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(54) **AWNING STRUCTURE**

(57) Disclosed is a connection arrangement (14) of an awning (4). The connection arrangement (14) comprises an awning fabric (6) having a tendon portion (61); a receiving member (16) having a groove (161), wherein the awning fabric (6) and said groove (161) are config-

ured such that the tendon portion (61) is slidable into the groove (161), and a means (18) for reducing a play between the tendon portion (61) and the receiving member (16) along substantially the entire length of the tendon portion (61).

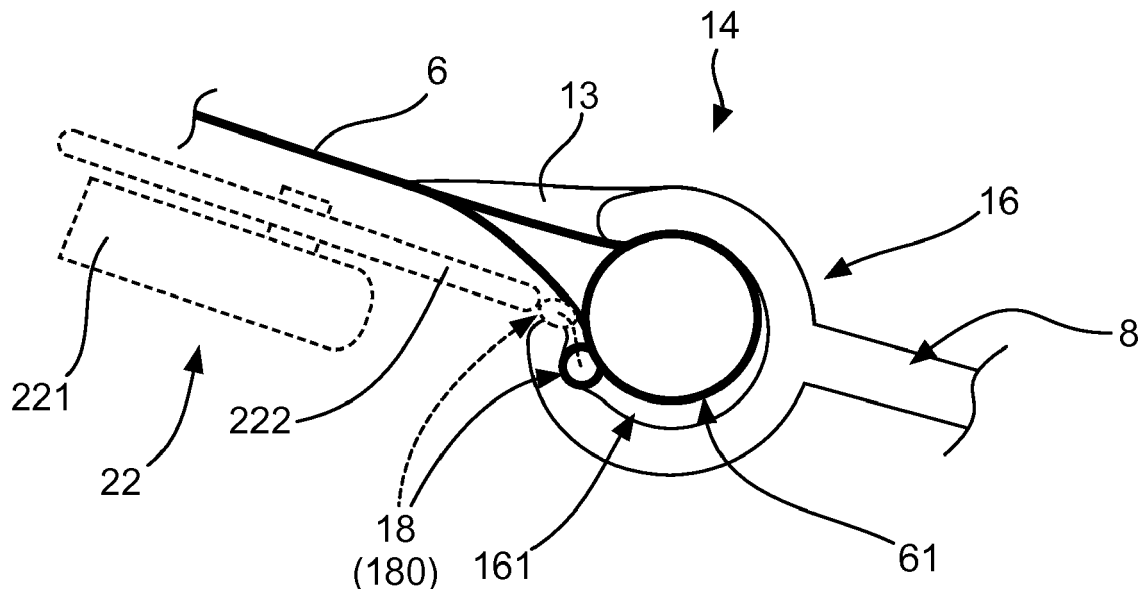


Fig. 3

Description

FIELD OF THE INVENTION

[0001] The invention relates to improvements in awning structures.

BACKGROUND

[0002] Awning structures are known in the art and have become increasingly popular on recreational vehicles and caravans. Modern awning structures not only serve the purpose to provide shelter from sun but also serve as rain shelter so as to provide additional usable space during all weather conditions. In order to further enhance the usability of such awning structures, it is known to apply side walls to such awning structures in order to form a closed space in order to provide a space which is in particular waterproof to a great extent.

[0003] Entry of water through awning structures is a known problem which was addressed by providing special rain gutters or drainage systems in a lead rail of the awning. Furthermore, it is known to apply sealing tape on specific sections of the awning structure in order to prevent an ingress of water. Furthermore, attempts have been made to tension an awning fabric, e.g. in order to prevent an accumulation of water on the awning fabric.

[0004] The above described efforts have the drawback that they cannot satisfactorily prevent an ingress of water or have a negative effect on the overall awning structure.

SUMMARY OF THE INVENTION

[0005] In view of the above background, it is the object to provide an enhanced connection arrangement of an awning as well as an enhanced method for sealing an awning fabric against a receiving member. Furthermore, it is an object to provide an enhanced system for providing a fix point structure in a groove of an awning, in particular for fixing a tensioning arm to a lead rail of the awning.

[0006] The above objects are solved by means of the subject-matters according to the independent claims. Advantageous further formations are subject of the dependent claims wherein specific further modifications can be gleaned from the following summary.

[0007] According to a first aspect a connection arrangement of an awning is provided which comprises an awning fabric having a tendon portion, a receiving member, preferably a lead rail of the awning, having a groove for receiving the tendon portion and extending in the longitudinal direction of the receiving member, wherein the awning fabric and the groove are configured such that the tendon portion is slidable into the groove in the longitudinal direction, and a means for reducing a play between the tendon portion and the receiving member along substantially the entire length of the tendon portion.

[0008] By reducing a play between the tendon portion and the receiving member along substantially the entire

length of the tendon portion, an enhanced sealing between tendon portion and receiving member is achieved. In this way, a possibility of water infiltration by capillary action around the tendon portion is reduced.

