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(54) **BUILDING PANEL ADAPTED TO BE MOUNTED AT A CEILING OR WALL OF A ROOM AND METHOD OF MANUFACTURING SUCH BUILDING PANEL**

(57) A textile (7) is extended over a framework between frame profile members (6). Each edge of the textile is attached to a corresponding frame profile member by means of a tensioning profile member (9) being spring-biased into a tensioned state. Neighbouring frame profile members are connected to each other by means of corner pieces. Each corner piece, forms, together with the neighbouring frame profile members, an internal cavity of the respective corner (35) of the panel which extends laterally from either side of a slot of the corner piece behind opposed wall parts of the corner piece. Excess textile (34) at each corner of the panel forms an at least partly tubular shape (37) extending to either side of the slot in the internal cavity of the corner of the panel. A resilient member (38) is arranged inside the at least partly tubular shape formed by the excess textile.

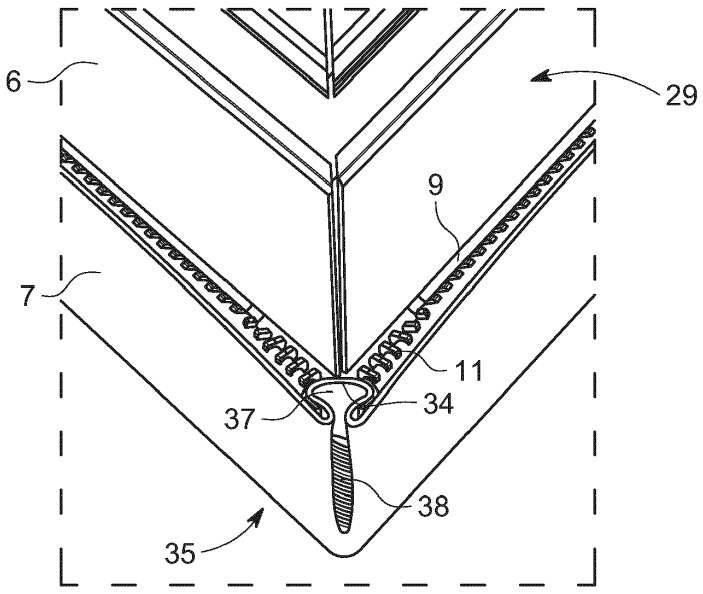

FIG. 22

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Description

[0001] The present invention relates to a building panel adapted to be mounted at a ceiling or wall of a room so that a framework of the building panel has a room-facing side and a building-facing side, wherein the framework includes a peripheral frame formed by frame profile members, wherein a textile is extended over the room-facing side of the framework between the frame profile members, wherein each frame profile member has a rounded outer edge connecting a room-facing side of the frame profile member with a building-facing side of the frame profile member, wherein the textile is bent about the rounded outer edges of the frame profile members, wherein edges of the textile is fixed to the building-facing side of the respective frame profile members, wherein each edge of the textile is attached to a corresponding frame profile member by means of at least one tensioning profile member being spring-biased for displacement in a tensioning direction being lateral of said frame profile member for bringing the textile into a tensioned state, wherein neighbouring frame profile members are connected to each other by means of corner pieces, wherein each corner piece has an oblique slot formed between opposed parts of the corner piece and extending at an oblique angle in relation to each one of the neighbouring frame profile members, and wherein excess textile at the respective corner of the panel is inserted into the slot of the corner piece and is retained by means of a resilient member.

[0002] EP 1 559 846 A1 discloses a panel for a suspended ceiling or the like, comprising a rigid frame defining an open region covered by fabric. The frame is composed of lateral edge portions and end portions joined by corner portions. The frame is at least along portions of its periphery provided with laterally displaceable attachment members accessible from outside the frame for attachment of the fabric to the frame, where a lateral displacement of said members away from the lower peripheral edge portion of the frame results in tensioning of the fabric across the open region of the frame. The fastening of the fabric to the laterally displaceable attachment member is accomplished by means of a resilient clip inserted into a groove of the attachment member so that the fabric is pinched and thereby secured in the groove by the resilient clip. Each corner portion is provided with extensions for insertion into respective profiles of the lateral edge portions and the end portions of the frame. In order to facilitate attachment of the fabric to the corner portion, the corner portion is provided with a groove formed at a mitre angle for insertion of a corner portion of the fabric, and this portion of the fabric can furthermore be retained in the groove by means of a resilient member, for instance a piece of flexible cord of a suitable diameter. Other retaining means may be used, such as glue. However, it may not be easy to fit all the excess fabric at the corner of the panel into the groove of the corner portion. One possibility of solving this challenge may be to cut away part of the excess fabric and inserting the remaining part of the excess fabric into the groove. In this case, it may be preferred retaining the fabric in the groove by means of glue. In any case, by cutting the fabric into shape at the corner, it may not be possible to mount the same piece of fabric once again, e.g. after washing the fabric, because the edge of the fabric may have been exactly fitted to the corner of the panel and this fitting method requires a certain amount of excess fabric.

[0003] EP 3 081 113 B1 discloses a furnishing element comprising a frame having at least a first and a second wall incident to each other so as to identify a edge. A coating is associated with and superposed on said frame so as to coat at least partially said walls and said edge. The frame, at said edge, comprises an attachment element which delimits an attachment seat open in the vicinity of said first and second wall. The coating comprises at least two flaps folded and inserted inside the attachment seat, wherein the attachment seat blocks the flaps inside it against inner walls of the seat, for instance by means of teeth provided on the inner walls of the seat. The attachment element is an applied element and joined to the first and second walls of the frame at the edge identified thereby. However, this method of fitting a corner portion with a coating provides no elasticity to the fitting at the corner and may therefore not be suitable for a ceiling panel having elastic tensioning of fabric across an open region of a frame.

[0004] JP 2018-103582 A discloses a wall panel where a textile is stretched over a front side of a frame. The textile is attached to the frame by folding it about a peripheral edge of the frame and pressing a string or an elongated element into a groove of the back of the frame so that the textile is pressed into the groove. At the corners of the frame, excess fabric is pressed down into an inclined groove by means of a spatula. However, this method of fitting a corner portion with a textile provides no elasticity to the fitting at the corner.

[0005] GB 1574 013 describes a method of fixing textile to a wall in a similar way as described just above, whereby the textile is, however, retained in an inner locking groove and an outer secondary groove of a frame. The frame is composed by side and end frame elements connected by means of separate corner pieces. Each corner piece has an inclined groove connecting the inner and outer groove and serving to store excess textile at the corner. However, this method of fitting a corner portion with a textile provides no elasticity to the fitting at the corner.

[0006] US 4,920,714 describes attachment of a flexible covering material to a wall, whereby a peripheral frame has a longitudinal groove provided with pinching means in order to clamp the flexible covering material in the groove. At the corners of the frame, excess covering material is pressed into an inclined groove formed at a mitre angle of each corner. Separate corner pieces of the frame are provided which may form different angles than a right angle and which may even be rounded. However, this

method of fitting a corner portion with a covering material provides no elasticity to the fitting at the corner.

[0007] WO 2017/196480 A1 relates to stretching fabric over a frame, particularly in uses within the graphic arts. A frame for maintaining a region of a fabric piece in a substantially planar state comprises a plurality of rails preferably made of wood, each of said rails having a geometrical profile extended in a linear direction, said rails each having a first end face and a second end face, and a plurality of corner pieces. Each of said corner pieces includes a slot formed partially through said corner piece at a mitre angle to receive a pleat of surplus fabric formed when two areas of said fabric piece are turned along at seams at right angles to one another into an upright condition departing from the primary plane establishing the planar state of said fabric piece. However, also this method of fitting a corner portion with a fabric provides no elasticity to the fitting at the corner.

[0008] The object of the present invention is to provide a building panel facilitating smooth fitting of the fabric at the corner portion and allowing easy removal and subsequent refitting of the tensioned textile.

[0009] In view of this object, each corner piece, at least together with the neighbouring frame profile members, forms an internal cavity of a respective corner of the panel, said internal cavity extends laterally from either side of at least part of the length of the slot of the corner piece behind opposed wall parts of the corner piece, the excess textile at each corner of the panel forms an at least partly tubular shape extending to either side of the slot in the internal cavity of the corner of the panel, and the resilient member is arranged inside the at least partly tubular shape formed by the excess textile.

[0010] In this way, by allowing the excess textile at each corner of the panel to form an at least partly tubular shape extending to either side of the slot in an internal cavity of the corner of the panel behind opposed wall parts of the corner piece, and by arranging the resilient member inside the at least partly tubular shape formed by the excess textile, it may be possible taking up and retaining, in a flexible and elastic way, all or at least a major part of the excess textile at the corner, thereby ensuring a smooth finish of the textile and further allowing easy removal and subsequent refitting of the tensioned textile.

[0011] Moreover, due to the elastic nature of the arrangement of the resilient member inside the at least partly tubular shape formed by the excess textile, a smooth finish of the textile may be maintained at the corner piece even if the textile should generally stretch during time or if the textile should generally shrink as a result of washing the textile. In such cases, the spring-biased tensioning profile member could be displaced in the tensioning direction of the textile, thereby generally compensating for the stretching or shrinking, however something that, without said inventive features, could lead to an uneven arrangement of the textile at the corners of the panel.

[0012] In a structurally particularly advantageous embodiment, each one of the opposed wall parts of the corner piece has an inner surface and an outer surface being at least substantially flat and at least substantially parallel.

[0013] In an embodiment, each one of the opposed wall parts of the corner piece has a maximum thickness measured between the inner surface and the outer surface of the wall part, the oblique slot formed between the opposed wall parts of the corner piece has a minimum width, and said maximum thickness of each wall part is smaller than, preferably smaller than 1/2 of, more preferred smaller than 1/3 of, and most preferred smaller than 1/4 of the minimum width of the oblique slot. Thereby, sufficient space for the excess textile may be formed in the internal cavity of the corner of the panel, and at the same time a smooth finish of the textile may be maintained at the corner piece.

[0014] In an embodiment, the at least partly tubular shape formed by the excess textile abuts the respective inner surfaces of the opposed wall parts of the corner piece. Thereby, the excess textile may be retained in a stable manner.

[0015] In a structurally particularly advantageous embodiment, the at least partly tubular shape formed by the excess textile at each corner of the panel has an at least partly tapering form.

[0016] In a structurally particularly advantageous embodiment, the at least partly tubular shape formed by the excess textile abuts faces formed by the respective neighbouring frame profile members and forming inner faces of the internal cavity. Thereby, the excess textile may be retained in an even more stable manner.

[0017] In an embodiment, each one of the opposed wall parts of the corner piece extends at an oblique angle in relation to a general plane of the building panel. Thereby, the textile at the corner of the panel may suitably abut the opposed wall parts and thereby match the form of the edges of the textile attached to the spring-biased tensioning profile member so that a smooth finish may be obtained at the area of the corner.

[0018] In an embodiment, the resilient member has the form of a helical spring having, in a relaxed state thereof, a diameter being equal to or larger than a minimum width of the oblique slot of the corner piece. Thereby, it may be ensured that the excess textile is suitably retained at the corners of the panel.

[0019] In an embodiment, the resilient member extends to either side of the slot in the internal cavity of the corner of the building panel. Thereby, it may even better be ensured that the excess textile is suitably retained at the corners of the building panel.

[0020] In a structurally particularly advantageous embodiment, each corner piece has a first leg inserted into an end of a first neighbouring frame profile member and a second leg inserted into an end of a second neighbouring frame profile member.

[0021] In a structurally particularly advantageous embodiment, at least a part of the first leg of the corner piece

is inserted into a first groove of a part forming the rounded outer edge of the first neighbouring frame profile member, at least a part of the second leg of the corner piece is inserted into a second groove of a part forming the rounded outer edge of the second neighbouring frame profile member, a first one of the opposed wall parts of the corner piece is connected to the first leg of the corner piece through a longitudinal opening of the first groove, and a second one of the opposed wall parts of the corner piece is connected to the second leg of the corner piece through a longitudinal opening of the second groove.

[0022] In a structurally particularly advantageous embodiment, the first one of the opposed wall parts of the corner piece is connected to the part the first leg of the corner piece by means of a first intermediate wall part forming an angle with the first one of the opposed wall parts, and the second one of the opposed wall parts of the corner piece is connected to the part of the second leg of the corner piece by means of a second intermediate wall part forming an angle with the second one of the opposed wall parts.

[0023] In a structurally particularly advantageous embodiment, the oblique slot of each corner piece is formed partly between the first intermediate wall part and the second intermediate wall part of the corner piece.

[0024] The present invention further relates to a method of manufacturing a building panel adapted to be mounted at a ceiling or wall of a room so that a framework of the building panel has a room-facing side and a building-facing side, the framework including a peripheral frame formed by frame profile members, each frame profile member having a rounded outer edge connecting a room-facing side of the frame profile member with a building-facing side of the frame profile member, whereby a textile is extended over the room-facing side of the framework between the frame profile members by bending the textile about the rounded outer edges of the frame profile members and by attaching each edge of the textile to a corresponding frame profile member by means of at least one tensioning profile member, by spring-biasing the tensioning profile member so that it is displaced in a lateral direction of said frame profile member and thereby brings the textile into a tensioned state, neighbouring frame profile members being connected to each other by means of corner pieces, and whereby excess textile at each respective corner of the panel is inserted into an oblique slot formed between opposed wall parts of the respective corner piece and is retained by insertion of a resilient member.

[0025] The method is characterised by, at each respective corner of the panel, arranging the excess textile to form an at least partly tubular shape extending to either side of the slot in an internal cavity of the respective corner of the panel, and by arranging the resilient member inside the at least partly tubular shape formed by the excess textile. Thereby, the above-mentioned features may be obtained.

[0026] The invention will now be explained in more detail below by means of examples of embodiments with reference to the very schematic drawing, in which

Fig. 1 is a cross-sectional view through an embodiment of a building panel according to the present invention;

Fig. 2 is a detail of Fig. 1 on a larger scale;

Fig. 2A is a detail of Fig. 2 on a larger scale;

Figs. 2B and 2C are views corresponding to that of Fig. 2A, however, of different embodiments of the invention;

Figs. 3 to 8 are perspective views of a partial section of the building panel of Fig. 1, illustrating different stages of a procedure of attaching and tensioning the textile of the building panel;

Figs. 9 to 12 are perspective views corresponding to those of Figs. 3 to 8, however, illustrating different stages of a procedure of releasing the tension of the textile and detaching the textile of the building panel;

Fig. 13 is a top view of part of two frame profile members and a corner piece, before connection of these part to form the building panel of Fig. 1;

Fig. 14 is a perspective view of the parts of Fig. 13, after connection of the corner piece with one of the two frame profile members;

Fig. 15 is a perspective view of the connected corner piece and frame profile member of Fig. 14, seen from a different angle of view;

Fig. 16 is a perspective view of the parts of Fig. 13, after connection of the corner piece with both of the two frame profile members;

Fig. 17 is a perspective view of the corner part of the peripheral frame of the building panel illustrated in Fig. 16, seen from another angle of view, and after placement of the framework of the building panel on a textile to be extended over the room-facing side of the framework;

Fig. 18 is a top view of the corner part and textile illustrated in Fig. 17;

Figs. 19 to 22 are perspective views of the corner part and textile illustrated in Figs. 17 and 18, illustrating different stages of the procedure of fitting the textile at the corner piece;

Figs. 23 and 24 are perspective views, seen from different angles of view, of a *prior art* corner piece

for connecting frame profile members of a building panel;

Fig. 25 is a top view of the prior art corner piece of Figs. 23 and 24;

Figs. 26 and 27 are perspective views, seen from different angles of view, of a corner piece for connecting frame profile members of a building panel according to an embodiment of the present invention; and

Fig. 28 is a top view of the corner piece of Figs. 26 and 27.

[0027] In the following, generally, similar elements of different embodiments have been designated by the same reference numerals.

[0028] Fig. 1 illustrates an embodiment of a building panel 1 according to the present invention adapted to be mounted at a not shown ceiling or wall of a room so that a framework 2 of the building panel has a room-facing side 3 and a building-facing side 4. For instance, it is noted that, if the building panel 1 as illustrated in Figs. 1 to 12 is to be used as a ceiling panel, it has to be turned upside down. Thereby, the building panel 1 may form a suspended ceiling under a permanent ceiling in a building.

[0029] The framework 2 includes a peripheral frame 5 formed by frame profile members 6, and a textile 7 is extended over the room-facing side 3 of the framework 2 between the frame profile members 6. Each edge 8 of the textile 7 is attached to a corresponding frame profile member 6 by means of at least one tensioning profile member 9 being spring-biased by means of a U-formed elastic spring 14 for displacement in a tensioning direction D_T being lateral of said frame profile member 6 for bringing the textile 7 into a tensioned state. The tensioning direction D_T is indicated in Figs. 2A to 2C. The tensioning profile member 9 has a longitudinal channel 10 with which said edge 8 of the textile 7 is releasably connected. It is noted that some faces of the frame profile members 6 have been provided with indentations 56 in order to reduce light reflections. Furthermore, it is noted that, for acoustic reasons, the frame 5 may surround one or more batts of mineral wool 57 as indicated in Figs. 3 to 12. The building panel 1 may typically form an acoustic panel.

[0030] Each edge 8 of the textile 7 is provided with a number of mutually spaced holding elements 11 arranged flexibly in relation to each other along the edge 8 of the textile 7. Referring to Figs. 2A to 2C, each holding element 11 includes an engagement portion 12 adapted for insertion into the longitudinal channel 10 in a lateral insertion direction D_I of the channel, through an opening slot 13 of the channel. As seen, in the illustrated embodiment, the engagement portion 12 of each holding element 11 is, in its final inserted position in the longitudinal channel 10, prevented from free rotation about any longitudinal axis A_L of the channel 10 of the tensioning profile member 9. An example of a longitudinal axis A_L of the channel 10 is illustrated in Fig. 3.

