shown in Figs 9A-9C, 10, 11 and 12A, the other transition assembly comprises an underfelt collar 7 connected to the frame 3 of the window 1 in the supply condition. Optionally, the other transition assembly also includes an insulation element 6.

[0018] The transition assemblies described in the above are each the respective subject-matter of Applicant's co-pending patent applications filed on the same date as the present application. The parts of these transition assemblies will not be described in further detail than the below listing of elements:

2 sash

21-24 sash members
25a sash hinge part
25b frame hinge part
25c hinge pin
26 fittings (at bottom sash member 22)
27 opening device

28a guiding console
28b first tap
28c pivot bushing
28d second tap
28e handle portion
29a connecting member
29b link
29c stay arm
29d apertures in stay arm

3 frame

3a first frame
31-34 first frame members
34a side frame covering

3b second frame	
35-38 second frame members	
381 bottom face	
382 side face	
4 pane	
41 exterior pane sheet	
42 interior pane sheet	
5 lining support arrangement	
51-54 lining support members	
531 first frame engaging face/top surface	
532 second frame engaging face/side surface	
532a apertures	
533 back side	
534 first stepped portion	
535 lining engagement portion/bead	
536 second stepped portion	
537 bottom surface	
6 insulation element	
7 underfelt collar	
71 frame engagement section/rim	
72 roof structure engagement section	

[0019] According to the present invention, a weather-tight transition between the window 1 and the surrounding roofing 10 in the mounted condition is provided by means of a transition assembly comprising a flashing arrangement 8. This will be described in further detail with particular reference to Figs 2 and Figs 13 to 18.

[0020] The flashing assembly 8 is typically supplied separately from the window 1 and connected to the frame 3 of the window 1 and to the roofing 10 to attain the mounted condition during an installation process to be described in the following.

[0021] The flashing arrangement 8 defines a middle axis x which is parallel to the inclination of the roof in the mounted condition and forms, in the mounted condition, a transition assembly between the frame 3 of the window 1 and the surrounding roofing 10 having an asymmetrical profiling relative to the roof inclination. The invention is in principle applicable to all kinds of profiled or undulated roofing, including pantiles, S-shaped pantiles, Roman

tiles, double Roman tiles, interlocking tiles, Spanish tiles etc. and of any material including ceramics, clay and concrete, but also plastic and metal materials, and to roofing elements of for instance sheet metal imitating a number of interconnected tiles. Common to all such tiles is that the profiling comprises complementary interlocking border portions to engage with adjacent tiles and consequently the profiling of the roofing is asymmetrical relative to the roof inclination. In the embodiment shown, the flashing arrangement 8 is adapted to a roofing of pantiles having in a manner known *per se* a dishing portion forming a valley and a roll portion forming an apex at the right-hand border of each tile 10, adapted to overlie the left-hand border of the neighbouring tile.

[0022] The flashing arrangement 8 comprising a gutter element 81, an apron element 82 and a plurality of intermediate side elements 83-87 adapted to extend, in the mounted condition, between the gutter element 81 and the apron element 82 substantially in directions parallel to the middle axis x. As indicated in Fig. 2, the gutter element 81 and the apron element 82 are each asymmetrical relative to the middle axis x and are each provided with a shape adapted to accommodate the surrounding roofing 10.

[0023] In the embodiment shown, the gutter element 81 comprises a middle gutter piece 811 adapted to be connected to the frame 3 of the window 1, a roofing-supporting piece 812 providing the shape to accommodate the surrounding roofing 10, and a left-hand gutter side piece 814 and a right-hand gutter side piece 815 asymmetrical relative to each other.

[0024] In one development of the embodiment defined in the above, the middle gutter piece 811 is provided with engagement means, specifically shown in the form of folded flanges 811a, 811b, to cooperate with corresponding engagement means, here shown in the form of folded flanges 814a, 815b, of the left-hand and right-hand gutter side pieces 814, 815, respectively. To improve weather-tightening even further, also a deflector piece 813 connected to the middle gutter piece 811 and the left-hand and right-hand gutter side pieces 814, 815 is provided as a still further development.

[0025] Turning now specifically to Fig. 16, the apron element 82 comprises, in the embodiment shown, an apron piece 821 providing the shape to accommodate the surrounding roofing 10, a middle piece 822 adapted to be connected to the frame 3 of the window 1, and a left-hand side piece 823 and a right-hand side piece 824 asymmetrical relative to each other. The abutment with the subjacent roofing 10 is improved even further in the development including that the apron piece 821 is provided with apron foam 820 on the underside adapted to contact the surrounding roofing 10.

[0026] The pieces of the apron element 82 may in principle be assembled in any suitable manner, but in a presently preferred embodiment as shown in Fig. 16, the apron piece 821 is provided with engagement means, specifically in the form of folded flanges 821a, 821b, to

cooperate with corresponding engagement means, specifically in the form of folded flanges 823a, 824b, of the left-hand and right-hand side pieces 823, 824, respectively. Furthermore, the apron piece 821 is specifically also provided with engagement means 821e to cooperate with corresponding engagement means 822e of the middle piece 822, and specifically also the left-hand and right-hand side pieces 823, 824 are provided with engagement means 823c, 824d to cooperate with the middle piece 822 of the apron element 82.

[0027] Referring again to Figs 13 and 14, the intermediate side elements of the embodiment shown include at least one set of a left-hand water raiser 83 and a right-hand water raiser 84 asymmetrical relative to each other and connected to the apron element 82 in the mounted condition. Specifically, also a left-hand connecting piece 85 and a right-hand connecting piece 86 asymmetrical to each other are present, which in the mounted condition form a connection between one of said at least one set of left-hand and right-hand water raisers 83, 84 and the gutter element 81.

[0028] At the right-hand side of the window 1, the intermediate side elements include at least one roll element, here two roll elements 87, connected to the gutter element 81 and the apron element 82 in the mounted condition, in one side only of the flashing arrangement 8. The roll elements 87 take the place of the roll portion relative to the respective tiles (not shown) to the right of the window 1 in the mounted condition, i.e. overlies the respective left-hand border of those tiles.

[0029] Referring to Figs 17 and 18, each roll element 87 has, in the embodiment shown, on its interior side, as seen in the mounted condition, engagement means formed by a first and second side edges 871, 872, and a bent portion 873 at one end edge, to cooperate with the gutter element 81, the apron element 82, another roll element 87 or other intermediate side element 84, 86 on one side of the flashing arrangement 8 as indicated in Fig. 13. As shown, one of the side edges, here the second side edge 872 is provided with friction-increasing means, more preferably in the form of dimples 875 formed on flange 874.

[0030] Installing the window 1 with the flashing arrangement 8 to provide a weather-tight transition between the window 1 and the surrounding asymmetrically profiled roofing 10 forming part of a roof having a roof construction will be described in further detail below.

[0031] As an initial step, an aperture is prepared in the roofing and the roof structure. This may include appropriate cutting of battens and if necessary inserting and/or moving supplemental rafters. This operation optionally includes partial removal of arrays of roofing 10 above, below and/or at the sides of the window 1.

[0032] The window 1 comprising a frame 3 is provided in a supply condition as described in the above.

[0033] The flashing arrangement 8 is provided in accordance with the above.

[0034] The frame 3 of the window 1 is then connected

to the roof construction.

[0035] The apron element 82 of the flashing arrangement 8 is assembled and connected with the frame 3 of the window 1 and with an array of roofing 10 below the window 1.

[0036] Appropriate intermediate side elements 83-87 are assembled and connected on either side of the frame 3 of the window. The number of intermediate side elements 83-87 depends on a number of factors including the distance between the battens, the length of the individual roofing tiles, the length of the roof window, and the configuration of the gutter element 81 and the apron element 82. Typically the number of opposing sets of left-hand and right-hand water raisers 83, 84 will be one, two or three (here only one) and the number of roll elements 87 on the right-hand side of the window 1 typically comprises between one and five, here two. Typically, the length of an intermediate side element lies in the interval 200 to 500 mm. In the mounted condition, the intermediate side elements are positioned on top of the apron element 82.

[0037] Subsequently, the gutter element 81 is assembled and connected with the frame 3. The gutter element 81 is also connected with an array of roofing 10 above the window 1, optionally by repositioning an array of roofing 10 above the window 1.

[0038] The material of the elements of the flashing arrangement 8 is chosen to match requirements to weather resistance, consumer's wishes for appearance etc. and is typically metal or a metal alloy, for instance aluminium or copper, which is optionally painted or coated.

[0039] The invention should not be regarded as being limited to the embodiments shown in the drawings and described in the above. Several modifications and combinations may be carried out within the scope of the appended claims.

[0040] The different features of the embodiments may be combined.

Claims

1. A flashing arrangement (8) for a window (1) having a supply condition and a mounted condition in an inclined roof comprising a roof construction, the flashing arrangement (8) defining a middle axis (x) adapted to be parallel to the inclination of the roof in the mounted condition and to form, in the mounted condition, a transition assembly between a frame (3) of the window (1) and a surrounding roofing (10) having an asymmetrical profiling relative to the roof inclination, said flashing arrangement (8) comprising a gutter element (81), an apron element (82) and a plurality of intermediate side elements (83-87) adapted to extend, in the mounted condition, between the gutter element (81) and the apron element (82) substantially in directions parallel to said middle axis (x), wherein the gutter element (81) and the