[0009] In the context of the present disclosure, the tendon portion can be circular and the fabric can be wrapped around it. Also, the tendon portion can be welded or stitched to the awning fabric. Furthermore, the tendon portion can comprise a flag which may be a piece of fabric on the tendon which allows welding or stitching to the awning fabric. In particular, the tendon portion can be a welt portion integrally formed with or coupled to the awning fabric.

[0010] The tendon portion is slidable into the groove in the longitudinal direction. The means for reducing the play between the tendon portion and a receiving member can be any means as long as the play can be sufficiently reduced. Such a means can be provided prior to inserting the tendon portion into the groove or can be applied after the tendon portion is inserted into the groove. It is also possible to provide an arrangement in which a cross-sectional dimension of the groove is changeable. In other words, it is possible to provide a mechanism which allows to reduce the cross-sectional dimension of the groove by providing a groove with variable dimension, for example by providing groove wall sections which are hingedly coupled to each other or by providing an elongate tensioning bar in the groove on one side of the groove and rendering the same movable towards the opposite side of the groove by means of a suitable mechanical system, e.g. by tensioning screws.

[0011] According to a preferable embodiment, the means comprises an urging member for urging the tendon portion against an inner wall of the groove. Again, the urging member can be applied in the groove prior to inserting the tendon portion or can be inserted into the groove after the tendon portion is received in the groove. Using an urging member has the benefit that a suitable urging force can be applied on the tendon portion so that it is firmly pressed against an inner wall of the groove leading to an enhanced sealing.

[0012] According to a further preferable embodiment the urging member is configured to be inserted in the groove between a circumferential portion of the tendon portion and the inner wall of the groove after the tendon portion is inserted in the groove. Such a configuration has the benefit that an insertion of the urging member is possible by a user when desired and does not have to be carried out during the manufacturing process leading to reduced manufacturing costs.

[0013] According to a preferable embodiment, the urging member is an elongate elastic member which preferably comprises a substantially constant cross-sectional shape along its entire length. The use of an elongate elastic member is beneficial because it allows pressing the same into the groove, more precisely between an inner groove wall and the tendon portion. This is possibly due to the ability of the elongate elastic member to elas-

tically deform.

[0014] According to a further preferable embodiment, the urging member comprises a reinforcing portion and an encasing portion wherein the reinforcing portion is able to receive higher tensile forces compared to the encasing portion. Such a construction comprises an increased tensile strength while providing a suitable elasticity. For example, the urging member may be a cord having an anti-stretch wire incorporated therein. The cord can comprise an elastically deformable plastics material in order to provide the desired elasticity and sealing capability.

[0015] According to a further preferable embodiment, the groove comprises an accommodating recess formed along the groove in the longitudinal direction of the groove and being adapted to accommodate a portion of the urging member. Preferably, the accommodating recess is formed in parallel to a middle axis of the groove. In this way, a means for positioning the urging member within the groove is provided which in turn contributes to a reliable sealing. Furthermore, such an accommodating recess prevents the urging member from coming off the groove once it is positioned in the accommodating recess.

[0016] It is further preferable if the means for reducing the play between the tendon portion and a receiving member is a sealing cord preferably comprising neoprene.

[0017] According to a further preferable embodiment, an awning is provided which comprises a lead rail mounted movably with respect to an awning cassette by means of foldaway support arms and having a receiving member. The awning further comprises an awning fabric having a tendon portion coupled to the receiving member by means of a connection arrangement as described before.

[0018] In order to facilitate the insertion of an urging member when the tendon portion is already inserted into the groove, a further beneficial aspect according to the present disclosure provides a tool for mounting an urging member for urging a tendon portion of an awning fabric against an inner wall of the groove, wherein the tool comprises a handle portion and a disc rotatably coupled to the handle portion, wherein the tool is configured to the dimension of a connection arrangement as described before and is configured to allow a user to push the urging member between the inner wall and the tendon portion.

[0019] Preferably, the disc comprises an outer circumference portion which has a width that is smaller than a groove opening of the groove into which the urging member is to be inserted. In this way, it is possible to bring the outer circumference portion of the tool closest to the tendon portion thereby allowing to exert a pushing force onto the urging member such that the same is introduced between the groove wall and the tendon portion and can slip into the above-mentioned accommodating recess. In order to do that, a user can place the urging member in the groove opening and place the outer circumference of the disc on the urging member. Then, the user can

apply a pushing force onto the urging member while simultaneously moving the tool along the groove so that the urging member is pressed into the space between the tendon portion and the inner groove wall by rolling the tool on the urging member. As soon as the urging member is fully introduced into the space, an enhanced sealing capability is provided.

[0020] According to a further aspect, a method for sealing an awning fabric comprising a tendon portion against a receiving member having a groove is provided. The method comprises the step of inserting the tendon portion into the groove by sliding the tendon portion into the groove in a longitudinal extension direction of the groove. The method furthermore comprises the step of reducing a play between the tendon portion and the receiving member along substantially the entire length of the tendon portion. Different ways as to how the play between the tendon portion and the receiving member can be reduced can be gathered from the above description of the connection arrangement.