[0031] As it will be explained in further detail below, the holding elements 11 may be fixed directly to the edge 8 of the textile 7 or the holding elements 11 may be fixed to a ribbon 18 mounted on the edge 8 of the textile 7, for instance by sewing. Furthermore, it is noted that the holding elements 11 may, as in the illustrated embodiments, be separate elements mutually spaced and distributed along the respective edge 8 of the textile 7. Thereby, good flexibility between neighbouring holding elements 11 may be achieved, and the handling of the textile 7 may be easy due to the better flexibility of the edge of the textile provided with holding elements, thereby enabling creasing of the entire piece of textile.

[0032] However, although being separate and possibly spaced elements, the holding elements 11 may be interconnected by means of flexible elements, spring-like elements or the like, in addition to the connection formed between them by means of the edge 8 of the textile 7 or the edge 19 of the ribbon 18. Typically, the holding elements 11 may be provided along an edge 8 of the textile 7 in a density of about 100 to 500 per metre, preferably about 200 to 450 per metre, more preferred about 300 to 440 per metre, and most preferred about 400 to 430 per metre, such as for instance approximately 420 per metre. Typically, a mutual distance between neighbouring holding elements 11 at their point of attachment to the ribbon 18 mounted on the edge 8 of the textile 7 or at their point of attachment to the edge 8 of the textile 7 is at least 1/2 of, preferably at least 2/3 of, and most preferred at least equal to a width of each holding element 11 measured in the longitudinal direction of the edge 8 of the textile 7 at said point of attachment. Alternatively, each holding element 11 may form part of an elongated element extending along the edge 8 of the textile 7. For instance, each holding element 11 may be formed as a part of a spring-like element formed, for instance, of a thread or wire made of for example metal or plastic. In the case of forming a thread or wire made of plastic, the spring-like element could be injection moulded. The engagement portion 12 of each such holding element 11 may be formed suitably for being forced into locking engagement with the channel 10.

[0033] It should be noted that according to the illustrated embodiments, neighbouring holding elements 11 are spaced in relation to each other in order to provide for good flexibility of the entire edge 8 of the textile 7. However, flexibility between the neighbouring holding elements 11 may be obtained even if a part of the neighbouring holding elements 11 touch each other. For instance, the edge 8 of the textile 7 may be elastic and/or the edges of the holding elements 11 touching each other may be rounded in such a way that the edge 8 of the textile 7 or the edge 19 of the ribbon 18 attached to the edge 8 of the textile 7 may bend.

[0034] The handling of the textile 7 may be easy due to the provision of holding elements 11 arranged flexibly in relation to each other along the edge 8 of the textile 7, thereby enabling creasing of the entire piece of textile 7. Thereby, for instance, washing of the textile 7 in a washing machine may be possible before refitting the textile 7 on the panel 1.

[0035] As further indicated in Figs. 2A to 2C, in the tensioned state of the textile 7, a tension force F_T of the textile 7 acts on each holding element 11 in such a way that a rotational moment M_R is created that seeks to rotate the engagement portion 12 about a longitudinal axis A_L of the channel 10 of the tensioning profile member 9 and thereby forces the engagement portion 12 of each holding element 11 into locking engagement with the channel 10.

[0036] In the embodiment illustrated in Fig. 2A, said longitudinal channel 10 is provided with a protrusion 15 along a first edge 16 of the opening slot 13 of the longitudinal channel 10, and, in the tensioned state of the textile 7, the engagement portion 12 of each holding element 11 is retained inside the longitudinal channel 10 by said protrusion 15. As seen, a first side of a back end 24 of the engagement portion 12 is supported on the protrusion 15. Furthermore, it is noted that, according to this embodiment, during insertion of the engagement portion 12 into the longitudinal channel 10, a longitudinal direction D_L of the engagement portion 12 of the holding element 11 is aligned with the lateral insertion direction D_I of the channel 10, whereas in the tensioned state of the textile 7, the longitudinal direction D_L of the engagement portion 12 forms an angle with the lateral insertion direction D_I of the channel 10. In other words, according to this embodiment, in order for the engagement portion 12 to pass into the longitudinal channel 10, the longitudinal direction D_L of the engagement portion 12 has to be aligned with the lateral insertion direction D_I of the channel 10 as indicated in Fig. 2A. However, when the engagement portion 12 has been inserted into the longitudinal channel 10, and when the tensioning profile member 9 by means of elastic springs 14 is being displaced in the tensioning direction D_T for bringing the textile 7 into the tensioned state, the resulting tension force F_T of the textile 7 acts on each holding element 11 in such a way that a rotational moment M_R is created that rotates the engagement portion 12 about a suitable longitudinal axis A_L of the channel 10 of the tensioning profile member 9 to the position illustrated in Fig. 2A in which the holding element 11 is prevented from further rotation and in which the back end 24 of the engagement portion 12 is supported on the protrusion 15 and thereby retains the engagement portion 12 of the holding element 11 in the channel 10.

[0037] As a result of the protrusion 15, mounting of the textile 7 on the building panel 1 may be facilitated in that the engagement portion 12 of the holding elements 11 may be easier to locate and retain in the longitudinal channel 10 before and until the textile 7 is tightened by activation of the tensioning mechanism of the building panel 1. By pressing the engagement portion 12 of the holding elements 11 into the channel 10 by means of, for instance, a screwdriver 55 or the like tool, the engagement portion 12 may be trapped behind the protrusion 15 of the opening slot 13 and retained there until tightening of the textile 7.

[0038] As seen in Fig. 2A, in the illustrated embodiment, the resulting tension force F_T of the textile 7 acts on the holding element 11 in a direction corresponding to the longitudinal direction D_L of the engagement portion 12. This is due to an edge 19 of a ribbon 18 attached to the edge 8 of the textile 7 being bent about a rounded edge of the protrusion 15 and thereby directing a tensile force of the textile 7 to the holding element 11 in the direction of the resulting tension force F_T illustrated in the figure. As seen and as described in further detail below, the edge 19 of the ribbon 18 carries the holding elements 11. It is noted that, in the situation illustrated in Fig. 2A, said suitable longitudinal axis A_L of the channel 10 of the tensioning profile member 9 about which the engagement portion 12 is rotationally biased as a result of the rotational moment M_R, but about which the engagement portion 12 is prevented from further rotation, is located between the attachment of the holding element 11 to the edge 19 of the ribbon 18 and a first side wall 21 of the longitudinal channel 10. However, the location said suitable longitudinal axis A_L of the channel 10 may vary depending on the configuration of the rounded edge of the protrusion 15, the configuration of the channel 10 and the orientation thereof, as well as the exact configuration of the holding element 11, among other factors. Likewise, depending on similar factors, according to the embodiment illustrated in Fig. 2A, the resulting tension force F_T of the textile 7 may act on the holding element 11 in different directions than the illustrated direction. Therefore, according to this embodiment, the direction of the resulting tension force F_T may form a variety of different angles with the longitudinal direction D_L of the engagement portion 12. In particular, it is noted that according to the embodiment illustrated in Fig. 2A, the direction of the resulting tension force F_T forms an angle with the lateral insertion direction D_I of the channel 10. Preferably, said angle is between 5 and 35 degrees, more preferred between 10 and 30 degrees, and most preferred between 15 and 25 degrees. In the illustrated embodiment, said angle is about 18 to 22 degrees.

[0039] It is noted that, in the embodiment illustrated in Fig. 2A, the longitudinal channel 10 is provided with a protrusion in the form of the protrusion 15 only along the first edge 16 of the opening slot 13 of the longitudinal channel 10. As seen in the figure, a second edge 17 of the opening slot 13 being opposed to the first edge 16 of the opening slot 13 is not provided with a protrusion, i.e. a second side wall 22 being opposed to the first side wall 21 of the longitudinal channel 10 forms the second edge 17 of the opening slot 13 without forming any recess at the second edge 17. Thereby, later removal of the engagement portion 12 from the longitudinal channel 10 is

facilitated in that the engagement portion 12 may simply be pressed in the direction of the second side wall 22 of the longitudinal channel 10 during removal. Thereby, for instance, washing of the textile in a washing machine may be facilitated.

[0040] Referring to the embodiments illustrated in Figs. 2B and 2C, the longitudinal direction D_L of the engagement portion 12 of the holding element 11 is at least substantially aligned with the lateral insertion direction D_I of the channel 10 both during insertion of the engagement portion 12 into the longitudinal channel 10 and in the subsequent tensioned state of the textile 7. In fact, according to these embodiments, the longitudinal direction D_L of the engagement portion 12 changes very little as a result of the tensioning of the textile 7. According to the embodiment illustrated in Fig. 2B, as seen, this is due to the fact that a maximum width W_{MAX} of the engagement portion 12 is only slightly smaller than a minimum width W_{MIN} of the opening slot 13 of the longitudinal channel 10. According to the embodiment illustrated in Fig. 2C, as seen, this is due to the fact that a maximum width W_{MAX} of the engagement portion 12 plus a thickness of the ribbon 18 attached to the edge of the textile 7 is only slightly smaller than a minimum width W_{MIN} of the opening slot 13 of the longitudinal channel 10. As seen, according to this embodiment, the holding elements 11 are attached to one side of the edge 19 of the ribbon 18.

[0041] As mentioned above, according to the embodiment illustrated in Fig. 2A, in the tensioned state of the textile 7, the engagement portion 12 of each holding element 11 is retained inside the longitudinal channel 10 by means of the protrusion 15 arranged along the along the first edge 16 of the opening slot 13 of the longitudinal channel 10, in that the back end 24 of the engagement portion 12 is supported on the protrusion 15. However, it should be noted that according to the embodiment illustrated in Fig. 2B, in the tensioned state of the textile 7, the engagement portion 12 of each holding element 11 is retained inside the longitudinal channel 10 as a result of the above-mentioned rotational moment M_R and the geometry of the engaging parts. Furthermore, friction is created between the engagement portion 12 and the side walls the channel 10. Likewise, according to the embodiment illustrated in Fig. 2C, in the tensioned state of the textile 7, the engagement portion 12 of each holding element 11 is retained inside the longitudinal channel 10 as a result of said rotational moment M_R and the geometry of the engaging parts. Also in this embodiment, friction is created between the engagement portion 12 and the first side wall of the channel 10 and between the ribbon 18 and the second side wall of the channel 10.

[0042] Furthermore, as seen, according to the embodiments illustrated in Figs. 2B and 2C, the resulting tension force F_T of the textile 7 acts on the holding element 11 in a direction forming an acute angle with the longitudinal direction D_L of the engagement portion 12 and with the insertion direction D_I of the channel 10. It is preferred that said angle is acute, because in this case, the holding element 11 may be securely retained in the channel 10 as a result of the geometry even without any frictional force between the engagement portion 12 and the channel 10. However, the angle may also be a right angle or even an obtuse angle.

[0043] It is noted that other embodiments than those illustrated in Figs. 2A to 2C are conceivable. For instance, in the embodiment illustrated in Fig. 2A, the holding elements 11 may be attached to a first side of the edge 19 of the ribbon 18 or the edge 8 of the textile 7 in the same way as illustrated in Fig. 2C. In the embodiments illustrated in Fig. 2A and Fig. 2C, the holding elements 11 could alternatively be attached to a second side of the edge 19 of the ribbon 18 or the edge 8 of the textile 7 being opposed to the first side, in the same way as illustrated in Fig. 2C.

[0044] In all of the embodiments illustrated in Figs. 2A to 2C, the lateral insertion direction D_I of the longitudinal channel 10 is directed in a transverse direction of the tensioning direction D_T of the respective tensioning profile member 9. Thereby, it may be ensured that a tension force F_T of the textile 7 acts on each holding element 11 in such a way that a sufficiently large rotational moment M_R is created for retaining the engagement portion 12 of each holding element 11 in the channel 10.

[0045] Preferably, in order to create a sufficiently large rotational moment M_R, the lateral insertion direction D_I of the longitudinal channel 10 forms an angle of between 20 and 160 degrees, preferably between 40 and 140 degrees, more preferred between 60 and 120 degrees, and most preferred between 80 and 100 degrees with the tensioning direction D_T of the respective tensioning profile member 9.

[0046] In the embodiments illustrated in Figs. 2A to 2C, as mentioned above, the opening slot 13 of the longitudinal channel 10 has the minimum width W_{MIN}. As also mentioned above, the holding element 11 is adapted to be displaced along the longitudinal direction D_L of the engagement portion 12 during insertion of the engagement portion 12 into the longitudinal channel 10. The engagement portion 12 of each holding element 11 has the maximum width W_{MAX} in a direction extending transversely to a longitudinal direction of a respective edge 8 of the textile 7 or of the edge 19 of the ribbon 18 attached to said edge of the textile 7 and extending transversely to the longitudinal direction D_L of the engagement portion 12. As understood, in the mounted position of the textile 7, the longitudinal direction of a respective edge 8 of the textile 7 or of the edge 19 of the ribbon 18 attached to said edge of the textile 7 extends in parallel with any longitudinal axis A_L of the channel 10 of the tensioning profile member 9 as illustrated in Fig. 3. Said maximum width W_{MAX} of the engagement portion 12 is smaller than the minimum width W_{MIN} of the opening slot 13 of the longitudinal channel 10. Thereby, it may be ensured that the engagement portion 12 of the holding elements 11 may easily be inserted through the opening slot 13 into the longitudinal channel 10 without twisting, pressing or

in any other way manipulating the engagement portion 12 of the holding elements 11. In particular, the holding elements 11 may easily be inserted through the opening slot 13 into the longitudinal channel 10 without any twisting about an axis generally in the lateral insertion direction D_I of the longitudinal channel 10.

[0047] As illustrated in Fig. 2A, the longitudinal channel 10 has a bottom wall 20 opposed the opening slot 13, the first side wall 21 and the second side wall 22. The engagement portion 12 of each holding element 11 has a front end 23, the back end 24, a first side wall 25 and a second side wall 26. In the inserted position of the engagement portion 12 in the longitudinal channel 10, the front end 23 of the engagement portion 12 is arranged opposed to the bottom wall 20 of the longitudinal channel 10, the first side wall 25 of the engagement portion 12 is arranged opposed the first side wall 21 of the longitudinal channel 10, and the second side wall 26 of the engagement portion 12 is arranged opposed the second side wall 22 of the longitudinal channel 10. It is noted that in the embodiment illustrated in Fig. 2A, the engagement portion 12 constitutes the entire holding element 11, whereas in the embodiments illustrated in Figs. 2B and 2C, the engagement portion 12 forms a part of the holding element 11.

[0048] Furthermore, in the embodiments illustrated in Figs. 2A to 2C, in the inserted position of the engagement portion 12 in the longitudinal channel 10, the engagement portion 12 of each holding element 11 is prevented from free rotation about any longitudinal axis A_L of the channel 10 of the tensioning profile member 9 at least as a result of engagement between the first side wall 25 of the engagement portion 12 and the first side wall 21 of the longitudinal channel 10 and/or as a result of engagement between the second side wall 26 of the engagement portion 12 and the second side wall 22 of the longitudinal channel 10. Thereby, the above-mentioned rotational moment M_R created for retaining the engagement portion 12 of each holding element 11 in the channel 10 may result in engagement and/or a frictional force being created between the first side wall 25 of the engagement portion 12 of the holding element 11 and the first side wall 21 of the longitudinal channel 10 and/or between the second side wall 26 of the engagement portion 12 of the holding element 11 and the second side wall 22 of the longitudinal channel 10. The engagement and/or frictional force may efficiently retain the engagement portion 12 of each holding element 11 fixed in the channel 10.

[0049] In the illustrated embodiments, as seen in Figs. 2A to 2C, a respective ribbon 18 is attached to each edge 8 of the textile 7, and mutually spaced holding elements 11 are provided at an edge 19 of each respective ribbon 18. The ribbon 18 may be attached to the edge 8 of the textile 7 by means of a stitch 62 as illustrated in Figs. 2A and 18, or it may be attached to the edge 8 by any other suitable means, such as glue. Thereby, cutting the textile 7 to size and mounting the holding elements 11 may be facilitated in that a prefabricated ribbon 18 with holding elements 11 mounted thereon may be used.

[0050] Each holding element 11 may have the form of a metal element gripping over a respective edge 8 of the textile 7 or the edge 19 of the ribbon 18 attached to said edge 8 of the textile 7 in the illustrated embodiments.

[0051] The ribbon 18 with the attached holding elements 11 may advantageously have the form of one of the two corresponding zipper tapes of a conventional zipper which are provided with zipper teeth. The zipper tape may be provided with individual pieces of metal molded into shape and set on the zipper tape at regular intervals. The teeth of metal zippers may for instance be made in brass, aluminum and nickel. However, plastic materials may also be used for the teeth.

[0052] However, the mutually spaced holding elements 11 may alternatively be attached directly to the edge 8 of the textile 7.

[0053] In the embodiment illustrated in Fig. 2A, the back end 24 of the engagement portion 12 of each holding element 11 is fixed on the edge 19 of the ribbon 18 attached to said edge 8 of the textile 7. However, the back end 24 of the engagement portion 12 of each holding element 11 may alternatively be attached directly to the edge 8 of the textile 7.

[0054] Preferably, each holding element 11 is fixed at least substantially against rotation in relation to the textile 7 about an axis extending longitudinally through the holding element 11 and extending transversely to a respective edge 8 of the textile 7 or an edge 19 of a ribbon 18 attached to said edge 8 of the textile 7. Referring to the embodiment of Fig. 2A, the axis extending longitudinally through the holding element 11 extends also in the longitudinal direction D_L of the engagement portion. This means that each holding element 11 cannot be pivoted about the longitudinal direction D_L illustrated in Fig. 2A and therefore, it may be ensured that the engagement portion 12 of the holding elements 11 is not able to escape through the opening slot 13 of the longitudinal channel 10 by rotation in relation to the textile 7 about such axis.

[0055] In the illustrated embodiments, each frame profile member 6 has a rounded outer edge 27 connecting a room-facing side 28 of the frame profile member 6 with a building-facing side 29 of the frame profile member 6. The textile 7 is bent about the rounded outer edges 27 of the frame profile members 6, and edges 8 of the textile 7 is fixed to the building-facing side 29 of the respective frame profile members 6.

