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(54) **UNIVERSAL CORNER BRACKET FOR SHEETS OF MOVABLE ROOFS**

UNIVERSALECKWINKEL FÜR SCHIEBEDACHPLATTEN

SUPPORT D'ANGLE UNIVERSEL POUR PANNEAUX DE TOITS MOBILES

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(73) Proprietor: **Gaviota Simbac, S.L.**
03630 Sax Alicante (ES)

(72) Inventors:
• **Sáez López, Pedro Santiago**
03630 Sax (Alicante) (ES)

• **Guillen Chico, Francisco Vicente**
03630 Sax (Alicante) (ES)
• **Ballester Pérez, Ignacio**
03630 Sax (Alicante) (ES)

(74) Representative: **Carlos Hernando, Borja Garrigues IP, S.L.P.**
Hermosilla, 3
28001 Madrid (ES)

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EP 3 530 833 B1

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Description**DESCRIPTION OF THE INVENTION**

[0001] The present invention, a universal corner bracket for sheets of movable roofs, relates to a corner bracket used to join the frame sections that make up a sheet of a movable sun roof, each corner bracket joining two frame sections. The corner bracket has a particular structure that enables the use thereof to join the sections independently of the function or use that the sheet should have, such that the different sheets that make up the sun roof can be constructed with a single corner bracket model.

[0002] The field of application of the present invention is the sector of enclosures, and specifically those enclosures known as movable sun roofs, in which sheets, usually made of glass, slide between two guides that are slightly tilted.

DESCRIPTION OF THE STATE OF THE ART

[0003] In state of the art, movable sun roofs that mainly comprise two parallel guide sections that incorporate grooves for movement between both sections of sheets that are guided by said grooves are known. The movable roof usually rests on two points, on one, the rear point, fixed on one end of the guide sections to a wall, and on the other, the front point, on the opposite end of the guide sections that rest on a portal frame also formed by sections. Each pair of guide sections forms a lane along which the sheets run. Said sheets can move along the guide sections in a motorized or manual way. In the first case, at least one of the two guide sections incorporates a toothed belt that will be coupled by the corresponding means to one of the sheets of the lane (which is the farthest from the wall when the roof and the sheets are extended) which will be the drive sheet that will pull the other sheets, and the belt will also be coupled to a motor responsible for moving said belt. In the second case, the sheets are moved manually by using a pole.

[0004] Depending on the use or function of each sheet, they can be classified as three main types:

- Fixed sheet: located in the upper part of the lane, closest to the wall, when the movable roof is extended and is not moving.
- Drive sheet: located in the lower part of the lane, farthest from the wall, when the movable roof is extended and is usually the one that is pulled by the toothed belts in the case of a motorized roof or the one that is moved with the pole in the case of a manual roof.
- Intermediate sheet: located between the two previous sheets when the movable roof has three or more sheets per lane, and is pulled by the drive sheet, depending on whether this sheet is lifted or lowered.

[0005] In the so-called motorized cases, those that involve an electric motor as well as those that involve a mechanism manually activated by a handle, in which the movement is preferably transmitted from the motor or mechanism to the drive sheet through a toothed belt, are envisaged.

[0006] The sheets known in the state of the art are usually formed by four sections that form a rectangular or square frame to support, between the four sections, a panel, preferably made of glass although it can also be made of plastic, which is preferably transparent or translucent. Said sections are directly joined together by means of different joining parts and by mechanizing them based on the specific needs of each section of the sheet, needs that are determined by the sheet type and specifically by the use or function that the sheet carries out in each lane of the movable roof. Likewise, said machining operations can consist of perforating the sections in multiple shapes or making chamfer cuts on the ends of the sections in order to be able to join them, in addition to being mechanized to be able to join different sections as well as provide access to the different joining screws or to accommodate or provide an outlet for stop parts. Likewise, the sections must be adapted to the function of each sheet.

[0007] This type of structure of the sections of the sheets entail an expense in tools for adapting and joining the sections that make up each sheet of the movable roof, in addition to making it more difficult and costly to assemble the sheets.

[0008] The present invention proposes a universal corner bracket that is independent of the function and type of sheet and only requires the cutting of the sections that make up the frame of the sheet and the subsequent joining thereof to the corner bracket as an alternative and a solution to the problems existing in the manufacture and assembly of sheets for movable roofs.

DESCRIPTION

[0009] The object of the present invention, according to claim 1, is a universal corner bracket for sheets of movable roofs, the sheets each comprising a frame formed by four sections and four corner brackets joining said four sections making up the sheet of the movable roof, in other words, a frame that supports the panel made of glass or another material, which will be preferably transparent or translucent.

[0010] Said universal corner bracket comprises:

- A supporting body with a first side and a second side forming a 90° angle, each side having an upper face that makes up the upper face of the supporting body, a lower face that makes up the lower face of the supporting body, a rear face and a forward face, and having two attachments, a first attachment extending from the first side and a second attachment extending from the second side to be inserted into the sec-

tions that make up the sheet,

- A horizontal front hole, with a first horizontal axis, which provides access to an internal housing in the supporting body, and which is located in the front face of the first side of the supporting body, and
- A vertical hole, with a second vertical axis (b), which is located in the upper face of the first side.

[0011] By using the aforementioned structure of the universal corner bracket of the present invention, it is possible that a single corner bracket could be used to join the sections that make up the frame of the sheet, independently of the function of said sheet in the movable roof. Specifically, the first attachment and the second attachment will be inserted inside the sections, having complementary shapes for that reason, and suitable retention means will be used to ensure fastening between the corner bracket and the section of the sheet, which will preferably be screws that pass through through channels arranged in the corner bracket and are screwed onto the sections, although said means can also be adhesive. If the corner bracket is fastened by means of screws to the sections of the sheet, said corner bracket will comprise a first through channel for the insertion of fastening means, preferably a screw, that will be screwed onto the section of the sheet and a second through channel in the rear part of the front face of the second side and in the lower face of the supporting body for the insertion of fastening means, preferably a screw, which will be screwed onto the section of the sheet.

[0012] With the aforementioned structure of the corner bracket, this bracket can comprise different elements based on the functions of each sheet that makes up the movable roof. According to the invention, the corner bracket comprises:

- a first wheel fixed on the vertical hole by means of first retention means and which rotates with respect to the second vertical axis of said vertical hole, and
- a second wheel arranged in the housing and fixed by means of second retention means, which rotates with respect to the first horizontal axis of the front hole.

[0013] These corner brackets with wheels or bushings, preferably needle roller bearings or brass bushings with Teflon, are used to guide the sheets along the grooves of the guide sections, when the second wheels roll along a horizontal plane and when the first wheels roll on a vertical plane. Thus, the sliding of the sheets as well as the positioning thereof between the two guide sections is ensured. In particular, the intermediate sheets will have these wheels on their four corner brackets since they are pulled by the drive sheet, which will also have, wheels on their four corner brackets in the case that the roof is motorized.

[0014] When the sheet is a drive sheet in motorized roofs, two of the corner brackets, preferably the ones

closest to the wall, will comprise, in addition to the wheels, an additional part, a pull part, whose function is to help couple the corner bracket to the loop of the toothed belt that is responsible for moving the sheets. Therefore, the pull part is formed by an elongated body with a first hole in one end and protrusions similar to teeth on the other end, which will couple to the teeth of the toothed belt. Said pull part is between the front face of the first side and the second retention means that pass through the first hole of the pull part, such that it is parallel to said front face of the first side, protruding from the corner bracket through the second side thereof.

[0015] On the other hand, when the movable roof is manual, all the corner brackets of said sheets will have a brake part in the drive sheet and in the intermediate sheet or sheets that will be used for braking by friction, in addition to allowing sliding also by friction, of the sheet, without including the aforementioned wheels. This part will prevent the sheet from falling freely, therefore being able to adjust the placement of the drive sheet along the guide sections, and therefore, the placement of the other sheets before the drive sheet. This brake part has a body with an approximate L shape with first ribs in the first end and second ribs in the second end that reinforce and act as a stop between the corner bracket of the sheet and the guide section. One of the ends of one side of the body rests on the horizontal wall of the groove of the guide sections, while the end of the other side rests on the vertical wall of the groove of the guide section in order to position the sheet between both guide sections. The ends of the brake part protrude with respect to the sides of the corner bracket, preventing them from striking the guide sections. The brake part is fastened to the lower face of the supporting body of the corner bracket by means of third retention means.

[0016] For the sheets that are neither drive sheets nor intermediate sheets, in other words, the aforementioned fixed sheets, and these sheets being used in motorized or non-motorized movable roofs, which are those that are closest to the wall and do not move under any circumstances, the corner bracket does not have any wheels, but instead it has a retention part in the corner brackets farthest from the wall and the aforementioned brake part in the corner brackets closest to the wall.

[0017] Said retention part is preferably formed by a rectangular prismatic block with a lower slit in one end and at least one upper groove in the opposite end. The slit is used for the fixing thereof by means of second retention means to the first hole of the first side of the supporting body of the corner bracket, and the at least one upper groove, preferably two, is used for the fastening thereof by means of suitable retention means, preferably screws, to the guide sections, the position thereof thus being immobilized in said sections. Said retention part is parallel to said front face of the first side in a direction opposite to the coupling direction of the section of the sheet, protruding from the corner bracket through the second side thereof.

[0018] In any case, the placement of the different parts on the universal corner bracket of the present invention will depend on the needs of each movable roof, the aforementioned parts in corner brackets of sheets with other functions being able to be included in the universal corner bracket, such as, for example, two corner brackets with wheels and two with the brake parts could be included in an intermediate sheet.