[0021] According to a preferable embodiment, the play between the tendon portion and the receiving member is reduced by inserting an urging member between an inner wall of the groove and the tendon portion. The possible construction of such an urging member and different ways for inserting the same between the inner wall of the groove and the tendon portion is described above with respect to the connection arrangement.

[0022] According to a further aspect of the present disclosure, a system for providing a fix point structure in a groove of an awning is provided. The groove is preferably a symmetrical groove such as a T-groove. The fix point structure is in particular for fixing a tension arm to lead rail of the awning. The system comprises a support member configured such that an insertion of the same into the groove is possible by a movement comprising a translatory component substantially perpendicular to a centre axis of the groove and a rotatory component about the centre axis.

[0023] Such a system has the benefit that it is not necessary to provide pre-mounted parts in an awning, which would allow a fixation of tensioning arms. This reduces the manufacturing costs of an awning.

[0024] According to a preferable embodiment, the support member comprises an asymmetric cross-sectional shape having two contact portions having different widths and being adapted to contact groove wall portions adjacent to a groove opening.

[0025] Such a construction has the benefit that the support member is easily mountable into the groove.

[0026] According to a further preferable embodiment, the system comprises a locking member for locking a movement of the support member perpendicular to and/or along the centre line and, preferably, further comprises a pivot pin configured to pivotably support an accessory element such as the tension arm.

[0027] Thus, the locking member can lock a movement of the support member in the groove which allows an

exact positioning of the same. The provision of a pivot pin provides a reliable and easy to use coupling possibility for coupling parts to the support member.

[0028] According to a further aspect of the present disclosure, a retrofit tension arm system for an awning is provided wherein the retrofit tension arm system comprises tension arm and a system as described above for coupling the tension arm to a groove in a lead rail of an awning.

[0029] With such a system, a user can easily retrofit a tensioning arm to different awnings without the need of complicated mounting steps.

BRIEF DESCRIPTION OF THE DRAWINGS

[0030]

Fig. 1 shows a perspective view of a recreational vehicle comprising an awning according to an embodiment.

Fig. 2 shows a perspective view of the awning of Fig. 1.

Fig. 3 shows a schematic cross-sectional view of a connection arrangement according to an embodiment.

Fig. 4 shows a schematic side view of the receiving member according to an embodiment.

Fig. 5 shows a sectional view of an urging member according to an embodiment.

Fig. 6 shows a side view of the tool for mounting an urging member according to an embodiment.

Fig. 7 shows a perspective view of an extended awning according to an embodiment as viewed from the front of the awning.

Fig. 8 shows a perspective views of tensioning arms in connection with a fix point structure according to an embodiment.

Fig. 9 shows an exploded view of a fix point structure according to an embodiment together with a coupling portion of a tensioning arm.

Figs. 10 and 11 show different arrangements of the coupling portion of the tensioning arm on the fix point structure.

Figs. 12 to 14 shows a process of providing a fix point structure according to an embodiment.

Figs. 15 and 16 show steps for mounting a tensioning arm to the fix point structure.

DETAILED DESCRIPTION OF EMBODIMENTS

[0031] In the following, an embodiment as well as modifications of the present subject-matter will be described with reference to the drawings. It is to be noted that similar elements in the drawings are denoted with the same reference signs.

[0032] Figure 1 shows a recreational vehicle 2 comprising an awning 4 according to an embodiment. An awning cassette 12 is mounted on a roof of the recreational vehicle 2. The awning 4 is shown in an extended state and comprises a lead rail 8 supported by two supporting legs 10. An awning fabric 6 is coupled to a roller inside the cassette 12 at one end and is coupled to the lead rail 8 at the opposite end. The awning 4 of Fig. 1 is shown in Fig. 2 in greater detail. Fig. 2 shows a state in which water 13 has accumulated at a location where the awning fabric 6 is coupled to the lead rail 8. Such an accumulation of water may lead to a water infiltration into a coupling portion, e.g. by capillary action, which may result in water penetrating the awning structure. This is typically not wanted by a user, especially when using side panels or a tent in connection with the awning.

[0033] In order to prevent the water 13 from penetrating through the coupling portion at which the awning fabric 6 is coupled to the lead rail 8, the awning 4 comprises a connection arrangement 14 as shown in Fig. 3. Fig. 3 shows a schematic cross-sectional view of the connection arrangement 14. The connection arrangement 14 comprises an awning fabric 6 having a tendon portion 61, a receiving member 16 formed by a portion of the lead rail 8 and comprising a groove 161, and an urging member 18. As is shown in Fig. 3, the tendon portion 61 is inserted into the receiving member 16, more precisely in the groove 161 of the receiving member 16.

[0034] The groove 161 according to the embodiment is a continuous groove extending along the entire length of the lead rail 8 and comprises an inner wall 162 having an accommodating recess 163 as is shown in Fig. 4. As is shown in Fig. 3, the accommodating recess 163 defines the final location of the urging member 18 when it is correctly positioned in the connection arrangement 14 and is formed on the inner wall 162 and a predetermined distance from a groove opening in a lower portion of the groove 161 in a mounted condition. Furthermore, in the present embodiment, the receiving member 16 is integrally formed with the lead rail 8 by extrusion of aluminum.

