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(54) **A window lining assembly having an improved mounting fitting**

Fensterauskleidungsanordnung mit verbessertem Montagebeschlag

Ensemble de garniture de fenêtre doté d'une fixation de montage améliorée

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(56) References cited:
US-A- 4 193 238 US-A- 4 527 369
US-A- 4 862 612

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Description

[0001] The present invention relates to window lining assembly comprising a window lining composed by a set of lining panels, a lining frame having a number of lining frame pieces, and a plurality of mounting fittings, each mounting fitting including a first leg for connection to a lining frame piece, and a second leg for connection to a lining panel.

[0002] When installing windows in a façade or a roof, it is desirable to make the transition between the window frame and the inner wall of the room of the building smooth and of a pleasant appearance. The transition is most often made up of a so-called window lining having dimensions to span the distance between the inner side of the window frame to the inner wall. In windows installed in a facade, i.e. substantially vertically, the lining is constituted basically of a box-shaped element composed of a set of lining panels comprising two side members, a top member and a bottom member, all being of a substantially rectangular shape and positioned at right angles to the window frame. The members are traditionally formed of panels or plates of such materials as plywood, gypsum or chipboard.

[0003] In windows mounted in an inclined roof, the geometry of the lining is more complicated. Basically, the side members are positioned at right angles to the window frame, as in facade windows, but the top member is most often virtually horizontal and the bottom member vertical, or the top and bottom assume other angles with the window frame. A number of grounds for this particular design exist, one being that the horizontal top member allows for an increased influx of light, another that the vertical bottom member makes it possible to access the bottom window and optimise the space of the room. Thus, the top member and the bottom member may form an angle other than 90° with the window frame, and the side members have a trapezoidal shape.

[0004] Once the adaptation of the shape of the set of panels composed by the members of the lining has taken place in any suitable manner, a lining frame is provided and connected to the lining panels to provide a finish. The lining frame is mounted substantially perpendicularly to the lining panels and has such dimensions that it protrudes at either side of the end edge of the lining panels to protrude slightly into the aperture on one side and overlaps the inner wall at the other. The lining frame is traditionally formed by profile pieces of a suitable material, such as wood, cut to form mitred ends joined by corner fittings. As only the width of the lining frame is predefined (as it corresponds substantially to the window width), it is only possible to provide the top and bottom pieces of the lining frame as prefabricated parts. The side pieces of the lining frame are cut to the appropriate length, once the side dimensions are known, and joined to the top and bottom pieces by means of the corner fittings. The connection between the lining frame and the lining panels is provided with a number of mounting fittings secured to

the lining frame pieces and to the lining panels, for instance one mounting fitting at each of the top and bottom pieces, and two or three mounting fittings at each side piece, depending on the width and length of the lining frame.

[0005] In the prior art, a number of solutions have been proposed to facilitate the installation of window lining assemblies. One example is shown in DE 101 45 052 A1.

[0006] In this document, a mounting fitting is devised as formed by a single piece cut out of thin metal sheet and bent to a substantially T-shaped configuration including one leg forming the abutment with the lining frame piece and another leg to be connected to the corresponding lining panel. The one leg is provided with a reinforcement portion and an aperture for receiving a fastening screw to be introduced into the back side of the lining frame piece. The one leg is formed with such a length that it spans the distance between the side wall portions of the lining frame piece. The other leg is formed to protrude at a distance from one edge of the one leg, and also comprises an aperture for receiving a fastening screw to be introduced into the back side of the lining pane.

[0007] Even though this mounting fitting provides for a relatively reliable and well-functioning installation of the window lining, there is a need for more flexible manufacturing and mounting possibilities and for even further facilitated and fail-safe installation.

[0008] US 4 527 369 A describes a window lining assembly that discloses all the features of the preamble of claim 1.

[0009] With this background it is an object of the invention to provide a window lining assembly, by which the manufacturing and mounting have been made more flexible, and which is at the same time easy and uncomplicated to install.

[0010] This and further objects are met by a window lining assembly of the kind mentioned in the introduction, which is furthermore characterized in that each lining frame piece comprises a track formed by a bottom and side walls of the lining frame piece, and of a first and a second flange protruding from a respective opposite side wall, and that the first leg of each mounting fitting has a length extending between a first end and a second end exceeding the distance between the protruding flanges, and a width extending between a first side and a second side not exceeding the distance between the protruding flanges.

[0011] In this manner, it is possible to ensure secure engagement between the mounting fitting and the corresponding lining frame piece without the use of separate fastening means, such as screws. During installation, the mounting fitting is placed in the track such that its smaller dimension, i.e. the width, fits well into the clearing provided by the first and second flanges. Subsequently, the mounting fitting is simply turned, bringing the first and second ends of the mounting fitting into engagement with the respective protruding flanges. In turn, this means that

the mounting fitting may be positioned with full flexibility without taking into consideration the formation or presence of any fastening holes along the length of the lining frame piece. As an additional advantage, the material of the lining frame may be chosen arbitrarily, for instance by such a material in which drilling and fastening of screws is not easy or even feasible.

[0012] Further embodiments and advantages are set forth in the dependent claims.

[0013] 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

Fig. 1 is a drawing showing a prior art window lining assembly,

Fig. 2 is a perspective view of one embodiment of the window lining assembly according to the invention;

Fig. 3 is a perspective view, on a larger scale, of a detail of one embodiment of the window lining assembly according to the invention;

Fig. 4 is a side view of the detail shown in Fig. 3;

Fig. 5 is a perspective view of a detail of one embodiment of the window lining assembly according to the invention;

Fig. 6 is a side view of the detail shown in Fig. 5;

Fig. 7 is a view corresponding to Fig. 6 of an alternative embodiment of a detail of the window lining assembly;

Fig. 8 is a perspective view, on a larger scale, of a detail of another embodiment of the window lining assembly according to the invention, with one part removed;

Fig. 9 is a perspective view of the detail shown in Fig. 8, from another angle;

Figs 10 to 12 are perspective views, on a still larger scale, of parts of the detail shown in Figs 8 and 9;

Fig. 13 is a perspective view, on a larger scale, of a detail of a still further embodiment of the window lining assembly according to the invention;

Fig. 14 is a plan view, seen from the back side, of the detail of Fig. 13; and

Figs 15 and 16 show perspective views of parts of the detail shown in Figs 13 and 14.

Figs 17 and 18 show perspective views of a different embodiment of a corner fitting;

Fig 19 is a perspective view of a detail on the corner fitting;

Figs 20 and 21 are cross sectional views of the detail shown in Fig 19;

Figs 22 to 23 are perspective views of a detail of a different embodiment of a mounting fitting;

Figs 24 to 27 show a method of mounting the mounting fitting;

Fig 28 is a perspective view of another embodiment of the window lining assembly;

Fig 29 shows an embodiment of the mounting fitting in a mounted state;

Figs 30 to 36 show different views of an embodiment of the mounting fitting;

Figs 37 to 41 show different views of another embodiment of the mounting fitting.

[0014] Fig. 1 shows a prior art window lining assembly, viz. the one described in DE 101 45 052 A1. In the present paragraph, this prior art apparatus is described in order to ease the understanding of the background of the invention. As Fig. 1 does not form part of the present invention, reference numerals describing the prior art assembly are put in parentheses, as they differ from the reference numerals of the present invention. As appears from Fig. 1 of the prior art lining assembly, the window lining (1) comprising four lining panels (2, 3, 4, 5) is connected to a lining frame (7) by means of a number, here six, of mounting fittings (12). The pieces (8, 9, 10, 11) of the lining frame (7) are connected at the respective mitred ends by means of corner fittings (15).

[0015] Turning now to Fig. 2 showing a perspective view of a window lining assembly 1 in an embodiment of the invention, a window lining generally designated 2 is provided as one component of the window lining assembly 1.

[0016] In the embodiment shown, the window lining 2 comprises four lining panels in the form of a top member lining panel 21, one side member lining panel 22, a bottom member lining panel 23 and another side member lining panel 24. The lining panels are cut to the appropriate size and shape in accordance with the width and height of the window, the inclination and the thickness of the inner wall (not shown). One advantageous manner of providing the window lining is described in Applicant's Danish patent application No. PA 2012 70012, not yet published, namely by use of a kit of parts. When mounting the window lining assembly according to the invention, possibly by means of a kit of parts, it is clear that the roof structure comprises further elements, such as for instance further rafters, laths or battens, underroofing, insulating material, roofing etc. In one of the last stages of mounting of the kit of parts, a trapezoidal prism shape is formed. At each side of the window frame (not shown), a trapezoid is formed, forming the base of the right trapezoid prism. It is clear to the person skilled in the art that the lengths of the sides of the trapezoid vary in accordance with the height of the window (i.e. the length of the side piece), the inclination of the roof and the inner wall, the thickness of the roof structure, the distance to the horizontal surface below the window, and of course the desired inclination of the window lining parts at the top and bottom of the window, which need not be substantially horizontal and vertical, respectively, as shown. The height of the prism corresponds in substance to the width of the window. Subsequently, a set of panels of shapes corresponding substantially to the shapes of the kit of parts is formed.

[0017] The window lining assembly 1 further comprises a lining frame 3 only partially shown for reasons of

clarity. Thus, the lining frame 3 is represented by the left-hand and right-hand end sections of a top piece 31, and of the upper end section of a respective side piece 32 and 34. The lining frame 3 furthermore comprises a bottom piece (not shown) joining the lower end sections of the side pieces 32, 34.

[0018] The set of lining panels is formed by any suitable material, for instance by such materials as plywood, gypsum or chipboard.

[0019] The lining frame may be made of wood which has been shaped into the desired configuration by means of for instance cutting. But with the invention, other materials are made possible, such as for instance metal or plastic or composite materials that may be formed by means of suitable manufacturing processes such as moulding or extrusion.

[0020] The lining frame 3 is connected to the window lining 2 in a manner to be described in further detail with particular reference to Figs 3 to 7.

[0021] Thus, the window lining assembly 1 comprising the window lining 2 composed of a set of lining panels 21, 22, 23, 24 and the lining frame 3 having a number of lining frame pieces 31, 32, 34 as described in the above. The window lining assembly 1 is assembled by means of a plurality of mounting fittings 4. As in the prior art lining assembly described in the above, the mounting fittings 4 are distributed around the periphery of the lining frame, for instance one at each of the top and bottom pieces, and two or three along the length of the side pieces.

[0022] Each mounting fitting 4 includes a first leg 41 for connection to a corresponding lining frame piece, here represented by the lining frame piece 31, in a manner to be described in detail below, and a second leg 42 for connection to a lining panel.

[0023] As can be seen in Fig. 3 each lining frame piece 31 comprises a track formed by a bottom 311 and side walls 312, 313 of the lining frame piece 31, and of a first and a second flange 315, 314 protruding from a respective opposite side wall 313, 312. The distance from the bottom 311 to the first flange 315 is different from the distance from the bottom to the second flange 314 to ensure that the mounting fitting 4 may only be mounted in the correct orientation.

[0024] The first leg 41 of each mounting fitting 4 has a length extending between a first end 413 and a second end 414 exceeding the distance between the protruding flanges 315, 314, and a width extending between a first side 41 a and a second side 41 b not exceeding the distance between the protruding flanges 315, 314. In the embodiment shown, the first leg 41 of each mounting fitting 4 has a length corresponding substantially to the distance between the opposite side walls 312, 313. In order to make the turning feasible, the first and second ends 413, 414 are provided with rounded sections.

[0025] Here, the ratio between the length and the width of the first leg 41 is approximately 2. Typical values of the various dimensions are as follows: Outer width of lining frame piece 31, i.e. distance from outer faces of

side walls 312, 313 between 30 and 80 mm, distance between opposite side walls 312, 313 between 25 and 75 mm, length of each protruding flange 314, 315 between 2 and 10 mm. Distance from the bottom 311 to the first flange 315 approximately 4 mm, being different from the distance from the bottom 311 to the second flange 314, which is approximately 2 mm in the embodiment shown. In the mounting fitting 4, the length of the first leg 41 typically lies in the interval 25-75 mm, i.e. substantially the same as or slightly lower than the distance between opposite side walls 312, 313, and the length-to-width ratio in the range 1.2-2.5. In the embodiment shown, the length of the first leg is approximately 40 mm and the width 20 mm, the distance between the opposite side walls being approximately 40 mm as well and the distance between the protruding flanges 315, 314 approximately 35 mm.

[0026] During installation, the mounting fitting is placed in the track such that its smaller dimension, i.e. the width, fits well into the clearing provided by the first and second flanges. Subsequently, the mounting fitting is simply turned, bringing the first and second ends of the mounting fitting into engagement with the respective protruding flanges.

[0027] In the embodiment shown, the first flange 315 is provided with a depending portion such that a track 317 between the depending portion and the side wall 313 is formed. This track 317 serves as receiving means for a snap engagement provided by a resilient tongue 411 formed at the first end 413 of the first leg 41 of the mounting fitting 4. The tongue 411 is here provided by separation from the remaining portion of the first leg 41 by means of slit 412. A protrusion 417 is formed on the tongue 411 to engage with the track 317 at the first flange 315. The engagement may either be such that the mounting fitting 4 may only be pushed out of the lining frame piece 31 by a translatory movement, but is preferably performed in a releasable manner such that the engagement is released by depressing the tongue 411.

[0028] In order to provide the correct orientation, a stepped portion 416 is provided at the second end 414 of the first leg 41, the height of the stepped portion 416 corresponding substantially to distance from the bottom 311 to the second flange 314.

[0029] The engagement between the mounting fitting 4 and the lining frame piece 31 is enhanced further by a spring section 419 provided at the bottom of the mounting fitting 4, preferably such that the spring section (419) is provided as a corrugated material and an aperture (418) is provided in the first leg (41).

[0030] A planar portion 415 is provided next to the stepped portion 416, the height of the planar portion 415 corresponding substantially to the distance between the bottom 311 and the upper side of the second flange 314. In this manner, a recess or track for receiving the lining panel is formed once the mounting fitting 4 has been connected to the lining frame piece 31, as an abutment surface for the end edge of the lining panel is formed by the second flange 314 and the planar portion 415. At the

sides, portions near the edge of the lining kit rest against the inner side of the side wall 312 and the second leg 42 of the mounting fitting 4. The mounting fitting 4 may then be connected to the lining panel by means of suitable engagement.

[0031] To this end, the second leg 42 of each mounting fitting 4 is provided with first engagement means for co-operating with second engagement means of the lining panel to secure the connection to the lining panel 21, 22, 23, 24.

[0032] In the embodiment of Fig. 6, the engagement means comprises an aperture 421 for receiving a fastening means such as a screw.

[0033] In the alternative embodiment shown in Fig. 7, said second engagement means are provided as an element 45 provided with fastening means in the form of a layer of adhesive 46. The second engagement means comprises a toothed rack 48, which in the embodiment shown is provided in a cavity 47 in the element 48. The first engagement means is formed as a protrusion 420 adapted to engage with the toothed rack 48. The engagement may be supplemented by additional fastening means, such as a screw to be introduced through an aperture as in the embodiment of Fig. 6.

[0034] Referring now to Figs 8 to 16, two embodiments of a corner fitting connecting two adjacent lining frame pieces to each other will be described. Even though not all parts of the window lining assembly of these embodiments are shown in these Figures, it is noted that the window lining 2 comprises four lining panels in the form of top member lining panel 21, one side member lining panel 22, bottom member lining panel 23 and another side member lining panel 24. The lining panels are cut to the appropriate size in any suitable manner.

[0035] The window lining assembly 1 further comprises lining frame 3 only partially shown for reasons of clarity. Thus, the lining frame 3 is represented by the left-hand and right-hand end sections of top piece 31, and of the upper end section of one side piece 32 only, this side piece being omitted in some of the Figures for reasons of clarity only. Correspondingly, the lining frame 3 furthermore comprises another side piece and a bottom piece joining the lower end sections of the side pieces.

[0036] As in the above-mentioned embodiments, the set of lining panels is formed by any suitable material, for instance by such materials as plywood, gypsum or chipboard. The window lining may be formed of fewer or more than four lining panels.

[0037] The lining frame may be made by wood which has been shaped into the desired configuration by means of for instance cutting, but with the invention, other materials are made possible, such as for instance metal or plastic or composite materials that may be formed by means of suitable manufacturing processes such as moulding or extrusion.

[0038] Fig. 8 is a partial view of one embodiment of a window lining assembly and as such corresponds to the upper right-hand corner of Fig. 2. As mentioned in the

above, the side piece of the lining frame 3 has been omitted for clarity reasons. As appears, each corner fitting 5 includes a first leg 51 for connection to a first lining frame piece 31, and a second leg 52 for connection to a second lining frame piece (i.e. here the side piece omitted for clarity reasons).