[0019] Preferably, and to facilitate the assembly of the different elements on the corner bracket, this corner bracket comprises a third projection or attachment perpendicular to the front face of the first side and between the front hole and located the first attachment of the supporting body. Said third attachment therein comprises the vertical hole in the upper face of the third attachment and said first through channel passing through the third attachment and joining the lateral faces thereof.

[0020] In addition to the elements above, object of the present invention, the sheets of the movable roof comprise the usual components that enable the correct stepped movement of the drive sheet and intermediate sheet or sheets. Said components can be, among others, projections in the sections in order to pull the sheets, or rubber seals to prevent noise and impacts between the metals, or elements to remove water, although they are usually incorporated in the design of the sections among others.

DESCRIPTION OF THE FIGURES

[0021] The present disclosure includes the following figures that show, in a non-limiting way, several embodiments of the invention object of the present patent application.

Figure 1 shows a perspective view of a movable roof with three guide sections that define two lanes, each one with five sheets.

Figure 2 shows a perspective view of a sheet of a movable roof.

Figure 3 shows a perspective view of a cross section of a movable roof in which three interacting sheets are shown.

Figure 4 shows an upper perspective view of a corner bracket according to the present invention.

Figure 5 shows a lower perspective view of a corner bracket according to the present invention.

Figure 6 shows an exploded view of a corner bracket with wheels.

Figure 7 shows a perspective view of a corner bracket with wheels.

Figure 8 shows an exploded perspective view of a corner bracket with the wheels before the assembly thereof with sections of the sheet.

Figure 9 shows a cross section of a corner bracket with wheels on the guide sections.

Figure 10 shows an exploded view of a corner bracket with a pull part.

Figure 11 shows a perspective view of a corner bracket with the pull part.

Figure 12 shows a perspective and schematic view of a sheet with a corner bracket with a pull part coupled to a toothed belt.

Figure 13 shows a detailed view of the coupling between the corner bracket with the pull part and the toothed belt.

Figure 14 shows an exploded view of a corner bracket with a brake part.

Figure 15 shows a perspective view of a corner bracket with the brake part.

Figure 16 shows a cross section of a corner bracket with a brake part on the guide sections.

Figure 17 shows an exploded view of a corner bracket with a retention part.

Figure 18 shows a perspective view of a corner bracket with the retention part.

Figure 19 shows a perspective view of a detail of a corner bracket with the retention part coupled to the guide section.

DESCRIPTION OF A PREFERRED EMBODIMENT

[0022] The invention shall be described below in accordance with the figures included in the present disclosure.

[0023] Figure 1 shows a movable roof 100 formed by two lanes of five sheets, 1.1, 1.2, 1.3 that rest on the grooves 111 of three guide sections 110, each sheet 1.1 located between two sections 110. The movable roof has an upper section 101, usually resting on a wall and a lower portal frame 102 formed by a horizontal section and two vertical sections where the horizontal section rests. The guide sections 110 are arranged between the upper section 101 and the horizontal section of the portal frame 102. The upper sheet 1.2 of each lane, the closest to the upper section 101 of the movable roof 100, when all the sheets are extended is a fixed sheet 1.2 without movement; the sheet farthest from the upper section 101 when all the sheets are extended is a drive sheet 1.3, which can move from an extended position next to the horizontal section of the portal frame to a position under the fixed sheet 1.2; and the sheets 1.1 between the two previous sheets 1.2, 1.3 are intermediate sheets 1.1 that move only when the drive sheet 1.3 which pulls said intermediate sheets 1.1 moves. The sections of the movable roof are preferably made of aluminum.

[0024] The sun roof 100 can have two sheets, a fixed sheet 1.2 and a drive sheet 1.3 or a fixed sheet 1.2, a drive sheet 1.3 and one or more intermediate sheets 1.1. The movable roof 100 can be manual or motorized, and in the latter, the drive sheet 1.3 is the one that preferably moves by means of a toothed belt 112 pulled by a motor that is preferably in the upper section 101.

[0025] Figure 2 shows an example of a sheet 1.1 of a movable roof, in this case, an intermediate sheet 1.1 of a motorized movable roof 100, which is formed by four

corner brackets 10, object of the present invention, that join four sections 2, 3 together, such that each corner bracket 10 joins a longitudinal section 2 to a transverse section 3. The transverse sections 3 are parallel to each other, the longitudinal sections 2 are parallel to each other, and each transverse section 3 forms a 90° angle with a longitudinal section 2 when it joins the corner bracket 10. The longitudinal sections can be equal to or different from each other, like the transverse sections, although the longitudinal sections will be preferably different from each other, while the transverse sections will preferably be equal. Between the corner brackets 10 and the sections 2, 3 there is a panel 4 made of glass or another material, for example plastic, that will be preferably transparent or translucent. The transverse sections 3 are those that are inserted into the grooves 111 of the guide sections 110 of the movable roof 100, being parallel to said guide sections 110, and they are usually shorter than the longitudinal sections 2. Parallel to one of the longitudinal sections 2 and specifically to the section of the sheet that is closest to the upper section 101, the intermediate sheets 1.1 and drive sheet 1.3 preferably incorporate a rubber seal 2.1 that ensures air-tightness between the sheets. The sections of the sheet 2, 3 are preferably made of aluminum like the corner brackets 10.

[0026] Figure 3 shows a detailed cross section of the sun roof 100, which shows the previously described elements and how the sheets are located on the guide sections 110, the corner brackets 10 resting on the grooves 111 of said guide sections 110.

[0027] Figure 4 shows an upper perspective view of a universal corner bracket 10 according to the present invention and Figure 5 shows a lower perspective view of the corner bracket 10. Said corner bracket 10 preferably comprises a supporting body 13 with a first side 131 and a second side 132 forming a 90° angle, each side having an upper face that makes up the upper face of the supporting body 13, a lower face 135 that makes up the lower face of the supporting body 13, a rear face and a front face, a first front face 134 of the first side 131 and a second front face 133 of the second side 132 of the supporting body 13, and having two attachments, a first attachment 12 extending from the first side 131 and a second attachment 11 extending from the second side 132, which are inserted into the sections 2, 3 that make up the sheet, and therefore have a shape that is complementary to the inside of said sections 2, 3. In the front face 134 of the first side 131 of the supporting body 13, there is a front hole 16 with a first horizontal axis (b), perpendicular to the guide sections 110, which provides access to an internal housing 16.2 in the supporting body 13. Said hole 16 passes through a wall in the lower face 135 of the supporting body 13 to access the housing 16.2, and after said housing, there is another hole 16.1 in the supporting body 13. In the upper part of the supporting body 13 in said side 131, there is a vertical hole 15 with a second axis (a) that is preferably perpendicular to the first horizontal axis, (b). Said second hole 15 is preferably

a through hole and reaches the lower face 135, 174 of the supporting body 13 where there is another hole 15.1.

[0028] Preferably, said second hole 15 is in a third projection or attachment 17 that perpendicular to the front face 134 of the first side 131 of the supporting body 13. Said attachment 17 is between the front hole 16 and the first attachment 12. The second vertical hole 15 is in the upper face 171 of the attachment 17 and the lower hole 15.1 corresponding to said vertical hole 15 is in the lower face 173 of said attachment 17.

[0029] The attachments 11, 12 of the corner bracket 10 that are inserted into the sections 2, 3 that make up the sheet can be joined to said sections 2, 3 by means of different fastening means, such as, for example, adhesive or other mechanical fastening means, such as, for example and preferably, screws. To join the corner bracket 10 to the sections 2, 3 by means of screws, the corner bracket 10 has through channels 18, 19 that pass through the supporting body 13 of the corner bracket 10 to be subsequently inserted into housings for said purpose made in the section 2, 3 of the sheet. Specifically, the third attachment 17 comprises a first through channel 18, which passes through said attachment 17 and joins the lateral faces 172, 173 thereof for the insertion of said fastening means. The fastening means, preferably a screw 6, joins the corner bracket 10 to the transverse section 3. Likewise, the supporting body 13 comprises a second through channel 19 in the lower face 135 of the supporting body 13 for the insertion of other fastening means, preferably a screw 5, that will join the corner bracket 10 to the longitudinal section 2 of the sheet. Said second through channel 19 is more specifically located in the rear part of the second front face 133 of the second side 132 and in the lower face 135 of the supporting body 13.

[0030] Figure 6 shows an exploded view of a first example of a universal corner bracket 10 that incorporates wheels 21, 24 to make it easier for the sheet to roll along the grooves 111 of the guide sections 110. Specifically, it has a first wheel 21 fixed on the vertical hole 15 by means of first retention means 22 and which rotates with respect to the second vertical axis (a) of said vertical hole 15, and a second wheel 24 arranged in the housing 16.2 and fixed by means of second retention means 25 and which rotates with respect to the first axis (b) of the front hole 16. The retention means are preferably screws 22, 25 that are inserted into said holes and can interact with other elements to ensure the positioning thereof or ensure the correct functioning thereof, such as a washer 26 that is placed between the head of the screw 25 and the supporting body 13 to ensure correct fastening of the screw 25 between the aluminum of the supporting body 13 of the corner bracket 10 and the steel screw 25, or a bushing 23 that ensures that the wheel 21 rotates. These wheels 21, 24 roll on the grooves 111 of the guide sections 110, the first wheel 21 on the vertical wall of the groove 111 and the second wheel 24 on the lower or horizontal wall of the groove 111. It must be understood

that the horizontal wall of the groove 111 is tilted in the installation position thereof.