[0056] According to an embodiment of a method of manufacturing a building panel 1 according to the present invention, the method includes extending a textile 7 over the room-facing side 3 of the framework 2 between the frame profile members 6, attaching each edge 8 of the textile 7 to a corresponding frame profile member 6 by means of a least one tensioning profile member 9, releasably connecting said edge 8 of the textile 7 with a longitudinal channel 10 of the tensioning profile member 9, and spring-biasing the tensioning profile member 9 so that it is displaced in a lateral direction of said frame profile

member 6 and thereby brings the textile 7 into a tensioned state. Furthermore, the embodiment of the method includes providing each edge 8 of the textile 7 with a number of holding elements 11 arranged flexibly in relation to each other along the edge 8 of the textile 7, inserting an engagement portion 12 of each holding element 11 into the longitudinal channel 10 in a lateral insertion direction D_I of the channel 10, through an opening slot 13 of the channel 10, and retaining the engagement portion 12 of each holding element 11 in the channel by means of a rotational moment M_R seeking to rotate the engagement portion 12 about a longitudinal axis A_L of the channel 10 of the tensioning profile member 9 and thereby forcing the engagement portion 12 of each holding element 11 into locking engagement with the channel 10, said rotational moment M_R being created by a tension force F_T of the textile 7 acting on each holding element 11.

[0057] Different steps of the above-mentioned embodiment of the method of manufacturing a building panel 1 are illustrated in Figs. 3 to 8. Figs. 9 to 12 illustrate different steps of detaching the textile 7 from the building panel 1, for instance in order to wash the textile 7. The textile 7 may subsequently be mounted on the building panel 1 again by means of the same method as illustrated in Figs. 3 to 8.

[0058] Figs. 13 to 22 illustrate an embodiment of the building panel 1 according to the present invention. As seen for instance in Fig. 16, neighbouring frame profile members 6 are connected to each other by means of respective corner pieces 30. Each corner piece 30 has an oblique slot 31 formed between opposed wall parts 32, 33 of the corner piece 30 and extending at an oblique angle in relation to a longitudinal direction of each one of the respective neighbouring frame profile members 6. As illustrated in Figs. 18 to 22, excess textile 34 at a respective corner 35 of the panel 1 is inserted into the slot 31 of the corner piece 30 and is retained by means of a resilient member 38.

[0059] Each corner piece 30 forms, at least together with the neighbouring frame profile members 6, an internal cavity 36 of the respective corner 35 of the panel 1. Said internal cavity 36 extends laterally from either side of at least part of the length of the slot 31 of the corner piece 30 behind the opposed wall parts 32, 33 of the corner piece 30. When inserted into the internal cavity 36 of the respective corner 35 of the panel 1, the excess textile 34 at each corner 35 of the panel 1 forms an at least partly tubular shape 37 extending to either side of the slot 31 in the internal cavity 36 of the corner 35 of the panel 1. As seen in Fig. 22, the resilient member 38 is arranged inside the at least partly tubular shape 37 formed by the excess textile 34. Thereby, it may be possible taking up and retaining, in a flexible and elastic way, all or at least a major part of the excess textile 34 at the corner 35, thereby ensuring a smooth finish of the textile 7 and further allowing easy removal and subsequent refitting of the tensioned textile 7.

[0060] Due to the elastic nature of the arrangement of the resilient member 38 inside the at least partly tubular shape 37 formed by the excess textile 34, a smooth finish of the textile 7 may be maintained at the corner piece 30 even if the textile 7 should generally stretch during time or if the textile should generally shrink as a result of washing the textile 7. In such cases, the spring-biased tensioning profile member 9 could be displaced in the tensioning direction D_T of the textile 7, thereby generally compensating for the stretching or shrinking, however something that, according to prior art embodiments, could lead to an uneven arrangement of the textile 7 at the corners 35 of the building panel 1.

[0061] It is noted that although the corner piece 30 is illustrated as forming a right angle between the connected neighbouring frame profile members 6 in the typical case of the peripheral frame 5 of the building panel 1 being formed by four frame profile members 6, the corner piece 30 may just as well form different angles. For instance, if the peripheral frame 5 of the building panel 1 is formed by six frame profile members 6, each corner piece 30 may form an angle of 120 degrees. However, of course, the corner pieces 30 may also form different angles between their respective neighbouring frame profile members 6.

[0062] As illustrated in Figs. 26 and 27, each one of the opposed wall parts 32, 33 of the corner piece 30 has an inner surface 39 and an outer surface 40 being at least substantially flat and at least substantially parallel.

[0063] As indicated in Fig. 26, each one of the opposed wall parts 32, 33 of the corner piece 30 has a maximum thickness t_{max} measured between the inner surface 39 and the outer surface 40 of the wall part 32, 33. As indicated in Fig. 28, the oblique slot 31 formed between the opposed wall parts 32, 33 of the corner piece 30 has a minimum width w_{min}, and said maximum thickness t_{max} of each wall part 32, 33 is smaller than, preferably smaller than 1/2 of, more preferred smaller than 1/3 of, and most preferred smaller than 1/4 of the minimum width w_{min} of the oblique slot 31. Thereby, sufficient space for the excess textile 34 may be formed in the internal cavity 36 of the corner 35 of the building panel 1, and at the same time a smooth finish of the textile 7 may be maintained at the corner piece 30.

[0064] As indicated in Fig. 22, the excess textile 34 forming the at least partly tubular shape 37 in the form of a tube-like channel abuts the respective inner surfaces 39 of the opposed wall parts 32, 33 of the corner piece 30. Thereby, the excess textile 34 may be retained in a stable manner. Preferably, the at least partly tubular shape 37 formed by the excess textile 34 also abuts faces formed by the respective neighbouring frame profile members 6 and forming inner faces 64 of the internal cavity 36. Thereby, the excess textile 34 may be retained in an even more stable manner. Although not clearly visible in the figures, it may be understood that the at least partly tubular shape 37 formed by the excess textile 34 at each corner 35 of the panel 1 may typically have an at least partly tapering form in the direction from an open

top to a bottom of the at least partly tubular shape 37 when oriented as it is seen in Fig. 22. As furthermore seen in Figs. 21 and 22, the at least partly tubular shape 37 preferably has a generally non-circular cross-sectional form. The cross-sectional form of the at least partly tubular shape 37 may generally follow the internal walls of the internal cavity 36 being nearest to the excess textile 34 forming the at least partly tubular shape 37.

[0065] Comparing Figs. 1, 16, 26 and 27, it is understood that each one of the opposed wall parts 32, 33 of the corner piece 30 extends at an oblique angle in relation to a general plane P of the building panel 1. The general plane P of the building panel 1 is indicated in Fig. 1. Thereby, the textile 7 at the corner 35 of the panel 1 may suitably abut the opposed wall parts 32, 33 and thereby match the form of the part of the edges 8 of the textile 7 attached to the spring-biased tensioning profile member 9 so that a smooth finish may be obtained at the area of the corner 35.

[0066] As seen in Fig. 22, the resilient member 38 has the form of a helical spring. In a relaxed state of the helical spring, the helical spring has a diameter being at least substantially equal to or larger than a minimum width w_{min} of the oblique slot 31 of the corner piece 30. Thereby, it may be ensured that the excess textile 34 is suitably retained at the corners 35 of the building panel 1. The helical spring is only partly visible in Fig. 22, however, it will be understood that the resilient member 38 in the form of the helical spring extends to either side of the slot 31 in the internal cavity 36 of the corner 35 of the panel 1. Thereby, it may even better be ensured that the excess textile 34 is suitably retained at the corners 35 of the building panel 1. The helical spring may easily be removed from its location inside the at least partly tubular shape 37 formed by the excess textile 34 inside the internal cavity 36 of the corner 35, if for example, the textile 7 has to be washed or repaired. The helical spring may for instance be removed by means of a screwdriver 55. Although in the illustrated embodiments, the resilient member 38 has the form of a helical spring, any suitable resilient element may be employed, such as an elastic hoop or a piece of foam or rubber.

[0067] In the embodiment illustrated in Fig. 22, the resilient member 38 in the form of the helical spring is, in its mounted position in the internal cavity 36 of the corner 35, still deformed somewhat in relation to its relaxed state. This may be preferred in order to better hold the excess textile 34 in place in the internal cavity 36. However, the helical spring nevertheless extends to either side of the slot 31 in the internal cavity 36.

[0068] As understood, in order to insert the resilient member 38 in the form of the helical spring through the slot 31 and into the internal cavity 36 of the corner 35, the spring should preferably be compressed somewhat from its relaxed state. As seen in Figs. 20 to 22, the excess textile 34 is, preferably by means of a tool, such as a screwdriver 55, inserted through the slot 31 so that it forms an at least partly tubular shape 37 extending to either side of the slot 31 in the internal cavity 36. At this stage, which is illustrated in Fig. 21, the excess textile 34 forms an opening through the slot 31 of the corner piece 30, i.e. an opening in the form of a slot is formed in the at least partly tubular shape 37 formed by the excess textile 34. The helical spring may be inserted through this opening, or it may be inserted through the opening seen at the top of the at least partly tubular shape 37. In either case, the spring should preferably be compressed somewhat from its relaxed state at least during its insertion through the slot 31. In the case that the helical spring is inserted through the slot formed in the at least partly tubular shape 37, the helical spring may be deformed by tilting windings of the helical spring so that they form an oblique angle with a longitudinal axis of the helical spring.

[0069] As illustrated in Figs. 13 to 16, each corner piece 30 has a first leg 41 inserted into an end 42 of a first neighbouring frame profile member 6 and a second leg 43 inserted into an end 44 of a second neighbouring frame profile member 6.

[0070] Furthermore, referring to Figs. 14 and 26, a part 45 of the first leg 41 of the corner piece 30 is inserted into a first groove 46 of a part 47 forming the rounded outer edge 27 of the first neighbouring frame profile member 6. Correspondingly, a part 48 of the second leg 43 of the corner piece 30 is inserted into a second groove 49 of a part 50 forming the rounded outer edge 27 of the second neighbouring frame profile member 6. A first one 32 of the opposed wall parts of the corner piece 30 is connected to the part 45 of the first leg 41 of the corner piece 30 through a longitudinal opening of the first groove 46. Correspondingly, a second one 33 of the opposed wall parts of the corner piece 30 is connected to the part 48 the second leg 43 of the corner piece 30 through a longitudinal opening of the second groove 49.

[0071] As seen in Fig. 26, the first one 32 of the opposed wall parts of the corner piece 30 is connected to the part 45 of the first leg 41 of the corner piece 30 by means of a first intermediate wall part 51 part forming an angle A_W with the first one 32 of the opposed wall parts. Correspondingly, the second one 33 of the opposed wall parts of the corner piece 30 is connected to the part 48 of the second leg 43 of the corner piece 30 by means of a second intermediate wall part 52 forming an angle A_W with the second one 33 of the opposed wall parts.

[0072] As seen in Figs. 26 to 28, the oblique slot 31 of each corner piece 30 is formed partly between the first intermediate wall part 51 and the second intermediate wall part 52 of the corner piece 30.

[0073] As further seen in Figs. 13 to 20 and 26 to 28, each corner piece 30 has an extension 53 between its first and second legs 41, 43. The extension 53 forms a smooth transition between an outer surface of the corner piece 30 itself and the rounded outer edges 27 of the respective neighbouring frame profile members 6 when the corner piece 30 is connected with the neighbouring frame profile members 6.

[0074] In the illustrated embodiments, the corner piec-

es 30 forms an outer part of the respective corners 35 of the building panel 1. Neighbouring frame profile members 6 form themselves part of the corner of the building panel 1 and are further interconnected by means of a supplemental corner bracket 60 as seen for instance in Fig. 13. However, in alternative embodiments, each corner piece 30 may form the entire corner of a respective corner 35 extending from an inner circumference to an outer circumference of the peripheral frame 5 of the framework 2.

[0075] As seen in Figs. 19 to 22, ends of the ribbons 18 attached to the respective edges 8 of the textile 7 meeting at the corner 35 of the building panel 1 include a few holding elements 11 which are not inserted into the longitudinal channel 10 of the respective tensioning profile member 9. This is due to the fact that the respective tensioning profile members 9 do not extend all the way to the corner 35 of the building panel 1. However, the combined tensioning forces of the tensioning profile members 9 and of the resilient member 38 inserted into the at least partly tubular shape 37 formed by the excess textile 34 at the corner 35 of the building panel 1 act to suitably extend and stretch the textile 7 to form a smooth corner 35 as seen in particular in Fig. 22. Said few holding elements 11 which are not inserted into the longitudinal channel 10 are actually superfluous and could be left out; however, they have been maintained for ease of production.

[0076] Figs. 23 to 25 illustrate a *prior art* corner piece 30 for connecting frame profile members of a building panel 1. The prior art corner piece 30 has a groove 31 formed between massive wall parts 58, 59 of the corner piece 30, into which groove excess textile 34 is inserted. However, due to limited available room in the groove 31, it may not be possible to fit all the excess fabric 34 at the corner 35 of the panel 1 into this groove 31. Therefore, a part of the excess fabric 34 is typically cut away, and the remaining part of the excess fabric is inserted into the groove 31. In this case, the fabric may typically be retained in the groove by means of glue. However, in this way, the textile 7 of the building panel 1 may not be removed from the panel 1 and attached again, for instance after washing the textile 7. This is due to the textile 7 being cut closely to fit the groove 31 of the prior art corner piece 30 and due to the textile 7 being glued in the groove 31.

[0077] According to an embodiment of a method of manufacturing a building panel 1 according to the present invention, the method includes connecting neighbouring frame profile members 6 to each other by means of corner pieces 30, bending the textile 7 about the rounded outer edges 27 of the frame profile members 6, inserting excess textile 34 at each respective corner 35 of the panel 1 into an oblique slot 31 formed between opposed parts 32, 33 of the respective corner piece 30, and retaining excess textile 34 by insertion of a resilient member 38. Furthermore, the embodiment includes, at each respective corner 35 of the panel 1, arranging the excess textile 34 to form an at least partly tubular shape 37 extending to either side of the slot 31 in an internal cavity 36 of the respective corner 35 of the panel 1, and arranging the resilient member 38 inside the at least partly tubular shape 37 formed by the excess textile 34.

[0078] In the following, some of the steps of a preferred method of manufacturing a building panel 1 according to the present invention are explained.

[0079] The framework 2 including the peripheral frame 5 is formed by the frame profile members 6 including respective spring-biased tensioning profile members 9, whereby neighbouring frame profile members 6 are connected to each other by means of corner pieces 30 as illustrated in Figs. 13 to 16 and 26 to 28.

[0080] The textile 7 is cut to shape and is provided with holding elements 11 along its edges 8. The textile 7 is now placed on a flat surface, and the framework 2 of the building panel is placed on top of the textile 7 with its room-facing side 3 pointing downwards towards the textile 7 as illustrated in Fig. 18. If not already done, the spring-biased tensioning profile members 9 are now, for instance by means of a screwdriver 55, displaced away from a textile tensioning position illustrated in Fig. 2 to a release position illustrated in Fig. 3, in which release position each spring-biased tensioning profile member 9 is relatively nearer the rounded outer edge 27 of the corresponding frame profile member 6 and in which the U-formed elastic spring 14 is compressed more than it is in the textile tensioning position of the spring-biased tensioning profile member 9. Each spring-biased tensioning profile member 9 is retained in its release position by insertion of a number of Z-formed brackets 54 into a groove 63 of the spring-biased tensioning profile member 9. As seen, the Z-formed brackets 54 rest against an edge of the respective frame profile members 6. The spring-biased tensioning profile members 9 are retained in their respective release positions by means of the Z-formed brackets 54 during the steps of Figs. 3 to 7.

[0081] It is noted that in Figs. 1 to 12, the building panel 1 is illustrated upside down in relation to the illustrations of Figs. 13 to 22.

[0082] Referring now to Fig. 4, it is seen that the textile 7 is bent about the rounded outer edges 27 of the frame profile members 6. Referring to Figs. 5 and 6, it is seen that, by means of the screwdriver 55, the holding elements 11 of the textile 7 are located in the respective longitudinal channels 10 of the tensioning profile members 9. Referring to Fig. 7, all necessary holding elements 11 of the textile 7 have been located in the respective longitudinal channels 10. Subsequently, the Z-formed brackets 54 are removed from the building panel 1 so that the spring-biased tensioning profile members 9 are released and, by means of their respective U-formed elastic springs 14, are displaced from their release positions to their textile tensioning positions. The textile 7 is now in a tensioned state as illustrated in Fig. 8 and as illustrated in Fig. 2.

[0083] At this stage, illustrated in Fig. 19, the building

panel 1 is ready for fitting the excess textile 34 at the corners 35 of the panel. Firstly, for instance by means of the screwdriver 55, the excess textile 34 at each corner is inserted into the internal cavity 36 of the respective corner 35 of the panel 1, as illustrated in Fig. 20. The excess textile 34 is now arranged as illustrated in Fig. 21. Finally, the resilient member 38 in the form of the helical spring is arranged in the at least partly tubular shape 37 formed by the excess textile 34 inside the internal cavity 36 of the corner 35. The textile 7 is now fully tensioned and smoothly fitted at the corner 35 of the panel 1 as illustrated in Fig. 22.

[0084] If, at a later stage, it is desired to wash or repair the textile 7, it may be removed, for instance by means of the screwdriver 55, from the framework 2 of the building panel, by firstly removing the helical spring and the excess textile 34 from the internal cavity 36 of the corner 35. Subsequently, the steps of Figs. 9 to 12 may be followed in order to remove the textile 7 fully from the framework 2 of the building panel. In Fig. 9, the spring-biased tensioning profile member 9 has, for instance by means of a screwdriver 55, been displaced away from its textile tensioning position to its release position. In Fig. 10, the spring-biased tensioning profile member 9 is retained in its release position by insertion of a number of Z-formed brackets 54 into the groove 63 of the spring-biased tensioning profile member 9. As illustrated in Figs. 11 and 12, the holding elements 11 of the textile 7 may now, for instance by means of the screwdriver 55 and by hand, be removed from the respective longitudinal channels 10 of the tensioning profile members 9. The textile 7 has now been fully removed from the framework 2 of the building panel and may be washed in a not shown washing machine due to the flexible nature of the edges 8 of the textile 7 provided with the holding elements 11. Subsequently, the textile 7 may again be mounted on the framework 2 of the building panel by following the procedure outlined above.