- apron element (82) are each asymmetrical relative to the middle axis (x) and are each provided with a shape adapted to accommodate the surrounding roofing (10), and wherein the intermediate side elements (83-87) include at least one set of a left-hand water raiser acting as a gutter (83) and a right-hand water raiser acting as a gutter (84) asymmetrical relative to each other and connected to the apron element (82) and the gutter element (81) in the mounted condition, **characterized in that** the gutter element (81) comprises a middle gutter piece (811) adapted to be connected to the frame (3) of the window (1), a roofing-supporting piece (812) providing the shape to accommodate the surrounding roofing (10), and a left-hand gutter side piece (814) and a right-hand gutter side piece (815) asymmetrical relative to each other, and **in that** the intermediate side elements (83-87) include at least one bent roll element (87) connected to the gutter element (81) and the apron element (82) in the mounted condition, in one side only of the flashing arrangement (8) so as to overlie the border of the tiles on said side only, preferably also a left-hand connecting piece (85) and a right-hand connecting piece (86) asymmetrical to each other and adapted to form a connection between one of said at least one set of left-hand and right-hand water raisers acting as gutters (83, 84) and the gutter element (81).
2. A flashing arrangement according to claim 1, wherein the middle gutter piece (811) is provided with engagement means, preferably in the form of folded flanges (811a, 811b), to cooperate with corresponding engagement means, preferably in the form of folded flanges (814a, 815b), of the left-hand and right-hand gutter side pieces (814, 815), respectively, and preferably also a deflector piece (813) connected to the middle gutter piece (811) and the left-hand and right-hand gutter side pieces (814, 815).
 3. A flashing arrangement according to any one of the preceding claims, wherein the apron element (82) comprises an apron piece (821) providing the shape to accommodate the surrounding roofing (10), a middle piece (822) adapted to be connected to the frame (3) of the window (1), and a left-hand side piece (823) and a right-hand side piece (824) asymmetrical relative to each other, the apron piece (821) preferably being provided with apron foam (820) on the underside adapted to contact the surrounding roofing (10).
 4. A flashing arrangement according to claim 3, wherein the apron piece (821) is provided with engagement means, preferably in the form of folded flanges (821a, 821b), to cooperate with corresponding engagement means, preferably in the form of folded flanges (823a, 824b), of the left-hand and right-hand side pieces (823, 824), respectively, and preferably with engagement means (821e) to cooperate with corresponding engagement means (822e) of the middle piece (822), and more preferably also the left-hand and right-hand side pieces (823, 824) are provided with engagement means (823c, 824d) to cooperate with the middle piece (822) of the apron element (82).
 5. A flashing arrangement according to any one of the preceding claims, wherein each bent roll element (87) on its interior side, as seen in the mounted condition, is provided with engagement means formed by a first and second side edges (871, 872), and a bent portion (873) at one end edge, to cooperate with the gutter element (81), the apron element (82), another bent roll element (87) or other intermediate side element (84, 86) on one side of the flashing arrangement (8), at least one of said first and second side edges (871, 872) being provided with friction-increasing means, more preferably in the form of dimples (875).
 6. A system comprising a window (1) having a supply condition and a mounted condition in an inclined roof including a surrounding roofing (10) having an asymmetrical profiling relative to the roof inclination, the window (1) comprising a frame (3) adapted to cooperate with a set of transition assemblies in the mounted condition, one transition assembly being a flashing arrangement (8) according to any one of claims 1 to 5, the system comprising said flashing arrangement (8), wherein said flashing arrangement (8) is adapted to be connected to the frame (3) of the window (1) and to the roofing (10) to attain the mounted condition.
 7. A method of providing a weather-tight transition between a window (1) and a surrounding asymetrically profiled roofing (10) forming part of a roof having a roof construction, comprising the steps of preparing an aperture in the roofing and the roof structure, optionally including partial removal of arrays of roofing (10), providing the window (1) comprising a frame (3) in a supply condition, providing a transition assembly in the form of a flashing arrangement according to any one of claims 1 to 5, connecting the frame (3) of the window (1) to the roof construction, assembling and connecting the apron element (82) of the flashing arrangement (8) with the frame (3) of the window (1) and with an array of roofing (10) below the window (1), assembling and connecting appropriate intermediate side elements (83-87) on either side of the frame (3) of the window, assembling and connecting the gutter element (81) with the frame (3), and connecting the gutter element

(81) with an array of roofing (10) above the window (1), optionally by repositioning an array of roofing (10) above the window (1).

Patentansprüche

1. Eindeckungsanordnung (8) für ein Fenster (1) mit einem Bereitstellungszustand und einem Einbauzustand in einem geneigten Dach mit einer Dachkonstruktion, wobei die Eindeckungsanordnung (8) eine Mittelachse (x) definiert, die dazu angepasst ist, im Einbauzustand parallel zur Neigung des Daches zu verlaufen, und im Einbauzustand eine Übergangsanordnung zwischen einem Rahmen (3) des Fensters (1) und einer umgebenden Bedachung (10), die ein asymmetrisches Profil in Bezug auf die Dachneigung aufweist, zu bilden, wobei die Eindeckungsanordnung (8) ein Rinnenelement (81), ein Schürzenelement (82) und eine Anzahl an Zwischenseitenelementen (83-87), die dazu angepasst sind, sich im Einbauzustand zwischen dem Rinnenelement (81) und dem Schürzenelement (82) im Wesentlichen in Richtungen parallel zur Mittelachse (x) zu erstrecken, aufweist, wobei das Rinnenelement (81) und das Schürzenelement (82) jeweils asymmetrisch relativ zu der Mittelachse (x) liegen und jeweils mit einer Form versehen sind, die dazu angepasst ist, die umgebende Bedachung (10) aufzunehmen, und wobei die Zwischenseitenelemente (83-87) wenigstens einen Satz einer linken Wasserkonsole, die als Rinne (83) wirkt, und einer rechten Wasserkonsole, die als Rinne (84) wirkt, aufweisen, wobei die linke und rechte Wasserkonsole asymmetrisch zueinander liegen und im Einbauzustand mit dem Schürzenelement (82) und dem Rinnenelement (81) verbunden sind, **dadurch gekennzeichnet, dass** das Rinnenelement (81) ein mittleres Rinnenstück (811), das dazu angepasst ist, mit dem Rahmen (3) des Fensters (1) verbunden zu werden, ein Bedachungsträgerstück (812), das die Form für die Aufnahme der umgebenden Bedachung (10) bereitstellt, und ein linkes Rinnenseitenstück (814) und ein rechtes Rinnenseitenstück (815), die asymmetrisch zueinander verlaufen, aufweist, und **dass** die Zwischenseitenelemente (83-87) wenigstens ein gebogenes Rollelement (87) aufweisen, das im Einbauzustand mit dem Rinnenelement (81) und dem Schürzenelement (82) nur auf einer Seite der Eindeckungsanordnung (8) verbunden ist, so dass es den Rand der Dachziegel nur auf der einen Seite überragt, wobei die Zwischenseitenelemente (83-87) vorzugsweise auch ein linkes Verbindungsstück (85) und ein rechtes Verbindungsstück (86) aufweisen, die asymmetrisch zueinander liegen und dazu angepasst sind, eine Verbindung zwischen einem aus dem wenigstens einen Satz von als Rinnen

(83, 84) wirkenden linken und rechten Wasserkonsolen und dem Rinnenelement (81) herzustellen.

2. Eindeckungsanordnung nach Anspruch 1, wobei das mittlere Rinnenstück (811) mit Angriffsmitteln versehen ist, vorzugsweise in Form von gefalteten Flanschen (811a, 811b), zum Zusammenwirken mit entsprechenden Angriffsmitteln, vorzugsweise in der Form von gefalteten Flanschen (814a, (814b), der jeweils linken und rechten Rinnenseitenstücke (814, 815), und wobei vorzugsweise ferner ein Deflektorstück (813) mit dem mittleren Rinnenstück (811) und den linken und rechten Rinnenseitenstücken (814, 815) verbunden ist.
3. Eindeckungsanordnung nach einem der vorhergehenden Ansprüche, wobei das Schürzenelement (82) ein Schürzenstück (821), das die Form zur Aufnahme der umgebenden Bedachung (10) bereitstellt, ein Mittelstück (822), das dazu angepasst ist, mit dem Rahmen (3) des Fensters (1) verbunden zu werden, und ein linkes Seitenstück (823) und ein rechtes Seitenstück (824), die asymmetrisch zueinander verlaufen, aufweist, wobei das Schürzenstück (821) vorzugsweise mit Schürzenschaum (820) an der Unterseite, die dazu angepasst ist, die umgebende Bedachung (10) zu berühren, versehen ist.
4. Eindeckungsanordnung nach Anspruch 3, wobei das Schürzenstück (821) mit Angriffsmitteln versehen ist, vorzugsweise in Form von gefalteten Flanschen (821a, 821b), zum Zusammenwirken mit entsprechenden Angriffsmitteln, vorzugsweise in Form von gefalteten Flanschen (823a, 824b) der jeweils linken und rechten Seitenstücke (823, 824), und vorzugsweise auch mit Angriffsmitteln (821e) zum Zusammenwirken mit entsprechenden Angriffsmitteln (822e) des Mittelstücks (822), und wobei besonders bevorzugt auch die linken und rechten Seitenstücke (823, 824) mit Angriffsmitteln (823c, 824d) zum Zusammenwirken mit dem Mittelstück (822) des Schürzenelements (82) versehen sind.
5. Eindeckungsanordnung nach einem der vorhergehenden Ansprüche, wobei jedes gebogene Rollelement (87) im Einbauzustand auf seiner Innenseite mit Angriffsmitteln, die durch erste und zweite Seitenränder (871, 872) gebildet werden, und mit einem gebogenen Abschnitt (873) an einem Endrand zum Zusammenwirken mit dem Rinnenelement (81), dem Schürzenelement (82), einem anderen gebogenen Rollelement (87) oder anderen Zwischenseitenelementen (84, 86) auf einer Seite der Eindeckungsanordnung (8) versehen ist, wobei wenigstens einer der ersten und zweiten Seitenränder (871, 872) mit reibungsverstärkenden Mitteln, besonders bevorzugt in Form von Vertiefungen (875), versehen ist.

6. System mit einem Fenster (1) aufweisend einen Bereitstellungs-
zustand und einen Einbauzustand in einem geneigten Dach mit einer umgebenden Bedachung (10), die ein asymmetrisches Profil relativ zur Dachneigung aufweist, wobei das Fenster (1) einen Rahmen (3) aufweist, der dazu angepasst ist, im Einbauzustand mit einem Satz von Übergangsanordnungen zusammenzuwirken, wobei eine Übergangsanordnung eine Eindeckungsanordnung (8) nach einem der Ansprüche 1 bis 5 ist, wobei das System die Eindeckungsanordnung (8) aufweist, wobei die Eindeckungsanordnung (8) dazu angepasst ist, mit dem Rahmen (3) des Fensters (1) und der Bedachung (10) verbunden zu werden, um den Einbauzustand zu verwirklichen.
7. Verfahren zum Bereitstellen eines wetterdichten Übergangs zwischen einem Fenster (1) und einer umgebenden asymmetrisch profilierten Bedachung (10), die Teil eines Daches mit einer Dachkonstruktion bildet, aufweisend die Schritte des Vorbereitens einer Öffnung in der Bedachung und der Dachstruktur, wahlweise mit teilweiser Entfernung von Abschnitten der Bedachung (10), Bereitstellens des Fensters (1) mit einem Rahmen (3) in einem Bereitstellungs-
zustand, Bereitstellens einer Übergangsanordnung in Form einer Eindeckungsanordnung nach einem der Ansprüche 1 bis 5, Verbindens des Rahmens (3) des Fensters (1) mit der Dachkonstruktion, Zusammenbauens und Verbindens des Schürzen-
elements (82) der Eindeckungsanordnung (8) mit dem Rahmen (3) des Fensters (1) und mit einem Abschnitt der Bedachung (10) unter dem Fenster (1), Zusammenbauens und Verbindens geeigneter Zwischenseitenelemente (83-87) auf jeder Seite des Rahmens (3) des Fensters, Zusammenbauens und Verbindens des Rinnenelements (81) mit dem Rahmen (3), und des Verbindens des Rinnenelements (81) mit einem Abschnitt der Bedachung (10) oberhalb des Fensters (1), wahlweise durch Verlagerung eines Abschnittes der Bedachung (10) über dem Fenster (1).