[0039] In the embodiment shown in Figs 8 to 12, the legs 51, 52 of each corner fitting 5 is provided with second engagement means providing a snap and/or frictional engagement with the corresponding lining frame piece and will here be described in connection with the lining frame top piece 31. As in the embodiment described in the above, each lining frame piece comprises a bottom 311, and at least one of the adjoining lining frame pieces, here lining frame top piece 31 is provided with at least one recessed portion 311 a, here shown two, provided in the bottom 311. Correspondingly, at least one leg 51 of the corner fitting 5 is provided with a resilient lug 511 for cooperation with the recessed portion 311 a to provide a snap engagement. The snap engagement may be disengaged by pulling the resilient lug 511 slightly.

[0040] With particular reference to Figs 10 to 12, the other leg 52 of the corner fitting 5 of this embodiment is provided with second engagement means for cooperation with said bottom 311 to provide a frictional engagement. The frictional engagement is provided by a rotatable clasp 512 mounted in a recess 513 and comprises an edge portion 512a. When rotating the clasp 512, the edge portion 512a digs slightly into the material of the bottom 311 of the lining frame piece 31. As a further detail, the clasps 512 may be provided with an eccentric connection, entailing the further advantage that the lining frame piece is pulled towards the adjoining lining frame piece, thereby securing a particularly tight mitre joint.

[0041] In the embodiment shown in Figs 13 to 16, the legs 61, 62 of each corner fitting 5 is provided with second engagement means providing a snap and/or frictional engagement with the corresponding lining frame piece and will here be described in connection with the lining frame top piece 31 and the lining frame side piece 32. As in the embodiment described in the above, each lining frame piece comprises a bottom 311, and at least one of the adjoining lining frame pieces, here lining frame top piece 31 is provided with at least one recessed portion 311 a, here shown two, provided in the bottom 311. Correspondingly, at least one leg 61 of the corner fitting 6 is provided with a resilient lug 611 for cooperation with the recessed portion 311 a to provide a snap engagement. The snap engagement may be disengaged by pulling the resilient lug 611 slightly.

[0042] The other leg 62 is provided with frictional engagement means provided by a bayonet dowel 612, which in the embodiment shown comprises a rubber or plastic sealing element 613. During the turning of the bayonet dowel 612 inside its housing from an unlocked position indicated by a symbol 615 to a locked position indicated by symbol 614, the bayonet dowel 612 is moved in the housing to a bring the sealing element 613 into

contact and thus frictional engagement with the bottom 311 of the lining frame piece in question.

[0043] In both of the embodiments of corner fittings 5, 6, each lining frame piece 31, 32 comprises a track 316, 317 formed by a bottom 311 and side walls 312, 313 of the lining frame piece, and of a first and a second flange 315, 314 protruding from a respective opposite side wall 313, 312, and each corner fitting 5, 6 is provided with first engagement means constituted by two lobes 53, 54 adapted for sliding engagement with said track 316, 317. This provides for a particularly simple and reliable guidance during introduction into of the corner fitting 5, 6 into the lining frame piece in question, but other guiding means are conceivable as well.

[0044] Figs 17 and 18 show perspective views of a different embodiment of a corner fitting 7. The legs 71, 72 of each corner fitting 7 is provided with engagement means providing a snap and/or frictional engagement with the corresponding lining frame piece and will here be described in connection with a lining frame top piece (shown in previous figures). At least one leg 71 of the corner fitting 7 is provided with a resilient lug 711 for cooperation with a recessed portion of a lining top piece to provide a snap engagement. The snap engagement may be disengaged by pulling the resilient lug 711 slightly.

[0045] The other leg 72 of the corner fitting 7 of this embodiment is provided with engagement means for cooperation with a bottom to provide a frictional engagement. The frictional engagement is provided by a rotatable clasp 712 mounted on a fixed axis of rotation 713 and comprises an edge portion 712a that is wound about the fixed axis 713.

[0046] Turning to Figs 19 to 20 the rotatable clasp is shown in an open position. The clasp 712 is detachable and preferably mounted on the fixed axis 713 by the person installing the window, by snapping on the clasp 712. Alternatively the rotatable clasp 712 may be preinstalled on the corner fitting 7.

[0047] The corner fitting 7 further comprises a projection 714 which maintains the rotatable clasp 712 in an open position by supporting the end portion 712a. Either the end portion 712a and/or the projection is preferably resilient, such that when the clasp is pressed down the edge portion is pressed passed the projection and consequently closed as seen in Fig 21.

[0048] The projection may be dispensed with. The rotatable clasp is here made of a metal, such as aluminium, but other materials for example a polymer may be used as well.

[0049] When rotating the clasp 712, the end portion 712a digs slightly into the material of the bottom 311 of the lining frame piece 31. As a further detail, the clasp 712 ensures that the lining frame piece is pulled towards the adjoining lining frame piece, thereby securing a particularly tight mitre joint. Furthermore, the clasp 712 may be provided with a number of teeth (not shown) at the end portion 712a, preferably at each end of the end por-

tion 712a. In order to enhance the engagement between the end portion 712a and the lining frame pieces, at least some lining frame pieces may be provided with longitudinally extending ridges (not shown), thus increasing the amount of material that the end portion 712a may dig into.

[0050] Furthermore one leg 72 of the corner fitting 7 may be provided with a projection 715, arranged at the end of the leg 72 for engagement with the rotatable clasp 712, which keeps the rotatable clasp in a closed position.

[0051] In a development of this embodiment the rotatable clasp 712 may in one end be provided with a rounded end piece 716, where an end 716a of the rounded end piece 716 extends towards said clasp 712. During closing of the rotatable clasp 712 the rounded end piece 716 may be pushed towards the projection 715 of the one leg 72 of the corner fitting 7, such that the end 716a of the clasp 712 engages with a bottom side 717 of the projection 715. In this way a locking of the clasp 712 to the corner fitting is achieved.

[0052] Another advantage of this embodiment is the creation of a grip, which may ease the mounting and demounting of the corner fitting.

[0053] Figs 22 to 23 are perspective views of a detail of a different embodiment of a mounting fitting. Elements having same or analogous function carry the same reference numerals to which 800 has been added. The mounting fitting may be mounted as described above referring to Figs 3 to 7. This embodiment resembles the embodiment as shown in Fig. 5 and only the differences will be described here. The mounting fitting comprises two legs 841 and 842. The embodiment of the mounting fitting 8 differs from the mounting fitting in the embodiment shown in Fig. 5 in that the protruding flanges 813, 814 and 815 are provided with rounded sections at both ends of the flanges. The protruding flanges 813, 814, and 815 are constructed for engagement with the track 316, 317. The first and second side 841a and 841 partly surround a hole 850 provided in the first leg 841. The sides 841 a and 841 b are resilient such that they may be squeezed together easing the mounting in the lining frame. Furthermore the sides 841a and 841b are slightly convex surface facing the hole 850. The first side 841a and the second side 841b may be provided with ribs for increased grip and/or material strength purposes. The sides may be provided with a fluted surface making it easier to hold when mounting it in the lining frame. Additionally the mounting fitting is provided with a wire guide 85 for holding a wire.

[0054] Figs 24 to 27 show a method of mounting the mounting fitting. Firstly the mounting fitting is placed in the lining frame 31 slightly sideways. Secondly the mounting fitting 8 it pressed into place by turning the mounting fitting 8. In Fig. 26 the mounting fitting 8 has been pushed into place and in Fig. 27 the mounting fitting 8 is attached with a screw to the back side of the respective lining panels.

[0055] Fig 28 is a perspective view of another embodiment of the window lining assembly where both the

mounting fitting 8 and the corner fitting 7 are mounted in a lining frame. Several mounting fittings and corner fittings may be used in the installation process.

[0056] Fig 29 shows an embodiment of the mounting fitting 8 in a mounted state where a wire has been placed in the wire guide 85.

[0057] Figs 30 to 36 show different views of an embodiment of the mounting fitting 8. As shown in Fig. 7 showing the first embodiment of mounting fitting 4, this second embodiment of mounting fitting 8 can comprise first engagement means for cooperating with second engagement means of the lining panel.

[0058] Figs 37 to 41 show different views of another embodiment of the mounting fitting 9. Elements having same or analogous function carry the same reference numerals to which 900 has been added. Only differences relative to other embodiments will be described in detail. The first side 941a and the second side 941 b have smooth surfaces. The second leg 942 of the mounting fitting 9 has a transversally extending area of reduced material thickness providing increased flexibility of the second leg 942. As shown in Fig. 7 showing the first embodiment of mounting fitting 4, this third embodiment of mounting fitting 9 can comprise first engagement means for cooperating with second engagement means of the lining panel.

[0059] 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.

Claims

1. A window lining assembly (1) comprising a window lining (2) composed by a set of lining panels (21, 22, 23, 24), a lining frame (3) having a number of lining frame pieces (31, 32, 34), and a plurality of mounting fittings (4; 8; 9), each mounting fitting including a first leg (41; 841; 941) for connection to a lining frame piece, and a second leg (42; 842; 942) for connection to a lining panel, each lining frame piece (31, 32, 34) comprises a track formed by a bottom (311) and side walls (312, 313) of the lining frame piece, and of a first and a second flange (315, 314) protruding from a respective opposite side wall (313, 312), and that the first leg (41; 841; 941) of each mounting fitting (4; 8; 9) has a length extending between a first end (413; 813; 913) and a second end (414; 814; 914) exceeding the distance between the protruding flanges (315, 314), and a width extending between a first side (41a; 841a; 941a) and a second side (41b; 841b; 941b) not exceeding the distance between the protruding flanges (315, 314) **characterized in that** the distance from the bottom (311) to the first flange (315) is different from the distance from the bottom to the second flange (314), and wherein a stepped

portion (416; 816; 916) is provided at the second end (414; 814; 914), the height of the stepped portion (416; 816; 916) corresponding substantially to distance from the bottom (311) to the second flange (314).

2. A window lining assembly according to claim 1, wherein the first flange (315) is provided with a depending portion such that a track (317) between the depending portion and the side wall (313) is formed.
3. A window lining assembly according to claim 2, wherein a resilient tongue (411) is formed at the first end (413) of the first leg (41) of the mounting fitting (4), and wherein a protrusion (417) is formed on the tongue (411) to engage with the track (317) at the first flange (315), preferably in a releasable manner.
4. A window lining assembly according to 1, wherein a planar portion (415; 815; 915) is provided next to the stepped portion (416; 816; 916), the height of the planar portion (415; 815; 915) corresponding substantially to the distance between the bottom (311) and the upper side of the second flange (314).
5. A window lining assembly according to any one of the preceding claims, wherein a spring section (419) is provided at the bottom of the mounting fitting (4), preferably such that the spring section (419) is provided as a corrugated material and an aperture (418) is provided in the first leg (41).
6. A window lining assembly according to any one of the preceding claims, wherein the first leg (41; 841; 941) of each mounting fitting (4; 8; 9) has a length extending between a first end (413; 813; 913) and a second end (414; 814; 914) corresponding substantially to the distance between the opposite side walls (312, 313), and wherein the first and second ends (413, 414; 813, 814; 913, 914) are provided with rounded sections.
7. A window lining assembly according to any one of the preceding claims, wherein the second leg (42; 842; 942) of each mounting fitting (4; 8; 9) is provided with first engagement means for cooperating with second engagement means of the lining panel to secure the connection to the lining panel (21, 22, 23, 24).
8. A window lining assembly according to claim 7, wherein said second engagement means are provided as an element (45) provided with fastening means in the form of a layer of adhesive (46).
9. A window lining assembly according to claim 8, wherein said second engagement means comprises a toothed rack (48) and said first engagement means

a protrusion (420) adapted to engaged with the toothed rack (48), said toothed rack (48) being preferably provided in a cavity (47) in the element (48).

10. A window lining assembly according to claim 7, wherein said first engagement means comprises an aperture (421) for receiving a fastening means such as a screw to be introduced and fastened to the lining panel.

Patentansprüche

1. Fensterverkleidungsanordnung (1), die eine Fensterverkleidung (2), die aus einem Satz von Verkleidungspaneeelen (21, 22, 23, 24) zusammengesetzt ist, einen Verkleidungsrahmen (3), der eine Anzahl von Verkleidungsrahmenteilen (31, 32, 34) hat, und eine Vielzahl von Montagebeschlägen (4; 8; 9) aufweist, wobei jeder Montagebeschlag einen ersten Schenkel (41; 841; 941) zur Verbindung mit einem Verkleidungsrahmenteil, und einen zweiten Schenkel (42; 842; 942) zur Verbindung mit einer Verkleidungspaneele umfasst, wobei jedes Verkleidungsrahmenteil (31, 32, 34) eine Führung aufweist, die durch ein Unterteil (311) und Seitenwände (312, 313) des Verkleidungsrahmenteils und einen ersten und einen zweiten Flansch (315, 314) ausgebildet sind, die von einer entsprechenden gegenüberliegenden Seitenwand (313, 312) vorstehen, und dass der erste Schenkel (41; 841; 941) jedes Montagebeschlags (4; 8; 9) eine Länge hat, die sich zwischen einem ersten Ende (413; 813; 913) und einem zweiten Ende (414; 814; 914) erstreckt und die den Abstand zwischen den vorstehenden Flanschen (315, 314) überschreitet, und einer Breite, die sich zwischen einer ersten Seite (41a; 841a; 941a) und einer zweiten Seite (41b; 841b; 941b) erstreckt und die nicht den Abstand zwischen den vorstehenden Flanschen (315, 314) überschreitet, **dadurch gekennzeichnet, dass** der Abstand von dem Unterteil (311) zu dem ersten Flansch (315) verschieden ist von dem Abstand von dem Unterteil zum zweiten Flansch (314) und wobei ein gestufter Abschnitt (416; 816; 916) an dem zweiten Ende (414; 814; 914) vorgesehen ist, wobei die Höhe des gestuften Abschnitts (416; 816; 916) im Wesentlichen einem Abstand von dem Unterteil (311) zu dem zweiten Flansch (314) entspricht.
2. Fensterverkleidungsanordnung gemäß Anspruch 1, wobei der erste Flansch (315) mit einem abhängigen Abschnitt versehen ist, so dass eine Führung (317) zwischen dem abhängigen Abschnitt und der Seitenwand (313) ausgebildet ist.
3. Fensterverkleidungsanordnung gemäß Anspruch 2, wobei eine nachgiebige Lasche (411) an dem ersten

Ende (413) des ersten Schenkels (41) des Montagebeschlags (4) ausgebildet ist und wobei ein Vorsprung (417) auf der Lasche (411) ausgebildet ist, um mit der Führung (317) an dem ersten Flansch (315) einzugreifen, bevorzugt in einer lösbaren Weise.

4. Fensterverkleidungsanordnung gemäß Anspruch 1, wobei ein ebener Abschnitt (415; 815; 915) neben dem gestuften Abschnitt (416; 816; 916) vorgesehen ist, wobei die Höhe des ebenen Abschnitts (415; 815; 915) im Wesentlichen dem Abstand zwischen dem Unterteil (311) und der Oberseite des zweiten Flansches (314) entspricht.
5. Fensterverkleidungsanordnung gemäß einem der vorherigen Ansprüche, wobei ein Federabschnitt (419) an dem Unterteil des Montagebeschlags (4) vorgesehen ist, bevorzugt so, dass der Federabschnitt (419) vorgesehen ist als ein gewelltes Material und eine Öffnung (418) in dem ersten Schenkel (41) vorgesehen ist.
6. Fensterverkleidungsanordnung gemäß einem der vorherigen Ansprüche, wobei der erste Schenkel (41; 841; 941) jedes Montagebeschlags (4; 8; 9) eine Länge hat, die sich zwischen einem ersten Ende (413; 813; 913) und einem zweiten Ende (414; 814; 914) erstreckt und die im Wesentlichen dem Abstand zwischen den gegenüberliegenden Seitenwänden (312, 313) entspricht, und wobei das erste und zweite Ende (413, 414; 813, 814; 913, 914) mit abgerundeten Abschnitten versehen sind.
7. Fensterverkleidungsanordnung gemäß einem der vorherigen Ansprüche, wobei der zweite Schenkel (42; 842; 942) jedes Montagebeschlags (4; 8; 9) mit einem ersten Eingriffsmittel zum Zusammenwirken mit einem zweiten Eingriffsmittel der Verkleidungspaneele versehen ist, um die Verbindung zu der Verkleidungspaneele (21, 22, 23, 24) zu sichern.
8. Fensterverkleidungsanordnung gemäß Anspruch 7, wobei das zweite Eingriffsmittel als ein Element (45) vorgesehen ist, das mit einem Befestigungsmittel in der Form einer Klebstoffschicht versehen ist.
9. Fensterverkleidungsanordnung gemäß Anspruch 8, wobei das zweite Eingriffsmittel eine Zahnstange (48) und das erste Eingriffsmittel einen Vorsprung (420) aufweisen, der angepasst ist, um mit der Zahnstange (48) einzugreifen, wobei die Zahnstange (48) bevorzugt in einem Hohlraum (47) in dem Element (48) vorgesehen ist.
10. Fensterverkleidungsanordnung gemäß Anspruch 7, wobei das erste Eingriffsmittel eine Öffnung (421) zur Aufnahme eines Befestigungsmittels aufweist,

wie beispielsweise eine Schraube, um eingeführt und an der Verkleidungspaneele befestigt zu sein.