[0085] It is noted that although a complete procedure for mounting a textile 7 on the framework 2 of a building panel 1 has been outlined above, not all steps of the outlined procedure are necessary in order to mount a textile 7 on a framework 2 of a building panel 1. For instance, the general mounting procedure illustrated in Figs. 3 to 8 of mounting the edges 8 of the textile 7 to the respective frame profile members 6 of the panel is an independent invention in itself which may be employed without the method of fitting the excess textile 34 at the corners 35 of the panel 1 as illustrated in Figs. 17 to 22. Instead, the textile could be fitted at the corners 35 by the method described above in relation to the prior art corner piece 30 illustrated in Figs. 23 to 25. However, in this case, if the excess textile 34 is cut closely to shape, and the remaining excess textile 34 is glued in the groove 31 of the prior art corner piece 30, the textile 7 may not easily be removed and refitted on the panel 1 again. On the other hand, the general method of fitting the excess textile 34 at the corners 35 of the panel 1 as illustrated in Figs. 17 to 22 is also an independent invention in itself which may be employed without the general mounting procedure illustrated in Figs. 3 to 8 of mounting the edges 8 of the textile 7 to the respective frame profile members 6 of the panel. Instead, the edges 8 of the textile 7 could be mounted to the respective frame profile members 6 of the panel according to not shown prior art methods referred to above. However, in this case, the textile 7 may not easily be removed from and refitted on the panel 1 again, due to the fact that the textile 7 may have been closely cut to measure of the framework 2 of the building panel, and due to the fact that the textile 7 may have been fitted with rigid edge bars not allowing folding of the edges 8 of the textile 7.

List of reference numbers

[0086]

A_W	angle between wall parts
A_L	longitudinal axis of channel of tensioning profile member
D_I	lateral insertion direction of longitudinal channel
D_L	longitudinal direction of engagement portion
D_T	tensioning direction of tensioning profile member
F_T	tension force of textile acting on holding element
M_R	rotational moment
P	general plane of building panel
t_{max}	maximum thickness of opposed wall parts of corner piece
w_{min}	minimum width of oblique slot
W_{MAX}	maximum width of engagement portion
W_{MIN}	minimum width of opening slot
1	building panel
2	framework of building panel
3	room-facing side of framework
4	building-facing side of framework
5	peripheral frame of framework
6	frame profile member
7	textile
8	edge of textile
9	tensioning profile member
10	longitudinal channel of tensioning profile member
11	holding element
12	engagement portion of holding element
13	opening slot of channel
14	elastic spring
15	protrusion of longitudinal channel
16	first edge of opening slot
17	second edge of opening slot
18	ribbon
19	edge of ribbon
20	bottom wall of longitudinal channel
21	first side wall of longitudinal channel

22 second side wall of longitudinal channel
23 front end of engagement portion
24 back end of engagement portion
25 first side wall of engagement portion
26 second side wall of engagement portion
27 rounded outer edge of frame profile member
28 room-facing side of frame profile member
29 building-facing side of frame profile member
30 corner piece
31 oblique slot of corner piece
32, 33 opposed wall parts of corner piece
34 excess textile at corner of panel
35 corner of panel
36 internal cavity of corner of panel
37 at least partly tubular shape formed by excess textile
38 resilient member
39 inner surface of wall part of corner piece
40 outer surface of wall part of corner piece
41 first leg of corner piece
42 end of first neighbouring frame profile member
43 second leg of corner piece
44 end of second neighbouring frame profile member
45 part of first leg of corner piece
46 first groove of part forming rounded outer edge
47 part forming rounded outer edge
48 part of second leg of corner piece
49 second groove of part forming rounded outer edge
50 part forming rounded outer edge
51 first intermediate wall part
52 second intermediate wall part
53 extension of corner piece
54 Z-formed bracket
55 screwdriver
56 indentations of frame profile member
57 mineral wool
58, 59 massive wall part of corner piece
60 supplemental corner bracket
61 zig zag stitch
62 stitch
63 groove for insertion of Z-formed bracket
64 inner faces of internal cavity

Claims

1. A building panel (1) adapted to be mounted at a ceiling or wall of a room so that a framework (2) of the building panel (1) has a room-facing side (3) and a building-facing side (4), wherein the framework (2) includes a peripheral frame (5) formed by frame profile members (6), wherein a textile (7) is extended over the room-facing side (3) of the framework (2) between the frame profile members (6), wherein each frame profile member (6) has a rounded outer edge (27) connecting a room-facing side (28) of the frame profile member (6) with a building-facing side (29) of the frame profile member (6), wherein the textile (7) is bent about the rounded outer edges (27) of the frame profile members (6), wherein edges (8) of the textile (7) is fixed to the building-facing side (29) of the respective frame profile members (6), wherein each edge (8) of the textile (7) is attached to a corresponding frame profile member (6) by means of at least one tensioning profile member (9) being spring-biased for displacement in a tensioning direction (D_T) being lateral of said frame profile member (6) for bringing the textile (7) into a tensioned state, wherein neighbouring frame profile members (6) are connected to each other by means of corner pieces (30), wherein each corner piece (30) has an oblique slot (31) formed between opposed parts of the corner piece (30) and extending at an oblique angle in relation to each one of the neighbouring frame profile members (6), and wherein excess textile (34) at a respective corner (35) of the panel (1) is inserted into the slot (31) of the corner piece (30) and is retained by means of a resilient member (38), **characterised in that** each corner piece (30), at least together with the neighbouring frame profile members (6), forms an internal cavity (36) of the respective corner (35) of the panel (1), **in that** said internal cavity (36) extends laterally from either side of at least part of the length of the slot (31) of the corner piece (30) behind opposed wall parts (32, 33) of the corner piece (30), **in that** the excess textile (34) at each corner (35) of the panel (1) forms an at least partly tubular shape (37) extending to either side of the slot (31) in the internal cavity (36) of the corner (35) of the panel (1), and **in that** the resilient member (38) is arranged inside the at least partly tubular shape (37) formed by the excess textile (34).

2. A building panel according to claim 1, wherein each one of the opposed wall parts (32, 33) of the corner piece (30) has an inner surface (39) and an outer surface (40) being at least substantially flat and at least substantially parallel.

3. A building panel according to claim 2, wherein each one of the opposed wall parts (32, 33) of the corner piece (30) has a maximum thickness (t_{max}) measured between the inner surface (39) and the outer surface (40) of the wall part (32, 33), wherein the oblique slot (31) formed between the opposed wall parts (32, 33) of the corner piece (30) has a minimum width (w_{min}), and wherein said maximum thickness (t_{max}) of each wall part (32, 33) is smaller than, preferably smaller than 1/2 of, more preferred smaller than 1/3 of, and most preferred smaller than 1/4 of the minimum width (w_{min}) of the oblique slot (31).

4. A building panel according to claim 2 or 3, wherein the at least partly tubular shape (37) formed by the

excess textile (34) abuts the respective inner surfaces (39) of the opposed wall parts (32, 33) of the corner piece (30).

5. A building panel according to any one of the preceding claims, wherein the at least partly tubular shape (37) formed by the excess textile (34) abuts faces formed by the respective neighbouring frame profile members (6) and forming inner faces (64) of the internal cavity (36).

6. A building panel according to any one of the preceding claims, wherein the at least partly tubular shape (37) formed by the excess textile (34) at each corner (35) of the panel (1) has an at least partly tapering form.

7. A building panel according to any one of the preceding claims, wherein each one of the opposed wall parts (32, 33) of the corner piece (30) extends at an oblique angle in relation to a general plane (P) of the building panel (1).

8. A building panel according to any one of the preceding claims, wherein the resilient member (38) has the form of a helical spring having, in a relaxed state thereof, a diameter being equal to or larger than a minimum width (w_{min}) of the oblique slot (31) of the corner piece (30).

9. A building panel according to any one of the preceding claims, wherein the resilient member (38) extends to either side of the slot (31) in the internal cavity (36) of the corner (35) of the panel (1).

10. A building panel according to any one of the preceding claims, wherein each corner piece (30) has a first leg (41) inserted into an end (42) of a first neighbouring frame profile member (6) and a second leg (43) inserted into an end (44) of a second neighbouring frame profile member (6).

11. A building panel according to claim 10, wherein at least a part (45) of the first leg (41) of the corner piece (30) is inserted into a first groove (46) of a part (47) forming the rounded outer edge (27) of the first neighbouring frame profile member (6), wherein at least a part (48) of the second leg (43) of the corner piece (30) is inserted into a second groove (49) of a part (50) forming the rounded outer edge (27) of the second neighbouring frame profile member (6), wherein a first one (32) of the opposed wall parts of the corner piece (30) is connected to the least part (45) of the first leg (41) of the corner piece (30) through a longitudinal opening of the first groove (46), and wherein a second one (33) of the opposed wall parts of the corner piece (30) is connected to the at least part (48) the second leg (43) of the corner piece (30) through a longitudinal opening of the second groove (49).

12. A building panel according to claim 11, wherein the first one (32) of the opposed wall parts of the corner piece (30) is connected to the part (45) of the first leg (41) of the corner piece (30) by means of a first intermediate wall part (51) part forming an angle (A_W) with the first one (32) of the opposed wall parts, and wherein the second one (33) of the opposed wall parts of the corner piece (30) is connected to the part (48) of the second leg (43) of the corner piece (30) by means of a second intermediate wall part (52) forming an angle (A_W) with the second one (33) of the opposed wall parts.

13. A building panel according to claim 12, wherein the oblique slot (31) of each corner piece (30) is formed partly between the first intermediate wall part (51) and the second intermediate wall part (52) of the corner piece (30).

14. A method of manufacturing a building panel (1) adapted to be mounted at a ceiling or wall of a room so that a framework (2) of the building panel has a room-facing side (3) and a building-facing side (4), the framework (2) including a peripheral frame (5) formed by frame profile members (6), each frame profile member (6) having a rounded outer edge (27) connecting a room-facing side (28) of the frame profile member (6) with a building-facing side (29) of the frame profile member (6), whereby a textile (7) is extended over the room-facing side (28) of the framework (2) between the frame profile members (6) by bending the textile (7) about the rounded outer edges (27) of the frame profile members (6) and by attaching each edge (8) of the textile (7) to a corresponding frame profile member (6) by means of at least one tensioning profile member (9), by spring-biasing the tensioning profile member (9) so that it is displaced in a lateral direction of said frame profile member (6) and thereby brings the textile (7) into a tensioned state, neighbouring frame profile members (6) being connected to each other by means of corner pieces (30), and whereby excess textile (34) at each respective corner (35) of the panel (1) is inserted into an oblique slot (31) formed between opposed wall parts (32, 33) of the respective corner piece (30) and is retained by insertion of a resilient member (38), **characterised by,** at each respective corner (35) of the panel (1), arranging the excess textile (34) to form an at least partly tubular shape (37) extending to either side of the slot (31) in an internal cavity (36) of the respective corner (35) of the panel (1), and by arranging the resilient member (38) inside the at least partly tubular shape (37) formed by the excess textile (34).

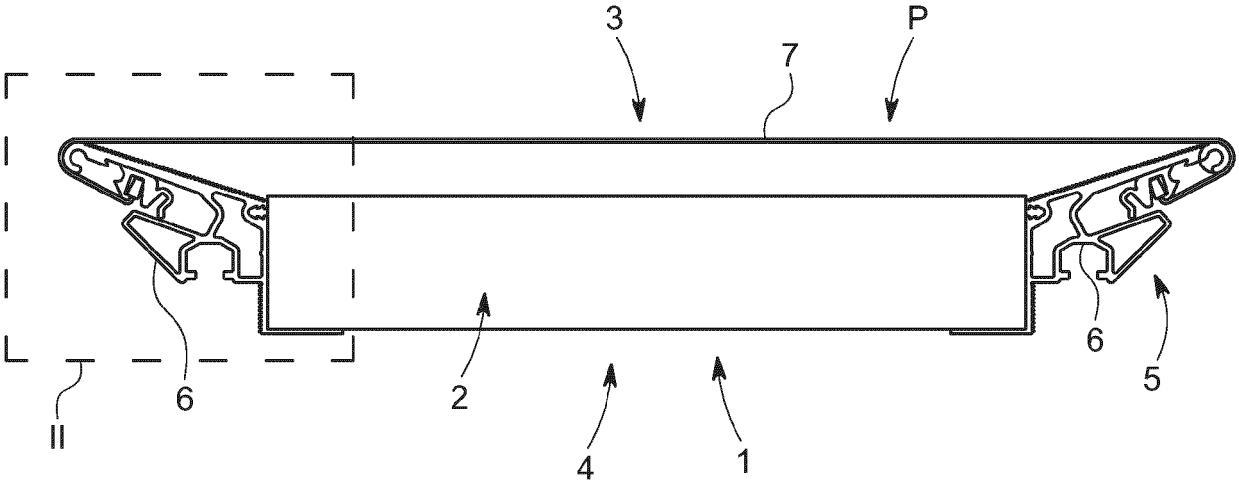


FIG. 1

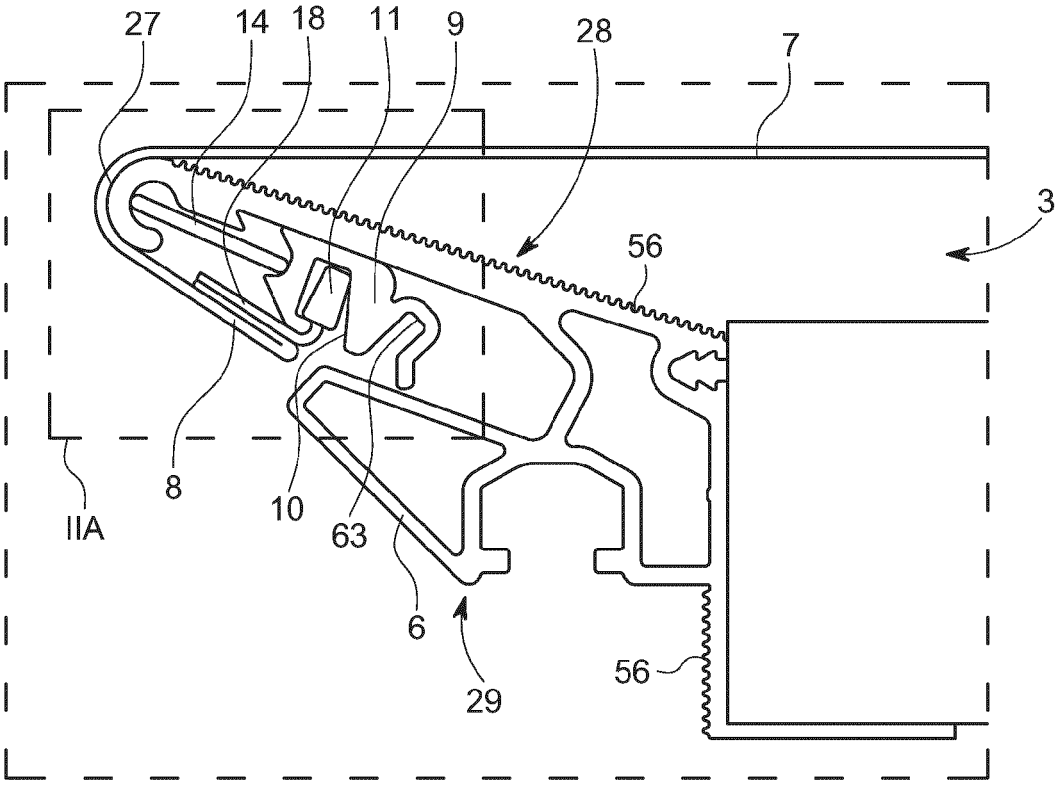
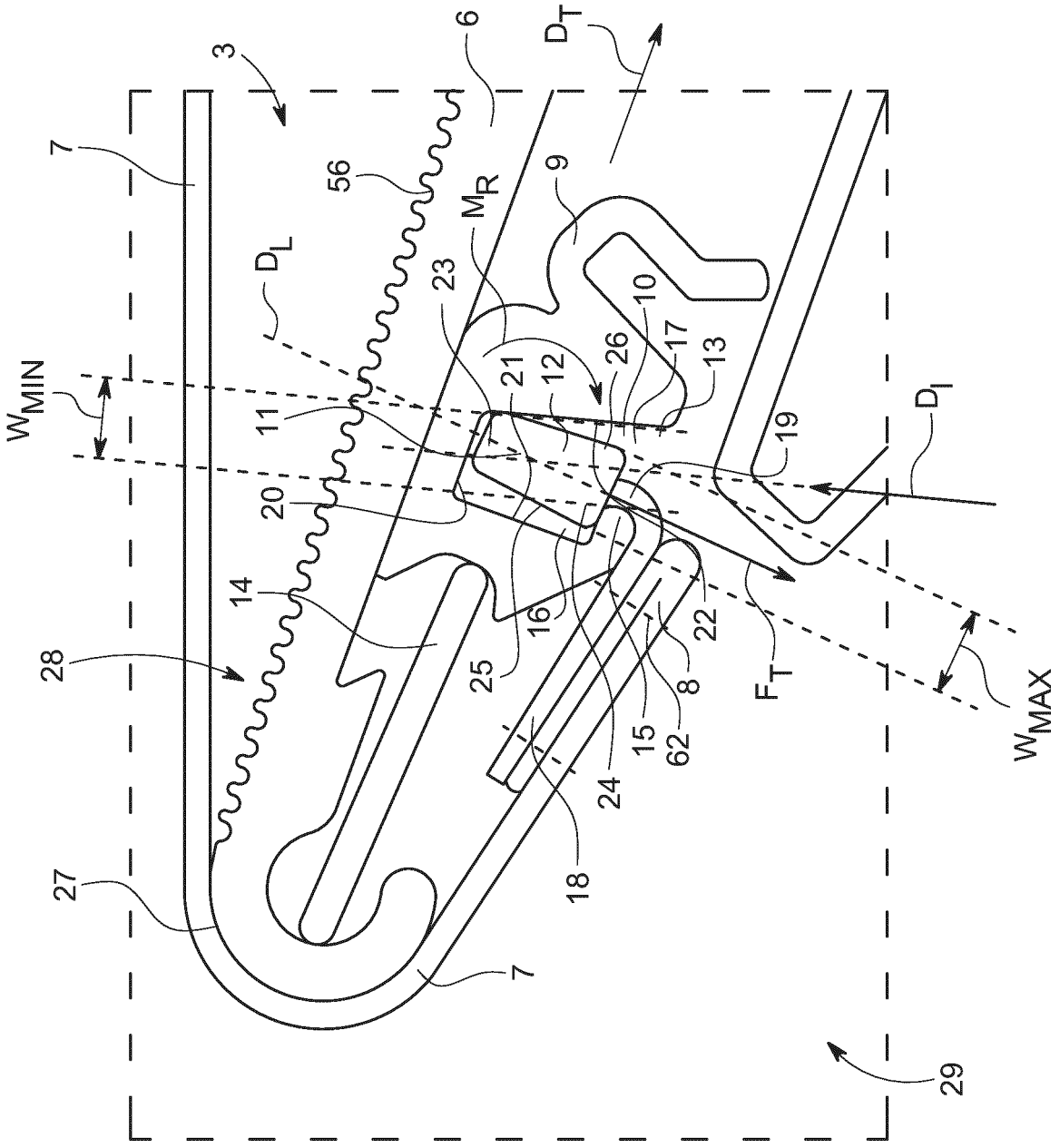