Revendications

1. Agencement de solin (8) pour une fenêtre (1) présentant un état de fourniture et un état monté dans un toit incliné comprenant une construction de toit, l'agencement de solin (8) définissant un axe milieu (x) adapté pour être parallèle à l'inclinaison du toit dans l'état monté et pour former, dans l'état monté, un ensemble de transition entre un cadre (3) de la fenêtre (1) et une toiture environnante (10) présentant un profil asymétrique par rapport à l'inclinaison de toit, ledit agencement de solin (8) comprenant un

élément de gouttière (81), un élément de tablier (82) et une pluralité d'éléments de côté intermédiaires (83 à 87) adaptés pour s'étendre, dans l'état monté, entre l'élément de gouttière (81) et l'élément de tablier (82) sensiblement dans des directions parallèles audit axe milieu (x), dans lequel l'élément de gouttière (81) et l'élément de tablier (82) sont chacun asymétriques par rapport à l'axe milieu (x) et sont chacun pourvus d'une forme adaptée pour recevoir la toiture environnante (10), et dans lequel les éléments de côté intermédiaires (83 à 87) comportent au moins un ensemble d'un élévateur d'eau gauche servant de gouttière (83) et d'un élévateur d'eau droit servant de gouttière (84) asymétriques l'un par rapport à l'autre et raccordés à l'élément de tablier (82) et à l'élément de gouttière (81) dans l'état monté, **caractérisé en ce que** l'élément de gouttière (81) comprend une pièce de gouttière milieu (811) adaptée pour être raccordée au cadre (3) de la fenêtre (1), une pièce de support de toiture (812) fournissant la forme pour recevoir la toiture environnante (10), et une pièce de côté de gouttière gauche (814) et une pièce de côté de gouttière droite (815) asymétriques l'une par rapport à l'autre, et **en ce que** les éléments de côté intermédiaires (83 à 87) comportent au moins un élément de rouleau courbé (87) raccordé à l'élément de gouttière (81) et à l'élément de tablier (82) dans l'état monté, dans un côté uniquement de l'agencement de solin (8) de façon à recouvrir la bordure des tuiles sur ledit côté uniquement, de préférence également une pièce de raccordement gauche (85) et une pièce de raccordement droite (86) asymétriques l'une par rapport à l'autre et adaptées pour former un raccord entre l'un dudit au moins un ensemble d'élévateurs d'eau gauche et droit servant de gouttières (83, 84) et l'élément de gouttière (81).

2. Agencement de solin selon la revendication 1, dans lequel la pièce de gouttière milieu (811) est pourvue de moyens d'enclenchement, de préférence sous la forme de rebords repliés (811a, 811b), pour coopérer avec des moyens d'enclenchement correspondants, de préférence sous la forme de rebords repliés (814a, 814b), des pièces de côté de gouttière gauche et droite (814, 815), respectivement, et de préférence également d'une pièce de déflecteur (813) raccordée à la pièce de gouttière milieu (811) et aux pièces de côté de gouttière gauche et droite (814, 815).
3. Agencement de solin selon l'une quelconque des revendications précédentes, dans lequel l'élément de tablier (82) comprend une pièce de tablier (821) fournissant la forme pour recevoir la toiture environnante (10), une pièce milieu (822) adaptée pour être raccordée au cadre (3) de la fenêtre (1), et une pièce de côté gauche (823) et une pièce de côté droite

- (824) asymétriques l'une par rapport à l'autre, la pièce de tablier (821) étant de préférence pourvue d'une mousse de tablier (820) sur la face inférieure adaptée pour venir en contact avec la toiture environnante (10).
4. Agencement de solin selon la revendication 3, dans lequel la pièce de tablier (821) est pourvue de moyens d'enclenchement, de préférence sous la forme de rebords repliés (821a, 821b), pour coopérer avec des moyens d'enclenchement correspondants, de préférence sous la forme de rebords repliés (823a, 824b), des pièces de côté gauche et droite (823, 824), respectivement, et de préférence de moyens d'enclenchement (821e) pour coopérer avec des moyens d'enclenchement correspondants (822e) de la pièce milieu (822), et de manière davantage préférée également les pièces de côté gauche et droite (823, 824) sont pourvues de moyens d'enclenchement (823c, 824d) pour coopérer avec la pièce milieu (822) de l'élément de tablier (82).
5. Agencement de solin selon l'une quelconque des revendications précédentes, dans lequel chaque élément de rouleau courbé (87) sur son côté intérieur, dans une vue dans l'état monté, est pourvu de moyens d'enclenchement formés d'un premier et d'un second bord de côté (871, 872), et d'une portion courbée (873) au niveau d'un bord d'extrémité, pour coopérer avec l'élément de gouttière (81), l'élément de tablier (82), un autre élément de rouleau courbé (87) ou un autre élément de côté intermédiaire (84, 86) sur un côté de l'agencement de solin (8), au moins l'un desdits premier et second bords de côté (871, 872) étant pourvu de moyens d'augmentation de frottement, de manière davantage préférée sous la forme de fossettes (875).
6. Système comprenant une fenêtre (1) présentant un état de fourniture et un état monté dans un toit incliné comportant une toiture environnante (10) présentant un profil asymétrique par rapport à l'inclinaison de toit, la fenêtre (1) comprenant un cadre (3) adapté pour coopérer avec un jeu d'ensembles de transition dans l'état monté, un ensemble de transition étant un agencement de solin (8) selon l'une quelconque des revendications 1 à 5, le système comprenant ledit agencement de solin (8), dans lequel ledit agencement de solin (8) est adapté pour être raccordé au cadre (3) de la fenêtre (1) et à la toiture (10) pour parvenir à l'état monté.
7. Procédé de fourniture d'une transition étanche aux intempéries entre une fenêtre (1) et une toiture environnante profilée de façon asymétrique (10) faisant partie d'un toit ayant une construction de toit, comprenant les étapes de préparation d'une ouverture dans la toiture et la structure de toit, comportant facultativement l'enlèvement partiel de rangs de toiture (10), fourniture de la fenêtre (1) comprenant un cadre (3) dans un état de fourniture, fourniture d'un ensemble de transition sous la forme d'un agencement de solin selon l'une quelconque des revendications 1 à 5, raccordement du cadre (3) de la fenêtre (1) à la construction de toit, assemblage et raccordement de l'élément de tablier (82) de l'agencement de solin (8) au cadre (3) de la fenêtre (1) et à un rang de toiture (10) en dessous de la fenêtre (1), assemblage et raccordement d'éléments de côté intermédiaires appropriés (83 à 87) sur chaque côté du cadre (3) de la fenêtre, assemblage et raccordement de l'élément de gouttière (81) au cadre (3), et raccordement de l'élément de gouttière (81) à un rang de toiture (10) au-dessus de la fenêtre (1), facultativement en repositionnant un rang de toiture (10) au-dessus de la fenêtre (1).