[0031] Figure 7 shows a corner bracket with the wheels 21, 24 already installed in the holes 15, 16 thereof and retained in the supporting body 13 by means of the screws 22, 25. Figure 8 shows an exploded perspective view of a universal corner bracket 10 with the installed wheels 21, 24 prior to being assembled in the sections 2, 3 of the sheet with the panel 4. The fastening screws 5, 6 of the corner bracket 10 to the sections 2, 3 are shown. The upper face of the first side 131 of the supporting body 13 of the corner bracket 10 can have a circular notch 137 in the place where the first wheel 21 is located that allows for the placement and rotation of said wheel 21.

[0032] The previously described corner bracket 10 which incorporates the wheels 21, 24 is applied to the motorized movable roofs, where the intermediate sheets 1.1 will have four corner brackets 10 of this type which allows them to slide "uncontrollably" or "in a crazy manner" when the drive sheet 1.3 moves. Likewise, the corner brackets 10 of the drive sheet 1.3 that are farthest from the upper section 101 will also include these wheels 21, 24 to facilitate the sliding thereof along the grooves 111.

[0033] Figure 9 shows a cross section of a guide section 10 that comprises a corner bracket 10 with the sliding wheels 21, 24 in one of the grooves 111 thereof, such that the first wheel 21 rests on the vertical wall of the groove and the second wheel 24 rests on the lower surface or horizontal surface thereof.

[0034] Figure 10 shows an exploded view of a second type of corner bracket 10 according to the present invention. Specifically, it is a corner bracket 10 that, in addition to the previously described wheels 21, 24, comprises a pull part 31. This pull part 31 is in the corner brackets 10 of the drive sheets 1.3 in motorized movable roofs and specifically in the two corner brackets 10 closest to the upper section 101 of the movable roof 100, while the two farthest corner brackets 10 will only have the wheels 21, 24 as mentioned above. Said pull part 31 is formed by an elongated body with a first hole 34 in one end and protrusions 32 similar to teeth on the other end to couple to another part 38 that is placed between the pull part 31 and the toothed belt 112. The pull part 31 is between the front face 134 of the first side 131 and second fastening means 33 that pass through the first hole 34 of the pull part 31. These second fastening means 33 are also used to fasten the second wheel 24 to the supporting body 13 of the corner bracket 10. As shown in Figure 11, the pull part 31 is parallel to the front face 134 of the first side 131 of the supporting body 13, protruding from the corner bracket 10 through the second side 132 of the supporting body 13.

[0035] Figure 12 shows a drive sheet 1.3 located with respect to a toothed belt 112 of a movable roof 100, wherein the pull part 31 coupled to the belt 112 through the intermediate grip part 38 is shown. Likewise, Figure 13 shows a detailed view of said coupling, in which the

pull part 31 is fixed to a grip part 38 of the toothed belt 112 through a hole 35 in the pull part 31 in order to insert a fastening means 39, preferably a screw, that adjusts to the grip part 38.

[0036] Figure 14 shows another construction of a corner bracket 10 according to the present invention, in which a brake part 43 is added to the previously described universal corner bracket 10 (Figures 4 and 5), the objective of which is to provide the intermediate sheets 1.1 and drive sheets 1.3 of manual movable roofs with a controlled movement, such that the sheet can move and slide along the guide sections 110 in a controlled manner since they brake by friction when the brake part 43 rests on the grooves 111 of the guide sections 110. These brake parts 43 are in the four corner brackets 10 of the intermediate sheets 1.1 and drive sheets 1.3 of the manual movable roofs. Furthermore, these brake parts are in the two corner brackets 10 closest to the upper section 101 of the movable roof 100 of the fixed sheets 1.2.

[0037] Said brake part 43 has an essentially flat body with an approximate L shape and with first ribs 44 in the first end 41 and second ribs 45 in the second end 42, and it is fastened to the lower face 135 of the supporting body 13 by means of third retention means 46 that pass through a hole 47 in the part 43. The ribs 44, 45 arranged in the ends of the ends 41, 42 of the part 43 aim to reinforce the brake part 43 and in turn facilitate the positioning of said part 43 in the corner bracket 10 as well as act as a stop between the corner bracket 10 and the guide section 110.

[0038] Figure 15 shows the part 43 assembled on the corner bracket 10, such that the ribs 44 of the first end 41 face the first hole 16 of the corner bracket 10, while the ribs 45 of the second end 42 are in the side of the corner bracket 10 to which the transverse section 3 is coupled. Likewise, Figure 16 shows a cross section of a guide section 110 where the first end 41 of the brake part 43 close to the vertical wall of the groove 111 and the second end 42 of said brake part 43 resting on the horizontal wall of the groove 111 of the guide section 110 are shown.

[0039] Figure 17 shows another element that can join to the universal corner bracket described. This element is a retention part 50 which aims to retain the corner bracket 10 and the corresponding sheet to the guide section 110 or to the groove 111 therein in order to prevent the movement thereof, therefore leading to a fixed sheet 1.2 that are those closest to the upper section 101 of the movable roof 100, either manual or motorized. Preferably, these retention parts 50 are in the two corner brackets 10 of the fixed sheet 1.2 that are farthest from the upper section 101 of the movable roof 100.

[0040] Specifically, said retention part 50 is formed by a rectangular prismatic body with an arched lower slit 51 in one end and at least one arched upper slit 52 in the opposite end, preferably two arched grooves 52. The retention part is between the front face 134 of the first side 131 of the supporting body 13 of the corner bracket 10

and the second retention means 25, preferably a screw, that pass through the lower slit 51 and are inserted into the first hole 16 of the front face 134 of the supporting body 13. The upper arched grooves 52 are used so that retention means 55, preferably screws, pass through them to fasten or retain the retention part 50 in the groove 111 of the guide section 110, specifically in the vertical wall of the groove 111.

[0041] Figure 18 shows the retention part 50 already assembled in the corner bracket and it shows how it protrudes through the second side 132 of the corner bracket 10. This can also be seen in Figure 19 which shows a corner bracket 10 fastened to the vertical wall of the groove 111 of the guide section 110 through the retention part 50.

[0042] As mentioned above, the different elements 21, 24, 31, 43, 50 and additional components, which can be assembled on the universal corner bracket 10, depend on the function that this corner bracket 10 as well as the sheet 1.1, 1.2, 1.3 of which said corner bracket 10 is formed is to carry out.

Claims

1. A universal corner bracket (10) for sheets of movable roofs, the sheets each comprising a frame formed by four sections and four corner brackets (10) joining said four sections, the universal corner bracket (10) comprising:

- A supporting body (13) with a first side (131) and a second side (132) forming a 90° angle, each side having an upper face that makes up the upper face of the supporting body (13), a lower face that makes up the lower face (135) of the supporting body (13), a rear face and a front face (134, 133) for each side (131, 132) of the supporting body (13), and having two attachments, a first attachment (12) extending from the first side (131) and a second attachment (11) extending from the second side (132), which are inserted into the sections that make up the sheet,

- A front hole (16) with a first horizontal axis (b), which provides access to an internal housing (16.2) in the supporting body (13), and which is located in the front face (134) of the first side (131) of the supporting body (13), and

- A vertical hole (15), with a second axis (a), which is located in the upper face of the first side 131.

characterized in that it comprises:

- a first wheel (21) fixed on the vertical hole (15) by means of first retention means (22) and which rotates with respect to the second axis (a) of

said vertical hole (15), and

- a second wheel (24) arranged in said internal housing (16.2), and fixed by means of second retention means (25), and which rotates with respect to the first axis (b) of the front hole (16).

2. The corner bracket according to claim 1, **characterized in that** it comprises a pull part (31) is formed by an elongated body with a first hole (34) in one end and protrusions (32) similar to teeth on the other end, located between the front face (134) of the first side (131) and the second fastening means (33) that pass through the first hole (34) of the pull part (31).

3. The corner bracket according to claim 1, **characterized in that** it comprises a brake part (43) formed by a body with an approximate L shape with first ribs (44) in the first end (41) and second ribs (45) in the second end (42), fastened to the lower face (135) of the supporting body (13) by means of third retention means (46) that pass through a hole (47) in the part (43).

4. The corner bracket according to claim 1, **characterized in that** it comprises a retention part (50) formed by a rectangular prismatic block with a lower slit (51) in one end and at least one upper groove (52) in the opposite end, being located between the front face (134) of the first side (131) and the second retention means (25) that pass through the lower slit (51).

5. The corner bracket according to claim 1, **characterized in that** it comprises a first through channel (18) for the insertion of fastening means (6) into a section of the sheet.

6. The corner bracket according to claim 1, **characterized in that** it comprises a second through channel (19) for the insertion of fastening means (5) into a section of the sheet, located in the rear part of the second front face (133) of the second side (132) and in the lower face (135) of the supporting body (13).

7. The corner bracket according to claim 5, **characterized in that** it comprises a third projection or attachment (17) perpendicular to the front face (134) of the first side (131) and between the front hole (16) and the first attachment (12) and which comprises said vertical hole (15) in the upper face (171) thereof and said first through channel (18) that passes through said third attachment (17) joining the lateral faces (172, 173) thereof.