FIG. 2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D_T
7
56
M_R
9
D_L
23
10
W_{MIN}
21
12
26
17
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11
D_I
19
20
14
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22
28
25
F_T
8
W_{MAX}
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62
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27
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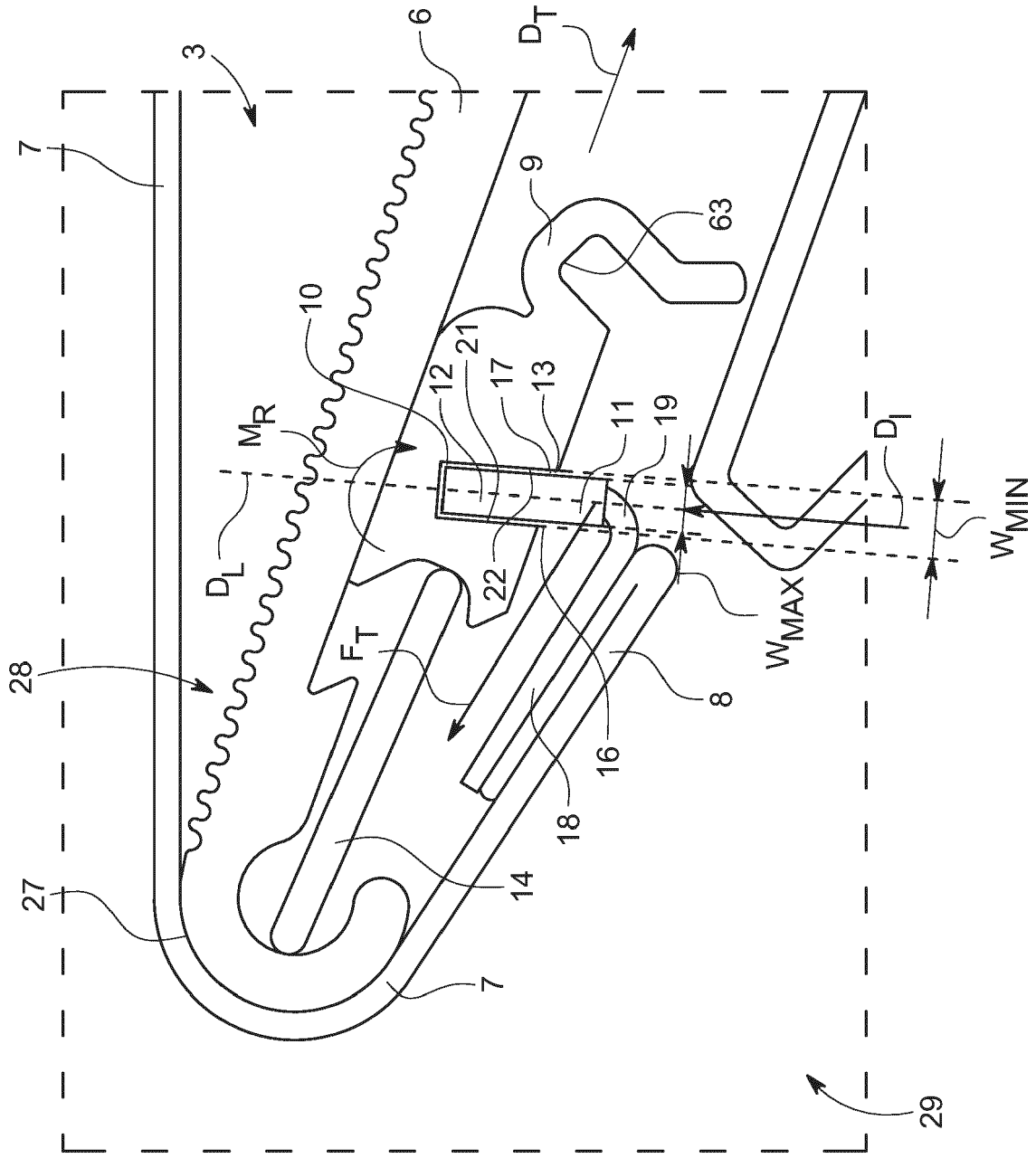
29

FIG. 2A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D_T
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M_R
D_L
D_I
W_{MIN}
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W_{MAX}
F_T
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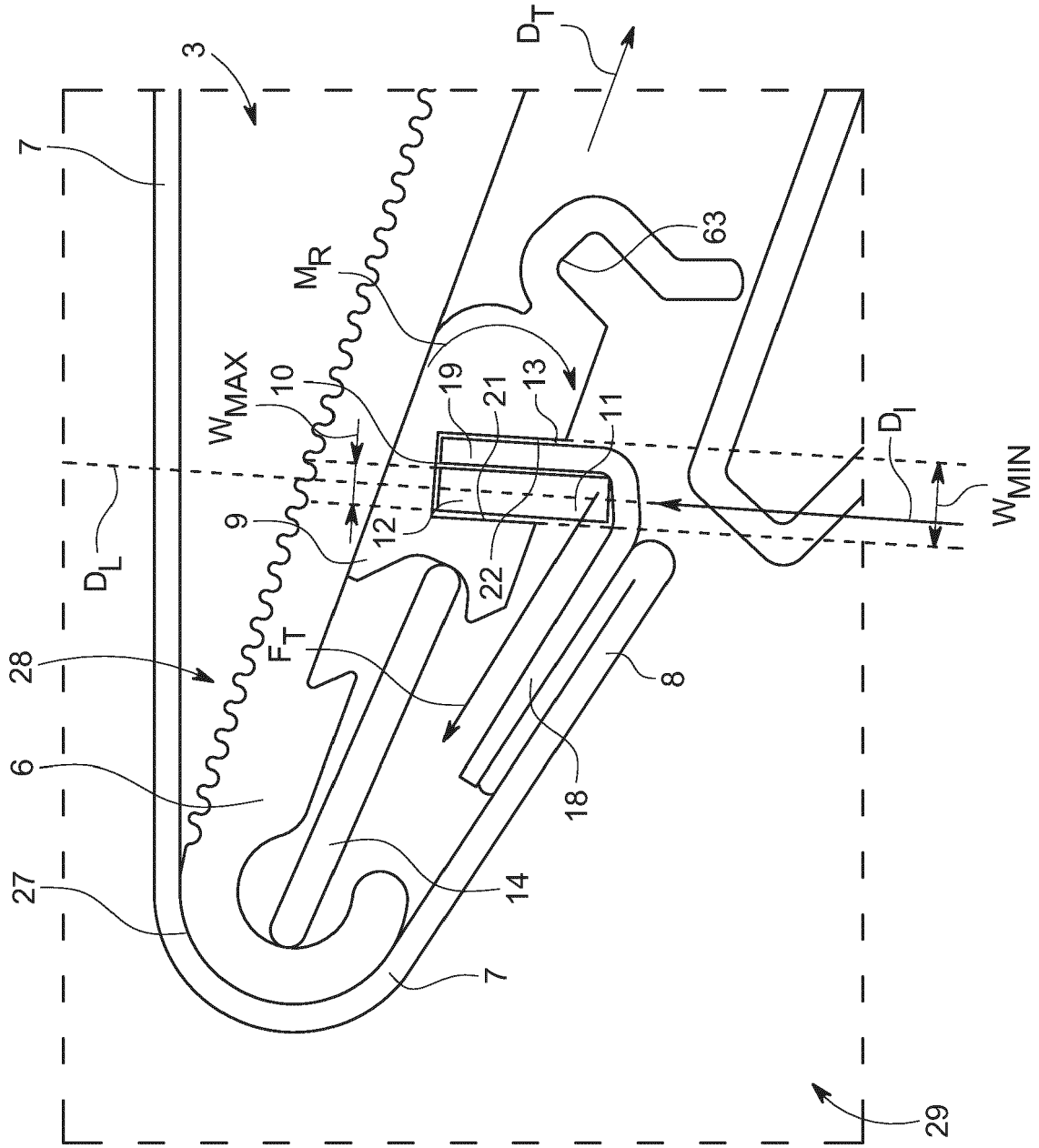
FIG. 2B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D_T
M_R
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W_{MAX}
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19
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11
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FIG. 2C