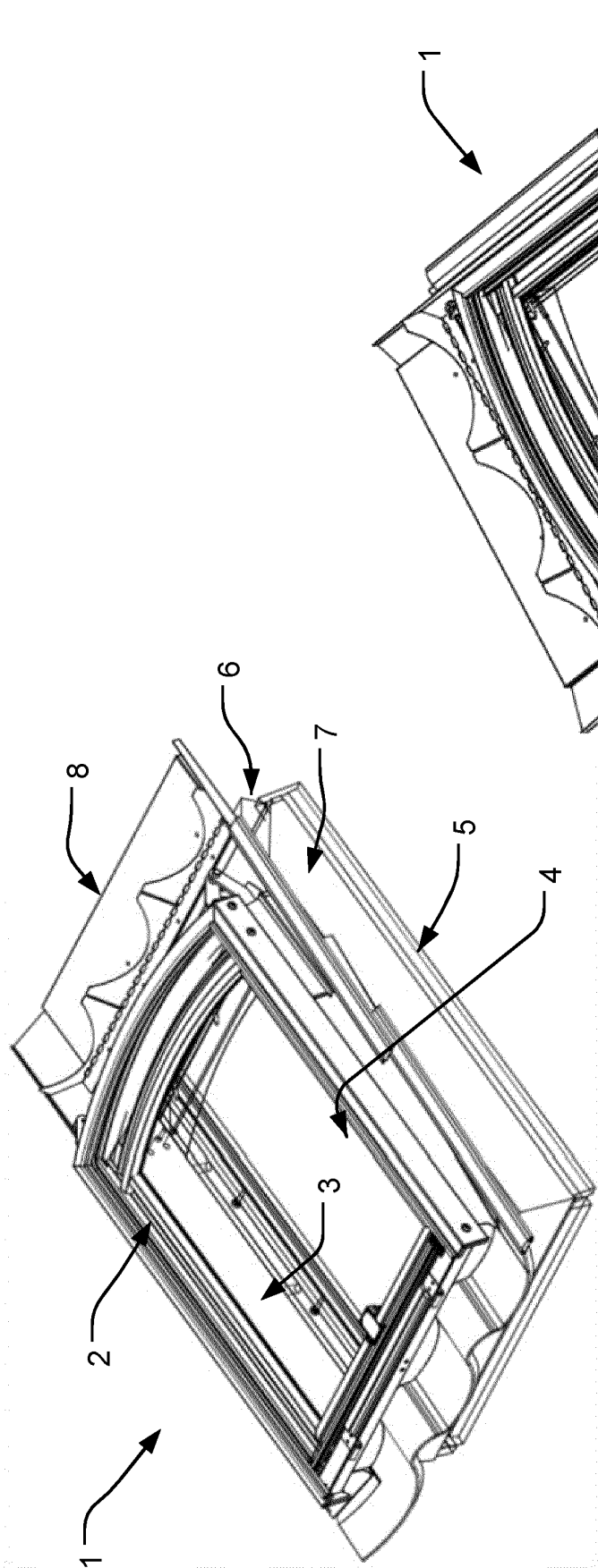


Fig. 1A

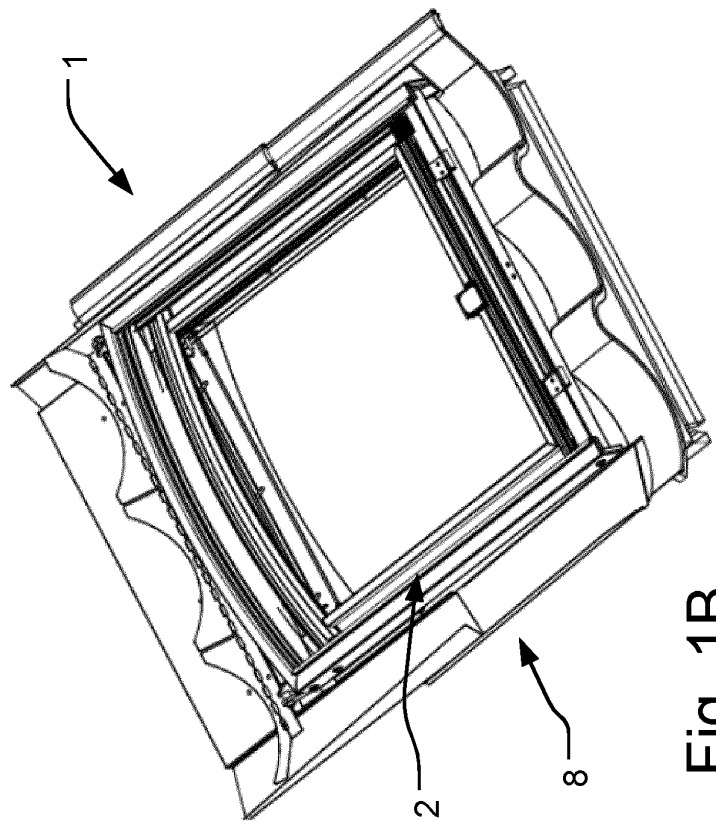
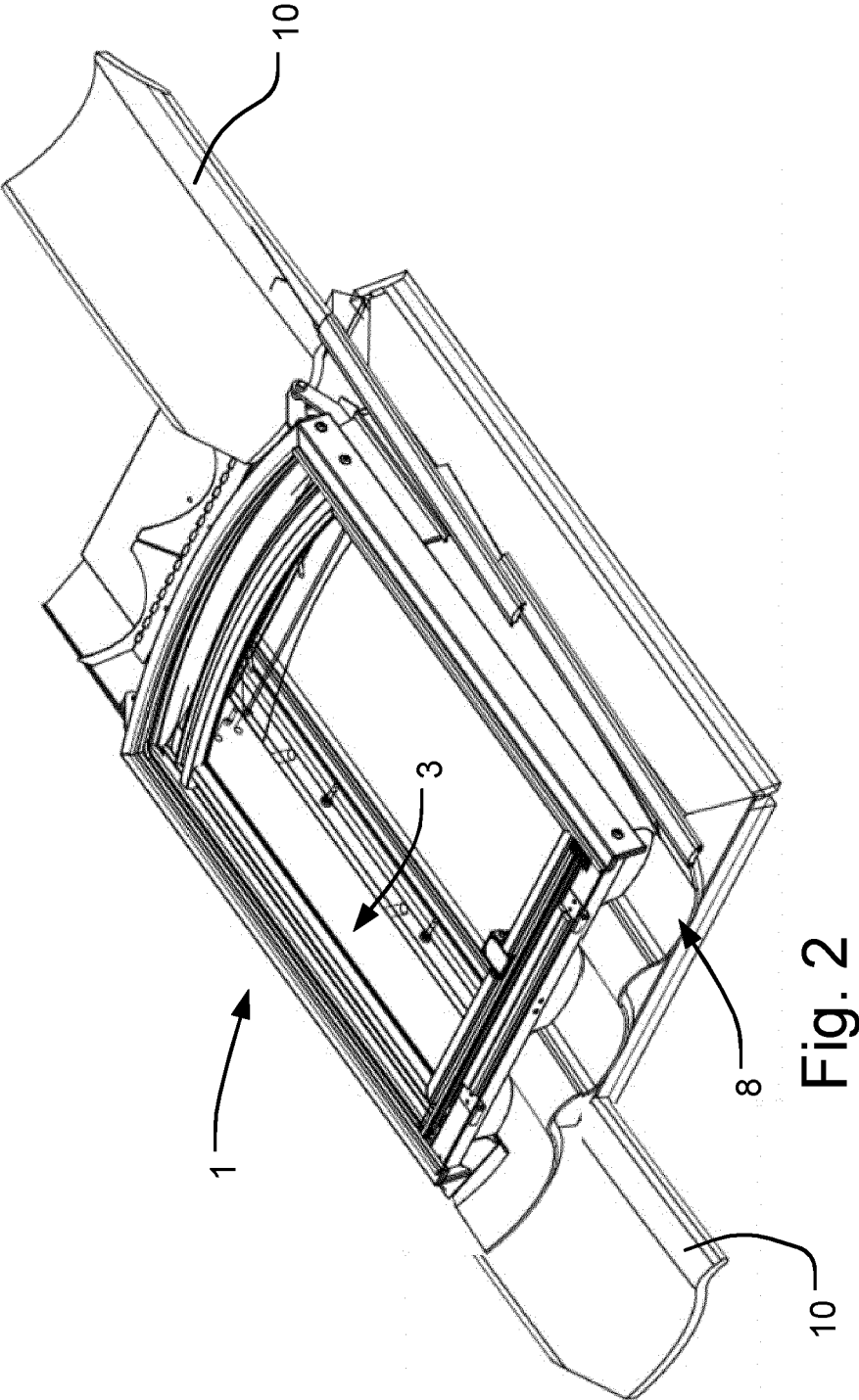