[0035] The urging member 180 according to the embodiment comprises a substantially circular cross section and comprises a reinforcing portion 182 and an encasing portion 181 so that the reinforcing portion 182 is able to receive higher tensile forces compared to the encasing portion 181. In the present embodiment, the encasing portion 181 comprises neoprene and is elastically deformable. The construction of the urging member 180 is shown in Fig. 5 in greater detail. Using the reinforcing portion 182 has the benefit that the urging member can

be removed from the groove simply by pulling the same out of the groove without the risk of tearing the urging member 180. A rupture of the urging member 18 would lead to the annoying situation that remaining parts of the urging member 18 would be very difficult to remove from the groove.

[0036] The urging member 18 which may also be referred to as sealing member is arranged in the accommodating recess 163 of the groove 161, more precisely between a lower portion of the receiving member 16 and the tendon portion 61. In this way, the available space in the groove is reduced and the tendon portion 61 is therefore pressed against the inner wall of the groove at an upper portion of the receiving member 16. In this way, a double sealing effect is achieved as one the one hand it is made more difficult for the water to pass a contact portion between the tendon portion 61 and the inner wall 162 since the tendon portion is pressed against the inner wall and on the other hand, the urging member 18 acts as a seal on the lower side. Thus, there are two barriers preventing water from passing along the inner wall 162 of the groove 161.

[0037] In order to arrange the urging member 18 in the above described position, a tool can be used as is shown in Fig. 6. The tool 22 comprises a handle portion 221 having a gripping portion 224 which may be gripped by the fingers of a user. Furthermore, the tool 22 comprises a disc 222 coupled to the handle portion 221 rotatable about a mounting pin 223. As is indicated in Fig. 3, the tool 22 can be used for inserting the urging member 18 into the groove 161. For that, the urging member 18 can be placed in the groove opening of the groove 161 as indicated by way of a dotted insertion in Fig. 3. The outer circumference of the disc 222 of the tool 22 is brought into contact with the urging member 18 and by way of the tool 22 a force is applied on the urging member 18 in a direction forcing the same into the space between the tendon portion 61 and the inner wall 162. The user can easily place the urging member 18 in the opening with one hand while pressing the urging member 18 into the space by means of the tool 22 with the other hand. Since the tool 22 comprises a disc, the user can press the urging member into position by rolling the tool 22 on the urging member. In this way, mounting the urging member can be easily and rapidly done.

[0038] The connection arrangement as described before has the benefit, that it can be applied retrofit by the user or can be pre-installed during production of the awning. The sealing does not change the dimensions of the product, contrary to e.g. the use of a tape which makes the fabric thicker and which may result in problems when closing the awning or rolling the fabric up. Furthermore, the sealing can be easily replaced if necessary.

[0039] Fig. 7 shows an underside of the awning 4 without the supporting legs 10. As is shown in Fig. 7, the lead rail 8 is coupled to the cassette 12 by means of foldaway support arms 20. As is the case in the awning as described with respect to Figs. 1 to 6, an awning fabric 6 is

coupled to the lead rail 8 and a roller of the cassette 12. Although it is beneficial if the awning 4 comprises a connection arrangement as described above, it is to be mentioned that the following configuration relating to a system for providing a fix point structure may be implemented independently of the above described connection arrangement. In order to tension the awning fabric 6, two tension arms 30 are provided which are supported on the lead rail at one of their ends and coupled to the foldaway arms at their other ends.

[0040] A possible construction of the two tension arms 30 will now be described with reference to Fig. 8 and Fig. 9. Each tension arm 30 comprises an elongate profile 31 made from aluminium. On one end of each elongate profile 31, a coupling portion 32 for coupling the tension arm 30 to one of the foldaway support arms 20 is provided. On the other end, a coupling member 33 is fixedly connected to the elongate profile 31. The coupling member 33 comprises a fixation bore 34 into which a fixation means 36 can be inserted. Furthermore, the coupling member 33 comprises an accommodating section 39 for at least partially accommodating a pivot pin 58 as will be described later. Further, a fixation element 35 comprising a threaded bore 37 and an accommodating section 38 is provided which is fixable to the coupling member 33 by means of a fixation means 36 in the form of a screw such that the accommodating sections 38, 39 face each other in order to form an accommodating space for the above described pivot pin 58.

[0041] In Figs. 8 and 9, a fix point structure 50 according to an embodiment is shown. The fix point structure 50 comprises a support member 52. The support member 52 is adapted to be inserted into a groove 40 of the lead rail 8 as shown in Figs. 12 to 16. The support member 52 is an elongate part which when seen from the front or the back comprises a C-shape, i.e. it has a base portion and two legs extending from opposite sides of the base portion in the same direction. The legs are substantially parallel to each other. The base portion is divided into two sections, each of which comprising a threaded bore 53 and 55. Between the sections, a through hole or cut out is provided which provides an accommodating space for accommodating a pivot pin 58 and the above described accommodating sections 38 and 39.