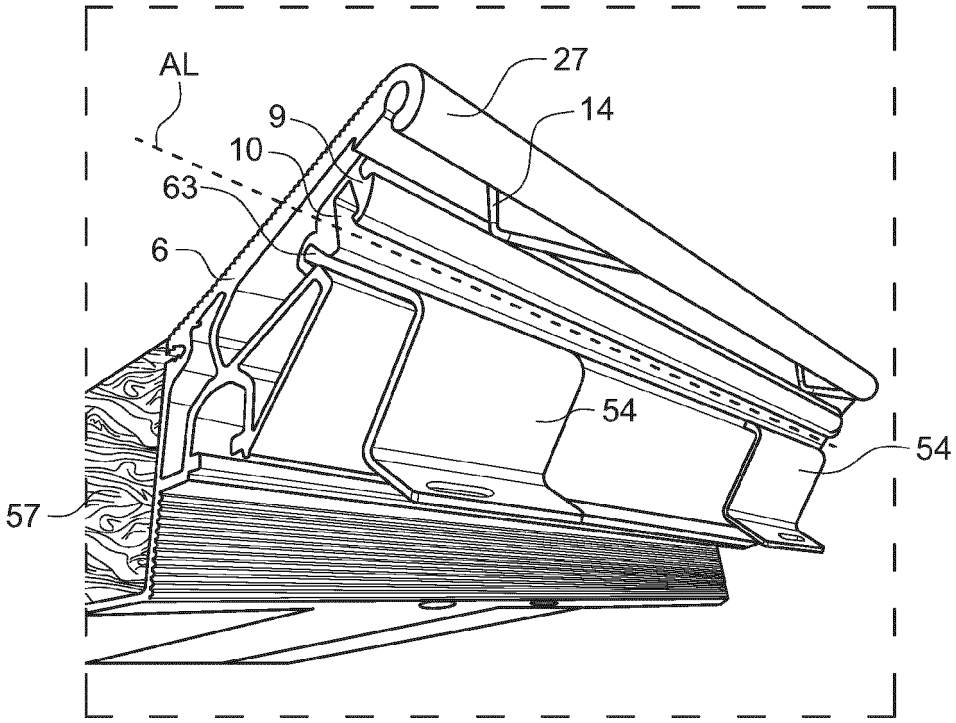

FIG. 3

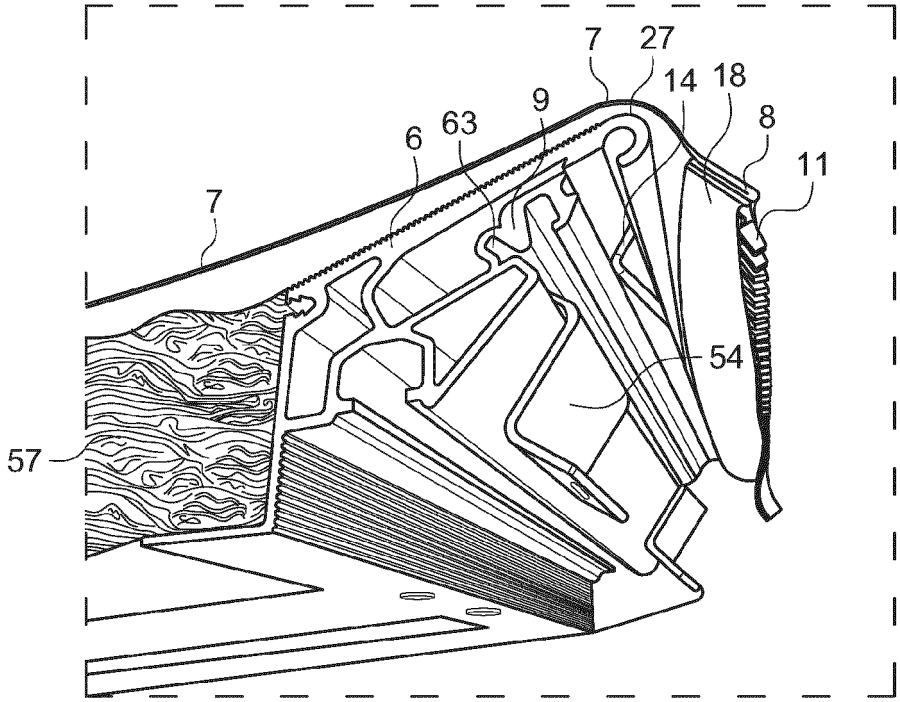

FIG. 4

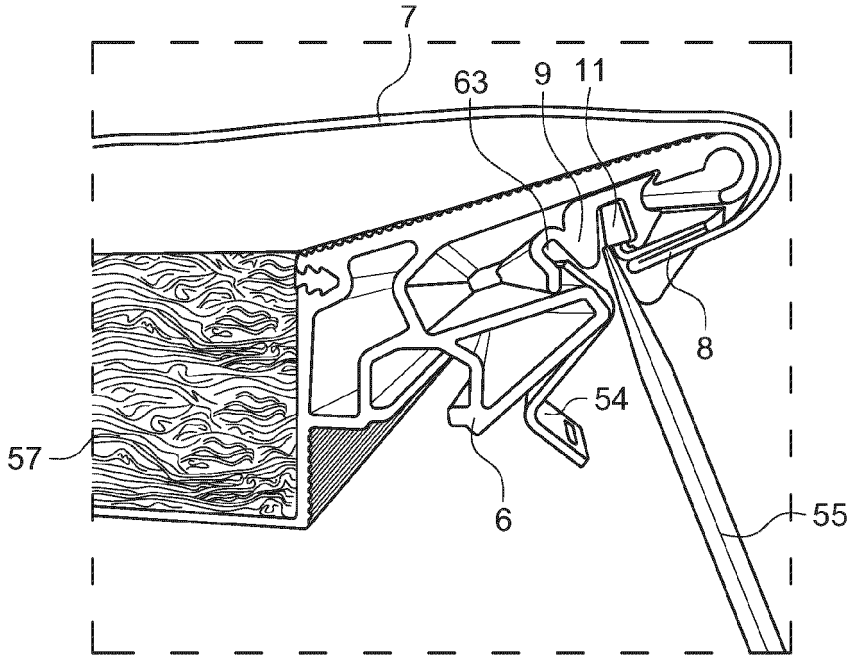

FIG. 5

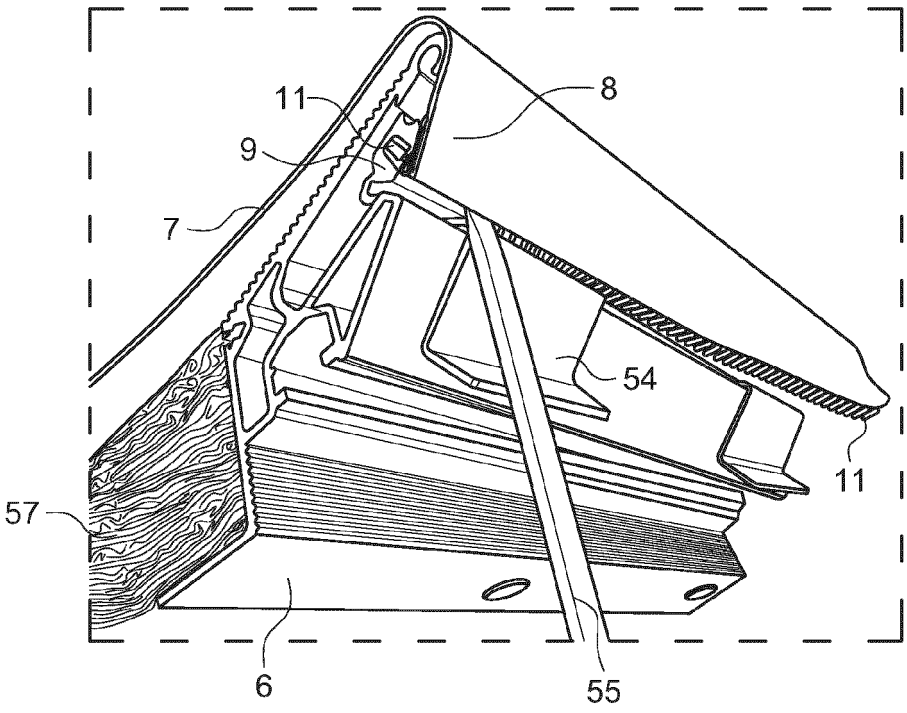

FIG. 6

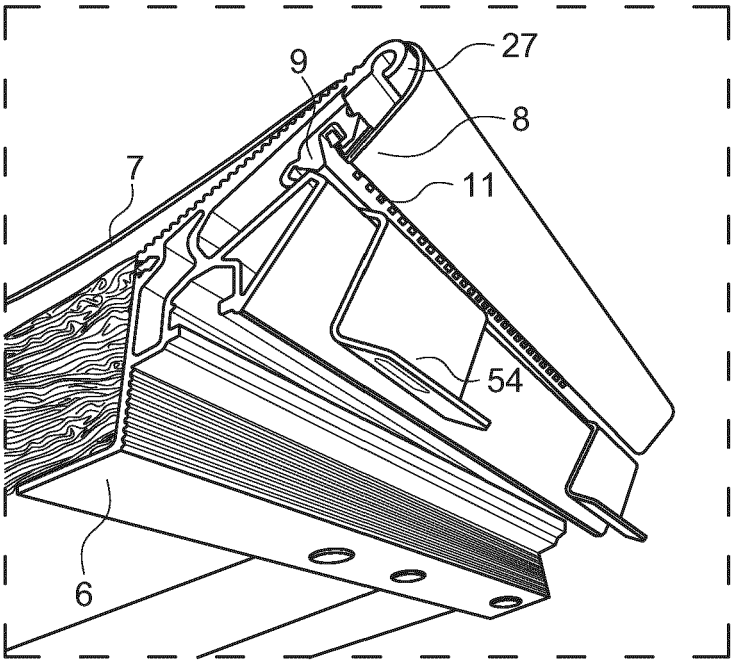

FIG. 7

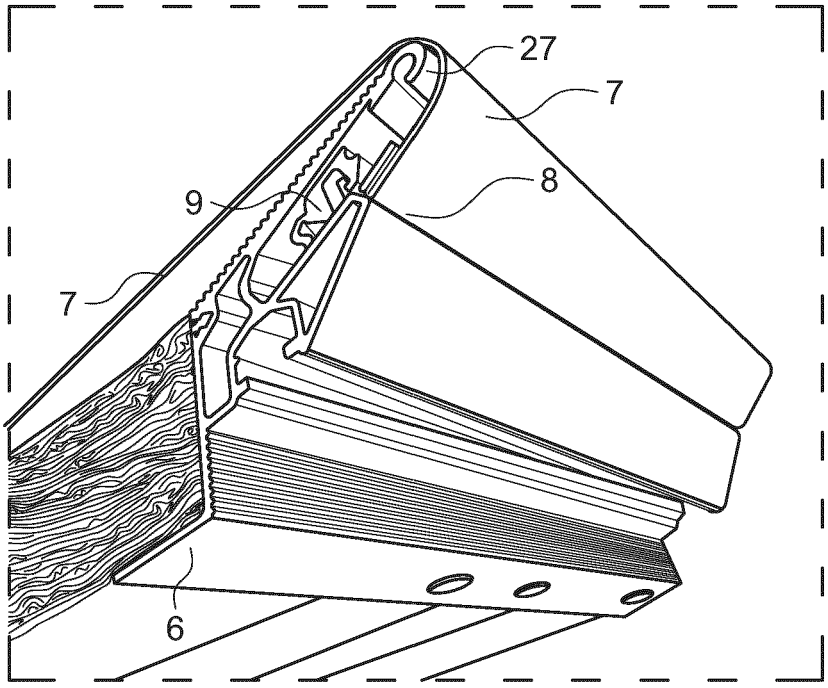

FIG. 8

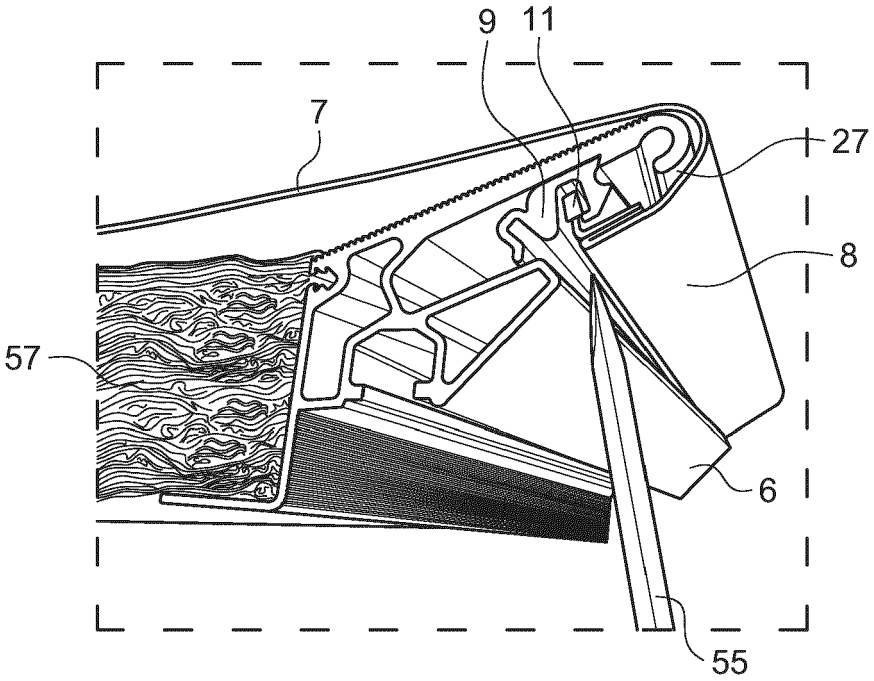

FIG. 9

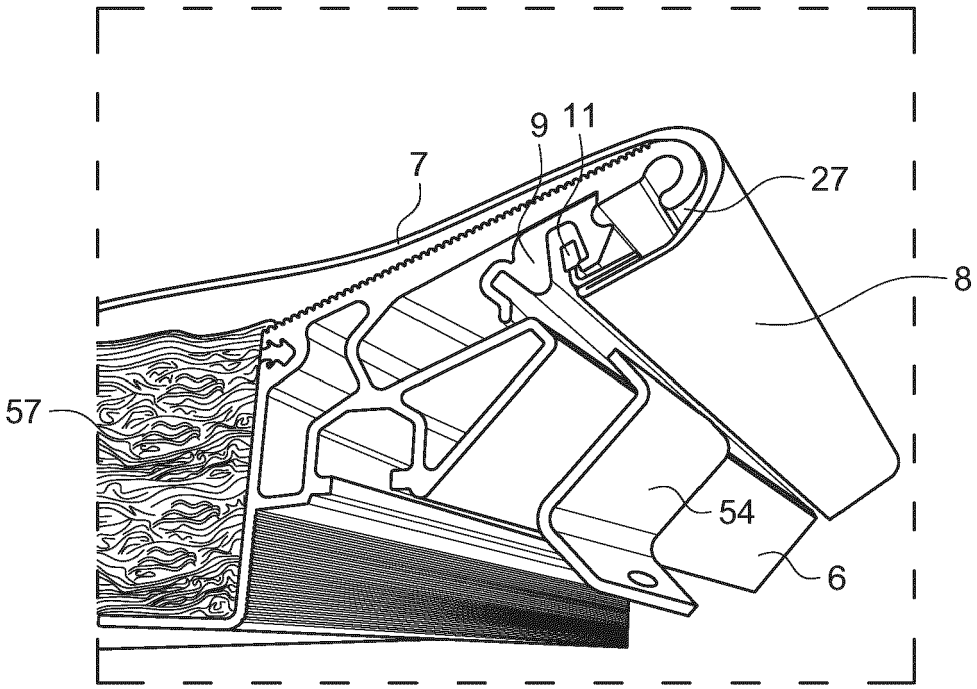

FIG. 10

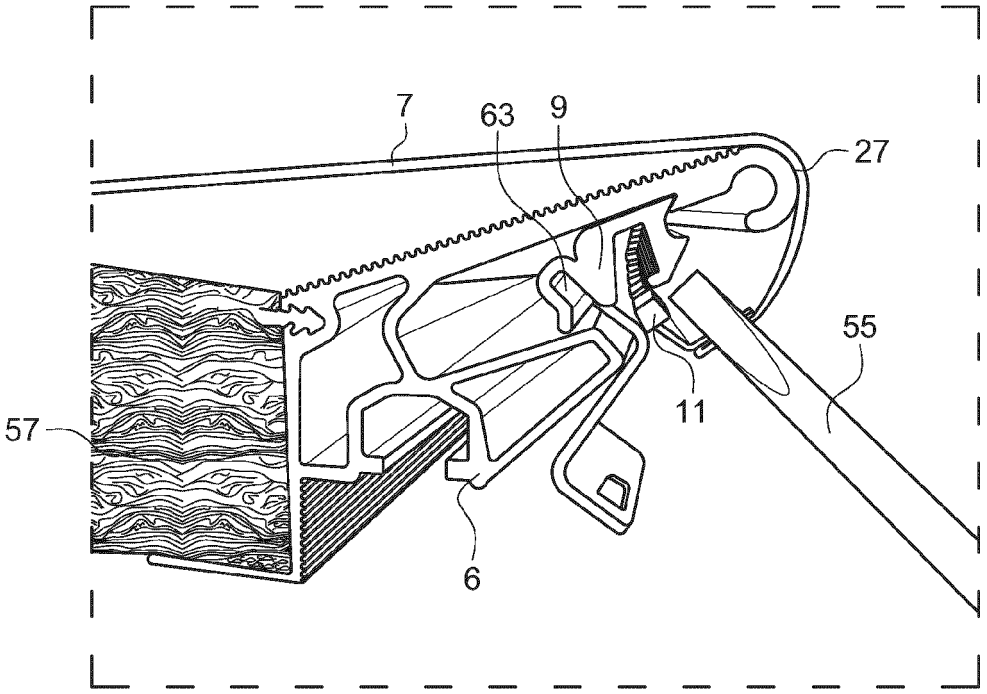

FIG. 11

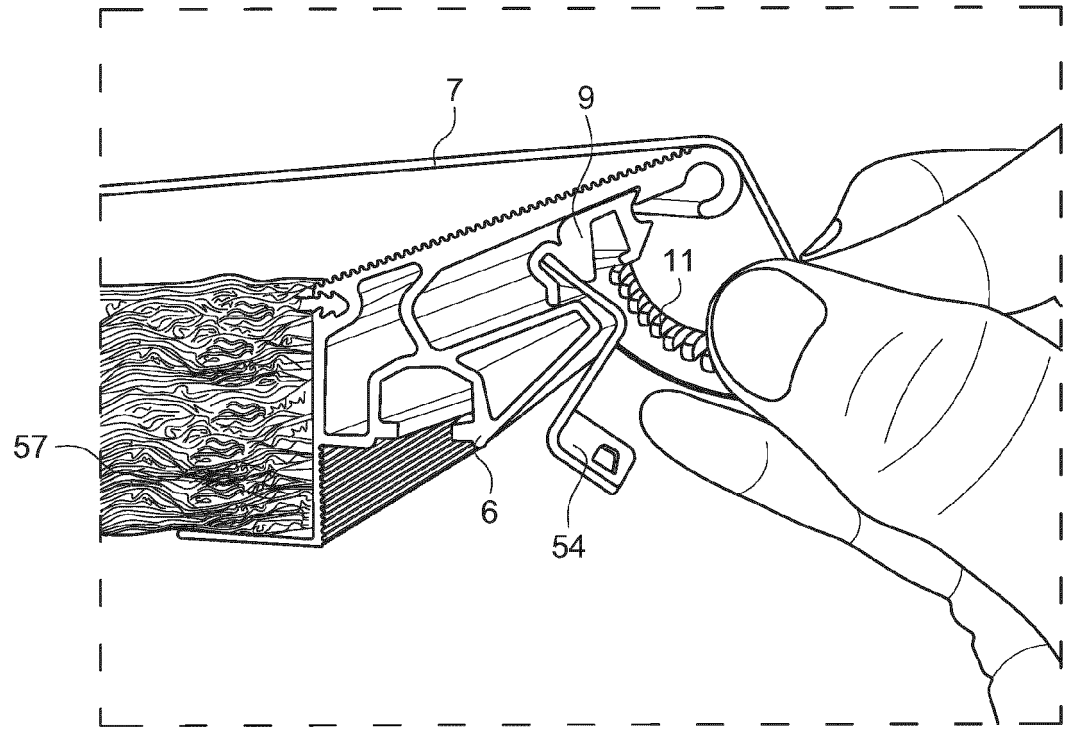

FIG. 12

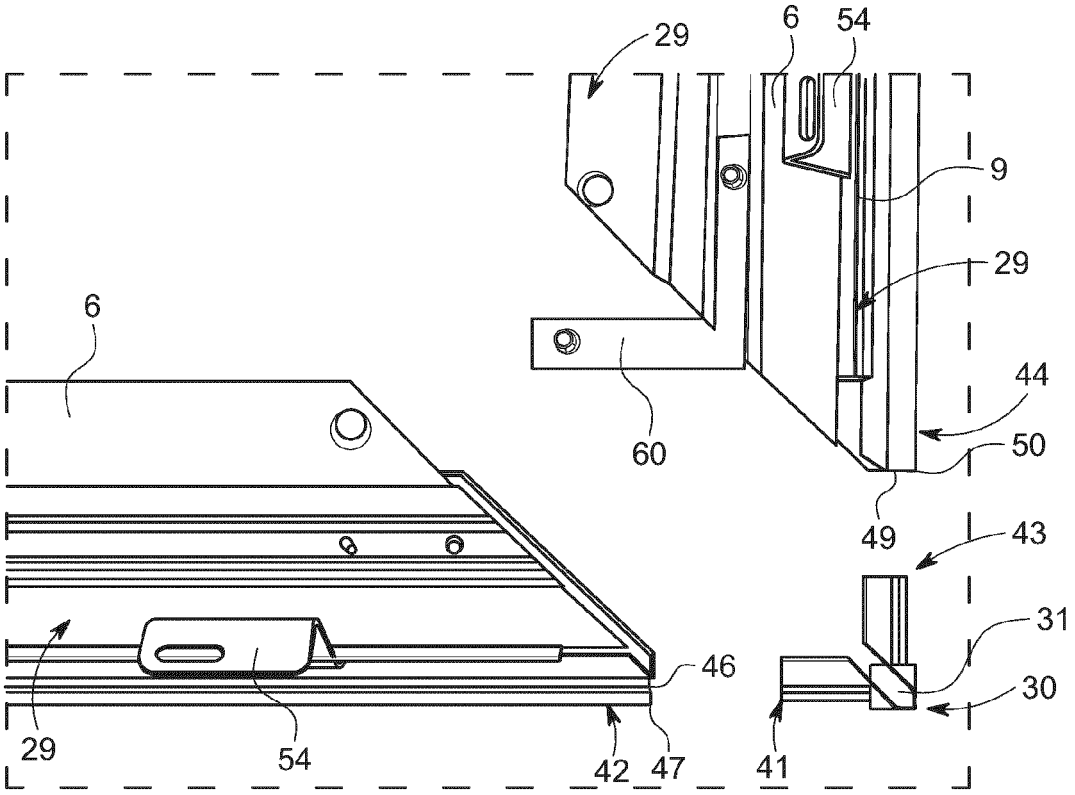
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FIG. 13

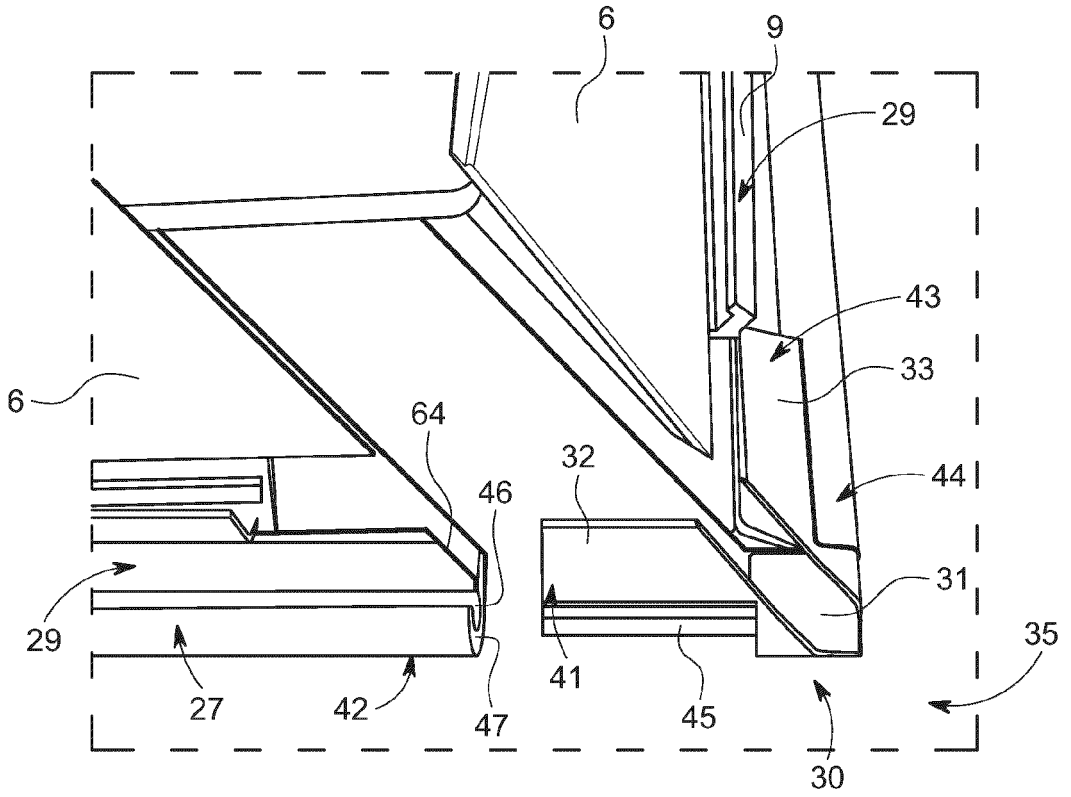
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FIG. 14