Fig. 1B



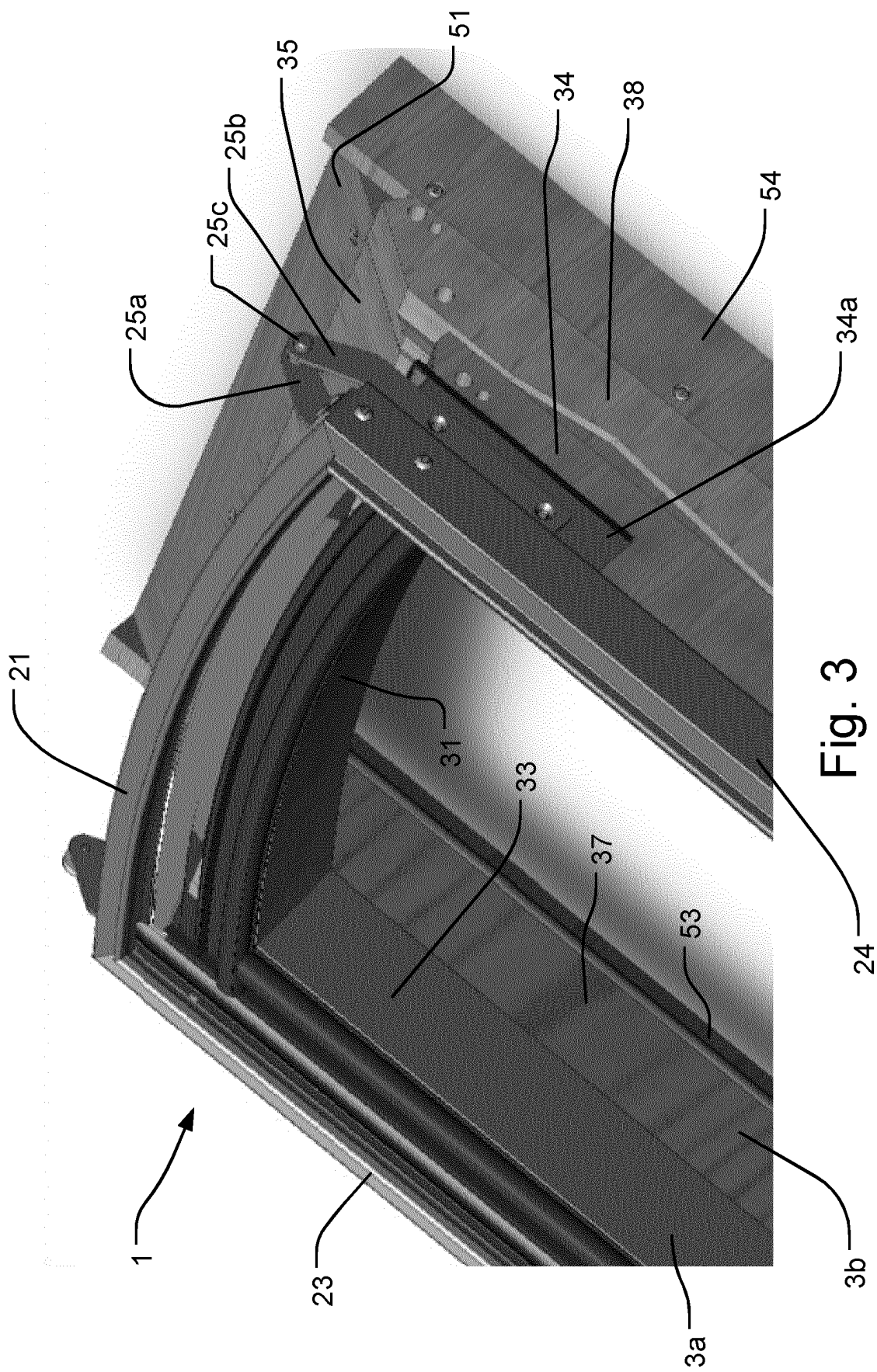


Fig. 3

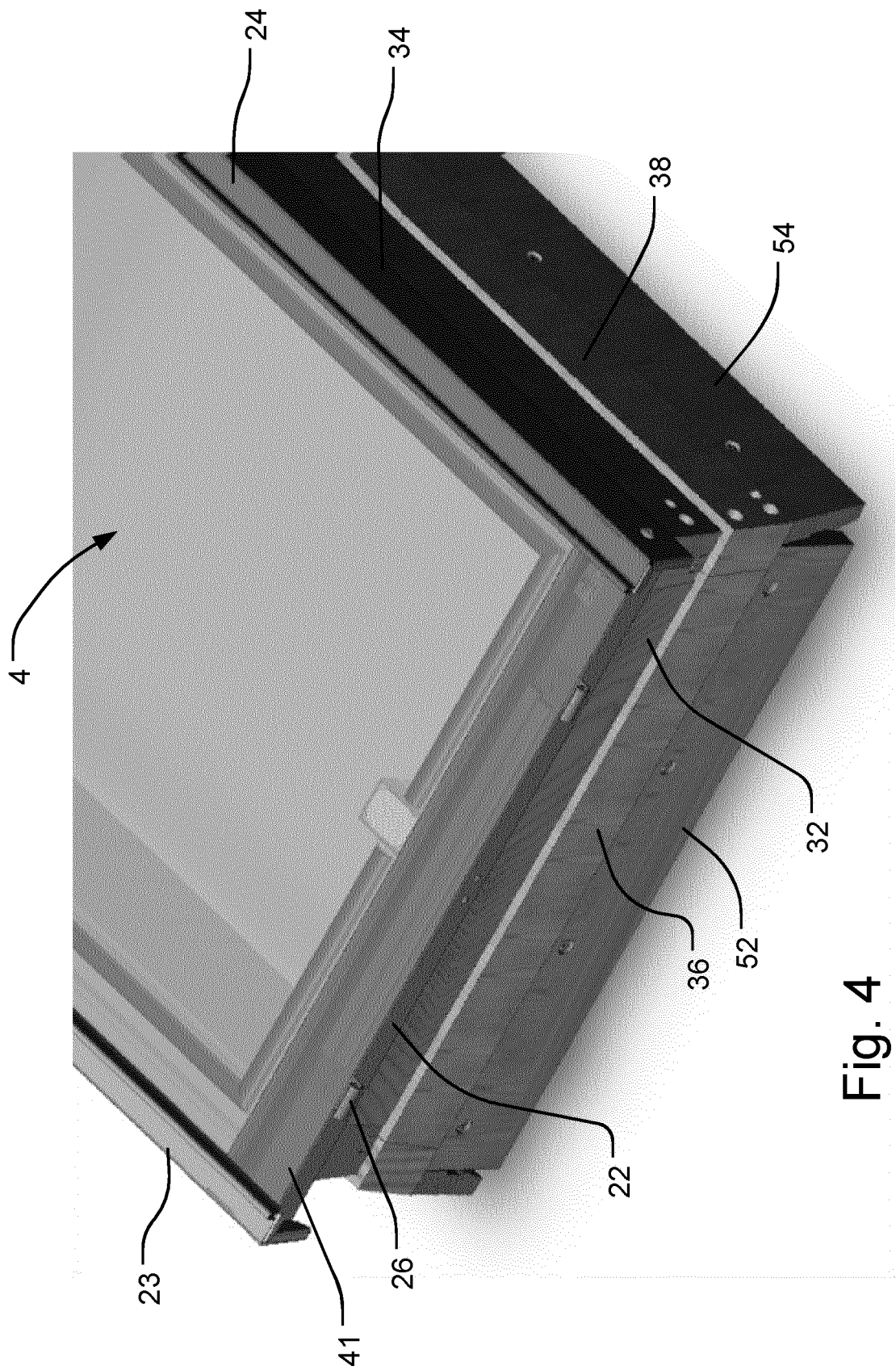


Fig. 4

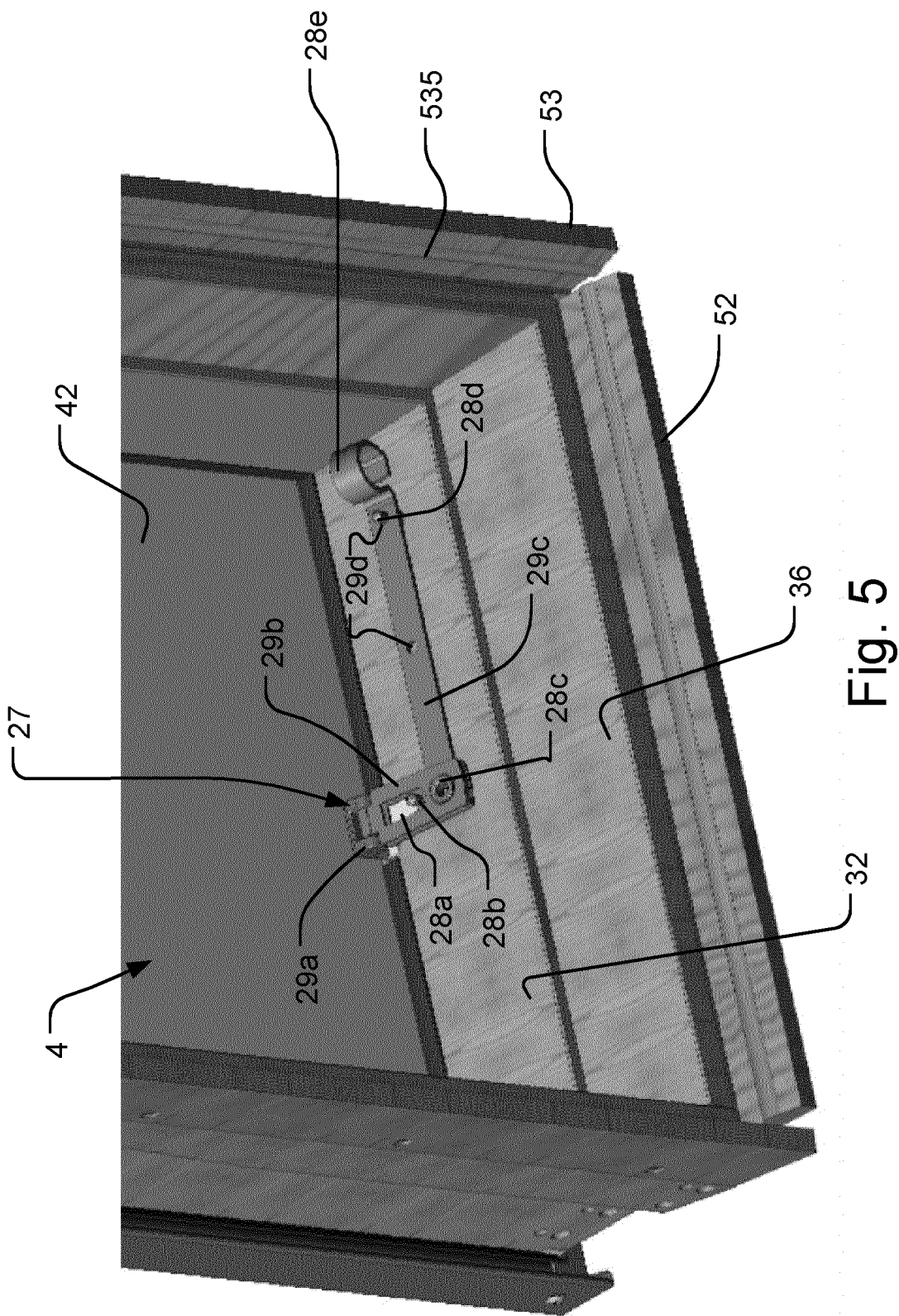
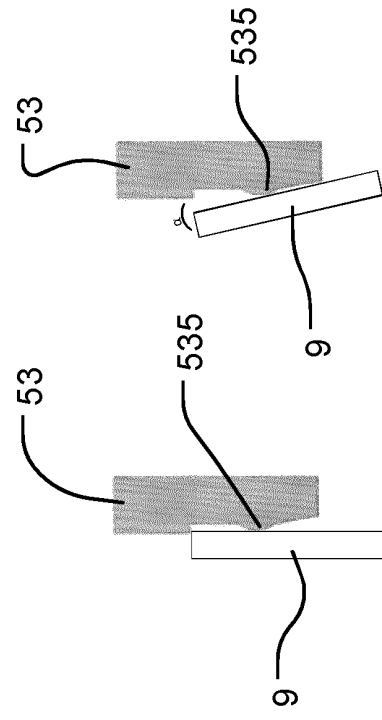
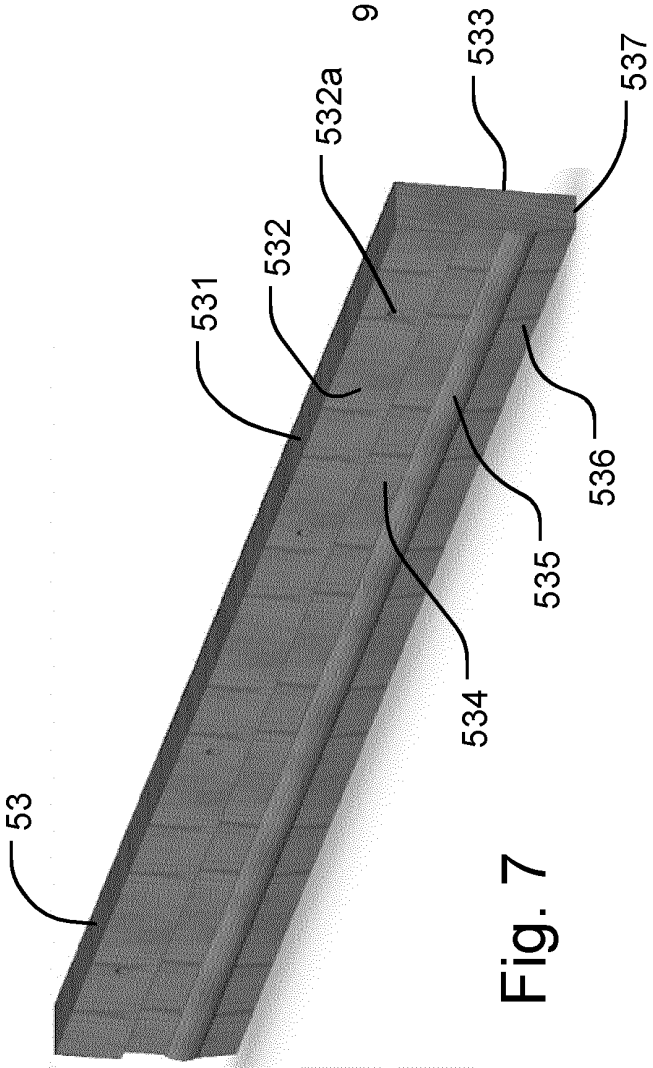
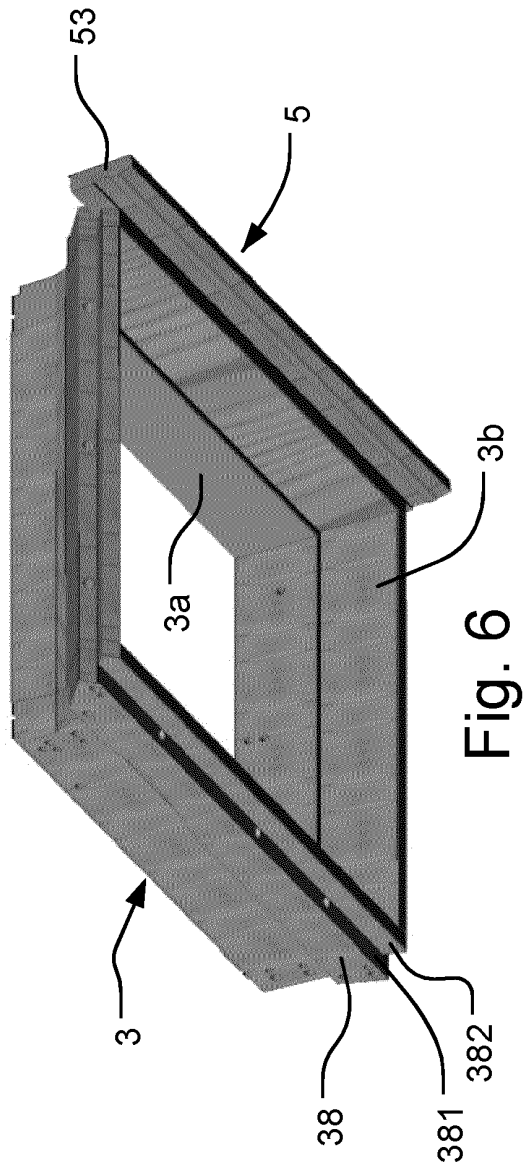