Revendications

1. Ensemble de revêtement de fenêtre (1) comprenant un revêtement de fenêtre (2) composé d'un ensemble de panneaux de revêtement (21, 22, 23, 24), d'un châssis de revêtement (3) présentant un certain nombre de morceaux de châssis de revêtement (31, 32, 34), et une pluralité de pièces de montage (4 ; 8 ; 9), chaque pièce de montage comportant une première patte (41 ; 841 ; 941) pour un raccordement à un morceau de châssis de revêtement, et une deuxième patte (42 ; 842 ; 942) pour un raccordement à un panneau de revêtement, chaque morceau de châssis de revêtement (31, 32, 34) comprenant une gorge formée par un fond (311) et des parois latérales (312, 313) du morceau de châssis de revêtement, et une première et une deuxième bride (315, 314) faisant saillie depuis une paroi latérale opposée (313, 312) respectives, et la première patte (41 ; 841 ; 941) de chaque pièce de montage (4 ; 8 ; 9) présente une longueur s'étendant entre une première extrémité (413 ; 813 ; 913) et une deuxième extrémité (414 ; 814 ; 914) dépassant la distance entre les brides saillantes (315, 314), et une largeur s'étendant entre un premier côté (41a ; 841a ; 941a) et un deuxième côté (41b ; 841b ; 941b) ne dépassant pas la distance entre les brides saillantes (315, 314) **caractérisé en ce que** la distance depuis le fond (311) jusqu'à la première bride (315) est différente de la distance depuis le fond jusqu'à la deuxième bride (314), et dans lequel une portion étagée (416 ; 816 ; 916) est prévue au niveau de la deuxième extrémité (414 ; 814 ; 914), la hauteur de la portion étagée (416 ; 816 ; 916) correspondant sensiblement à la distance depuis le fond (311) jusqu'à la deuxième bride (314).
2. Ensemble de revêtement de fenêtre selon la revendication 1, dans lequel la première bride (315) est pourvue d'une portion dépendante de sorte qu'une gorge (317) entre la portion dépendante et la paroi latérale (313) soit formée.
3. Ensemble de revêtement de fenêtre selon la revendication 2, dans lequel une languette élastique (411) est formée au niveau de la première extrémité (413) de la première patte (41) de la pièce de montage (4) et dans lequel une saillie (417) est formée sur la languette (411) pour s'enclencher avec la gorge (317) au niveau de la première bride (315), de préférence de manière libérable.
4. Ensemble de revêtement de fenêtre selon la revendication 1, dans lequel une portion plane (415 ; 815 ;

915) est prévue près de la portion étagée (416 ; 816 ; 916), la hauteur de la portion plane (415 ; 815 ; 915) correspondant sensiblement à la distance entre le fond (311) et le côté supérieur de la deuxième bride (314).

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5. Ensemble de revêtement de fenêtre selon l'une quelconque des revendications précédentes, dans lequel une section de ressort (419) est prévue au fond de la pièce de montage (4), de préférence de sorte que la section de ressort (419) soit prévue en tant que matériau ondulé et qu'une ouverture (418) soit prévue dans la première patte (41).
6. Ensemble de revêtement de fenêtre selon l'une quelconque des revendications précédentes, dans lequel la première patte (41 ; 841 ; 941) de chaque pièce de montage (4 ; 8 ; 9) a une longueur s'étendant entre une première extrémité (413 ; 813 ; 913) et une deuxième extrémité (414 ; 814 ; 914) correspondant sensiblement à la distance entre les parois latérales (312, 313) opposées, et dans lesquelles première et deuxième extrémités (413, 414 ; 813, 814 ; 913, 914) sont pourvues de sections arrondies.
7. Ensemble de revêtement de fenêtre selon l'une quelconque des revendications précédentes, dans lequel la deuxième patte (42 ; 842 ; 942) de chaque pièce de montage (4 ; 8 ; 9) est pourvue de premiers moyens d'enclenchement pour coopérer avec des deuxième moyens d'enclenchement du panneau de revêtement pour arrimer le raccord au panneau de revêtement (21, 22, 23, 24).
8. Ensemble de revêtement de fenêtre selon la revendication 7, dans lequel lesdits deuxième moyens d'enclenchement sont prévus en tant qu'un élément (45) pourvu de moyens de fixation sous forme d'une couche d'adhésif (46).
9. Ensemble de revêtement de fenêtre selon la revendication 8, dans lequel lesdits deuxième moyens d'enclenchement comprennent une crémaillère (48) et lesdits premiers moyens d'enclenchement une saillie (420) adaptée pour s'enclencher avec la crémaillère (48), ladite crémaillère (48) étant de préférence prévue dans une cavité (47) dans l'élément (48).
10. Ensemble de revêtement de fenêtre selon la revendication 7, dans lequel lesdits premiers moyens d'enclenchement comprennent une ouverture (421) pour recevoir un moyen de fixation tel qu'une vis à introduire et fixer au panneau de revêtement.

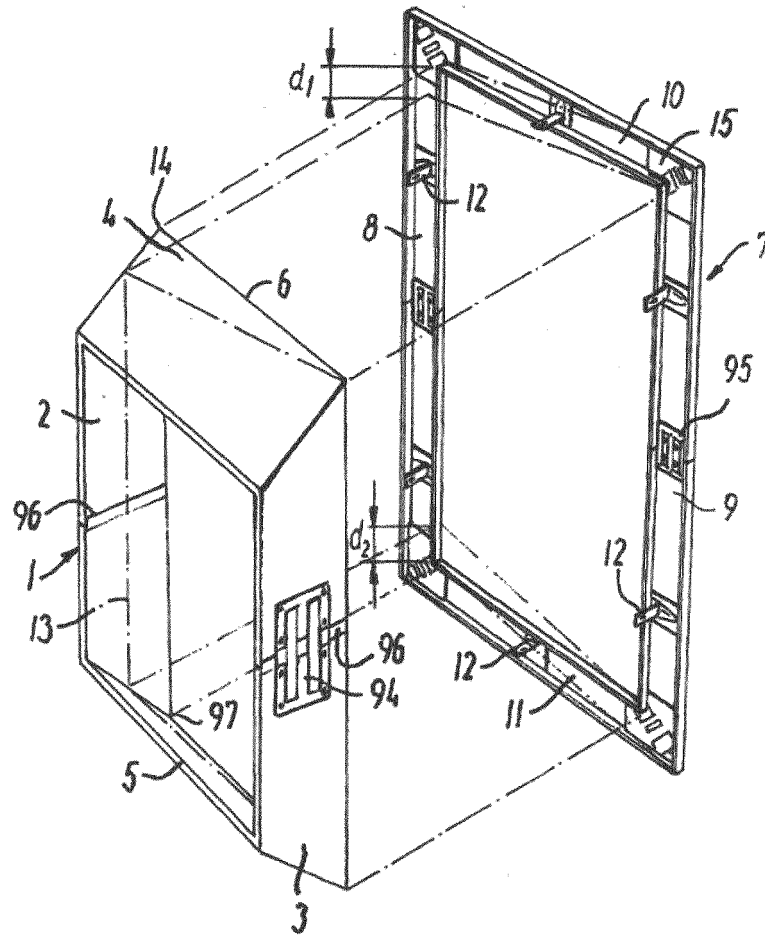


Fig. 1 (prior art)

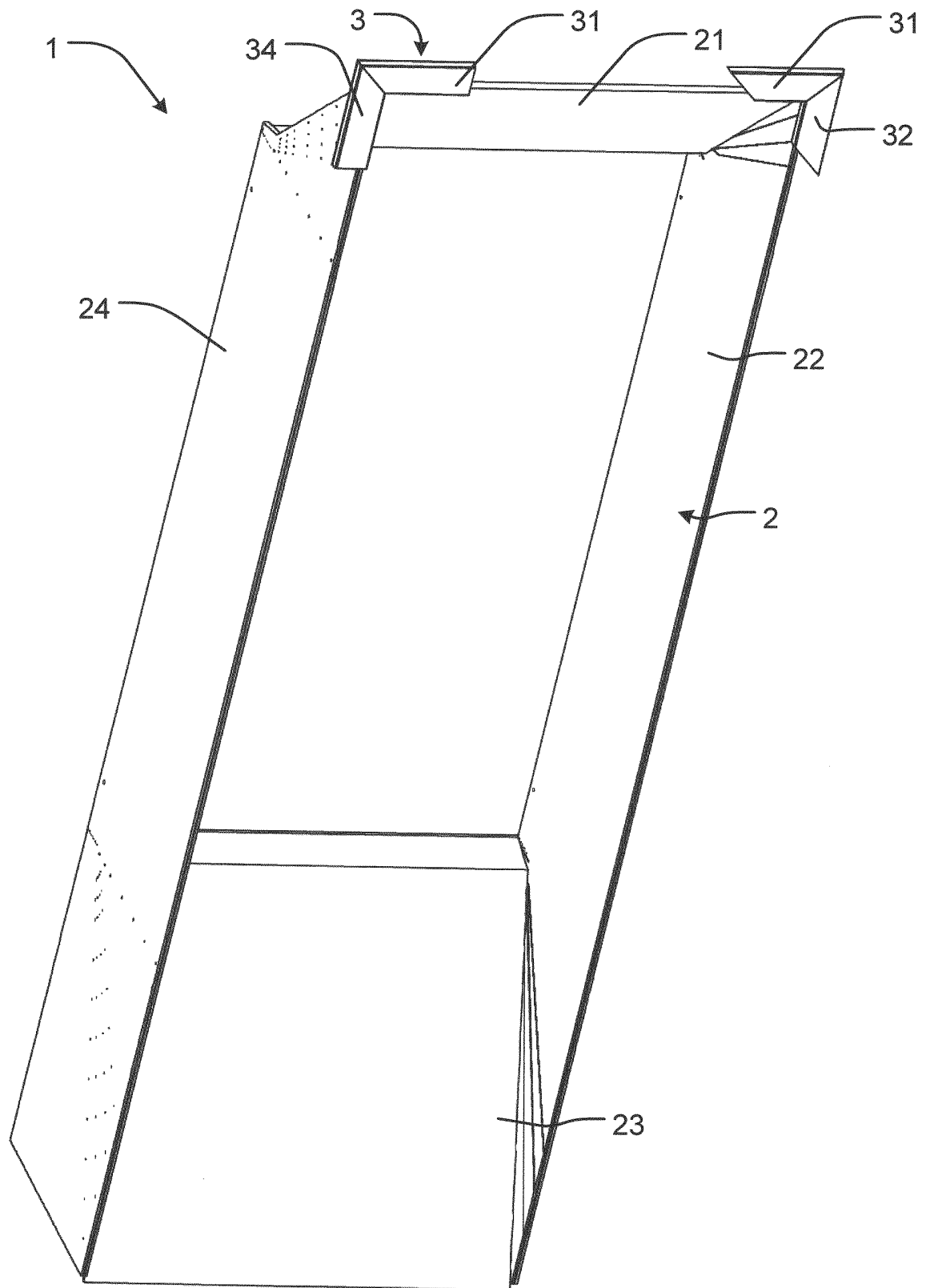
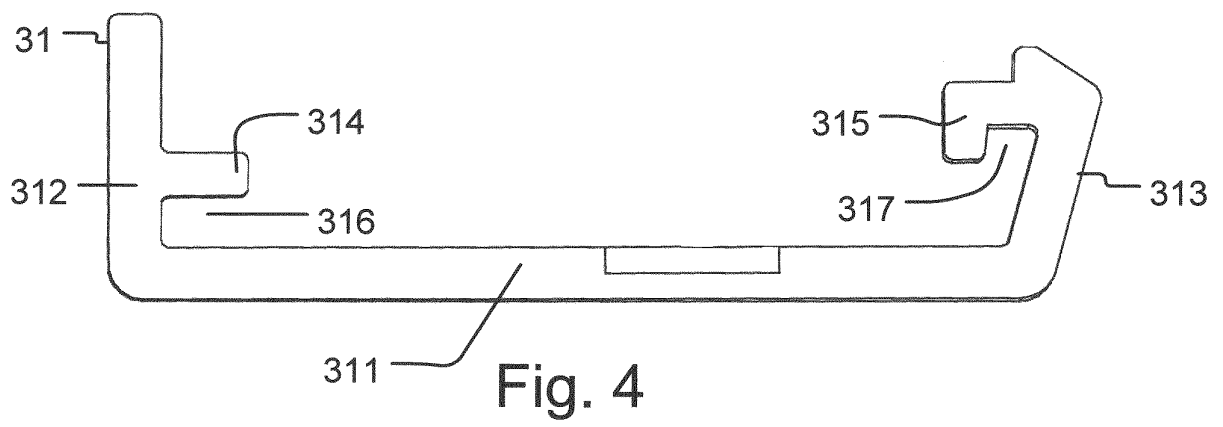
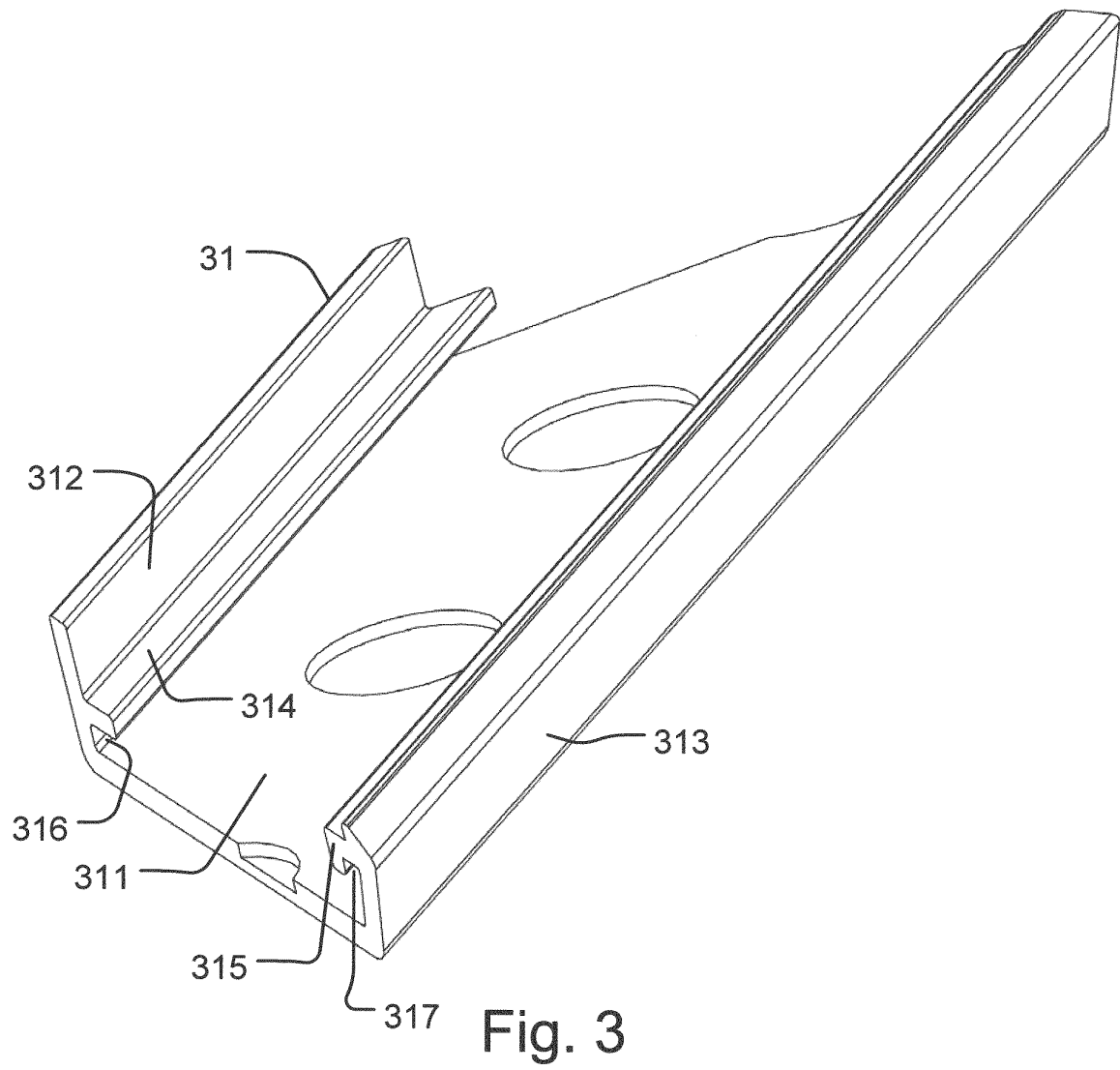