[0042] The pivot pin 58 is arranged in the legs substantially halfway along the longitudinal direction and extends substantially perpendicular to both legs. Furthermore, the pivot pin 58 is supported in both legs. Both legs have substantially the same height so that the pivot pin 58 extends substantially parallel to a plane in which free ends of the legs are both arranged. The free ends of the legs define contact portions 54, 56 of the support member 52 and, according to the embodiment, are sectionally toothed or roughened in order to provide areas suitable for providing a friction fit connection with the lead rail 8. Further indicated in Fig. 9 is a fixation screw 70 together with a washer 72 which are used to fix the support member 52 in the groove 40. Such a screw 70 is inserted in

each of the above described threaded bores 53, 55.

[0043] As is shown in Figs. 10 and 11, the coupling member 33 can be mounted on the pivot pin 58 in two different orientations. In other words, support member 52 is suitable for being used in connection with both of the above described tension arms 30.

[0044] As is shown in Figs. 9 to 14, the thickness of the legs, and thus of the supporting portions 54, 56, is configured and the outer surface of the support member 52 is shaped such that an insertion of the support member 52 into the groove 40 is possible without having to move the support member 52 in the longitudinal direction of the lead rail 8. The outer surface of the support member 52 comprises rounded corners and can be described as substantially edge-free in order to facilitate a movement of the support member 52 in the groove 40. Furthermore, the legs or supporting portions 54, 56 comprise different widths W1, W2. According to the embodiment, the width of the overall support member 52 is smaller than the inner width of the groove 40 (see Fig. 14). The width of the supporting portion 56 and the width of the base portion are configured such that when the support member 52 is inserted into the groove, the base portion is facing a groove opening 46 such that the threaded bores 53, 55 are positioned substantially in the middle of the groove 40. The supporting portion 54 according to the embodiment has about half of the width of the supporting portion 56. Thus, the support member 52 has an asymmetric cross-sectional shape.

[0045] The mounting process of the support member 52, in particular of the overall fixpoint structure 50, and of a tension arm 30 will be described with reference to Figs. 12 to 16. In order to provide the fixpoint structure on the lead rail 8, the support member 52 needs to be inserted into the groove 40. According to the embodiment, this is done by a movement comprising a translatory component substantially perpendicular to a center axis 60 of the groove 40. Prior to the movement, the support member 52 is arranged such that its longitudinal axis is substantially parallel to the center axis 60 of the groove 40 and the support member 52 is brought into an orientation in which an open side of the U-shape of the support member 52 faces upward as shown in Fig. 12. Since the height of the support member 52 is smaller than the groove opening 46, it is possible to insert the support member 52 partially into the groove 40 by the above mentioned translatory movement.

[0046] As soon as the supporting portion 54 is in the groove 40, the support member 52 is rotated in the counter clockwise direction so that the supporting portion 56 is rotated into the groove 40. As soon as the support member 52 is fully positioned within the groove, the support member 52 will move downward due to its own weight and will contact the inner groove wall. In this state, it is possible to screw the screws 70 together with washers 72 into the threaded bores 53, 55 in order to clamp portions of the groove wall defining the groove opening 46 between the washer 72 and the supporting portions

54, 56. In other words, by tightening the screws 70, the supporting portions 54, 56 are pulled and pressed against groove wall portions 42, 44 adjacent to the groove opening 46. In this way, the support member 52 is firmly fixed in the groove 40 and due to the presence of the pivot pin 58 provides a fix point structure 50 to which a tension arm 30 can be mounted.

[0047] Figs. 15 and 16 show the mounting process of a tension arm 30 to the fix point structure 50, more precisely to the pivot pin 58. First of all, the fixation element 35 is positioned such that its accommodating section 39 is placed behind the pivot pin 58 such that the pivot pin 58 is partially accommodated in the accommodating section 38 as is shown in Fig. 15. After that, the coupling member 33 of the tension arm 30 is positioned such that the pivot pin 58 is partially accommodated in the accommodating section 39 and rotated in the position as shown in Fig. 16. In this state, the fixation means 36 in the form of a screw is inserted into the fixation bore 34 and engaged with threaded bore 37 of the fixation element. As soon as the screw is tightened, the fixation element 35 and the coupling member 33 are fixedly coupled to each other and the tension arm 30 is pivotably held on the pivot pin 58 and, thus, mounted on the fix point structure and ready to be coupled to a foldaway arm.

[0048] The above described system enables a user to retrofit the tension arms to the awning. Furthermore, in case of damage all parts can be easily replaced without disassembly of the awning lead rail.

Claims

1. Connection arrangement (14) of an awning (4) comprising
 - an awning fabric (6) having a tendon portion (61);
 - a receiving member (16), preferably a lead rail (8) of said awning (4), having a groove (161) for receiving said tendon portion (61) and extending in a longitudinal direction of said receiving member (16), wherein said awning fabric (6) and said groove (161) are configured such that said tendon portion (61) is slidable into said groove (161) in said longitudinal direction; and
 - a means (18) for reducing a play between said tendon portion (61) and said receiving member (16) along substantially the entire length of said tendon portion (61).
2. Connection arrangement (14) according to claim 1, wherein said means (18) comprises an urging member (180) for urging said tendon portion (61) against an inner wall (162) of said groove (161).
3. Connection arrangement (14) according to claim 2, wherein said urging member (18) is configured to be inserted in said groove (161) between a circumferential portion of said tendon portion (61) and said

inner wall (162) of said groove (161) after said tendon portion (61) is inserted in said groove (161).