Fig. 5



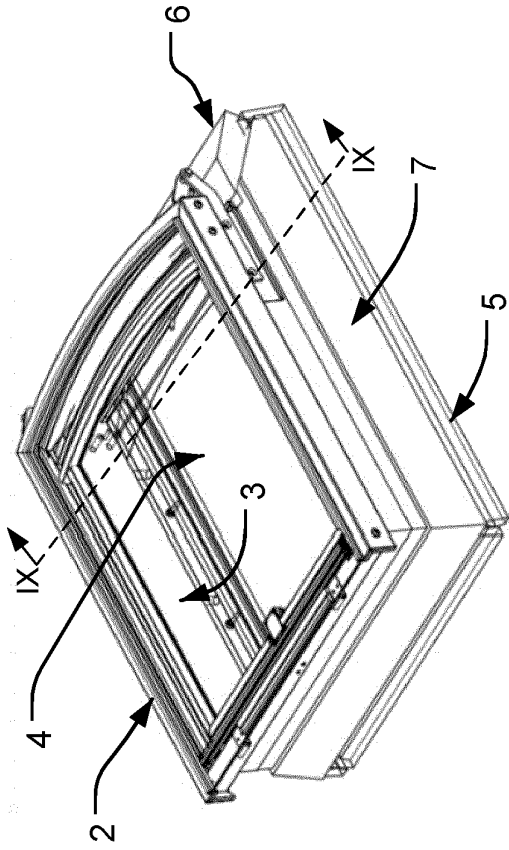


Fig. 9A

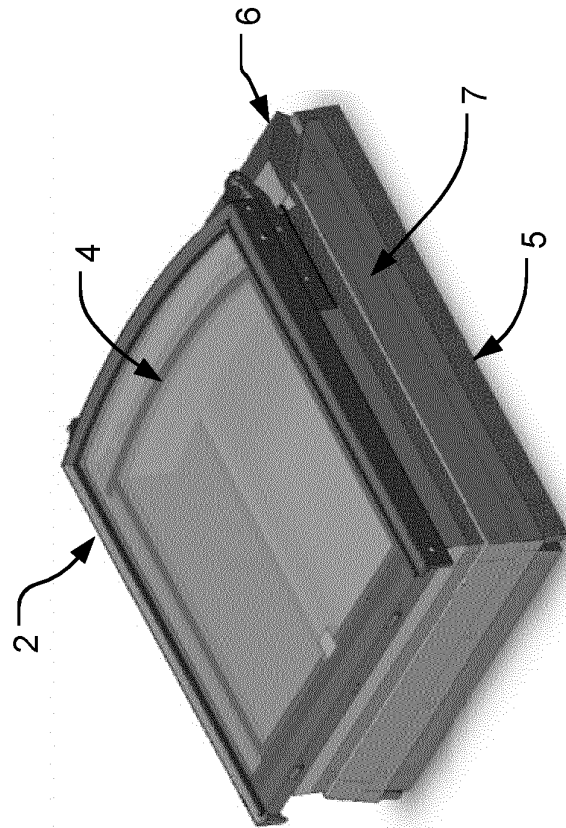


Fig. 9B

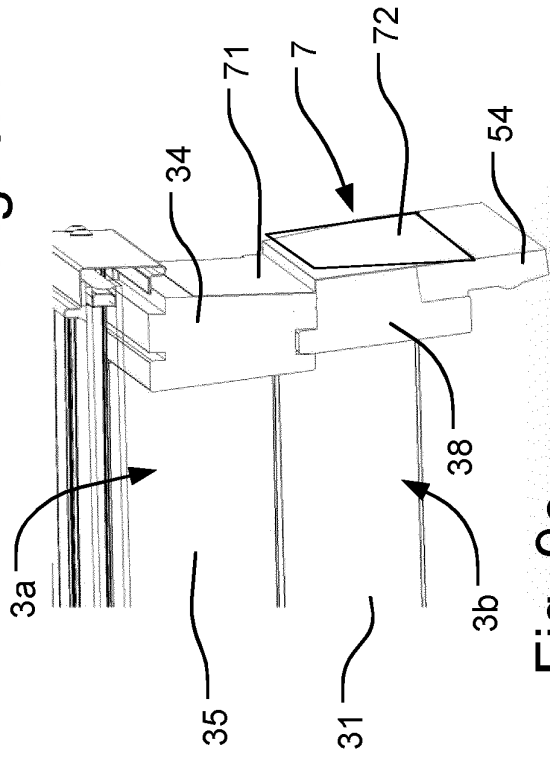
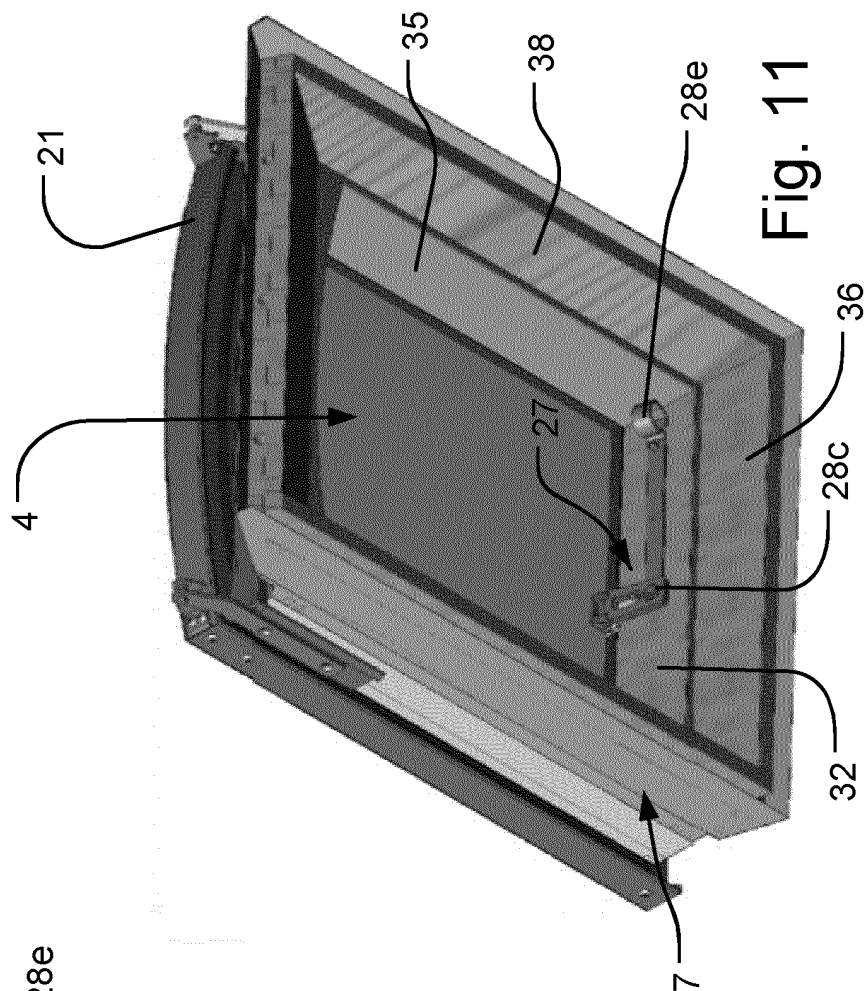
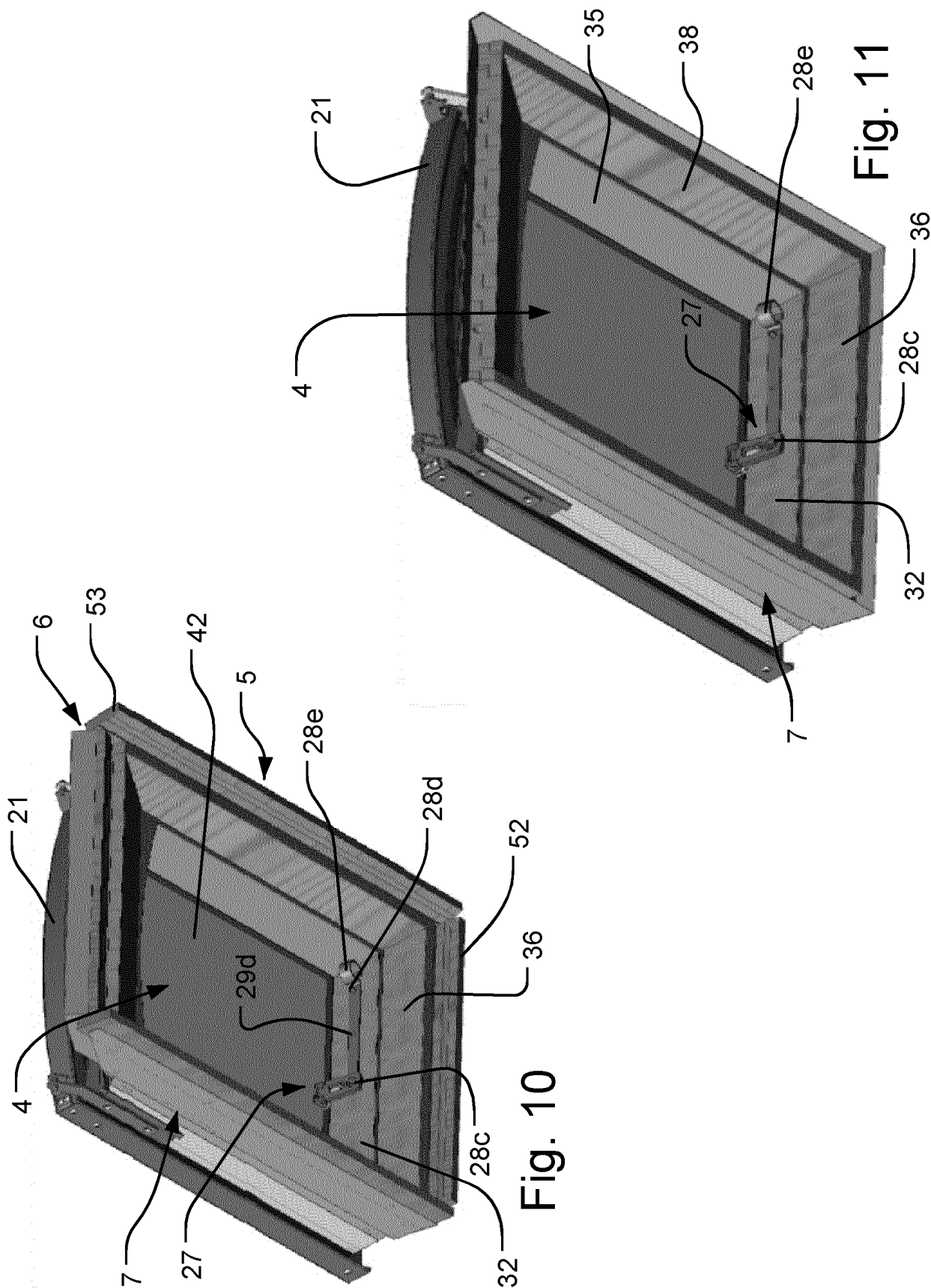
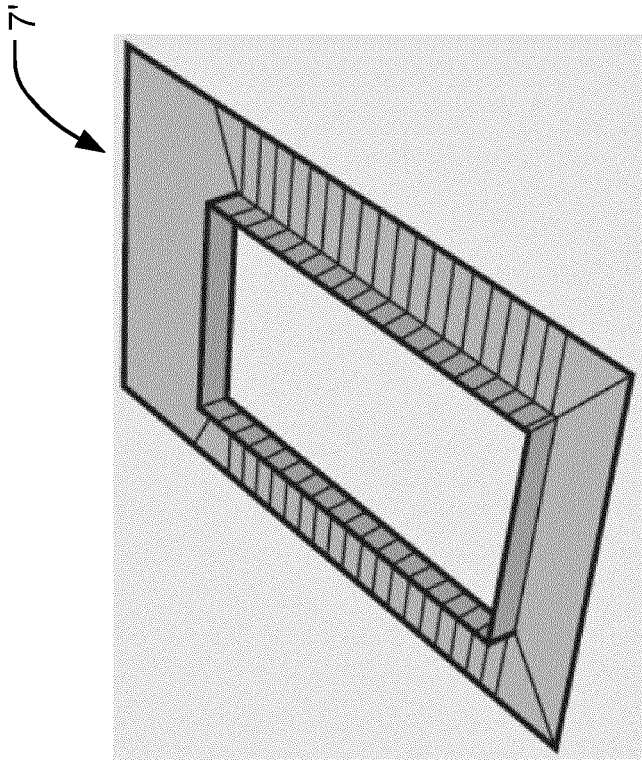
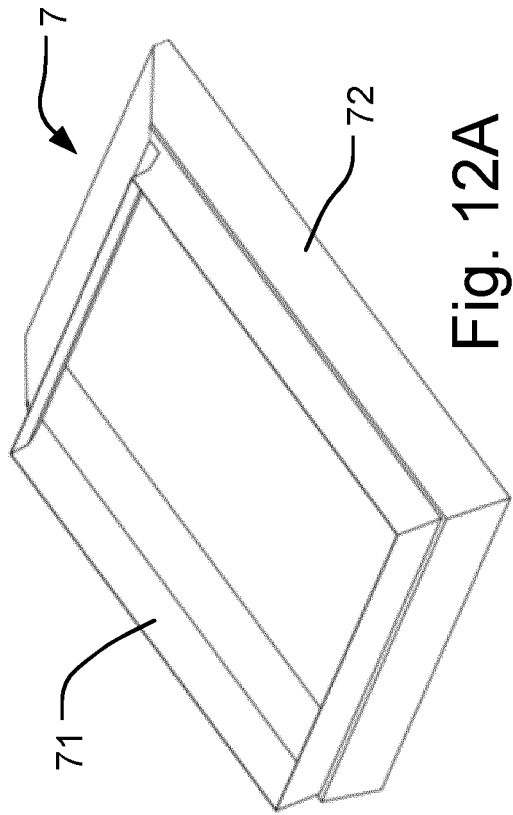