55 Patentansprüche

1. Universaleckwinkel (10) für Schiebedachplatten, wobei die Platten jeweils einen Rahmen umfassen,

gebildet aus vier Abschnitten und vier Eckwinkeln (10), welche die genannten Abschnitte verbinden, wobei der Universaleckwinkel (10) Folgendes umfasst:

- einen Tragkörper (13) mit einer ersten Seite (131) und einer zweiten Seite (132), welche einen Winkel von 90° bilden, wobei jede Seite eine obere Fläche, welche die obere Fläche des Tragkörpers (13) bildet, eine untere Fläche, welche die untere Fläche (135) des Tragkörpers (13) bildet, eine hintere Fläche und eine vordere Fläche (134, 133) für jede Seite (131, 132) des Tragkörpers (13) aufweist, und zwei Halterungen aufweist, wobei sich eine erste Halterung (12) von der ersten Seite (131) aus erstreckt und sich eine zweite Halterung (11) von der zweiten Seite (132) aus erstreckt, welche in die Abschnitte, welche die Platten bilden, eingeführt sind,
- ein vorderes Loch (16) mit einer ersten horizontalen Achse (b), welches Zugang zu einem Innengehäuse (16.2) im Tragkörper (13) bietet, und welches sich in der vorderen Fläche (134) der ersten Seite (131) des Tragkörpers (13) befindet, und
- ein vertikales Loch (15), mit einer zweiten Achse (a), welches sich in der oberen Fläche der ersten Seite (131) befindet,

dadurch gekennzeichnet, dass er Folgendes umfasst:

- ein erstes Rad (21), welches auf dem vertikalen Loch (15) mittels erster Haltemittel (22) fixiert ist und welches in Bezug auf die zweite Achse (a) des genannten vertikalen Lochs (15) rotiert, und
 - ein zweites Rad (24), welches im genannten Innengehäuse (16.2) angeordnet ist und mittels zweiter Haltemittel (25) fixiert ist, und welches in Bezug auf die erste Achse (b) des vorderen Lochs (16) rotiert.
2. Eckwinkel nach Anspruch 1, **dadurch gekennzeichnet, dass** er ein Zugteil (31) umfasst, gebildet aus einem länglichen Körper mit einem ersten Loch (34) in einem Ende und zahnähnliche Vorsprünge (32) auf dem anderen Ende, welches sich zwischen der vorderen Fläche (134) der ersten Seite (131) und den zweiten Befestigungsmitteln (33), welche durch das erste Loch (34) des Zugteils (31) durchgehen, befindet.
 3. Eckwinkel nach Anspruch 1, **dadurch gekennzeichnet, dass** er ein Bremsteil (43) umfasst, gebildet aus einem Körper mit einer annähernde L-Form mit ersten Rippen (44) im ersten Ende (41) und zweiten Rippen (45) im zweiten Ende (42), befestigt an

der unteren Fläche (135) des Tragkörpers (13) mittels dritter Haltemittel (46), welche durch ein Loch (47) im Teil (43) durchgehen.

4. Eckwinkel nach Anspruch 1, **dadurch gekennzeichnet, dass** er ein Halteteil (50) umfasst, gebildet aus einem rechteckigen prismatischen Block mit einem unteren Schlitz (51) in einem Ende und mindestens einer oberen Nut (52) im gegenüberliegenden Ende, welches sich zwischen der vorderen Fläche (134) der ersten Seite (131) und den zweiten Haltemitteln (25), welche durch den unteren Schlitz (51) durchgehen, befindet.
5. Eckwinkel nach Anspruch 1, **dadurch gekennzeichnet, dass** er einen ersten Durchgangskanal (18) für das Einführen von Befestigungsmitteln (6) in einen Abschnitt der Platte umfasst.
6. Eckwinkel nach Anspruch 1, **dadurch gekennzeichnet, dass** er einen zweiten Durchgangskanal (19) für das Einführen von Befestigungsmitteln (5) in einen Abschnitt der Platte umfasst, welcher sich im hinteren Teil der zweiten vorderen Fläche (133) der zweiten Seite (132) und in der unteren Fläche (135) des Tragkörpers (13) befindet.
7. Eckwinkel nach Anspruch 5, **dadurch gekennzeichnet, dass** er einen dritten Vorsprung oder eine dritte Halterung (17) senkrecht zur vorderen Fläche (134) der ersten Seite (131) und zwischen dem vorderen Loch (16) und der ersten Halterung (12) umfasst und welcher/welche das genannte vertikale Loch (15) in der oberen Fläche (171) desselben/derselben umfasst und wobei der genannte erste Durchgangskanal (18), welcher durch die genannte dritte Halterung (17) durchgeht, die seitlichen Flächen (172, 173) derselben verbindet.

Revendications

1. Support d'angle universel (10) pour tôles de toits mobiles, les tôles comprenant chacune un cadre formé par quatre sections et quatre supports (10) reliant lesdites quatre sections, le support d'angle universel (10) comprenant :

- Un corps de support (13) avec un premier côté (131) et un second côté (132) formant un angle de 90°, chaque côté ayant une face supérieure qui constitue la face supérieure du corps de support (13), une face inférieure qui constitue la face inférieure (135) du corps de support (13), une face arrière et une face avant (134, 133) pour chaque côté (131, 132) du corps de support (13), et ayant deux attaches, une première attache (12) s'étendant à partir du premier côté (131) et

une seconde attache (11) s'étendant à partir du second côté (132), qui sont insérées dans les sections qui composent la feuille,

- Un trou frontal (16) avec un premier axe horizontal (b), qui donne accès à un logement interne (16.2) dans le corps de support (13), et qui est situé dans la face frontale (134) du premier côté (131) du corps de support (13), et

- Un trou vertical (15), avec un deuxième axe (a), qui est situé dans la face supérieure du premier côté 131.

caractérisé en ce qu'il comprend :

- une première roue (21) fixée sur le trou vertical (15) au moyen de premiers moyens de retenue (22) et qui tourne par rapport au deuxième axe (a) dudit trou vertical (15), et

- une deuxième roue (24) disposée dans ledit logement interne (16.2), et fixée au moyen d'un deuxième moyen de retenue (25), et qui tourne par rapport au premier axe (b) du trou avant (16).

2. Le support d'angle selon la revendication 1, **caractérisé en ce qu'il** comprend une partie de traction (31) est formée par un corps allongé avec un premier trou (34) à une extrémité et des saillies (32) similaires à des dents à l'autre extrémité, situées entre la face avant (134) du premier côté (131) et les deuxièmes moyens de fixation (33) qui passent à travers le premier trou (34) de la partie de traction (31).
3. Le support d'angle selon la revendication 1, **caractérisé en ce qu'il** comprend une partie de freinage (43) formée par un corps ayant une forme approximative de L avec des premières nervures (44) dans la première extrémité (41) et des deuxièmes nervures (45) dans la deuxième extrémité (42), fixée à la face inférieure (135) du corps de support (13) au moyen de troisièmes moyens de fixation (46) qui passent à travers un trou (47) de la partie (43).
4. Le support d'angle selon la revendication 1, **caractérisé en ce qu'il** comprend une partie de retenue (50) formée par un bloc prismatique rectangulaire avec une fente inférieure (51) à une extrémité et au moins une rainure supérieure (52) à l'extrémité opposée, étant située entre la face avant (134) du premier côté (131) et les deuxièmes moyens de retenue (25) qui passent à travers la fente inférieure (51).
5. Le support d'angle selon la revendication 1, **caractérisé en ce qu'il** comprend un premier canal traversant (18) pour l'insertion de moyens de fixation (6) dans une section de la feuille.
6. Le support d'angle selon la revendication 1, **caractérisé en ce qu'il** comprend un second canal traversant

(19) pour l'insertion de moyens de fixation (5) dans une section de la feuille, situé dans la partie arrière de la seconde face avant (133) du second côté (132) et dans la face inférieure (135) du corps de support (13).

7. Le support d'angle selon la revendication 5, **caractérisé en ce qu'il** comprend une troisième saillie ou fixation (17) perpendiculaire à la face avant (134) du premier côté (131) et entre le trou avant (16) et la première fixation (12) et qui comprend ledit trou vertical (15) dans la face supérieure (171) de celle-ci et ledit premier canal traversant (18) qui passe à travers ladite troisième fixation (17) en joignant les faces latérales (172, 173) de celle-ci.