4. Connection arrangement (14) according to one of claims 2 and 3, wherein said urging member (18) is an elongate elastic member, preferably comprising a substantially constant cross-sectional shape along its entire length. 5
5. Connection arrangement (14) according to one of claims 2 to 4, wherein said urging member (18) comprises a reinforcing portion (182) and an encasing portion (181), wherein said reinforcing portion (182) is able to receive higher tensile forces compared to the encasing portion (181). 10
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6. Connection arrangement (14) according to one of claims 2 to 5, wherein said groove (161) comprises an accommodating recess (163) formed along said groove (161) in the longitudinal direction of the groove (161) and adapted to accommodate a portion of said urging member (18). 20
7. Connection arrangement (14) according to one of the preceding claims, wherein said means (18) is a sealing cord, preferably comprising neoprene. 25
8. Awning (4) comprising
a lead rail (8) mounted movably with respect to an awning cassette (12) by means of foldaway support arms (20) and comprising a receiving member (8); and
an awning fabric (6) having a tendon portion (61) coupled to the receiving member (8) by means of a connection arrangement (14) according to one of claims 1 to 7. 30
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9. Tool (22) for mounting an urging member (18) for urging a tendon portion (61) of an awning fabric (6) against an inner wall (162) of a groove (161), wherein said tool (22) comprises a handle portion (221) and a disc (222) rotatably coupled to said handle portion (221), wherein said tool (22) is configured to the dimension of a connection arrangement according to one of claims 1 to 8 and is configured to allow a user to push said urging member (18) between said inner wall (162) and said tendon portion (61). 40
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10. Method for sealing an awning fabric (6) comprising a tendon portion (61) against a receiving member (16) having a groove (161), said method comprising the steps inserting said tendon portion (61) into said groove (161) by sliding said tendon portion (61) into said groove (161) in a longitudinal extension direction of said groove (161); reducing a play between said tendon portion (61) and said receiving member (16) along substantially the entire length of said tendon portion (61). 50
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11. Method according to claim 10, wherein said play between said tendon portion (61) and said receiving member (16) is reduced by inserting an urging member (18) between an inner wall (162) of said groove (161) and said tendon portion (61).
12. System for providing a fix point structure (50) in a groove (40) of an awning (4), preferably in a substantially symmetrical groove such as a T-groove, said fix point structure (50) being in particular for fixing a tension arm (30) to a lead rail (8) of said awning (4), said system comprising
a support member (52) configured such that an insertion of the same into said groove (40) is possible by a movement comprising a translatory component substantially perpendicular to a center axis (60) of said groove (40) and a rotatory component about said center axis (60).
13. System according to claim 12, wherein said support member (52) comprises an asymmetric cross-sectional shape having two contact portions (54, 56) having different widths and being adapted to contact groove wall portions (42, 44) adjacent to a groove opening (46).
14. System according to claim 13, further comprising a locking member (70) for locking a movement of said support member (52) perpendicular to and/or along said center axis (60) and, preferably, further comprising a pivot pin (58) configured to pivotably support an accessory element such as said tension arm (30).
15. Retrofit tension arm system for an awning (4), said retrofit tension arm system comprising a tension arm (30) and a system according to one of claims 12 to 14 for coupling said tension arm (30) to a groove (40) in a lead rail (8) of an awning (4).