Fig. 2



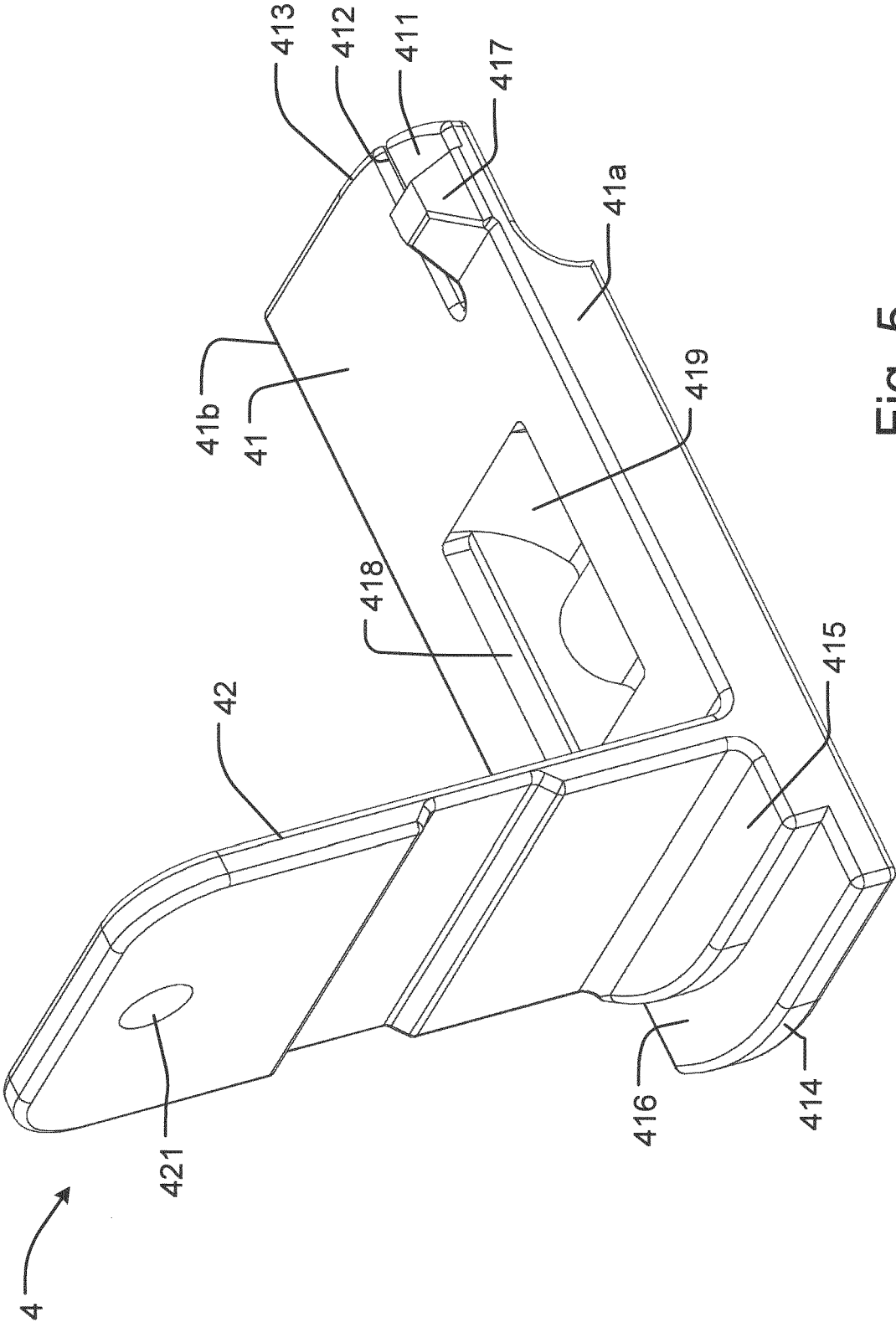
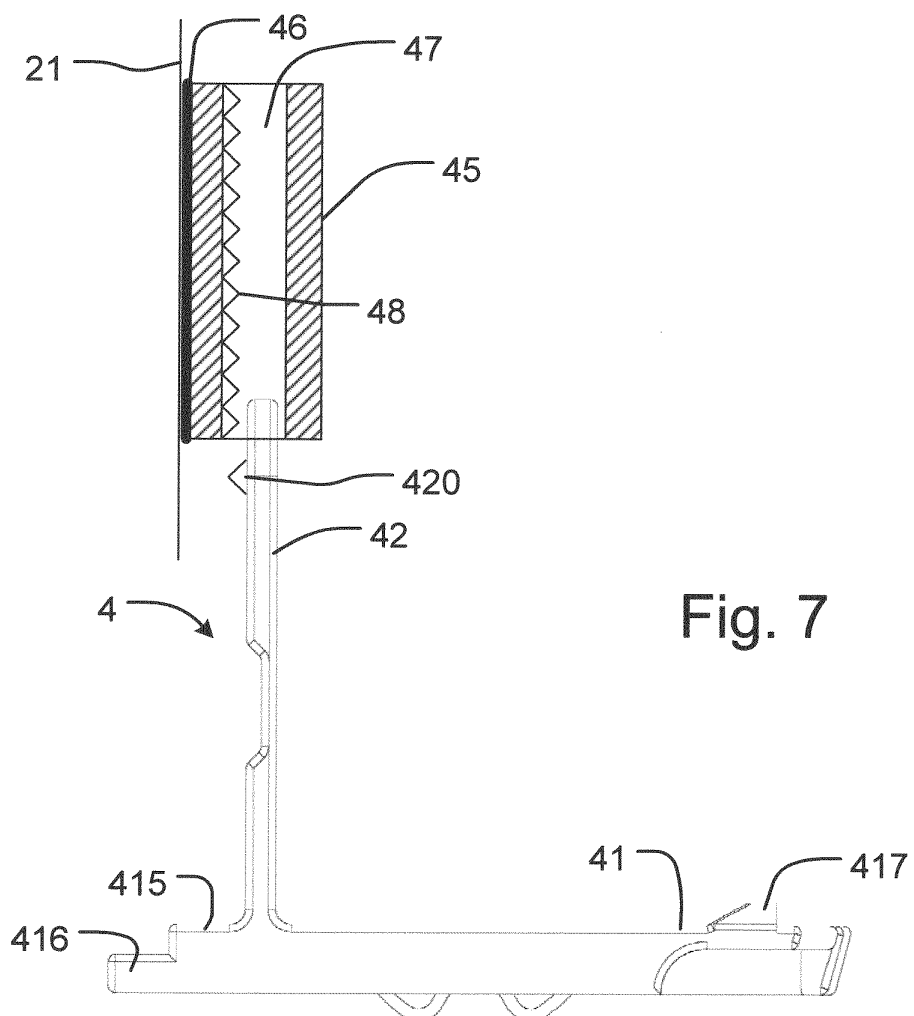
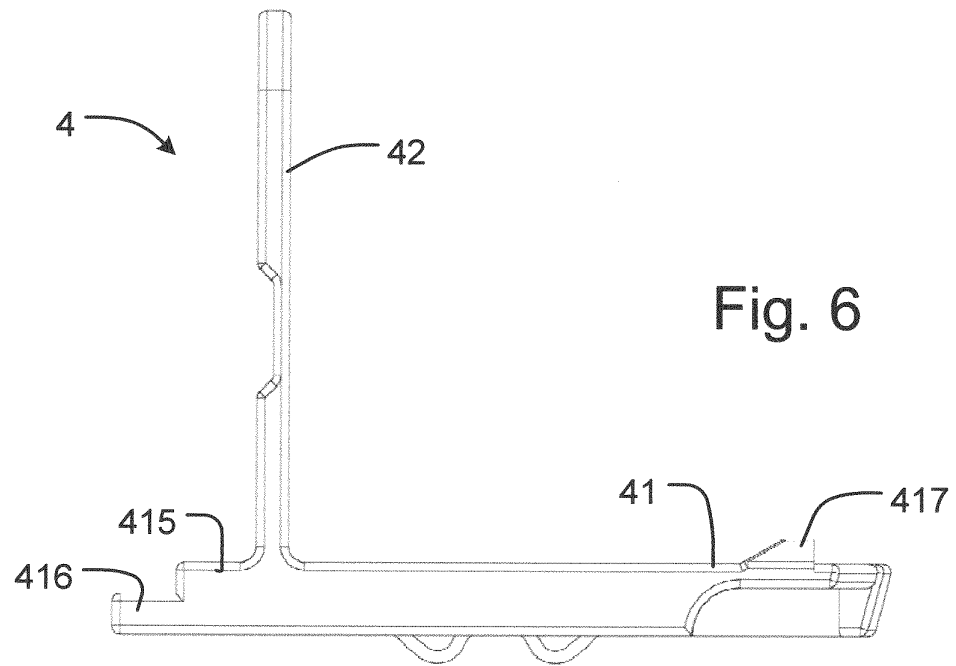