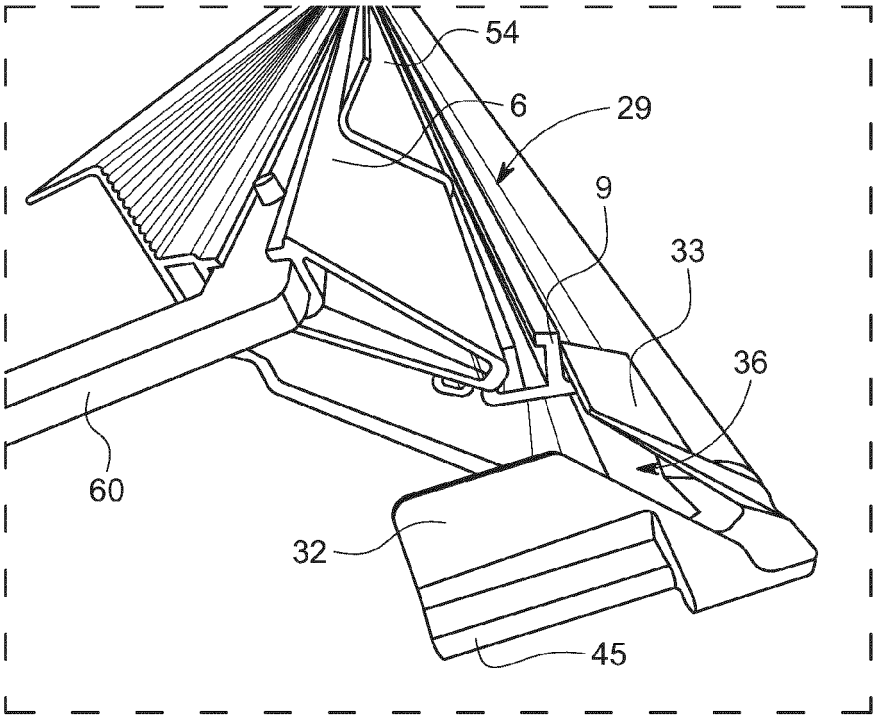


FIG. 15

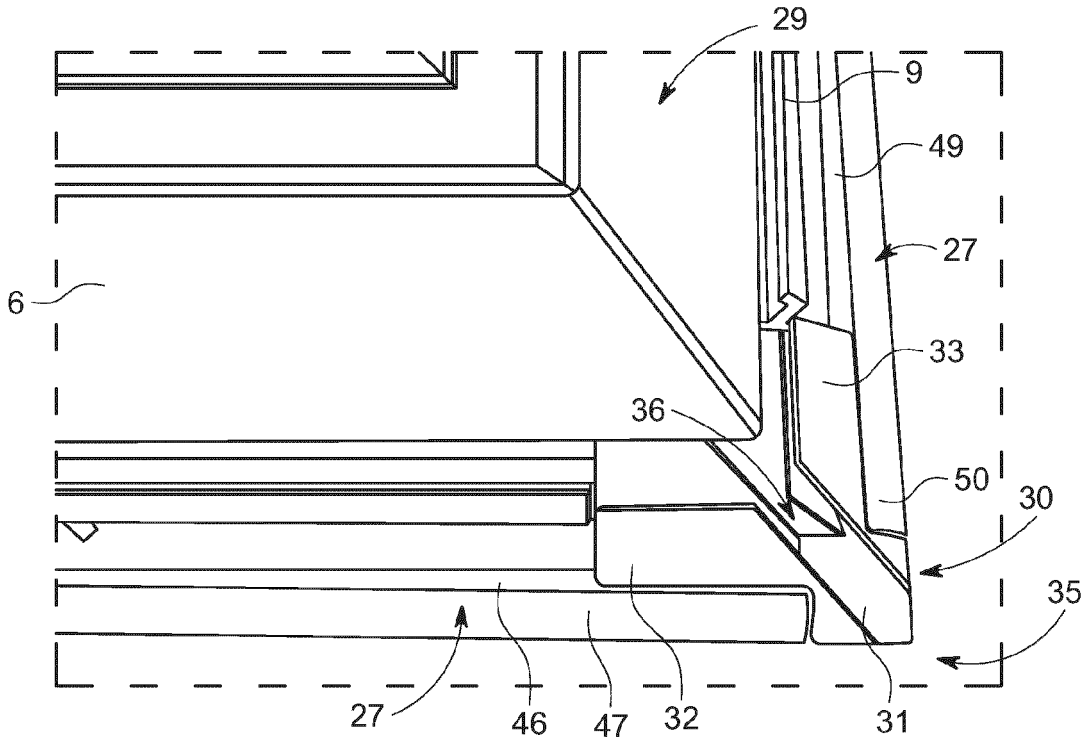


FIG. 16

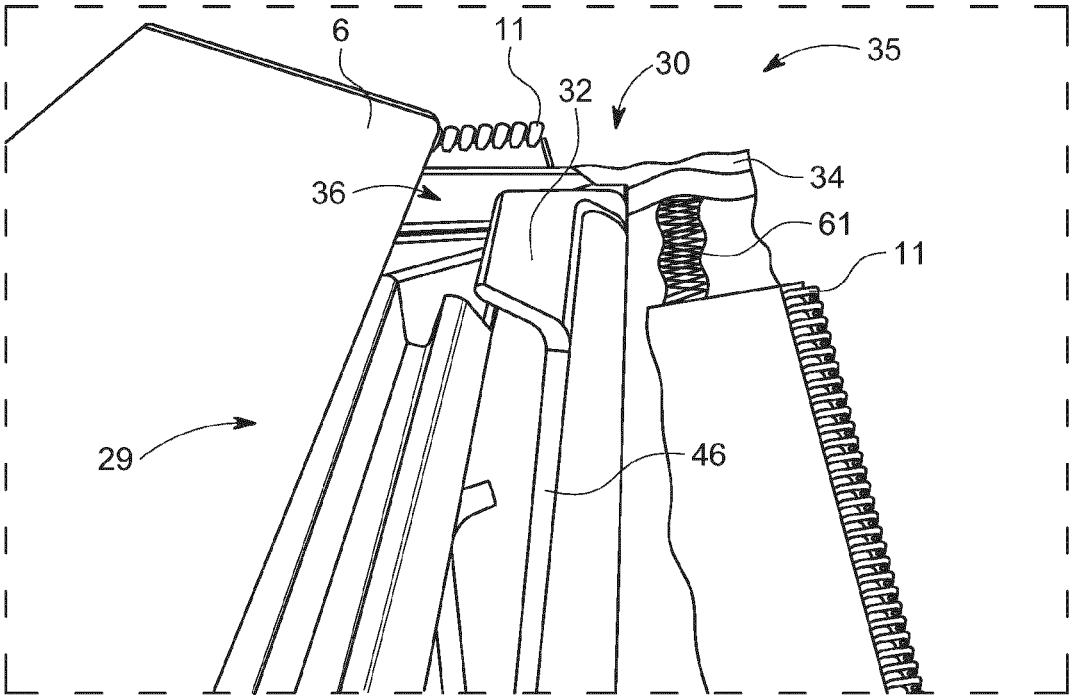


FIG. 17

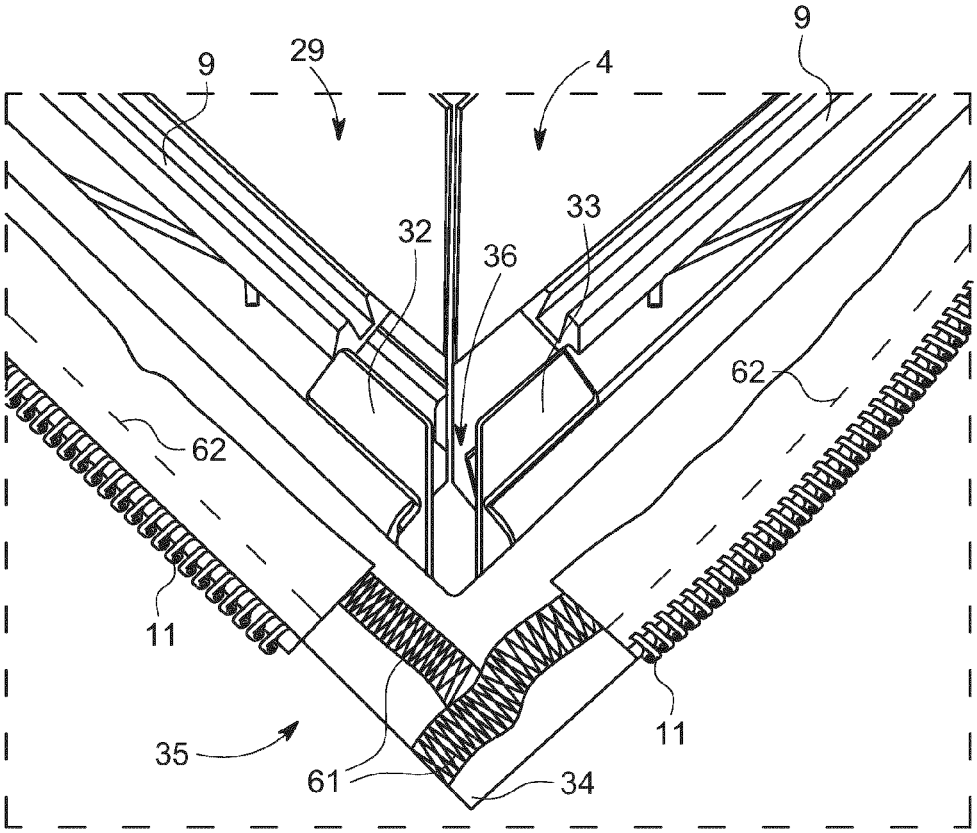


FIG. 18

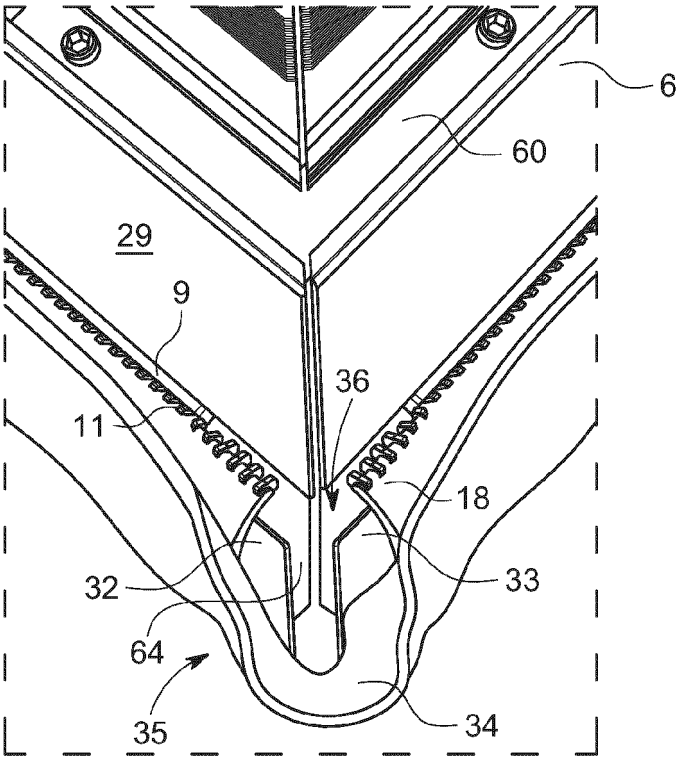


FIG. 19

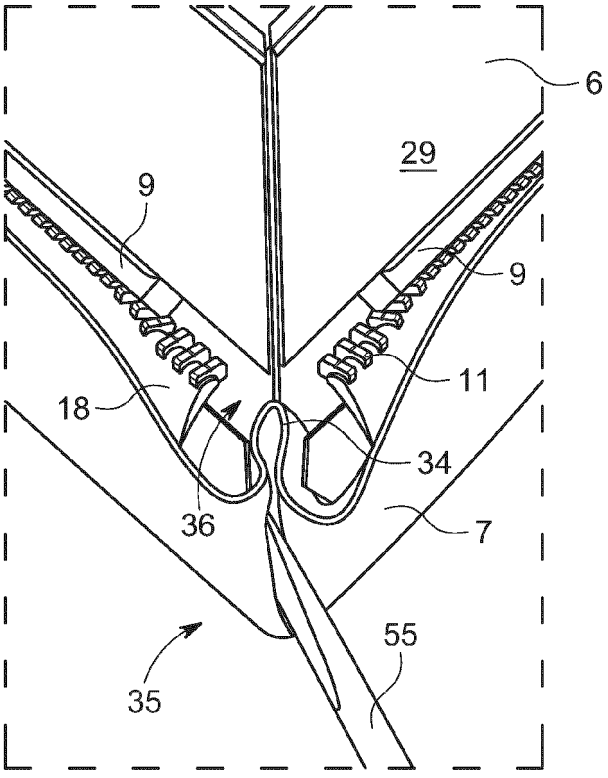


FIG. 20

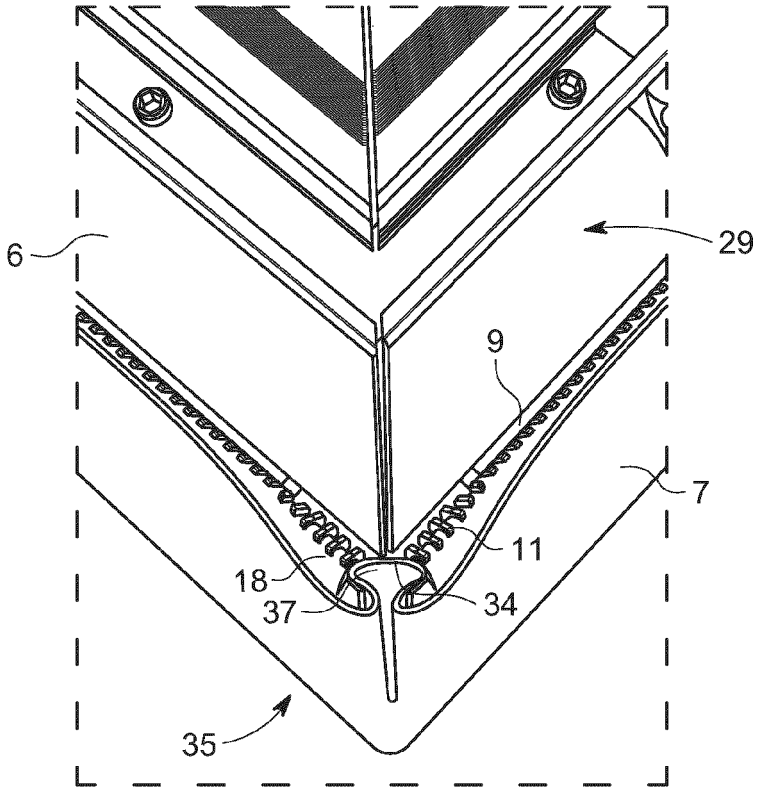


FIG. 21

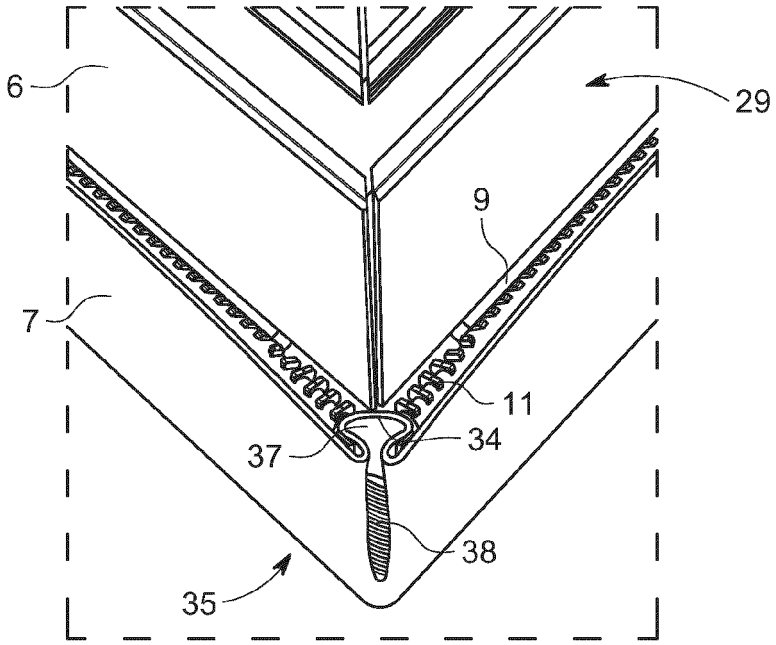


FIG. 22

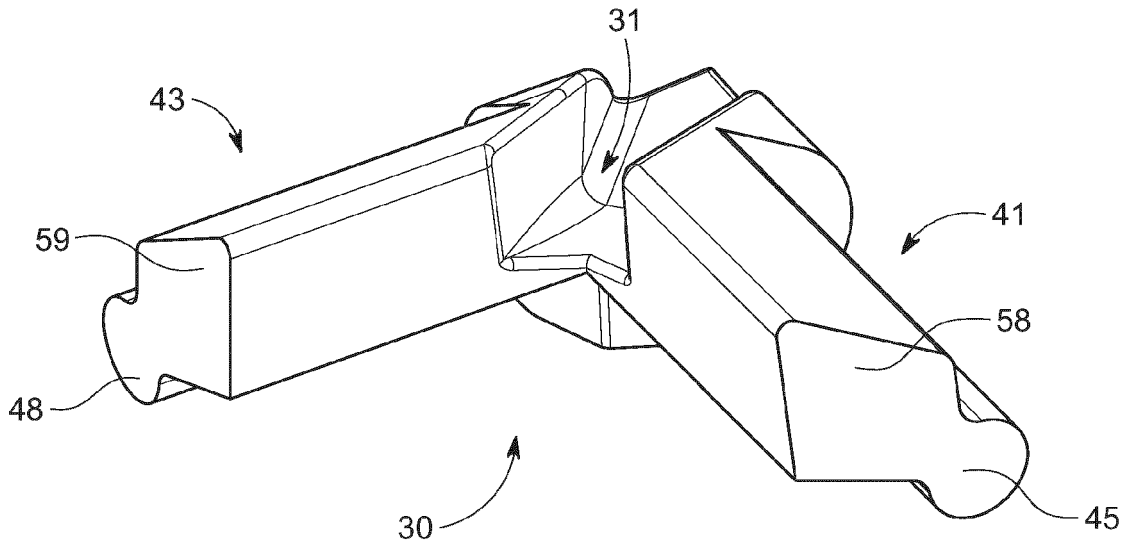


FIG. 23

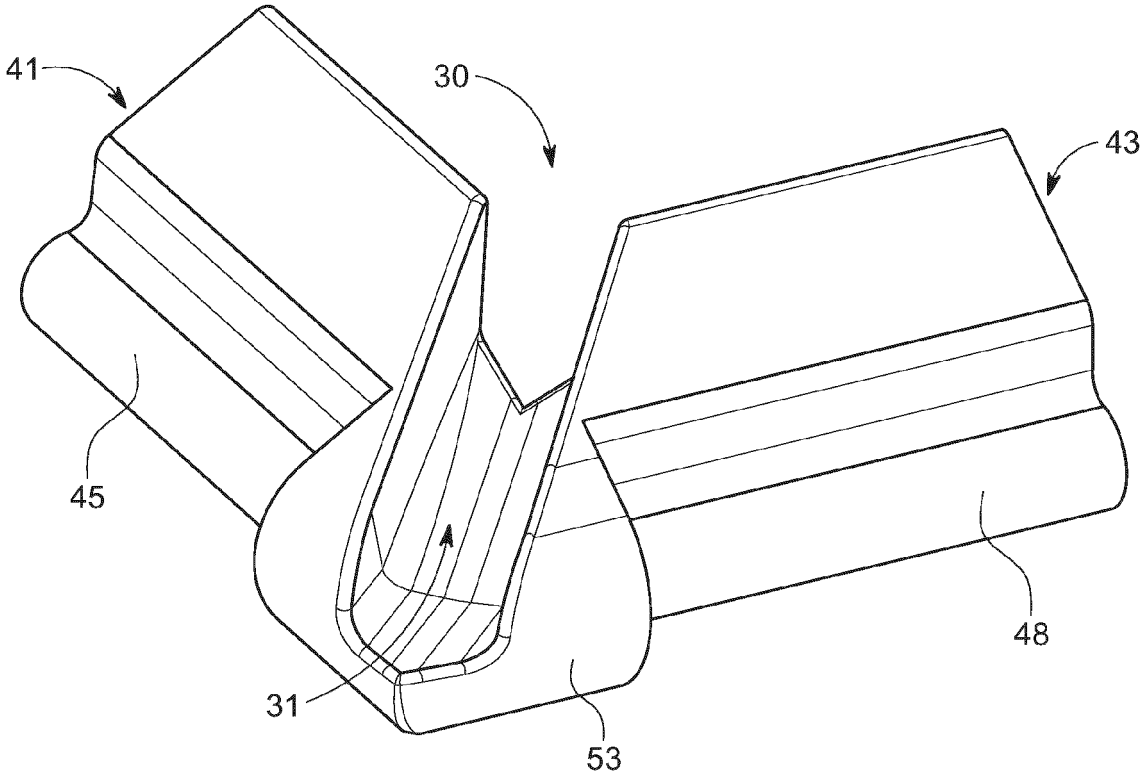


FIG. 24

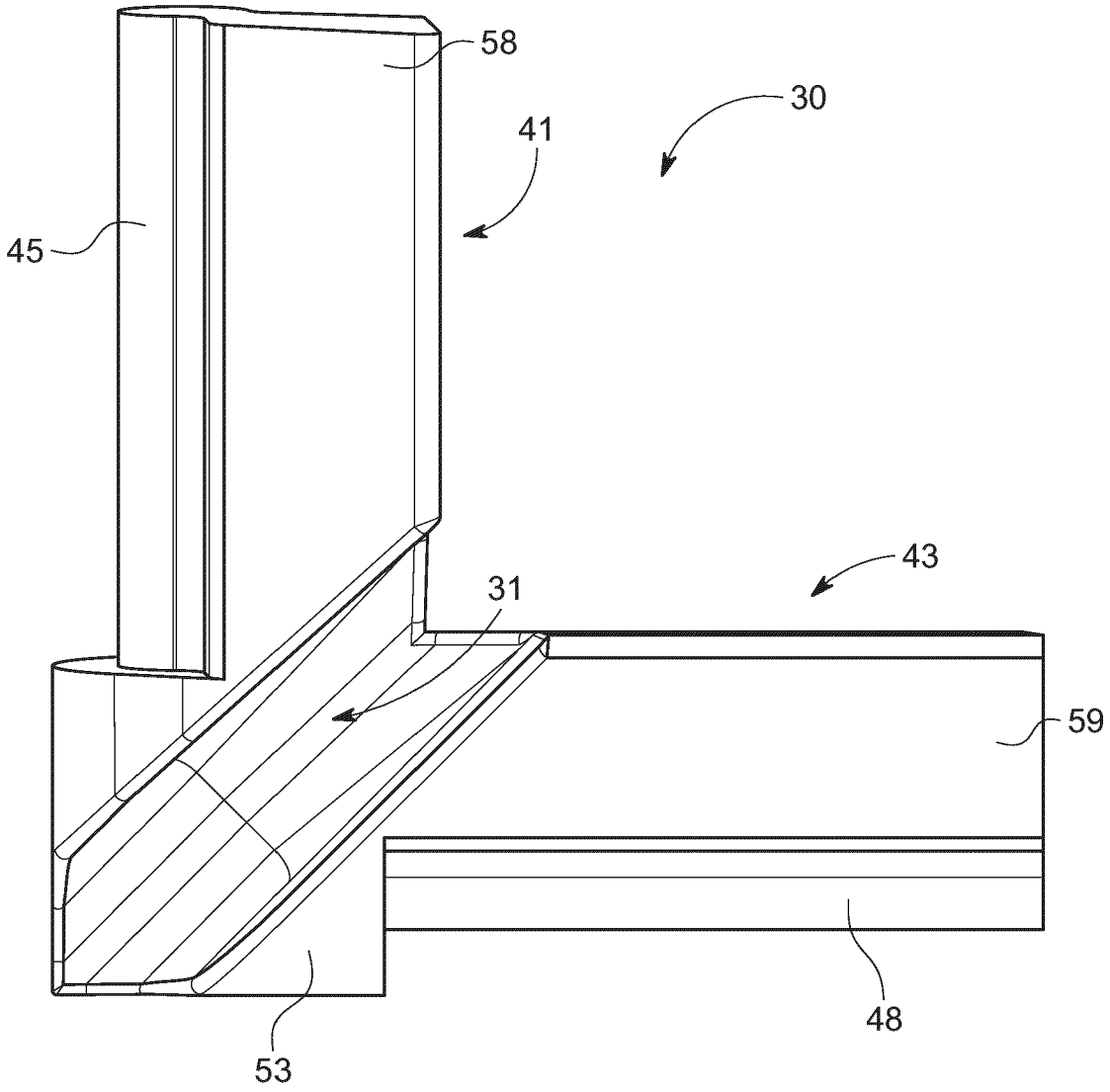
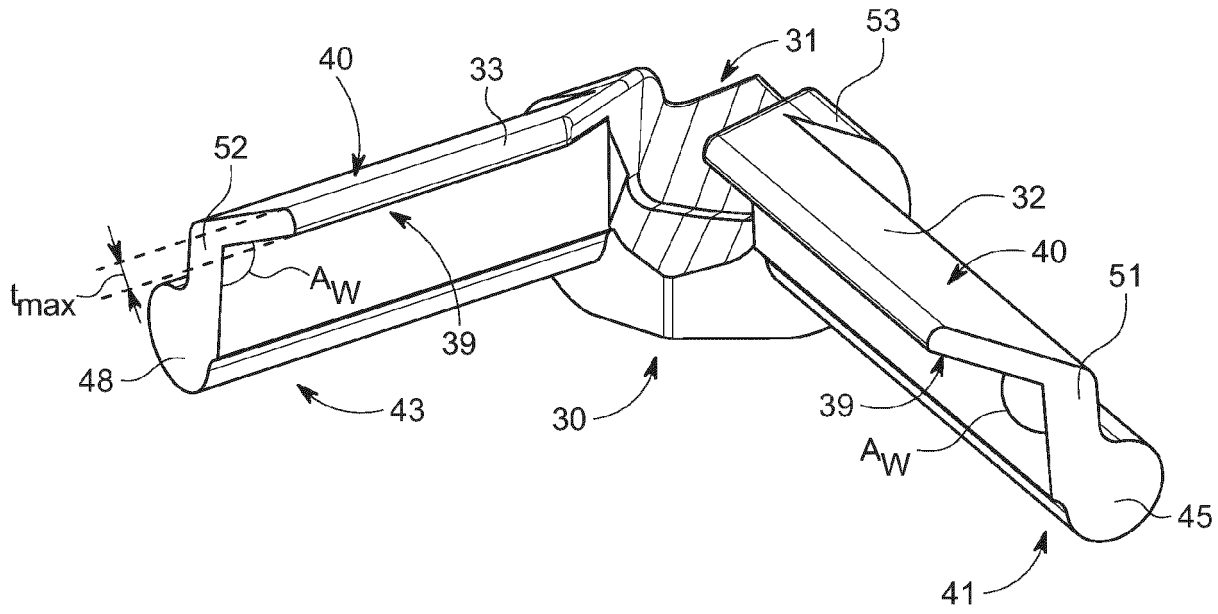


FIG. 25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51
t_{max}
A_W
39
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39
A_W
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FIG. 26

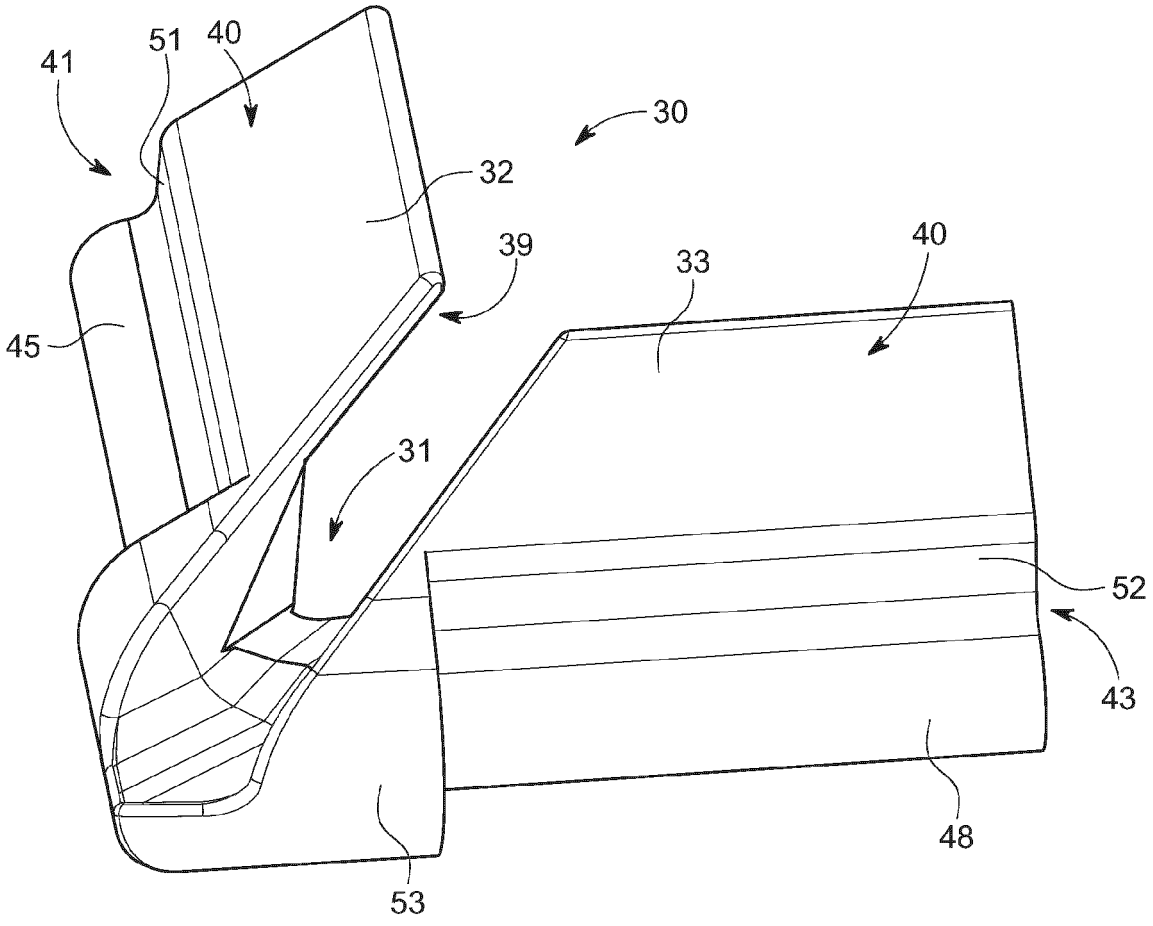
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FIG. 27

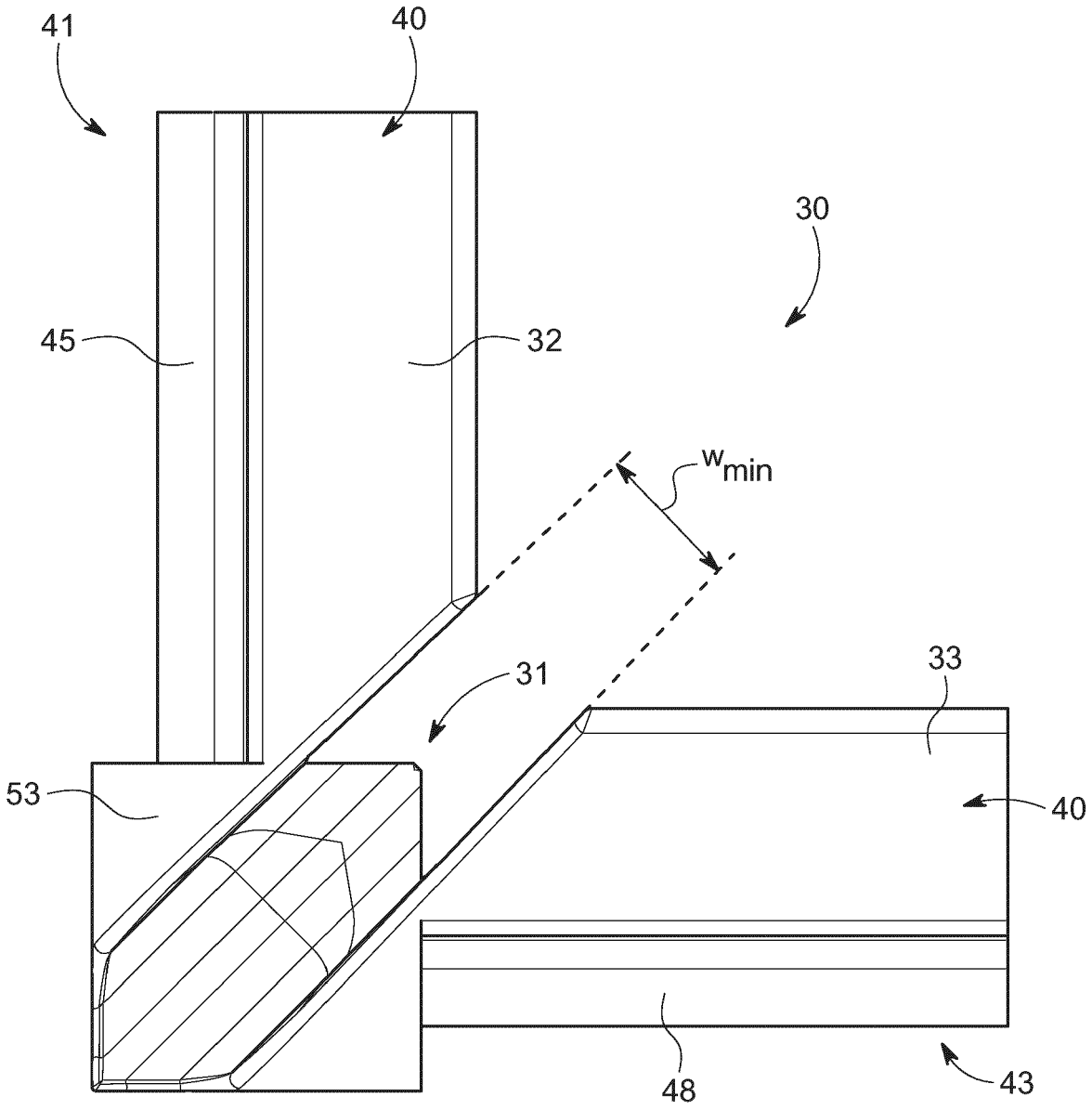

FIG. 28

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European Patent Office
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EUROPEAN SEARCH REPORT

Application Number
EP 23 15 3720

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	WO 2019/002915 A1 (KVADRAT SOFT CELLS AS [DK]; PRICE INDUSTRIES LTD [CA]) 3 January 2019 (2019-01-03) * page 6, line 34 - page 11, line 25; figures 1,5 *	1-14	INV. E04B9/30
A,D	EP 1 559 846 A1 (ART ANDERSEN AS [DK]) 3 August 2005 (2005-08-03) * the whole document *	1-14	
A,D	EP 3 081 113 B1 (ARPER SPA [IT]) 3 October 2018 (2018-10-03) * the whole document *	1-14	
			TECHNICAL FIELDS SEARCHED (IPC)
			E04B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	11 July 2023	Lopes, Claudia

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11-07-2023

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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- EP 3081113 B1 **[0003]**
- JP 2018103582 A **[0004]**
- GB 1574013 A **[0005]**
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