Fig. 9c





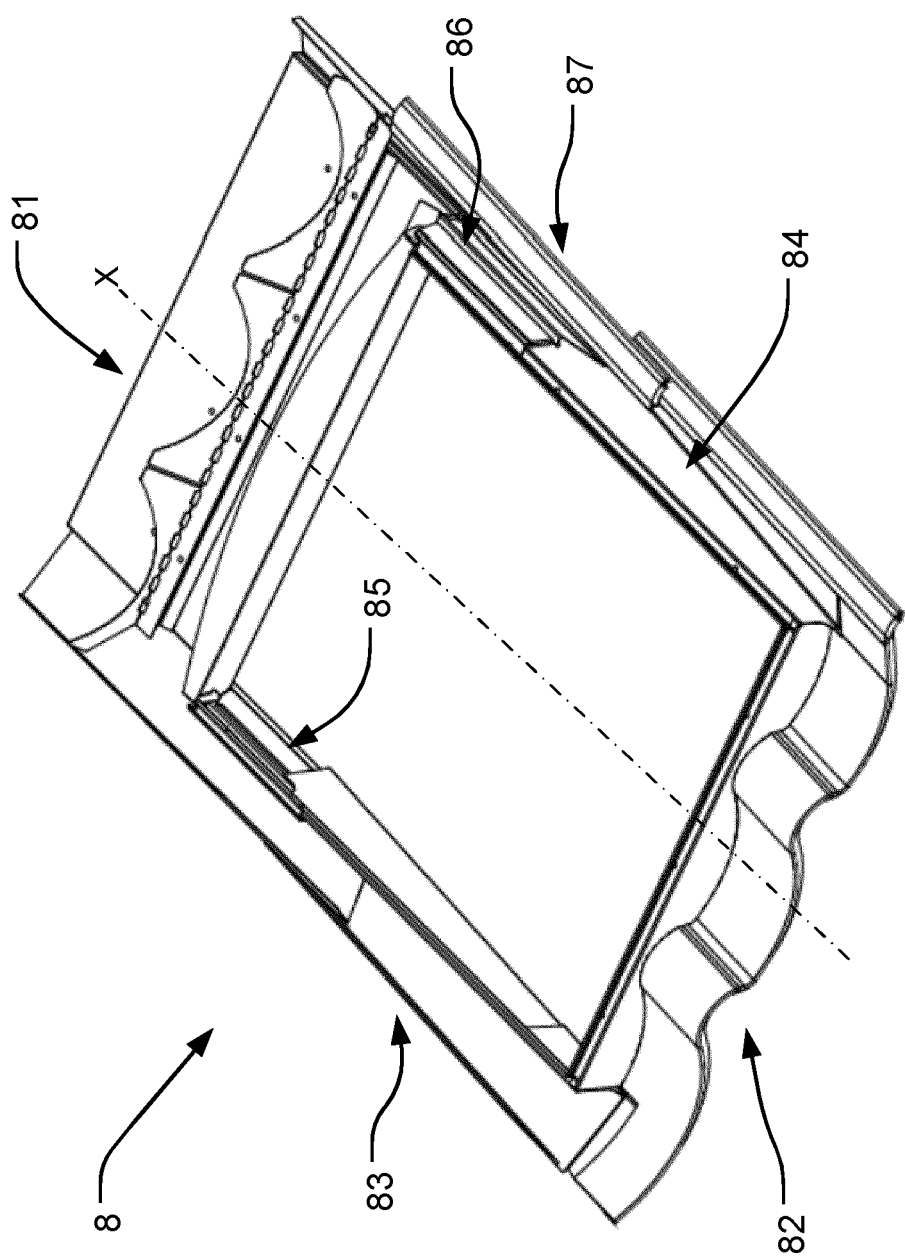


Fig. 13

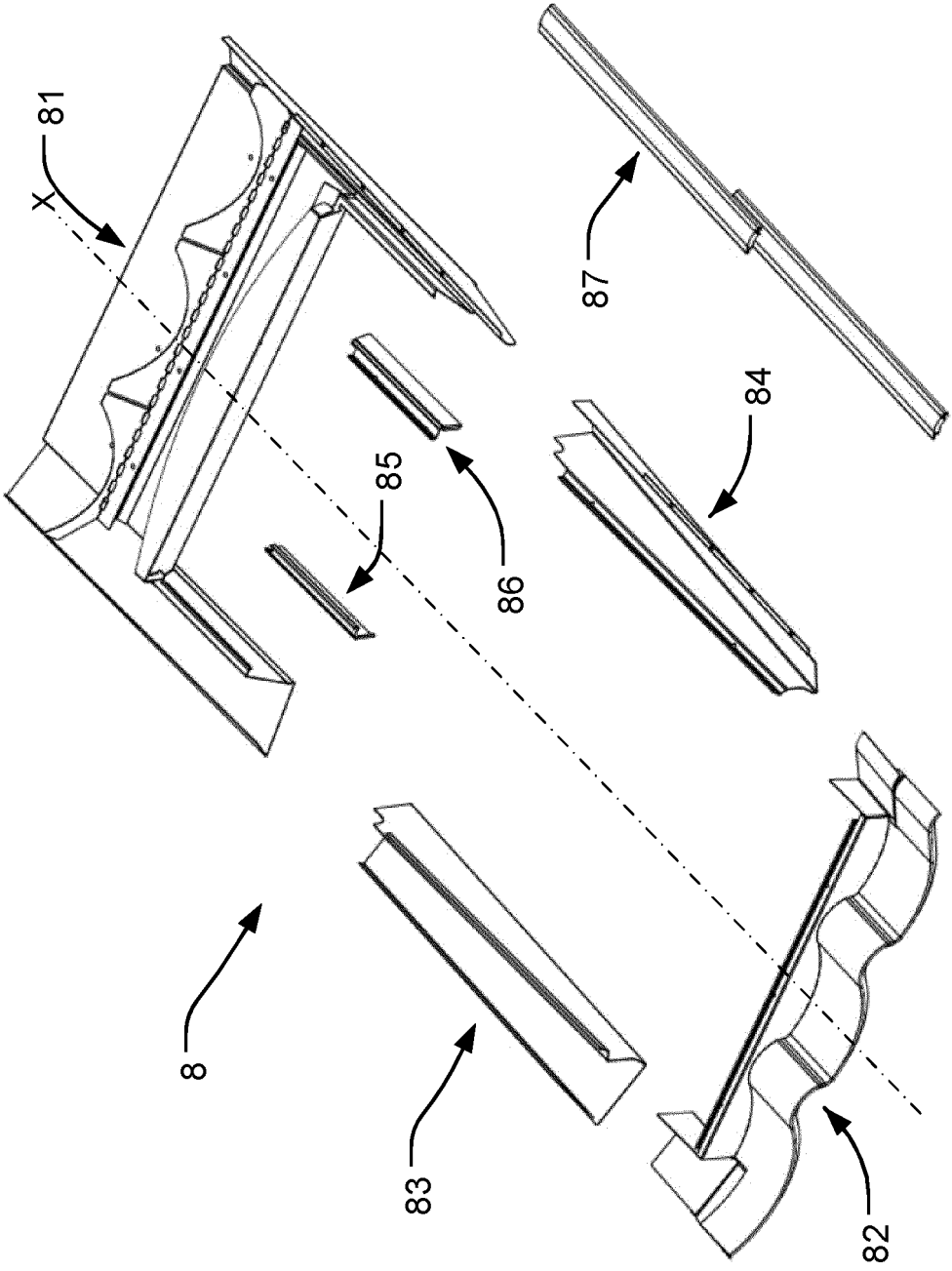


Fig. 14

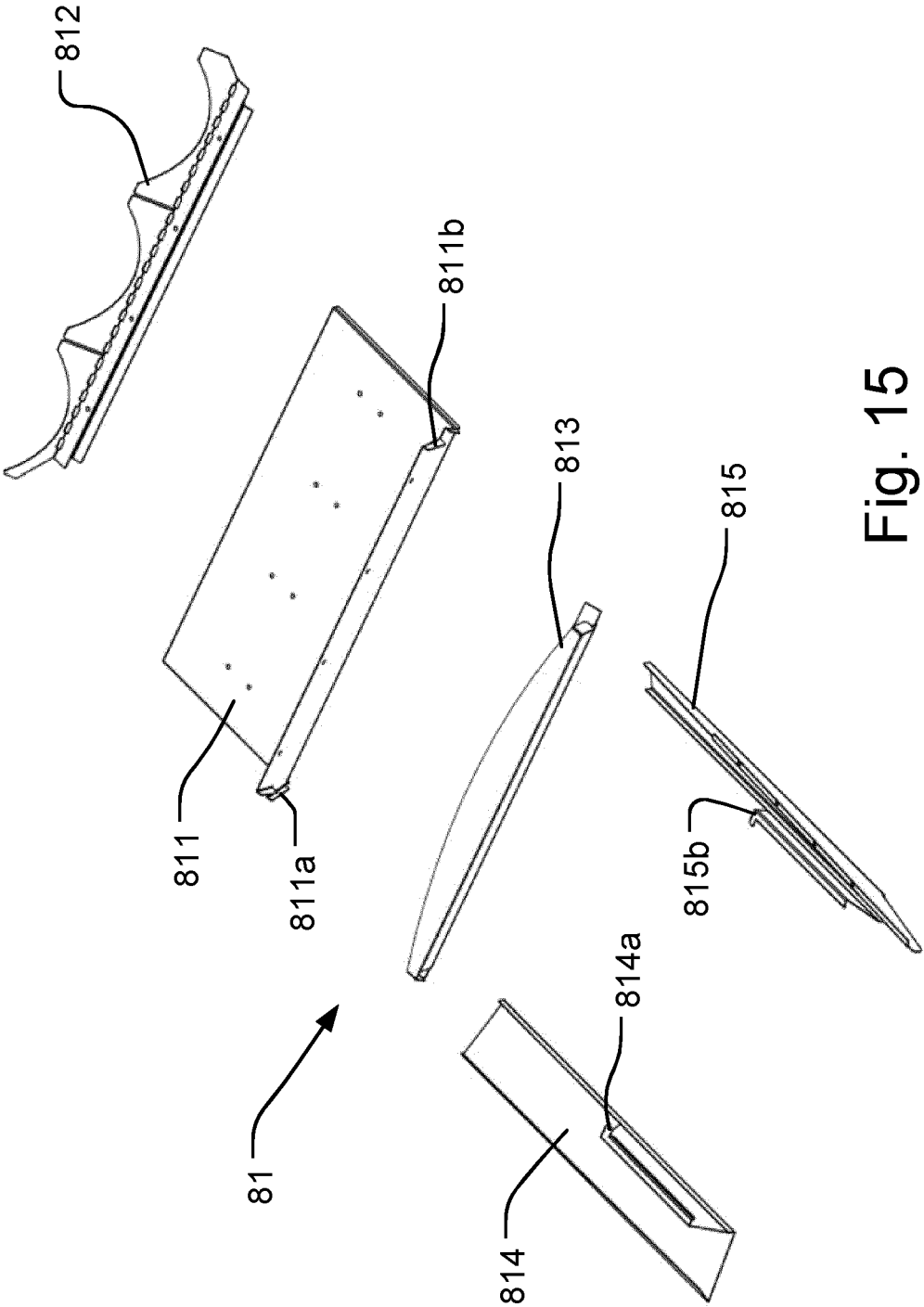


Fig. 15

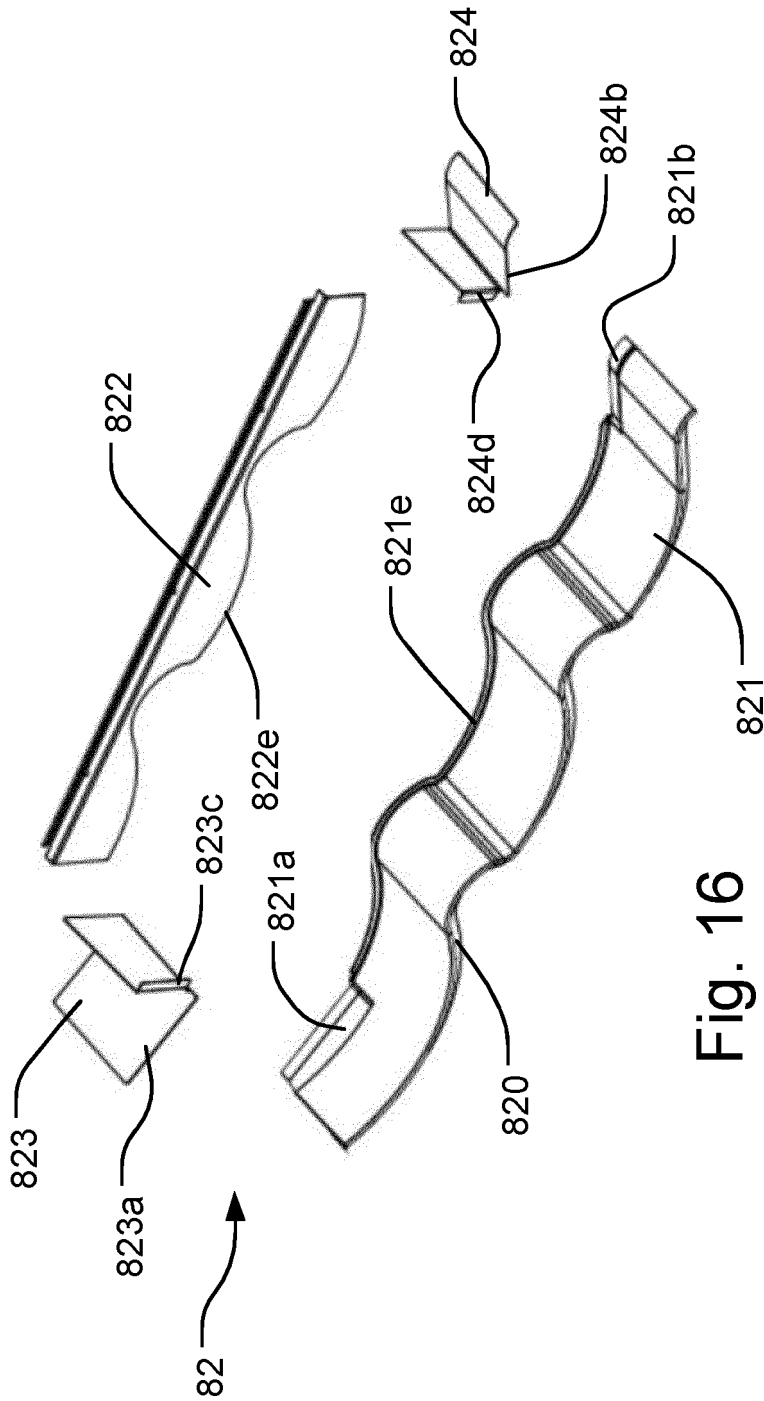