Fig. 5



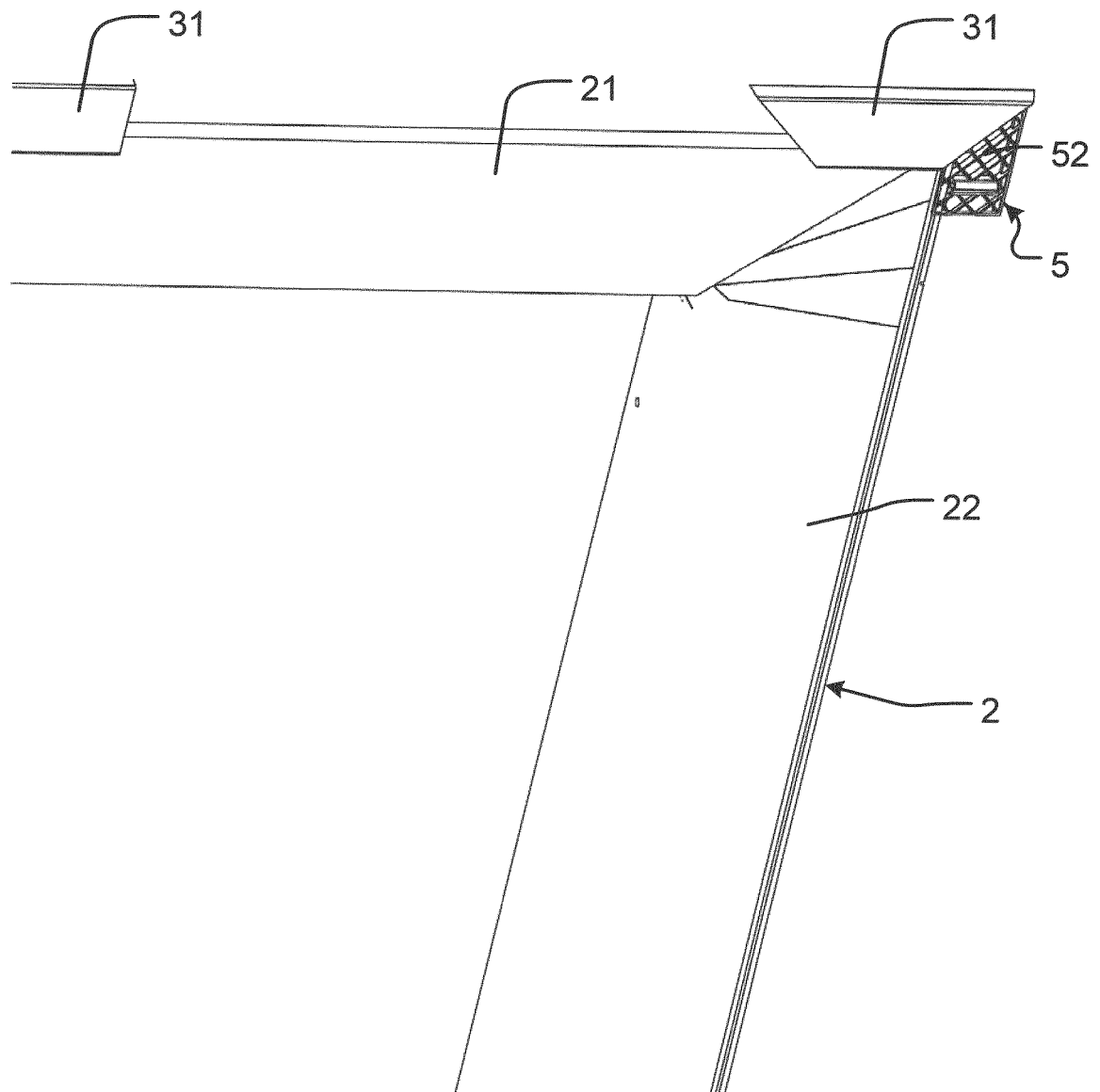


Fig. 8

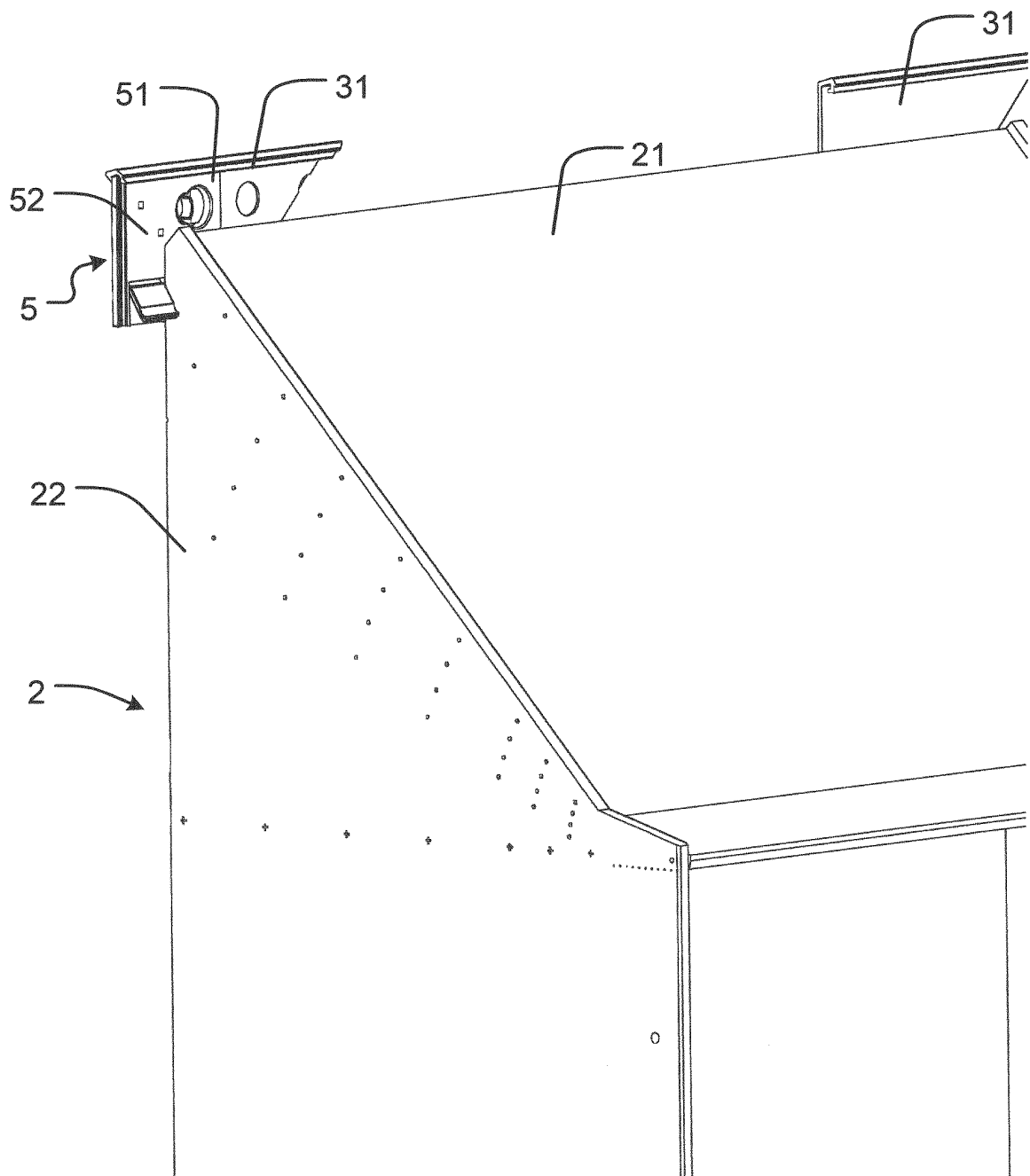


Fig. 9

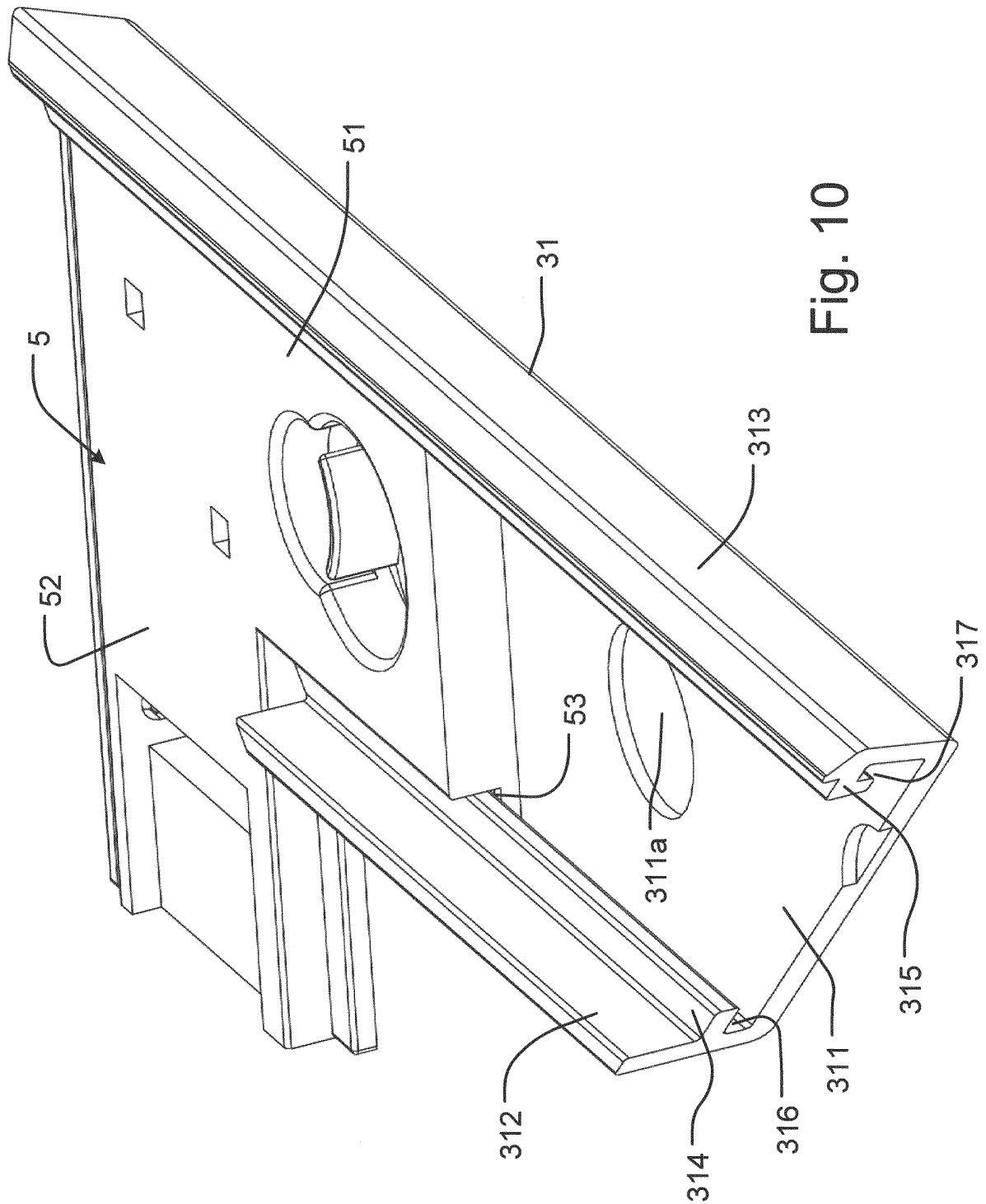
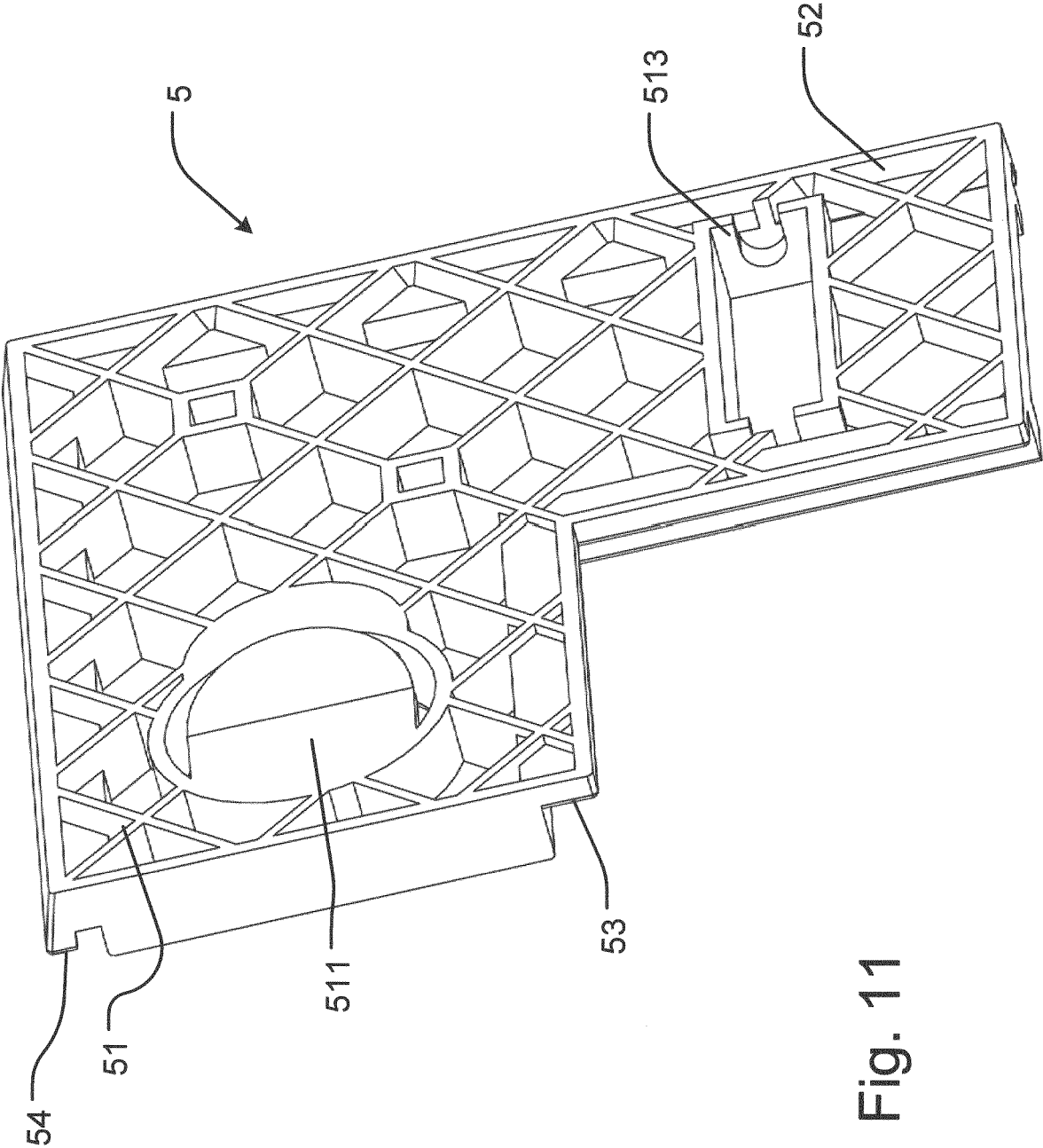