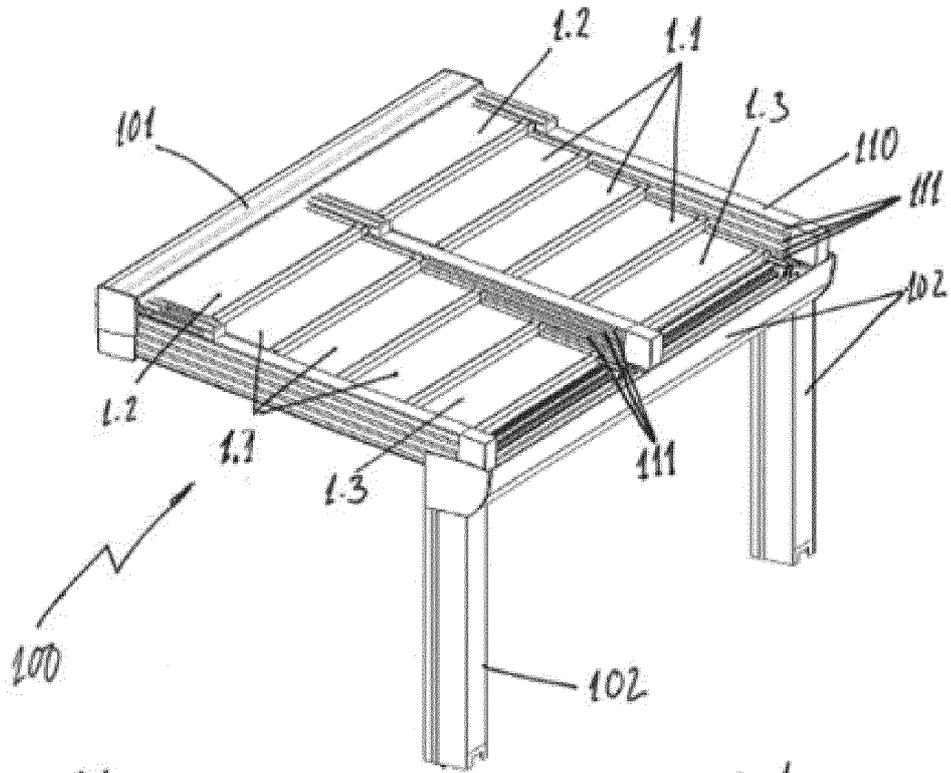


FIG. 1

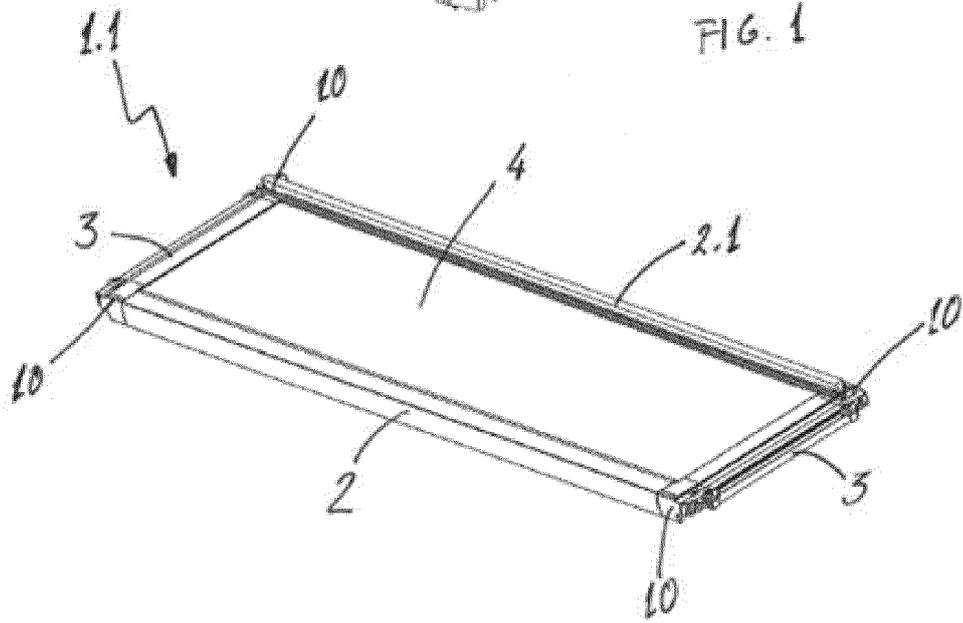


FIG. 2

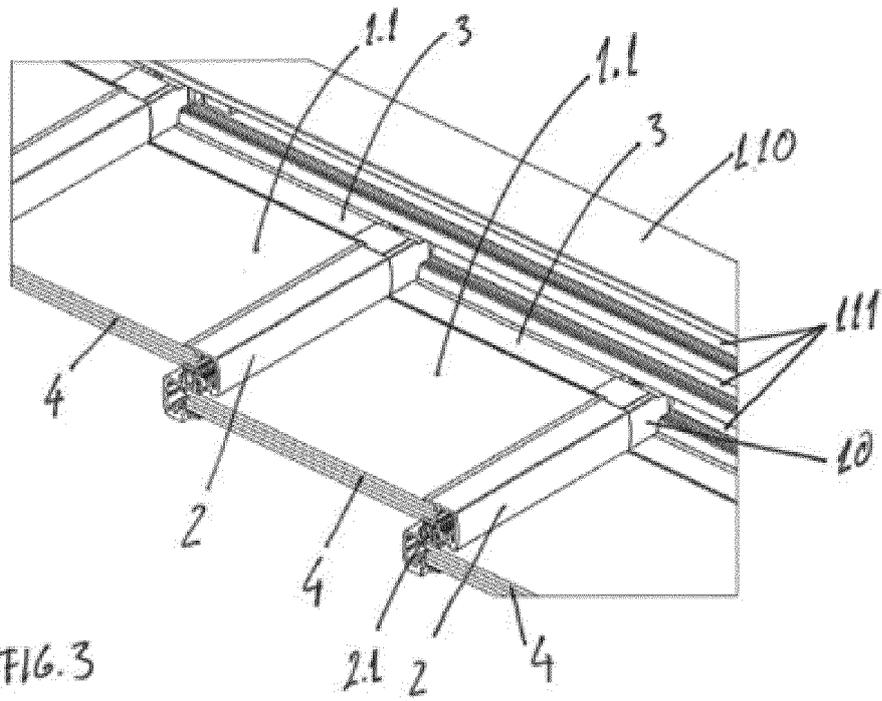


FIG. 3

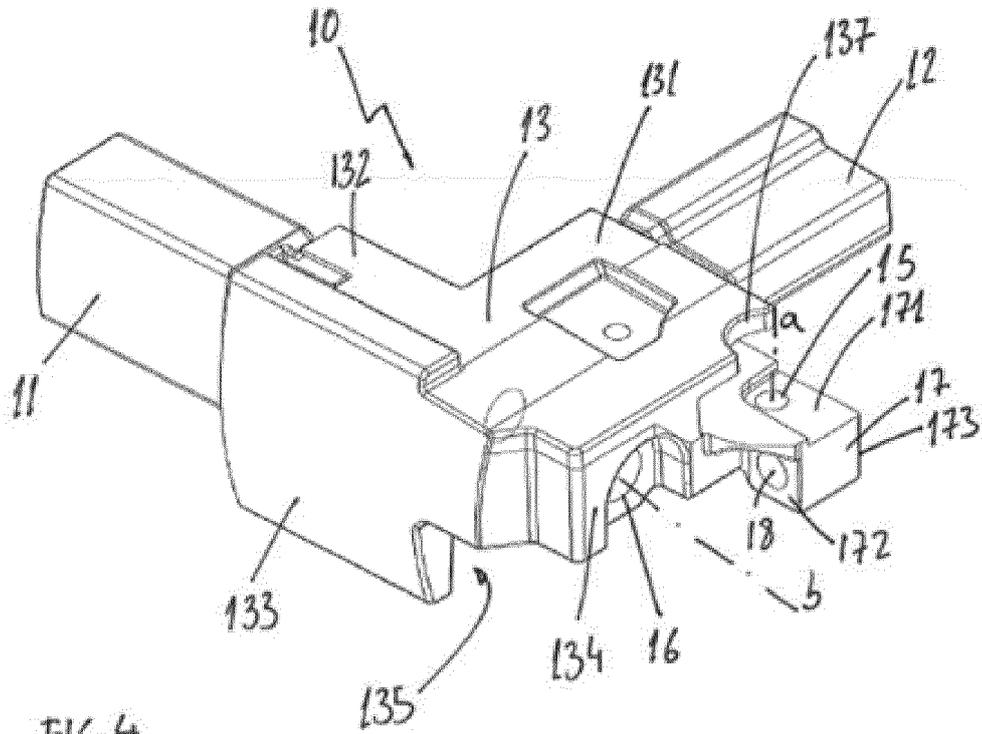