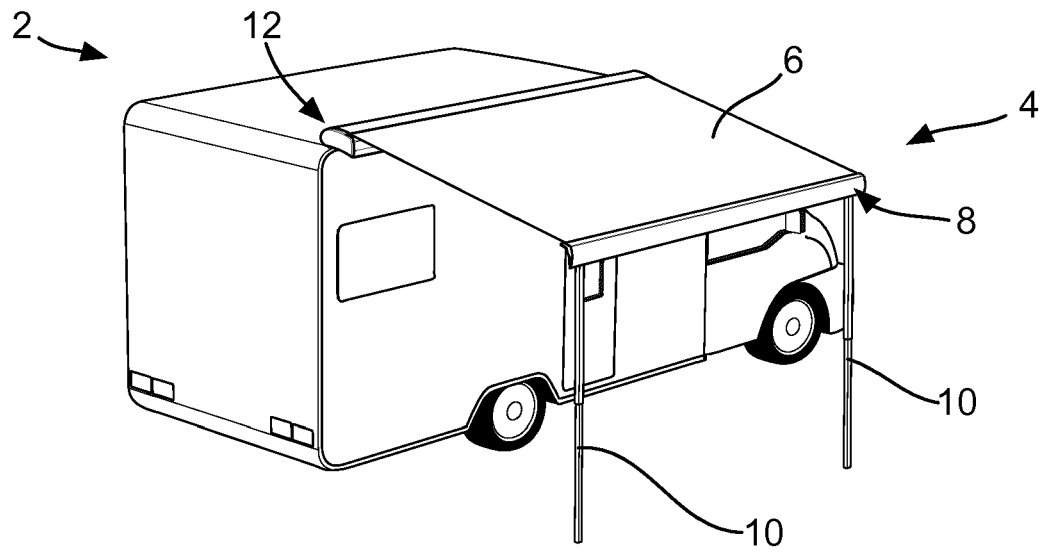


Fig. 1

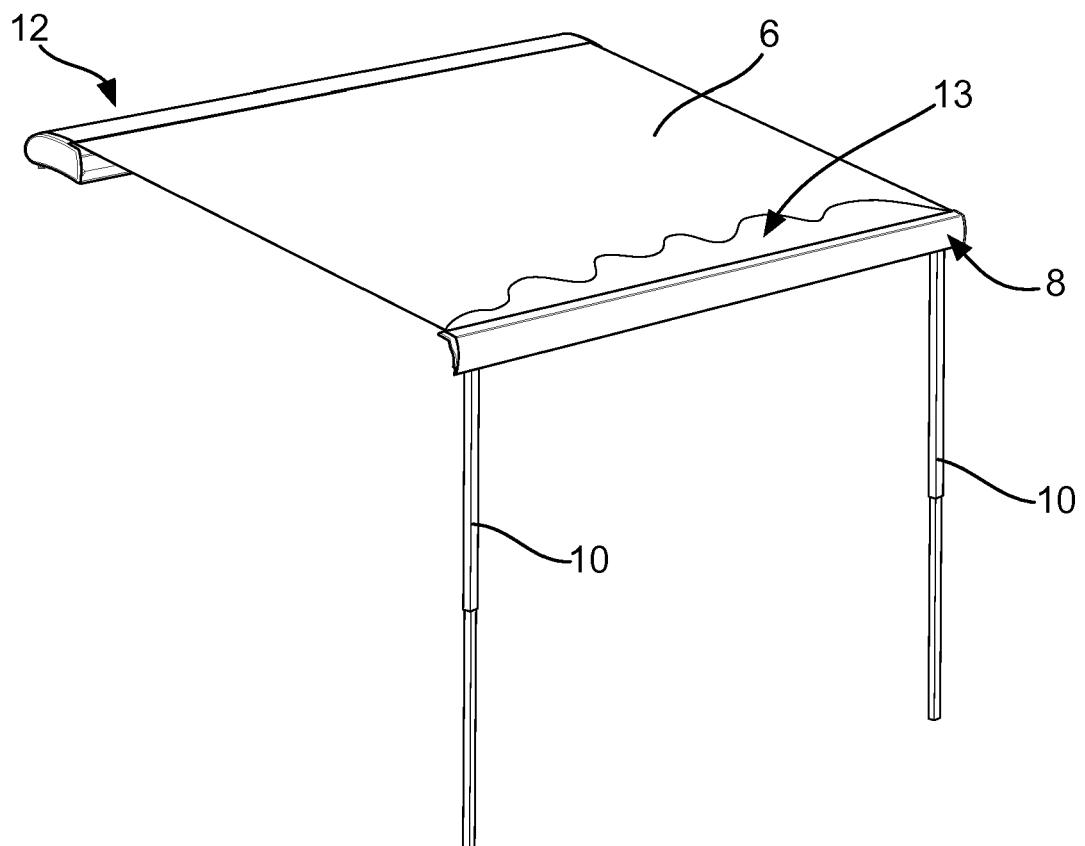
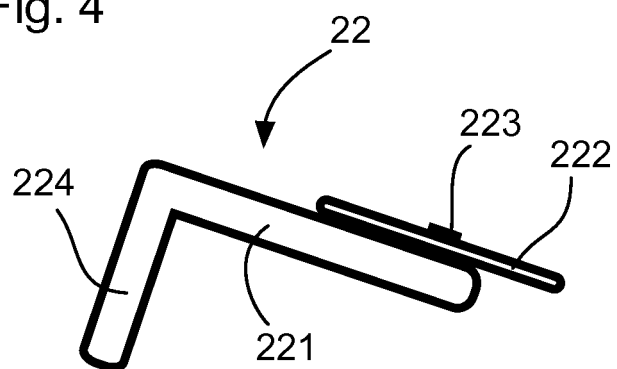
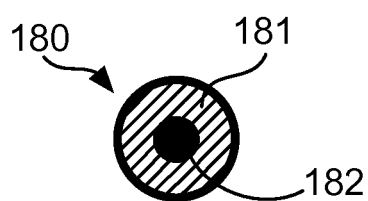
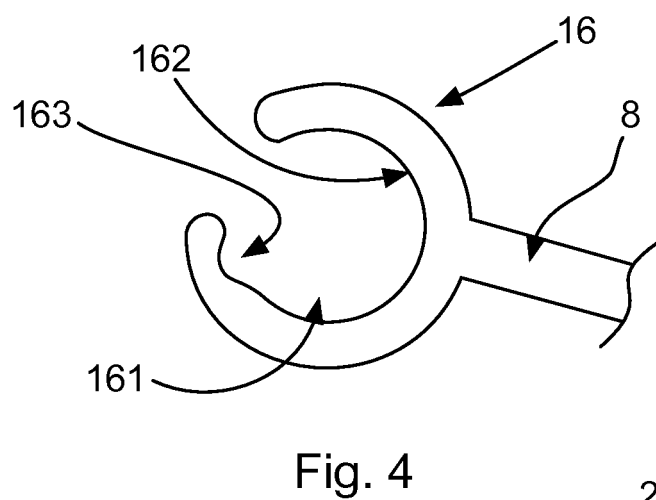
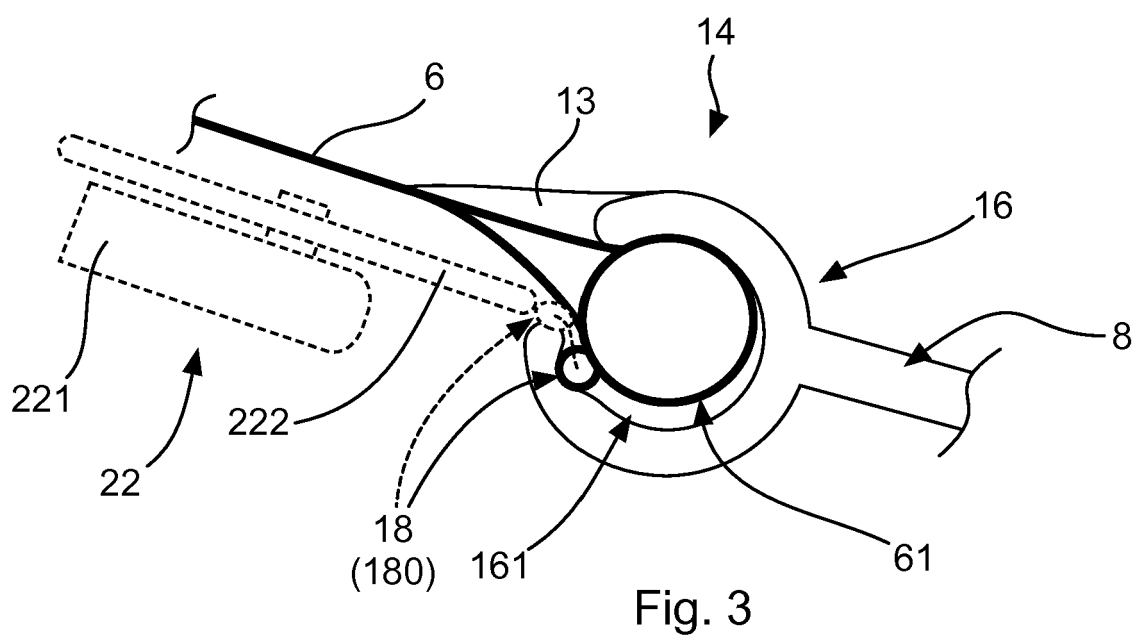