Fig. 10



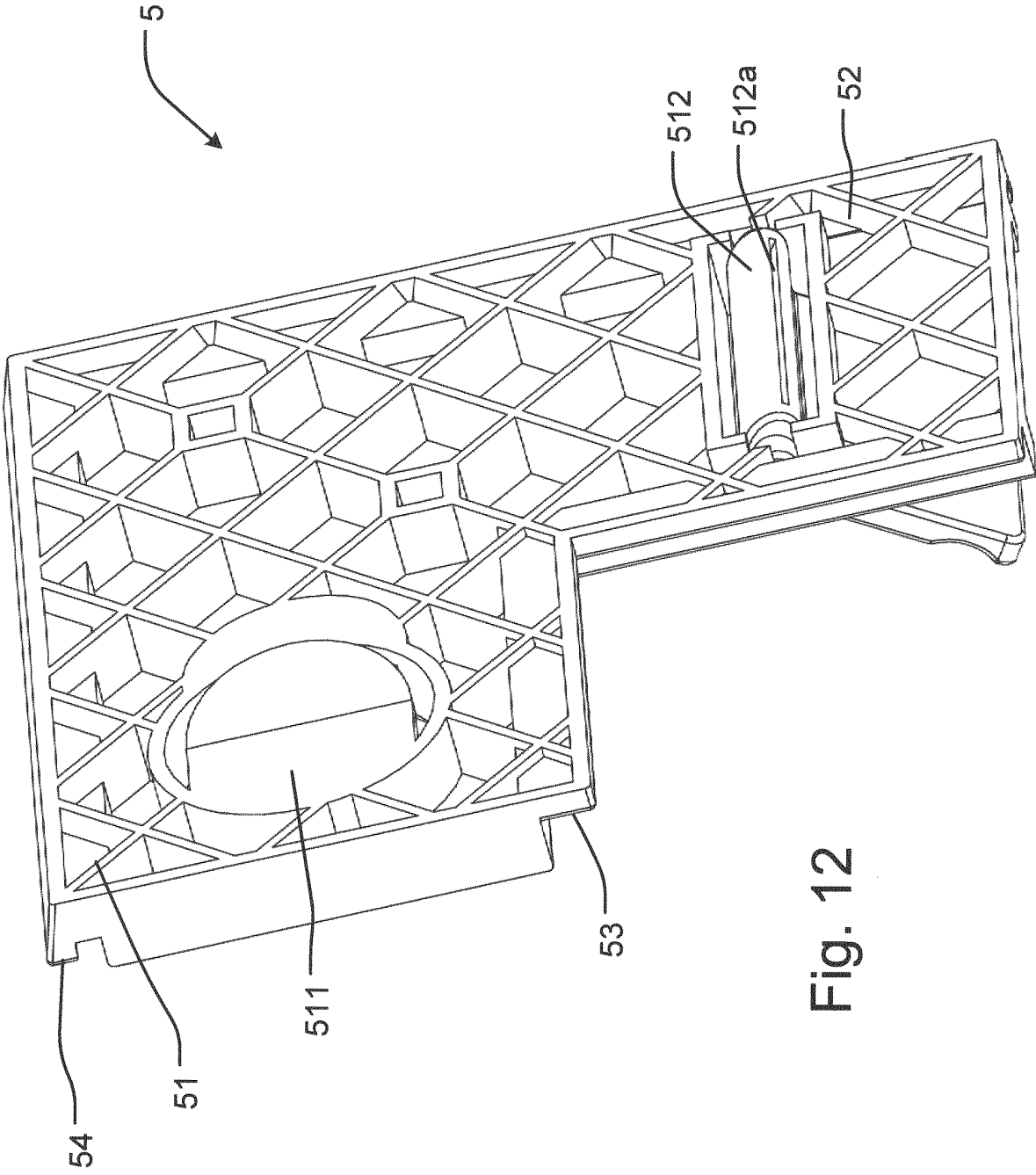


Fig. 12

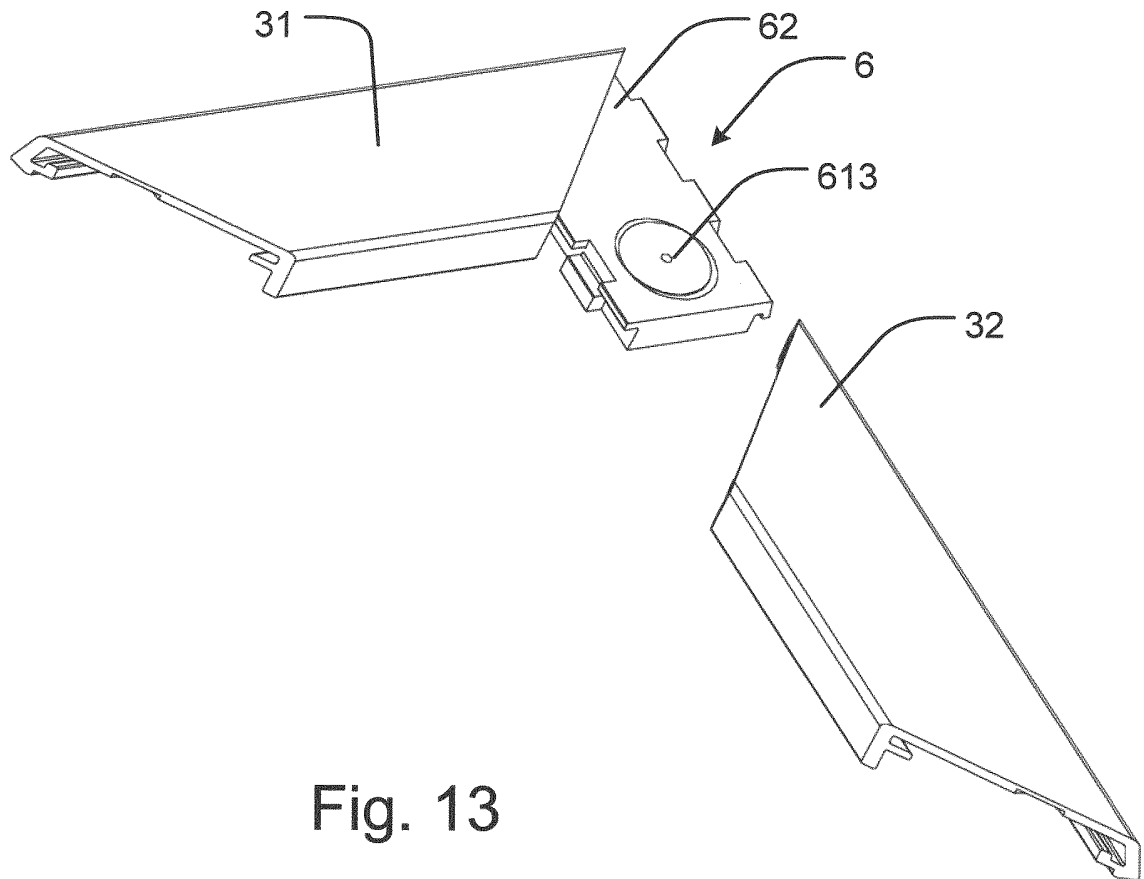


Fig. 13

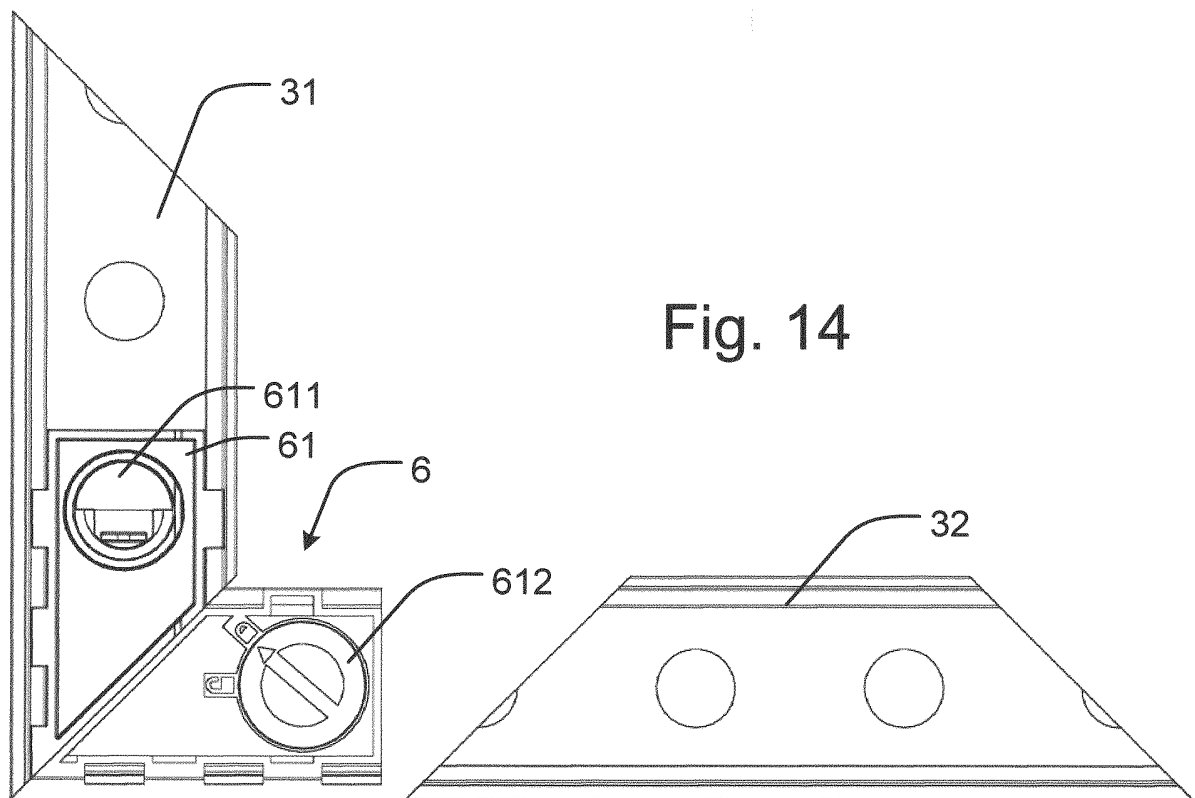


Fig. 14

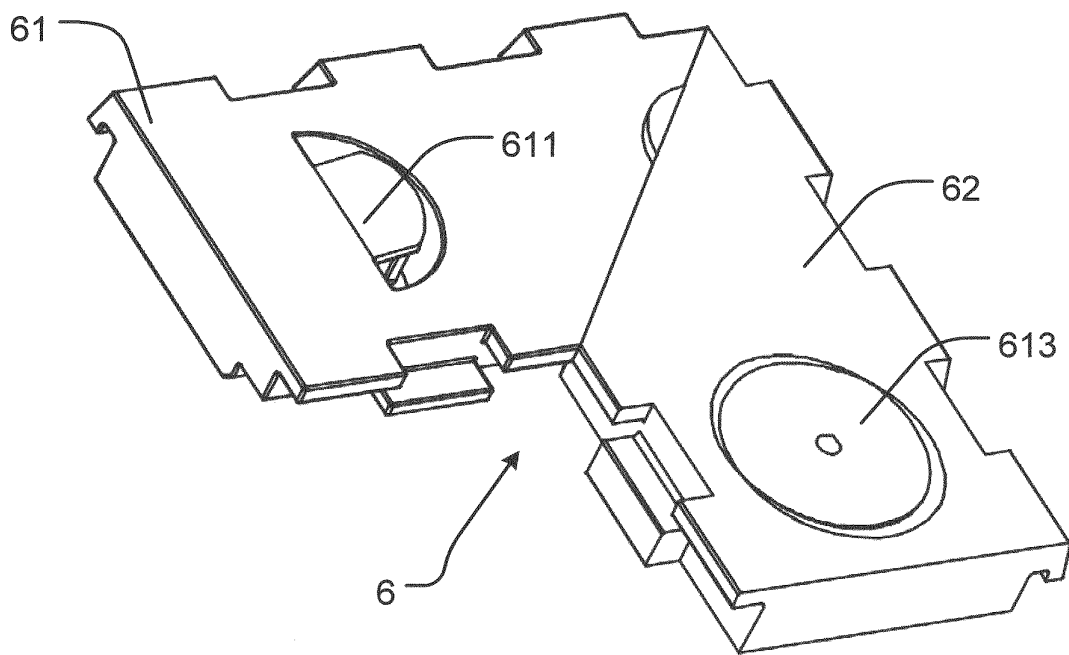


Fig. 15

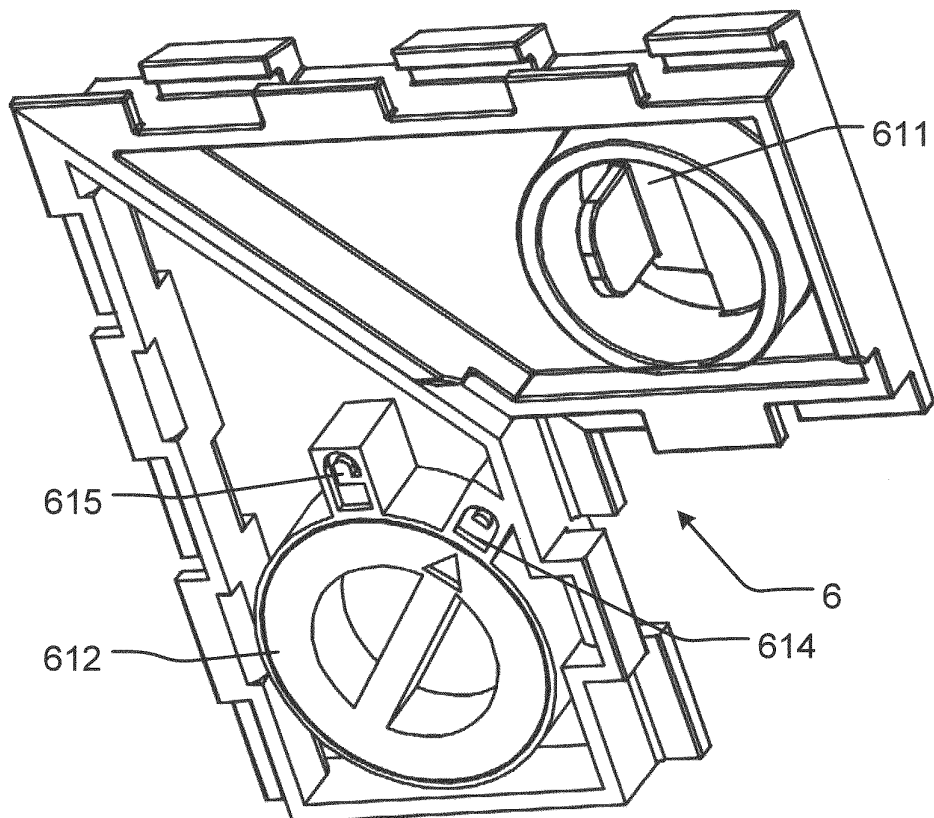


Fig. 16

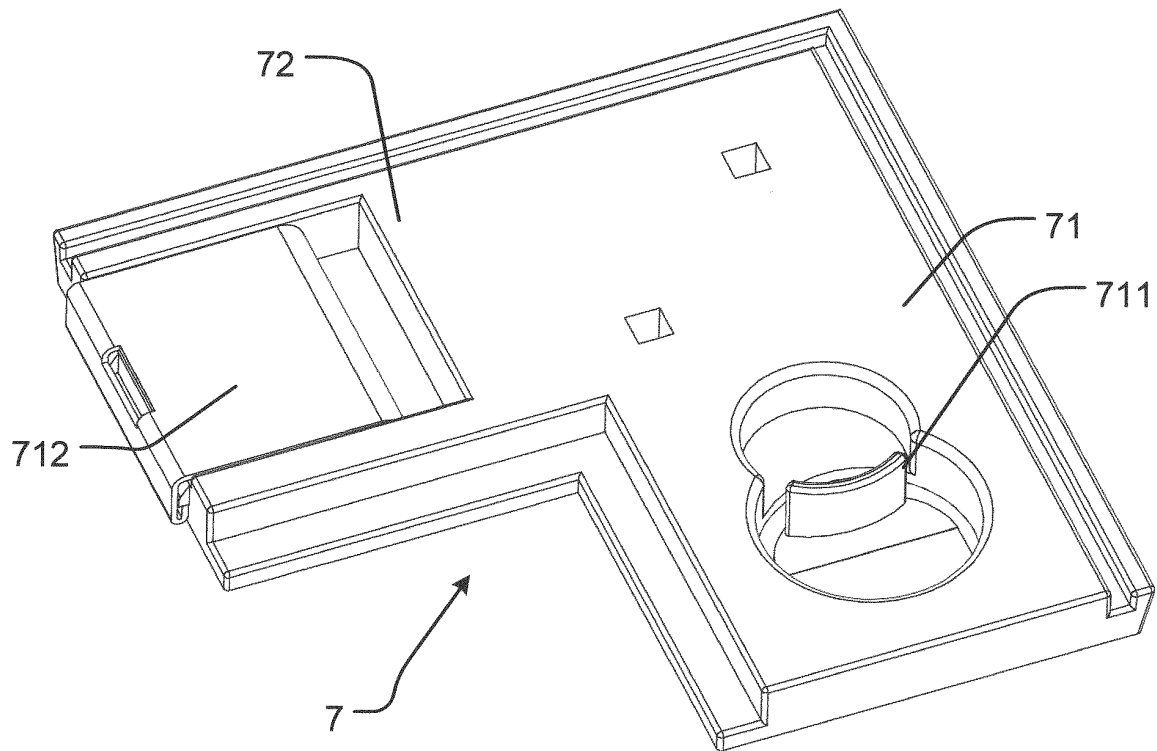


Fig. 17

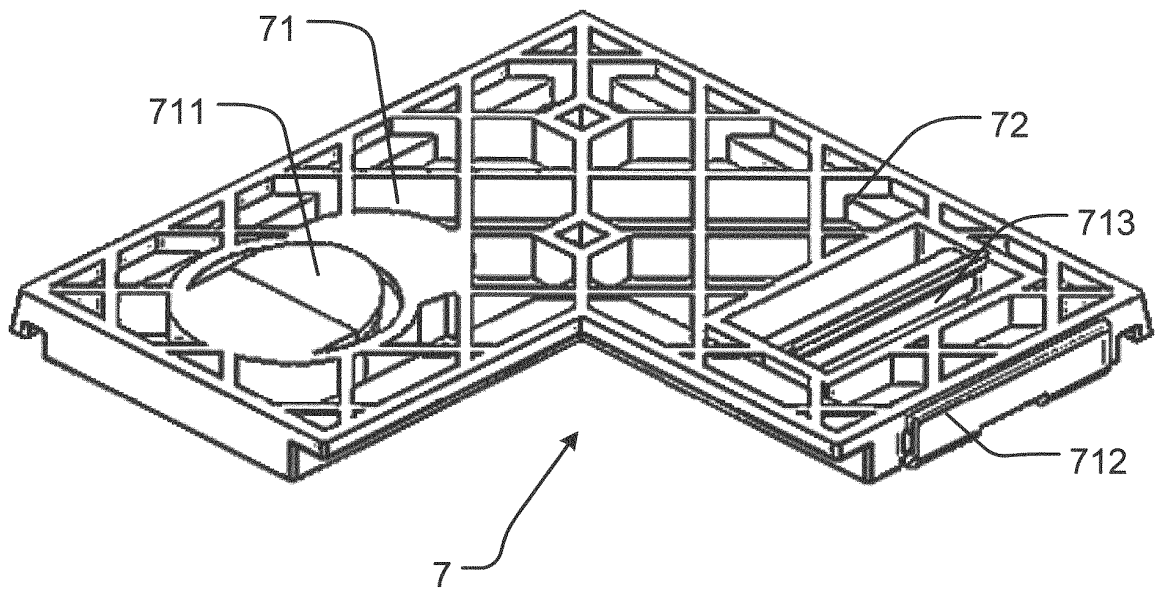


Fig. 18

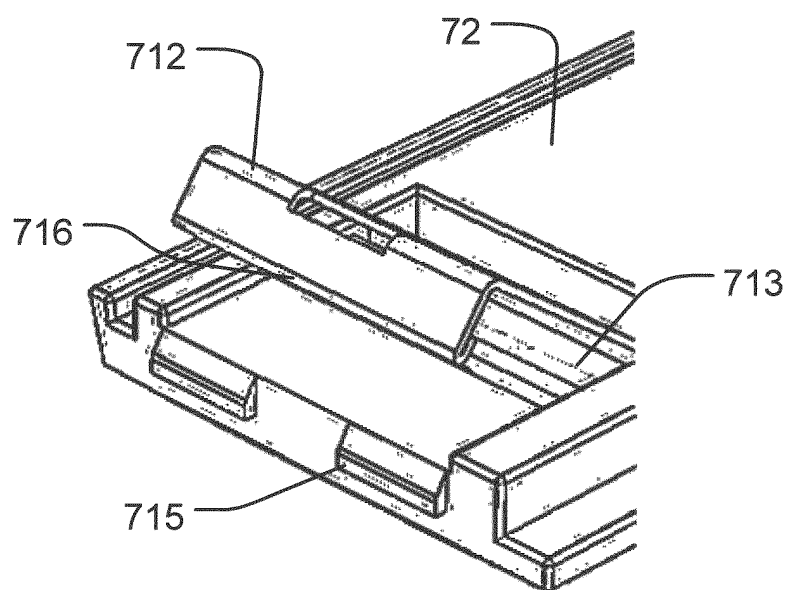


Fig. 19

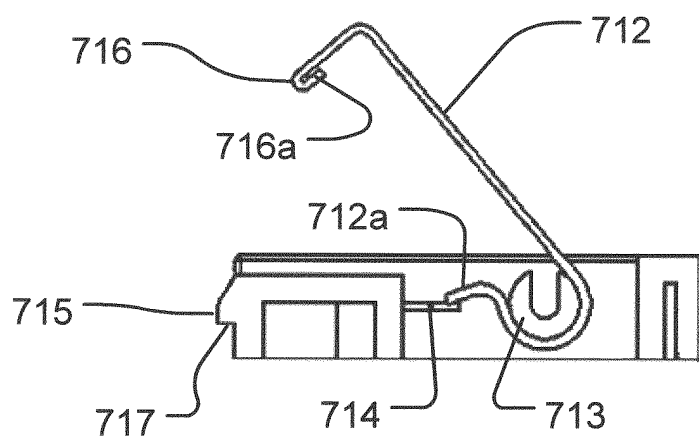


Fig. 20

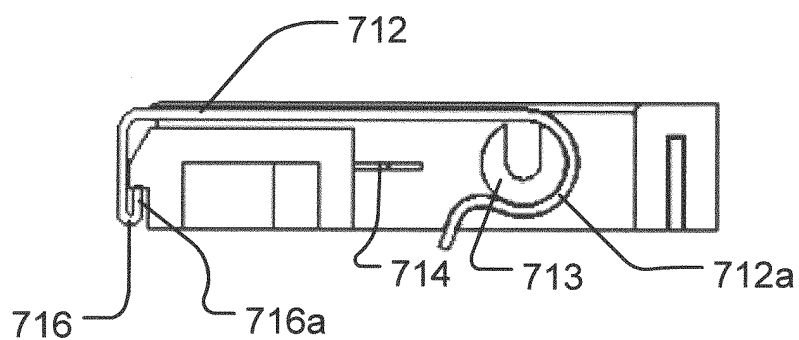