FIG. 4

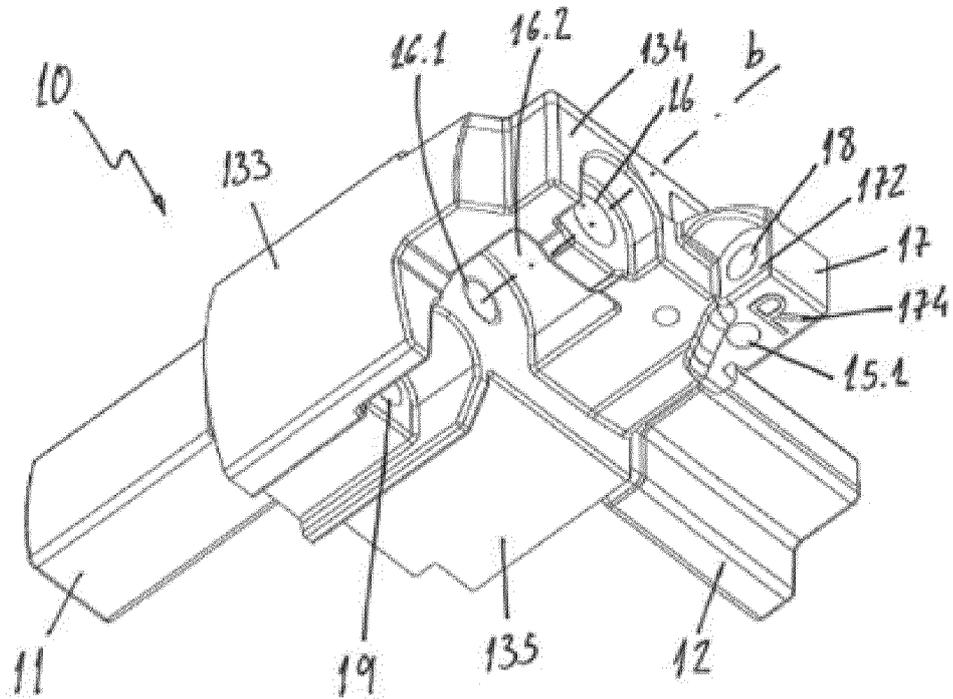


FIG. 5

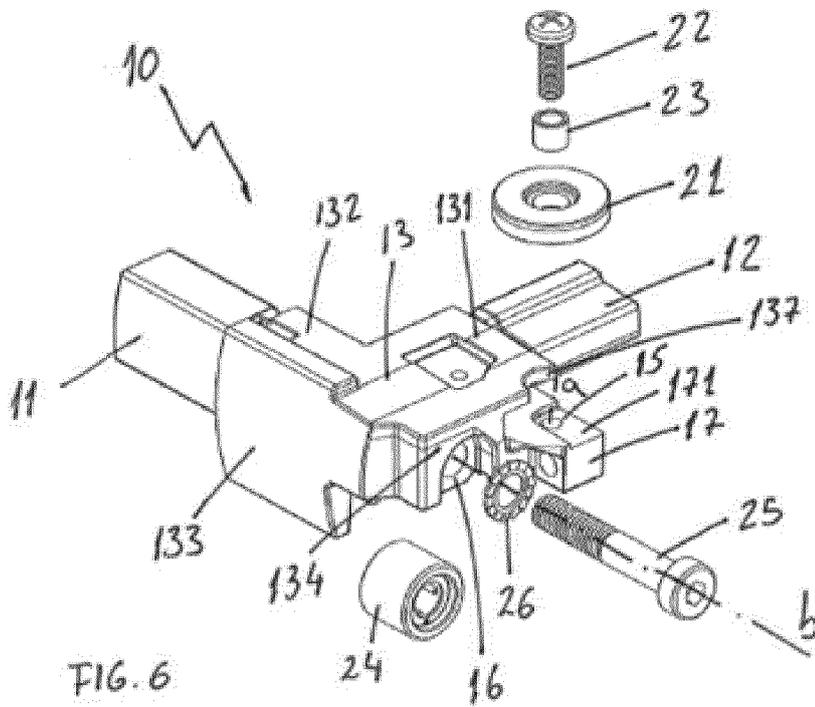
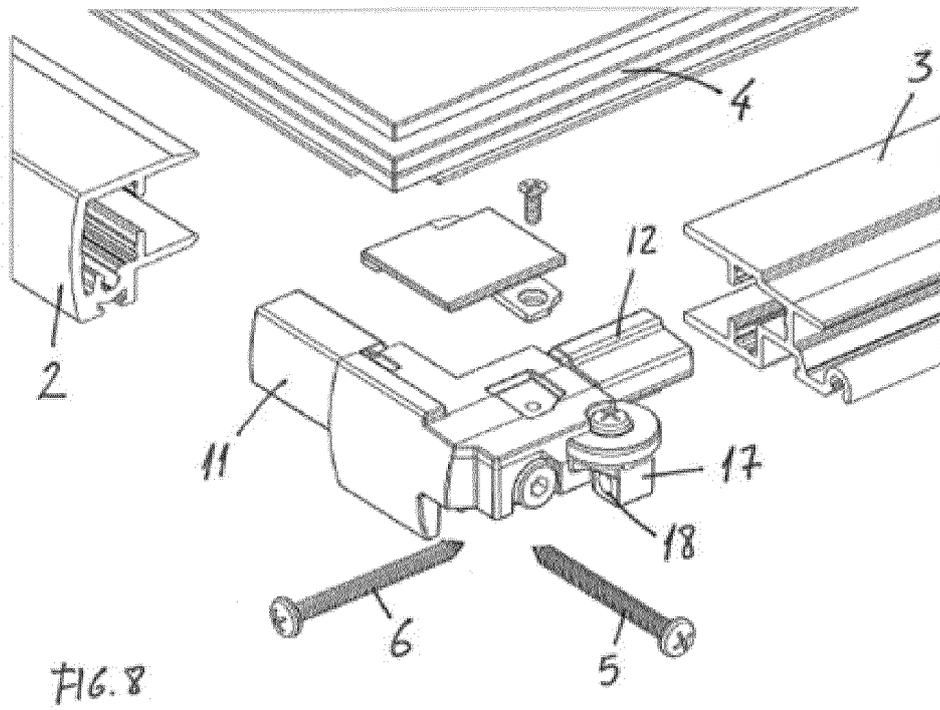
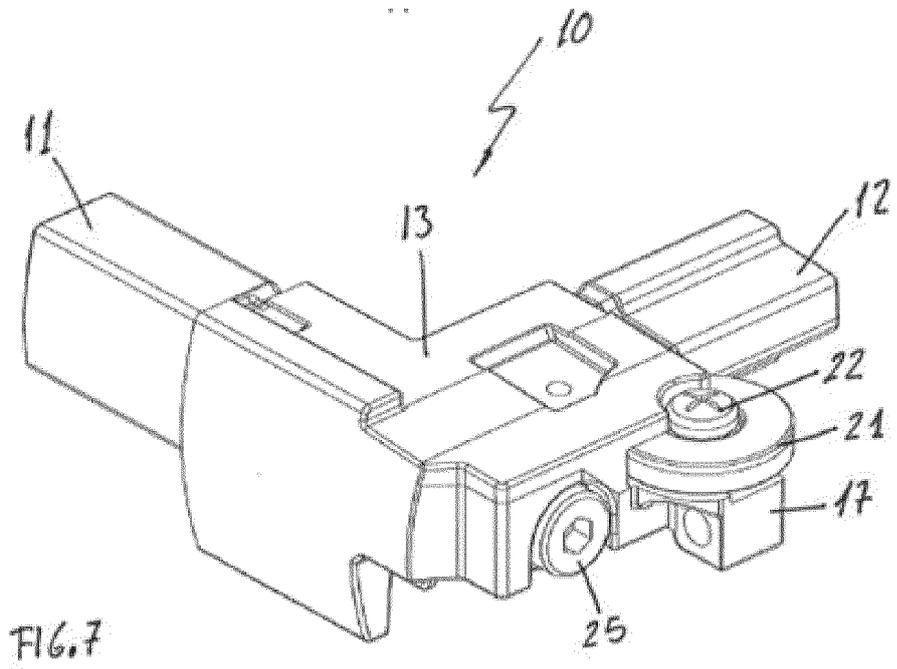