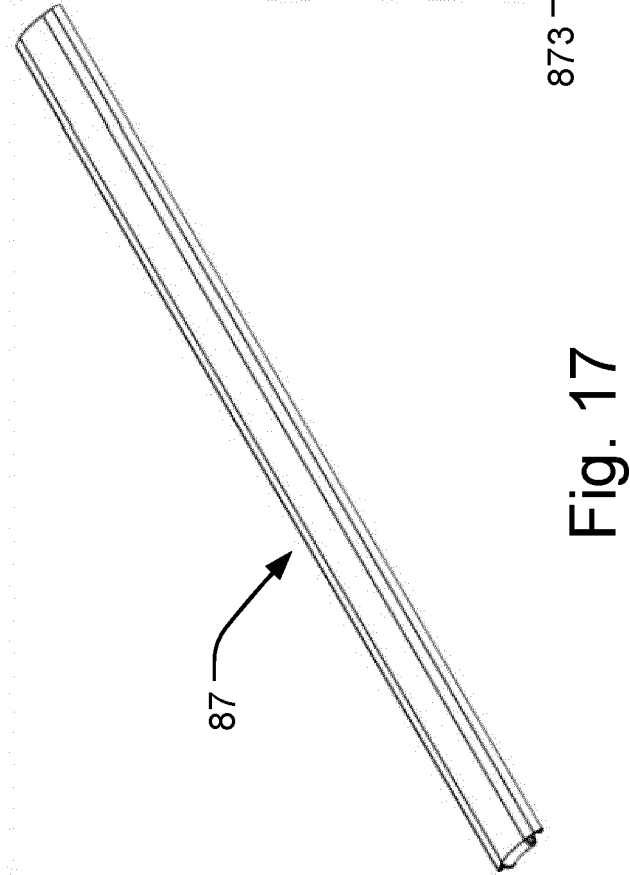
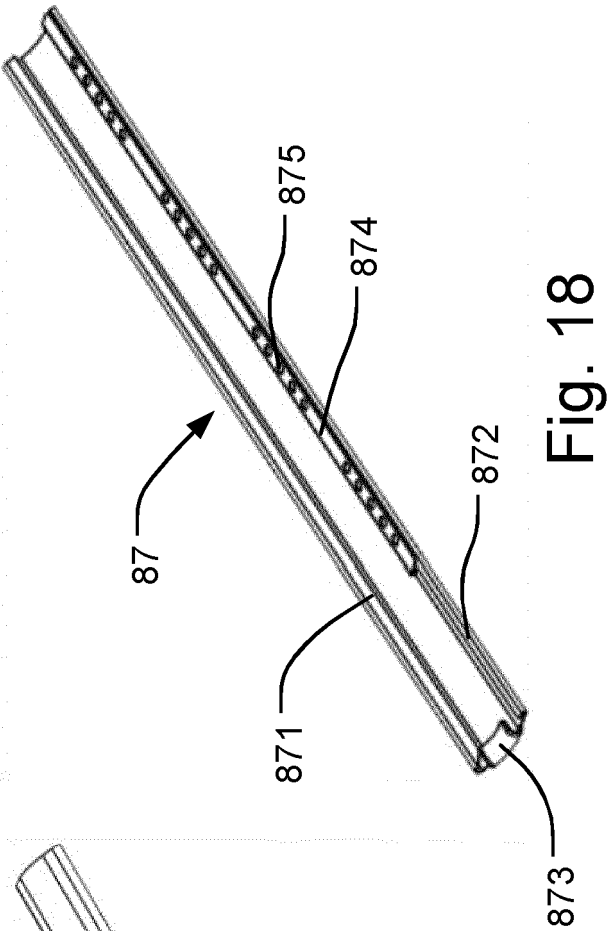


Fig. 16



REFERENCES CITED IN THE DESCRIPTION

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