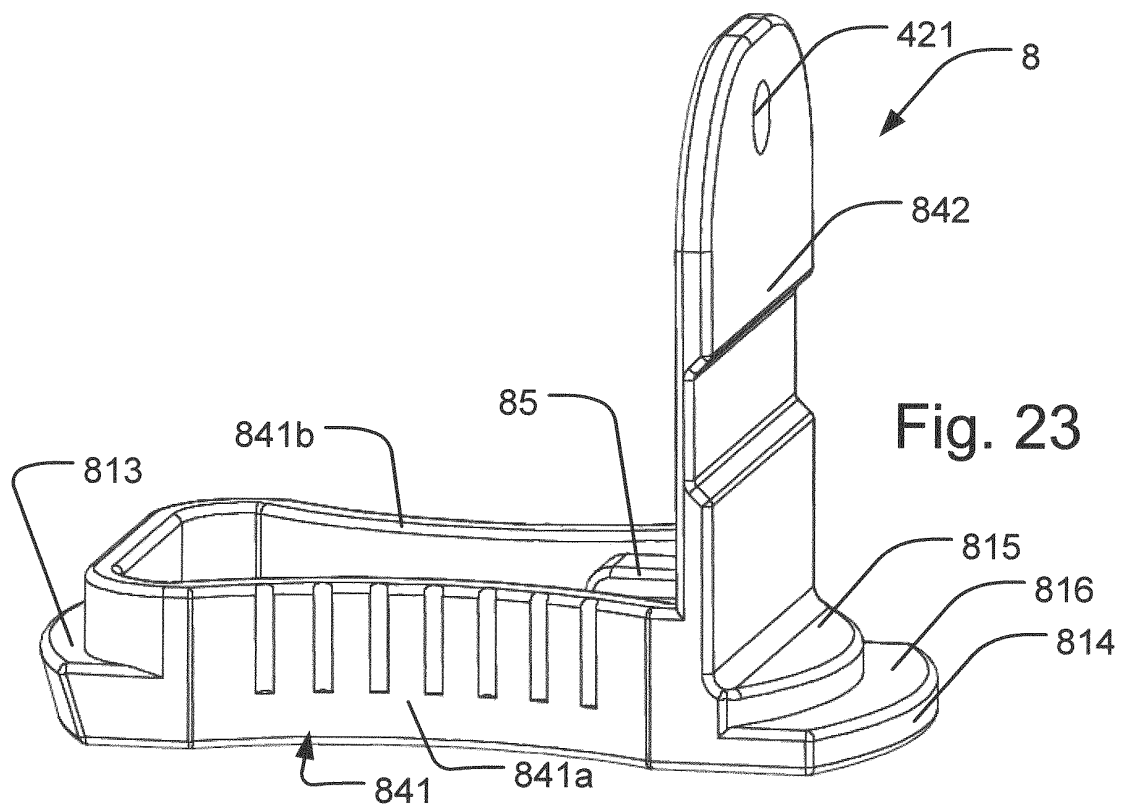
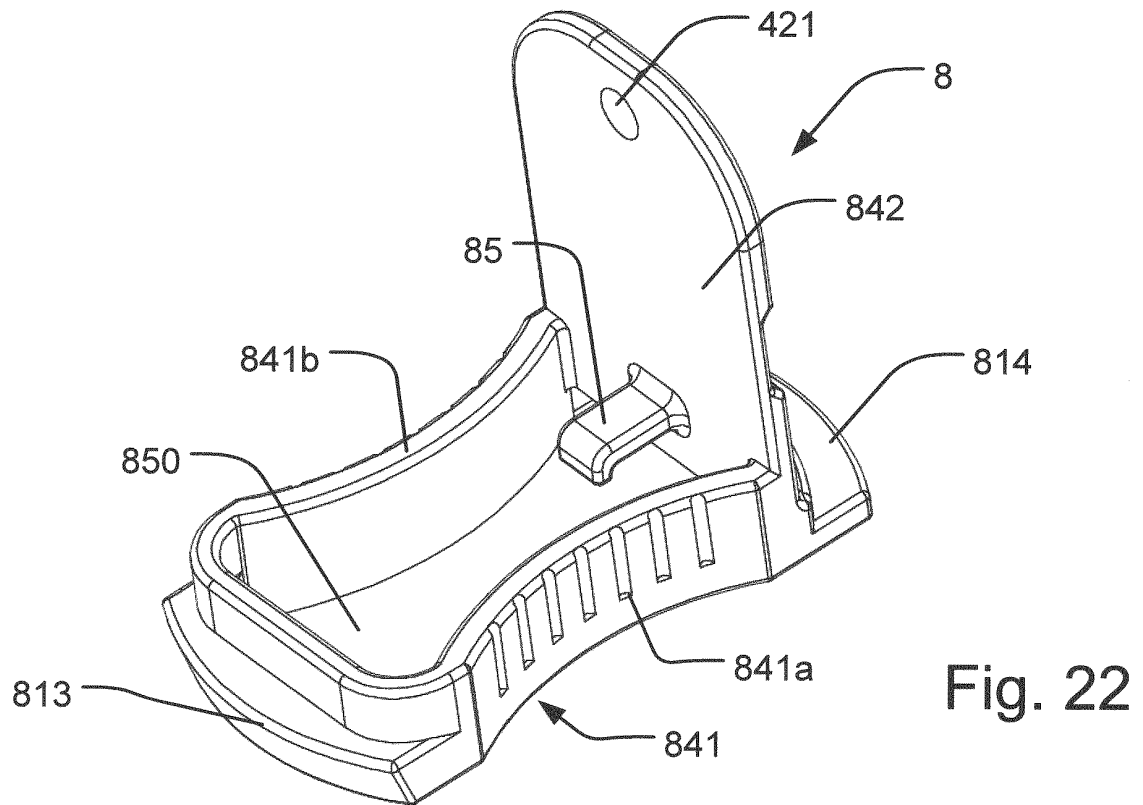


Fig. 21



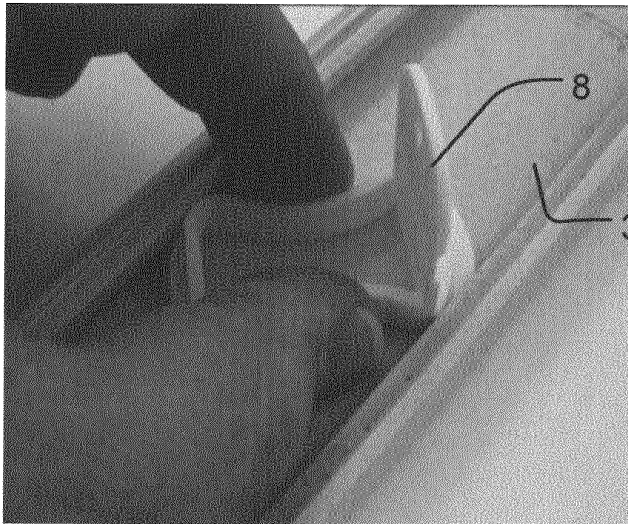


Fig. 24

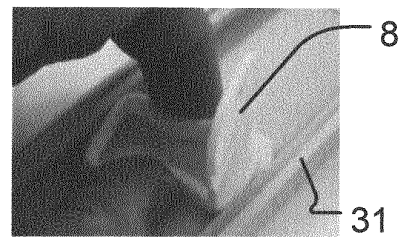


Fig. 25

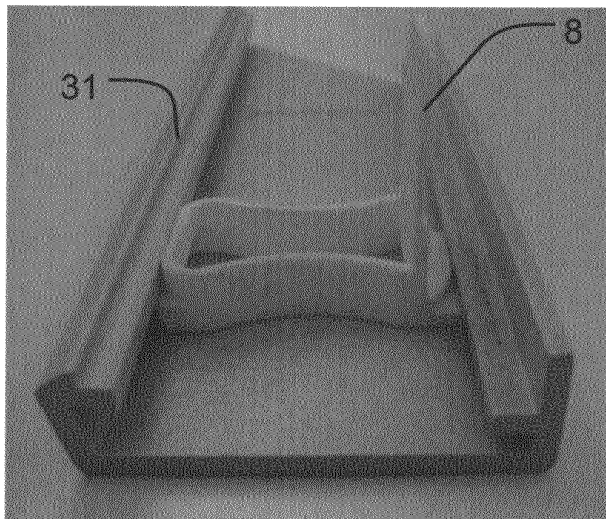


Fig. 26

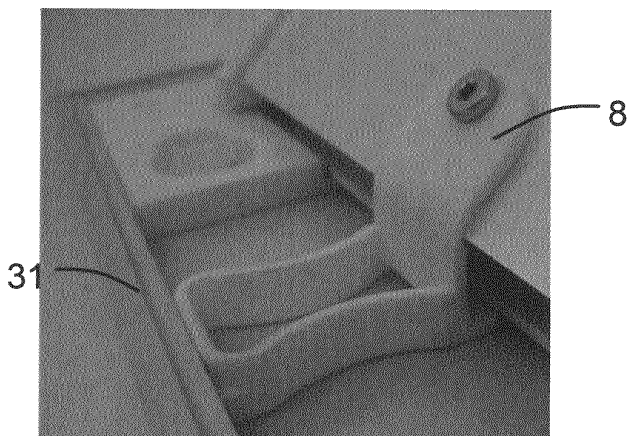


Fig. 27

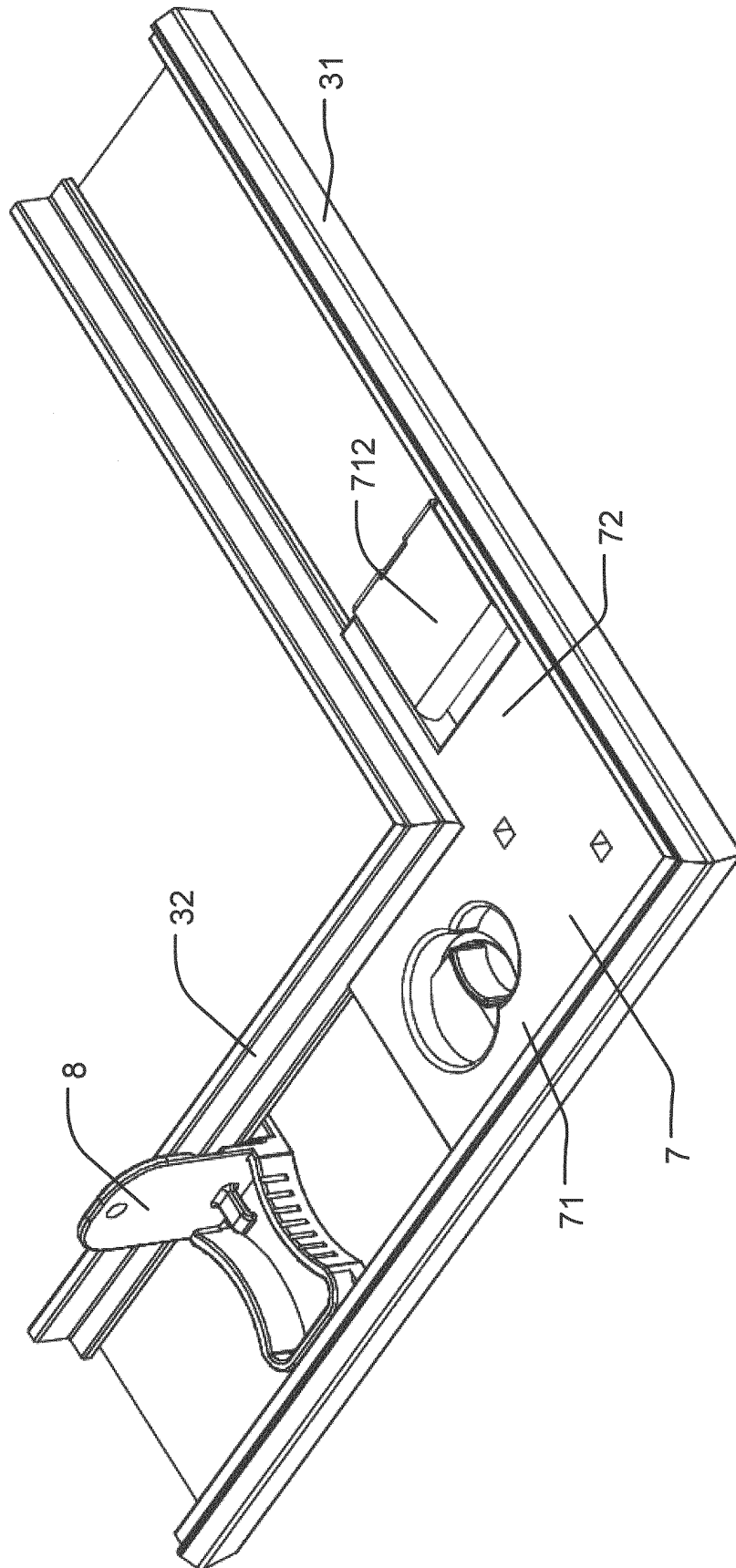


Fig. 28

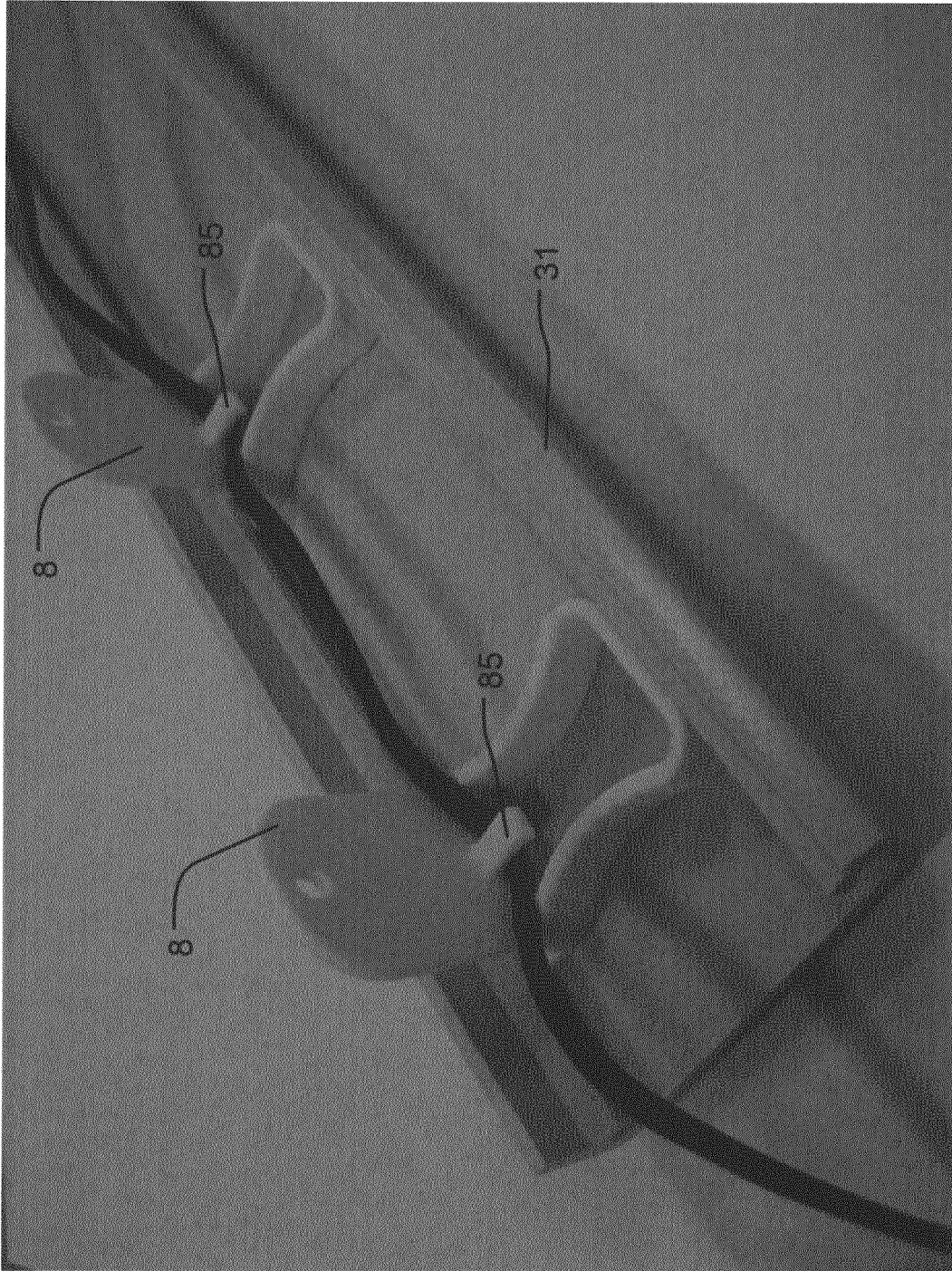


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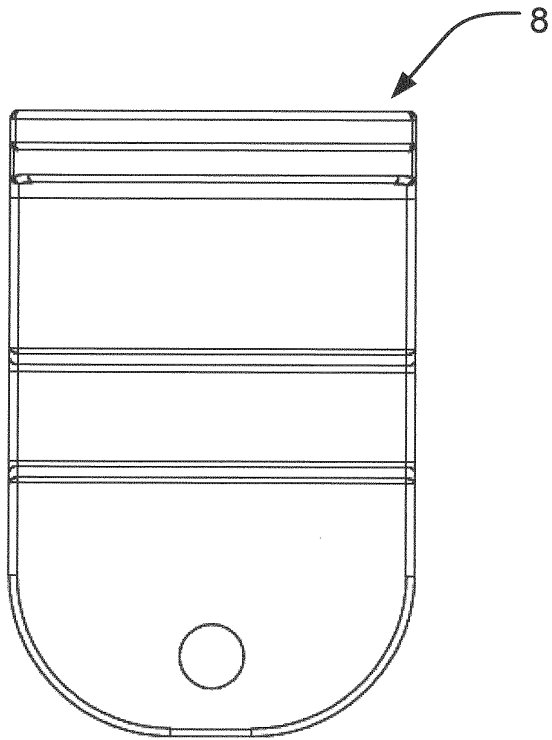