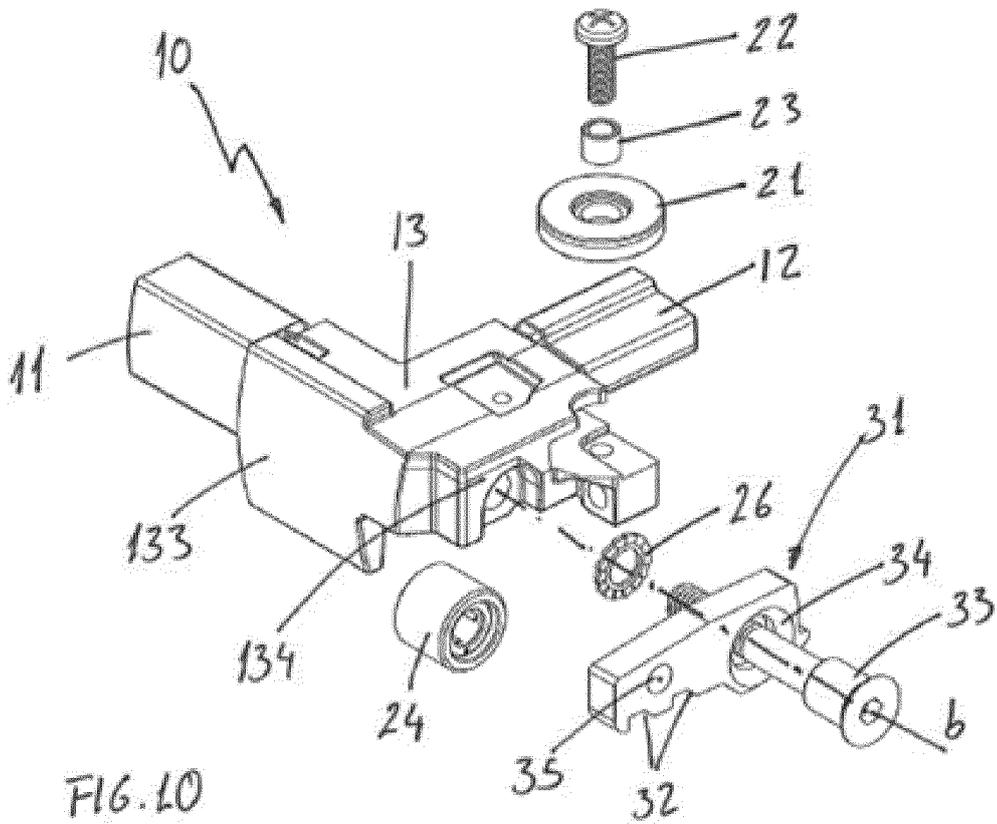
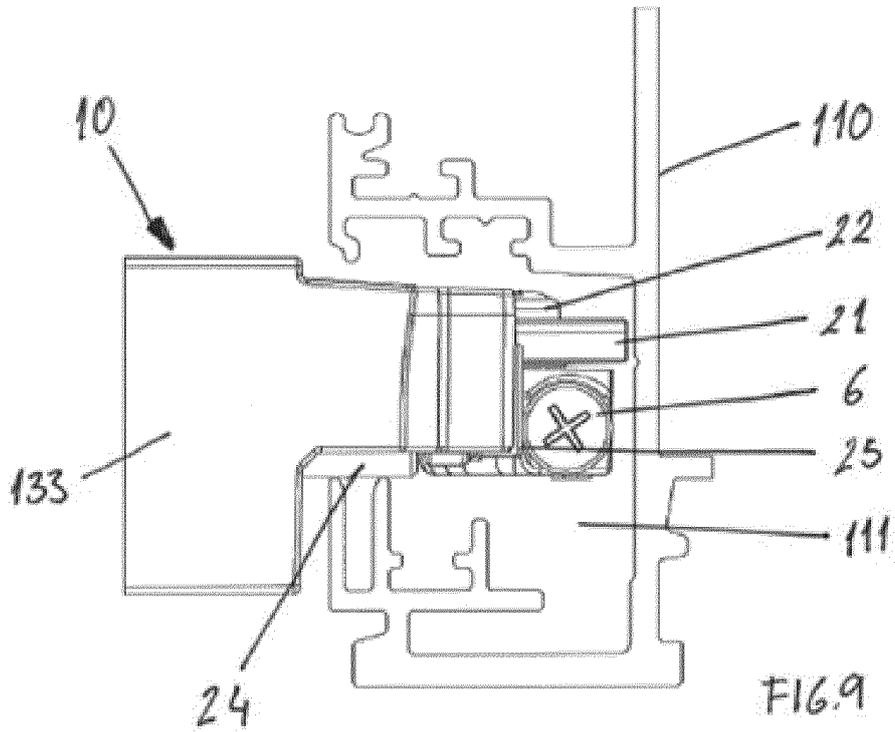
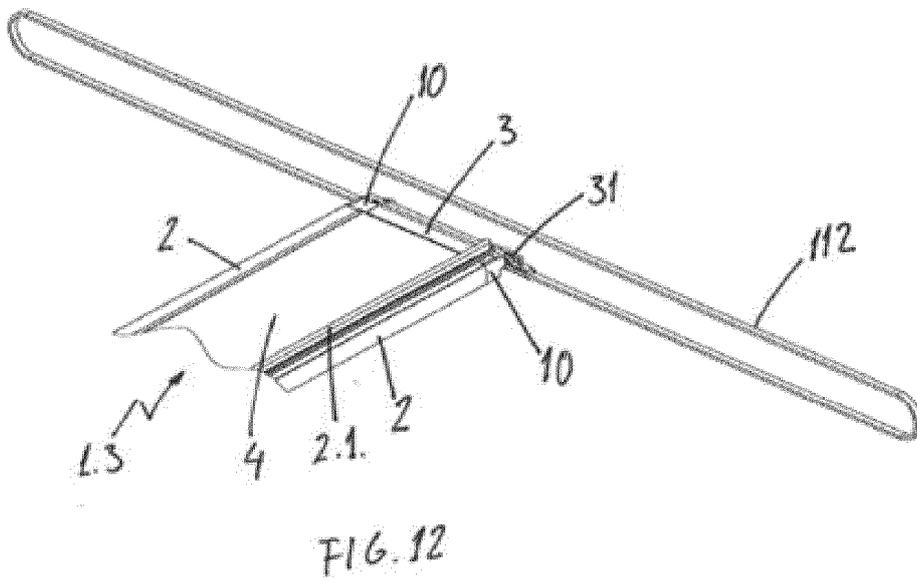
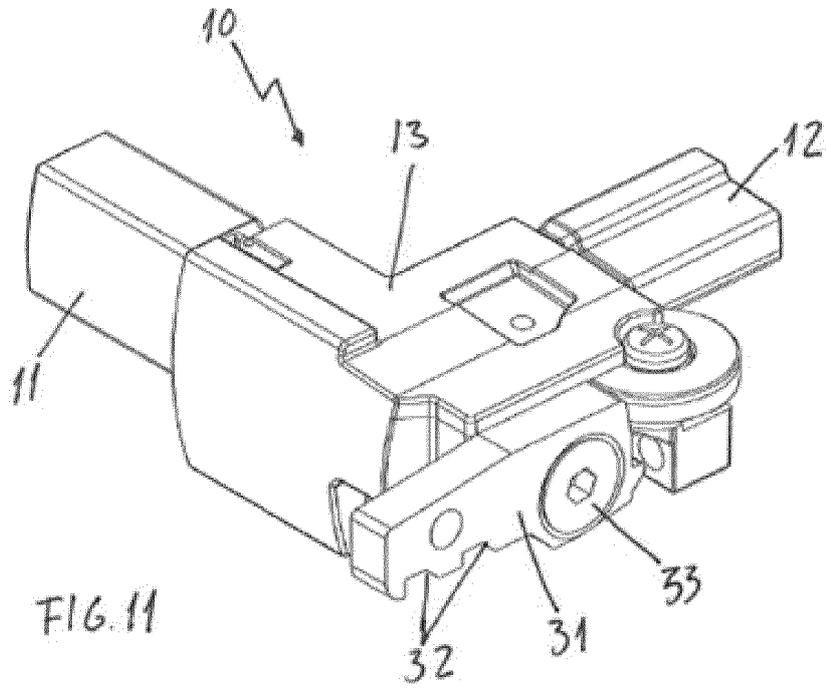