Fig. 30

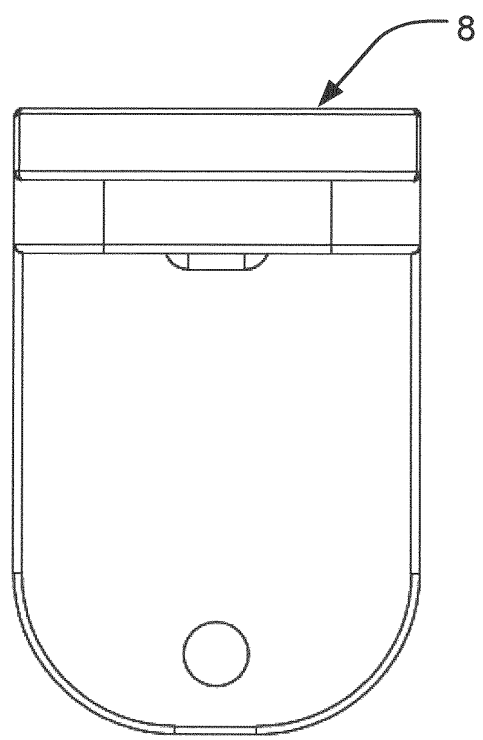


Fig. 31

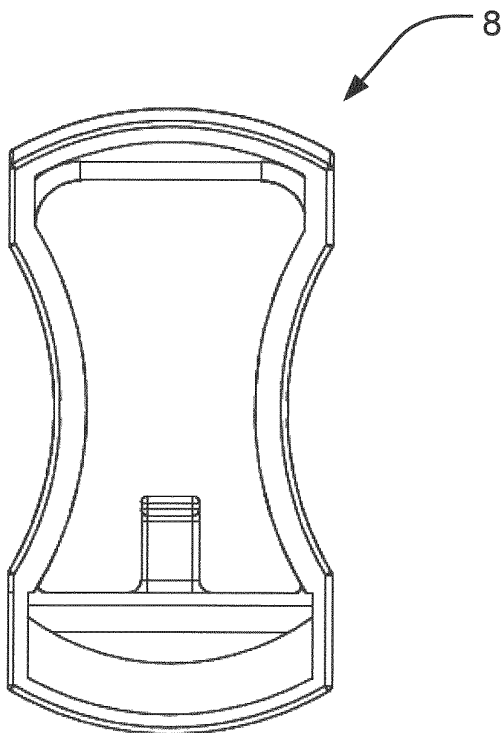


Fig. 32

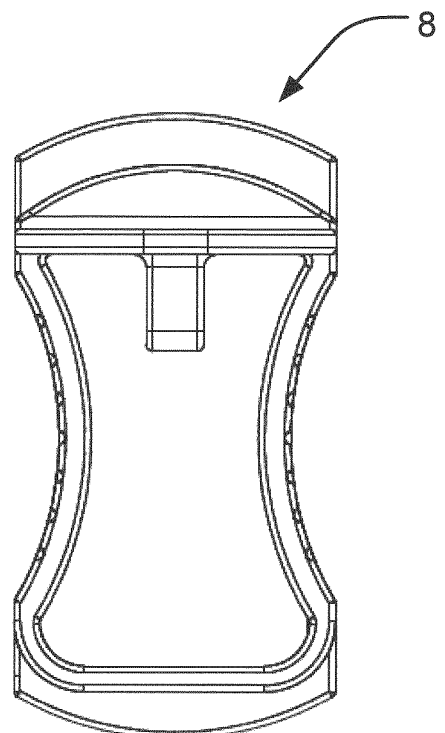


Fig. 33

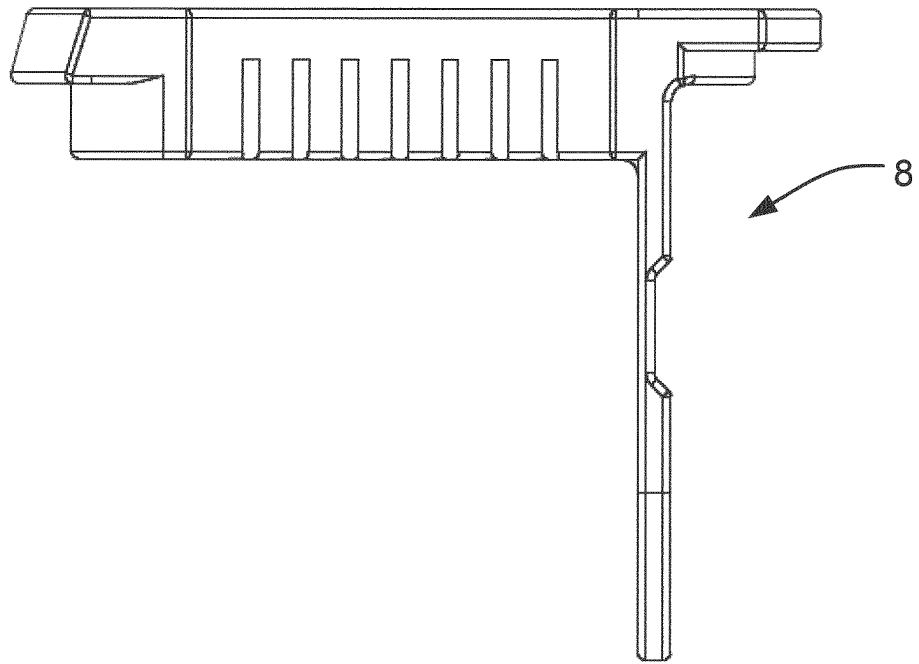


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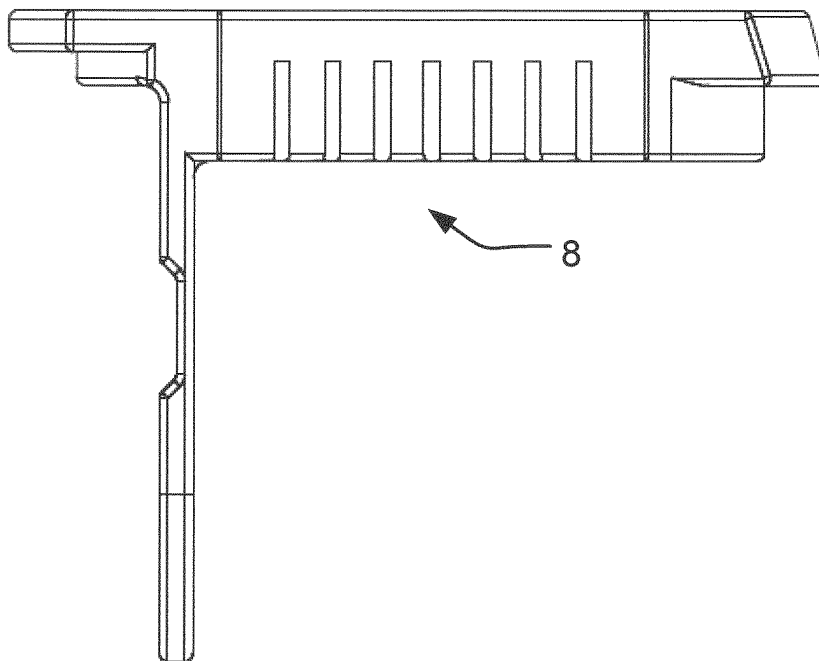


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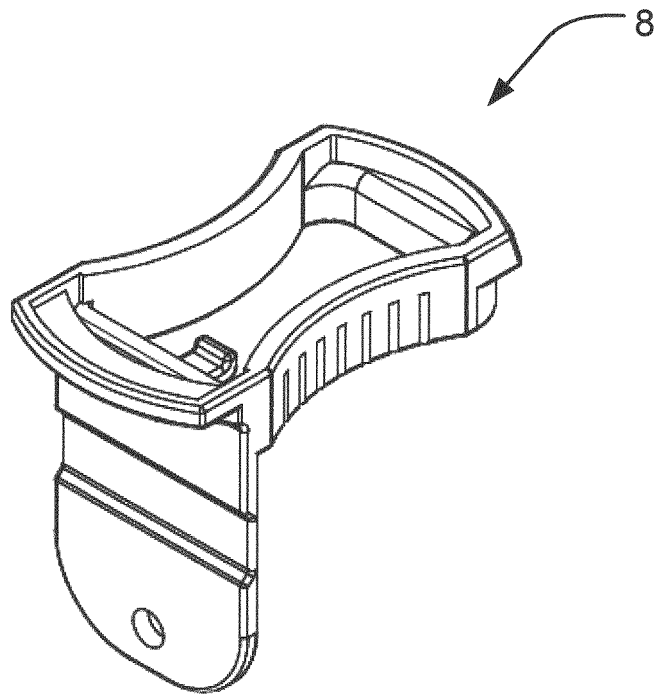


Fig. 36

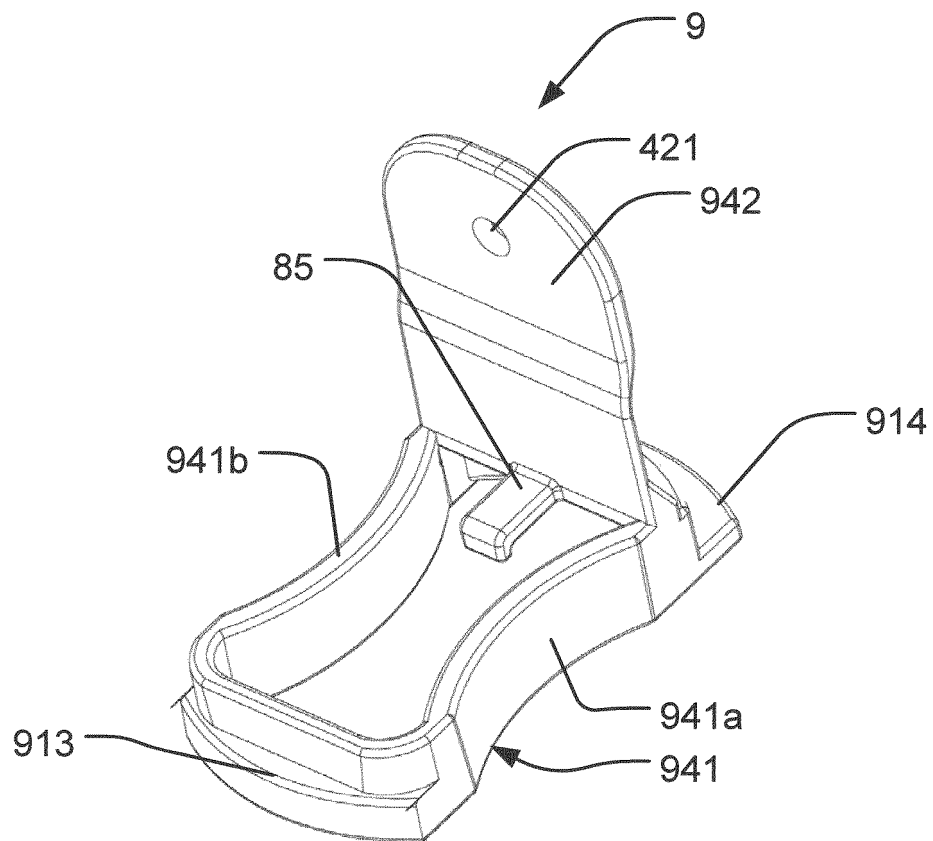


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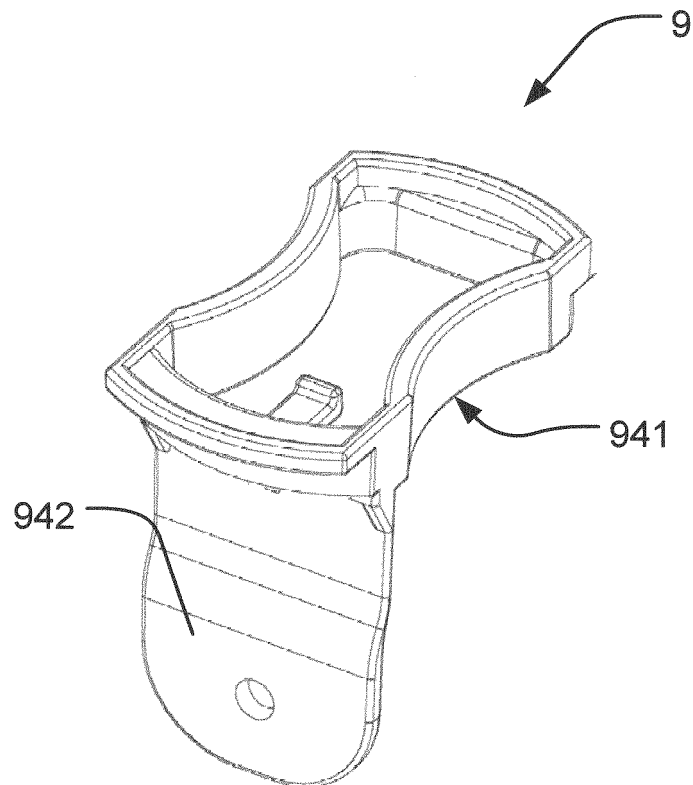


Fig. 38

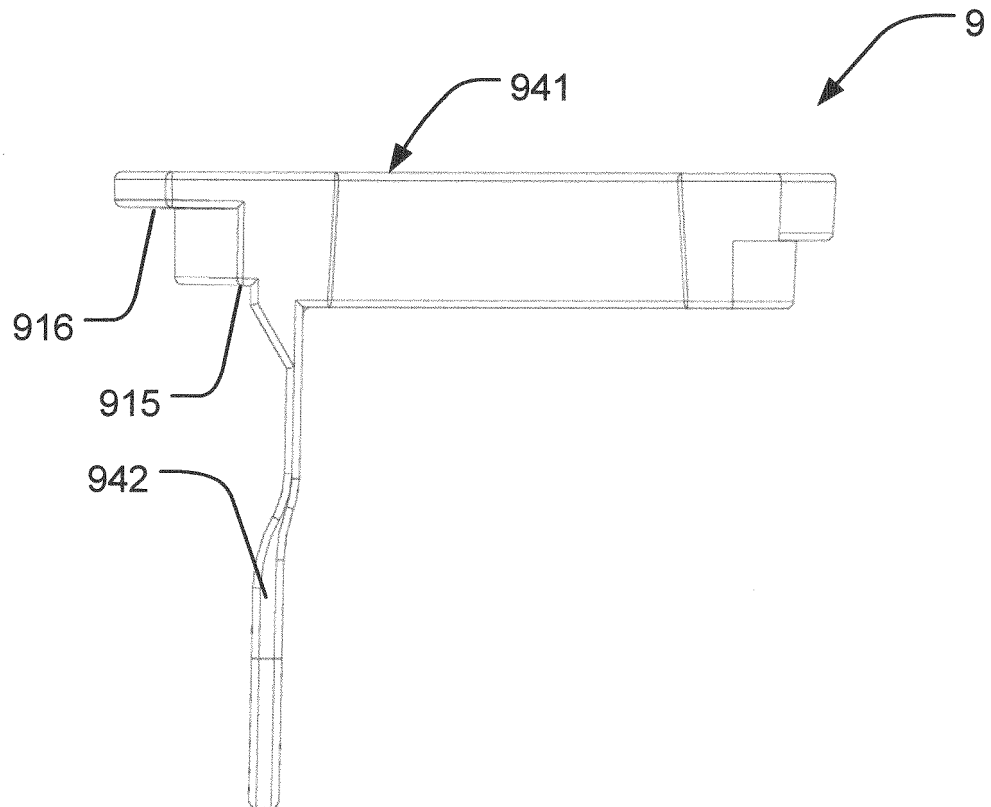


Fig. 39

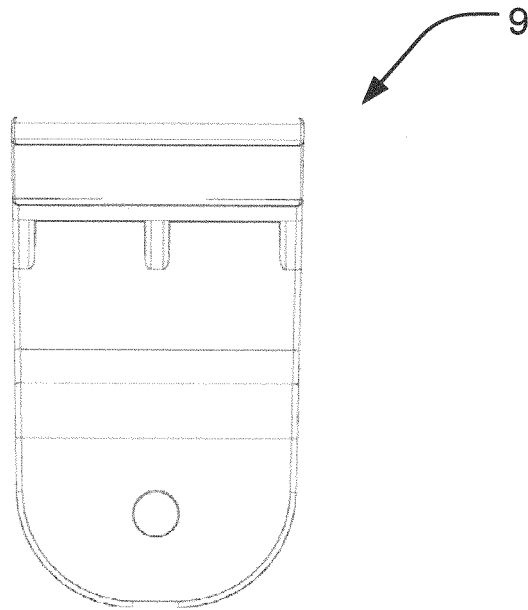


Fig. 40

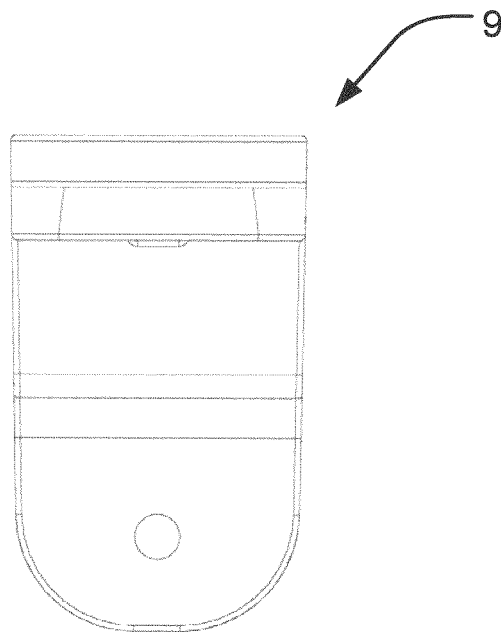


Fig. 41

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- DE 10145052 A1 [0005] [0014]
- US 4527369 A [0008]
- DK PA201270012 [0016]