FIG. 6







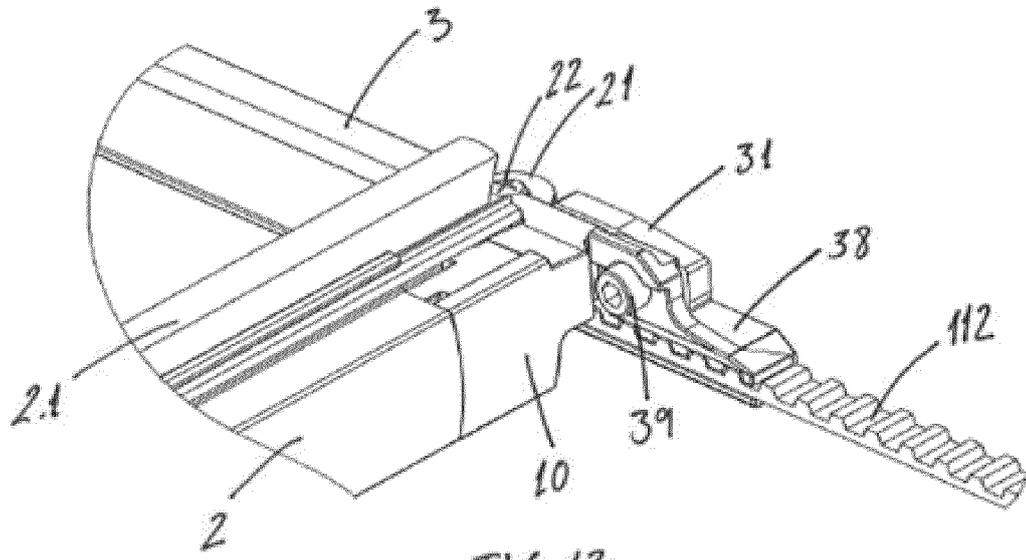


FIG. 13

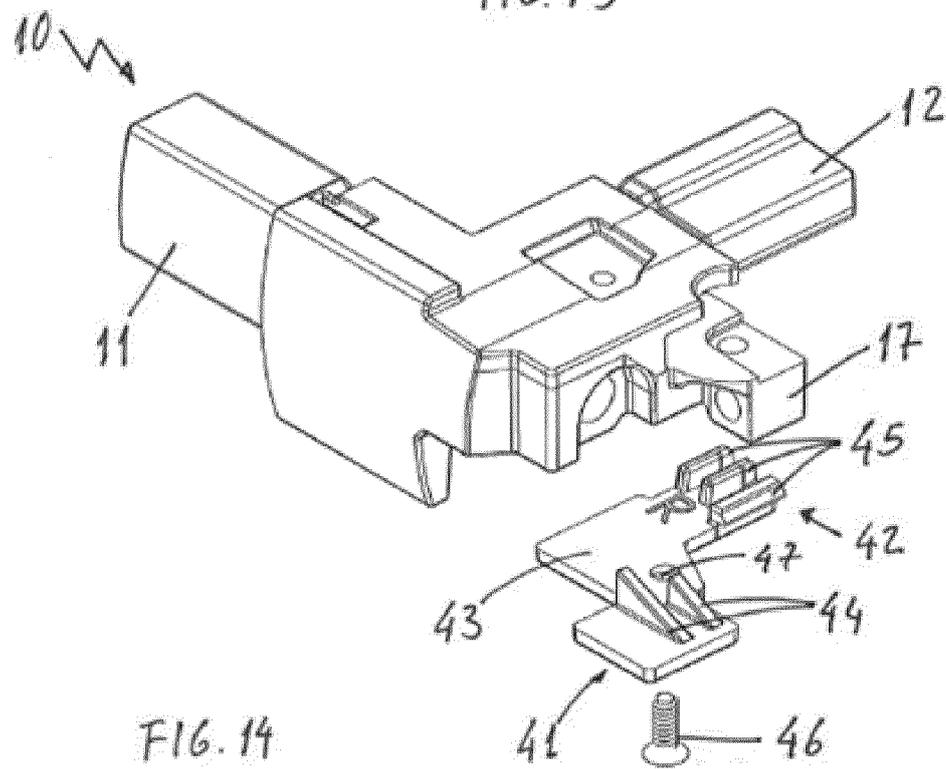
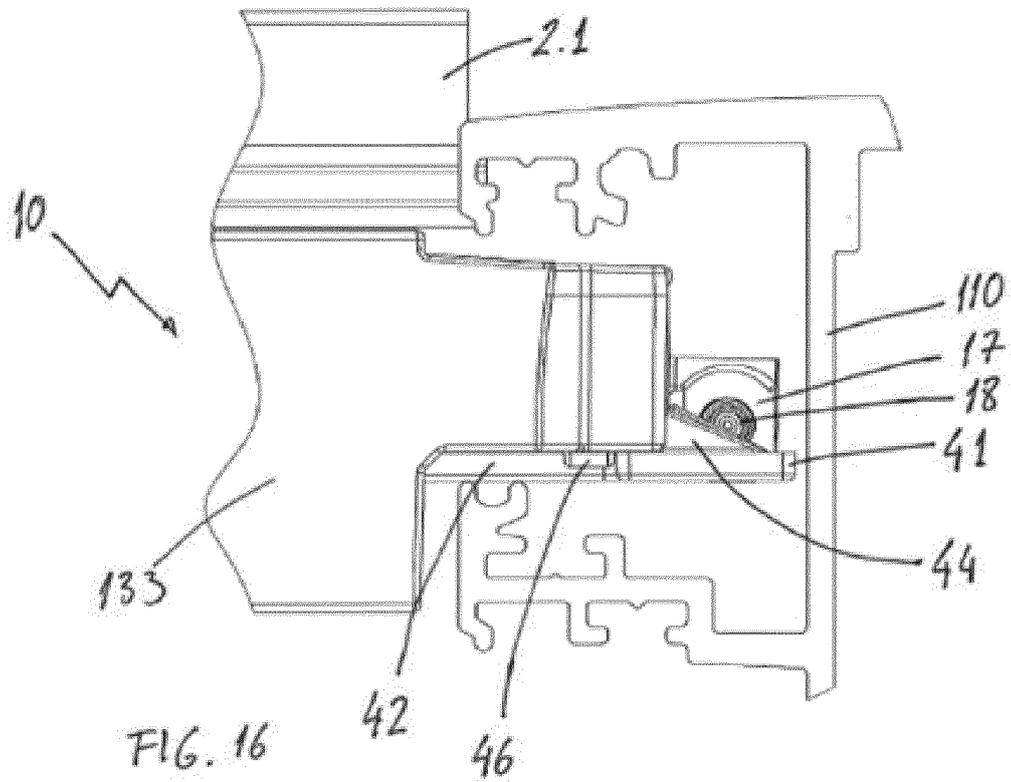
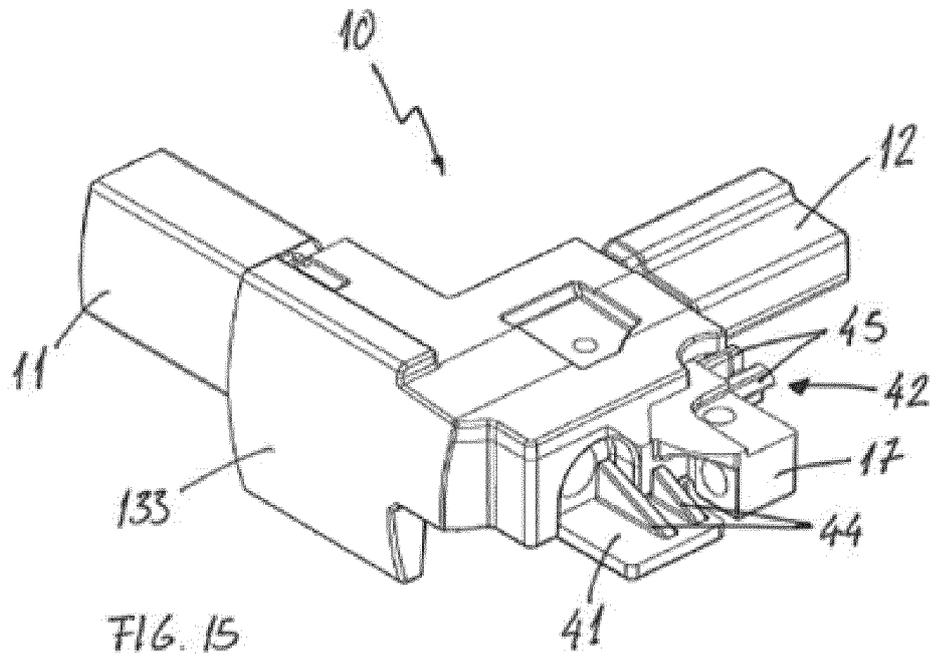
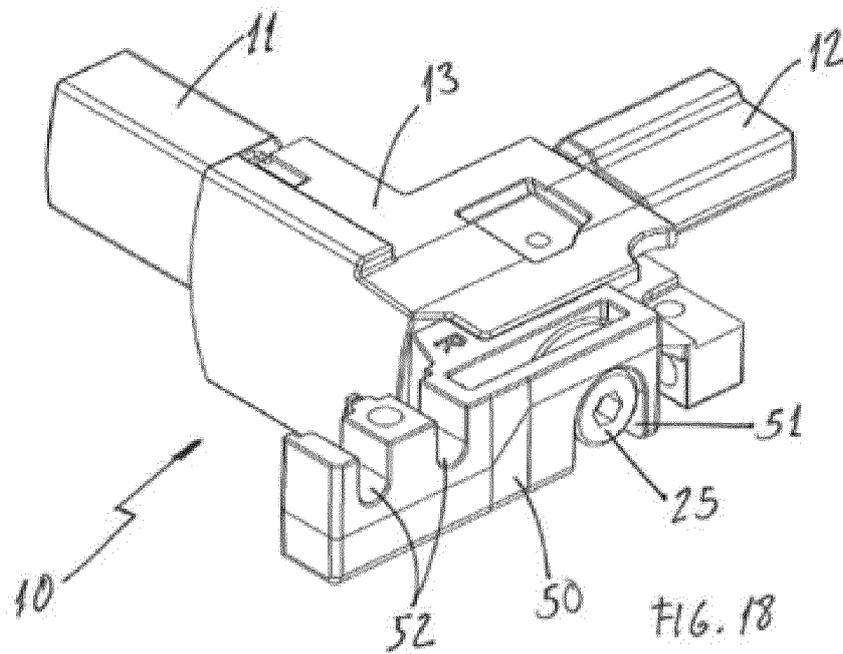
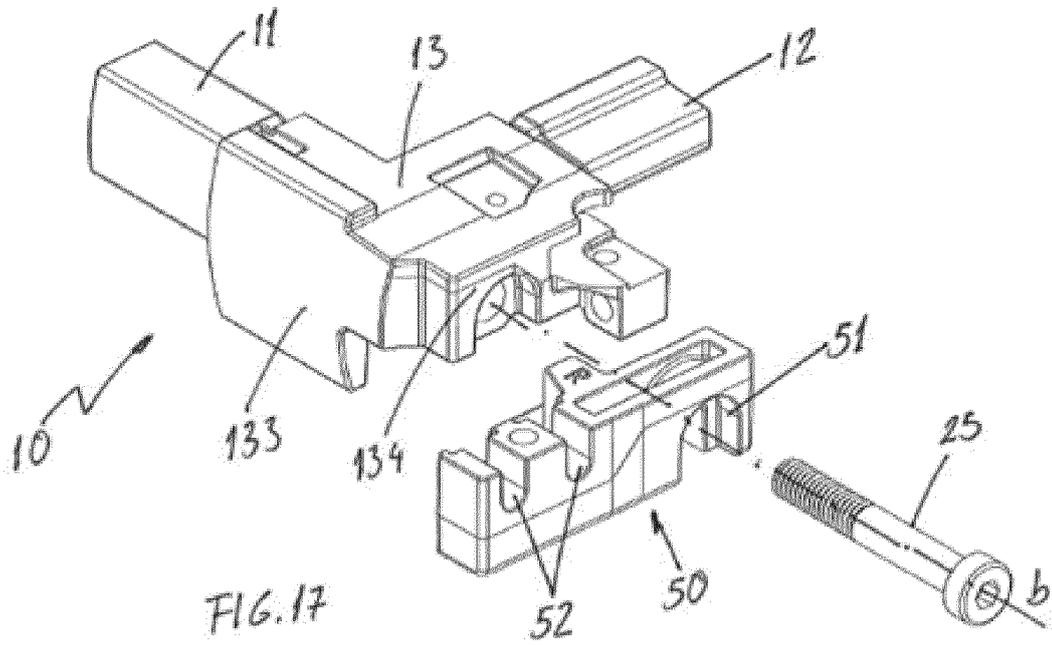


FIG. 14





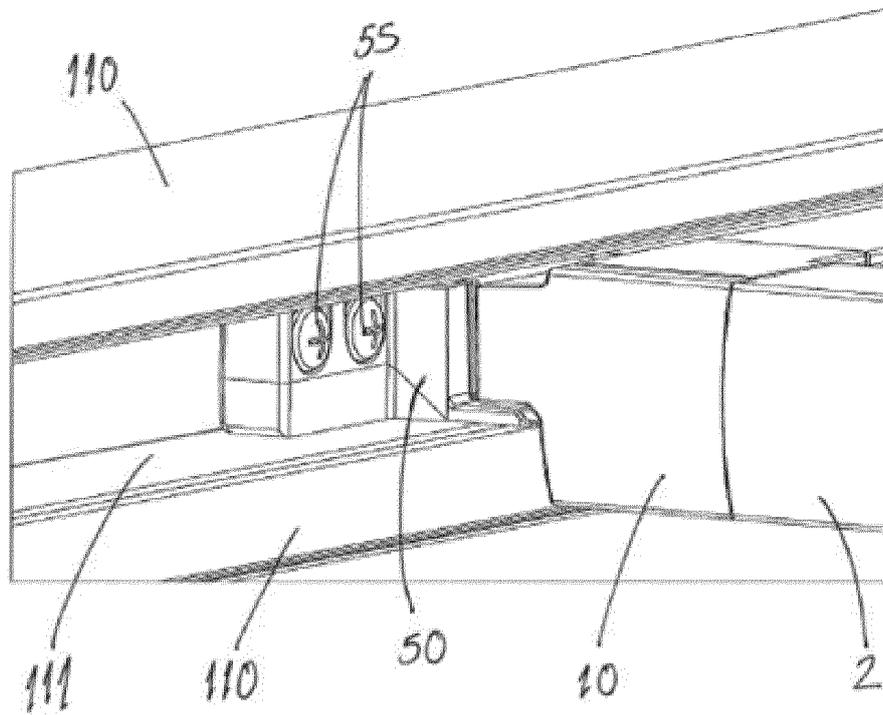


FIG. 19