Fig. 2



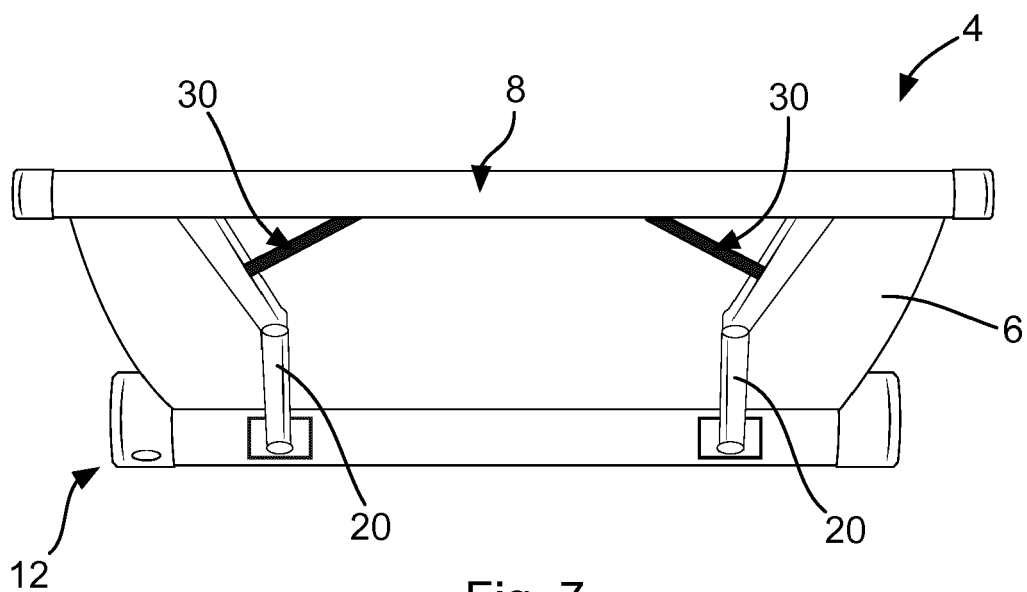


Fig. 7

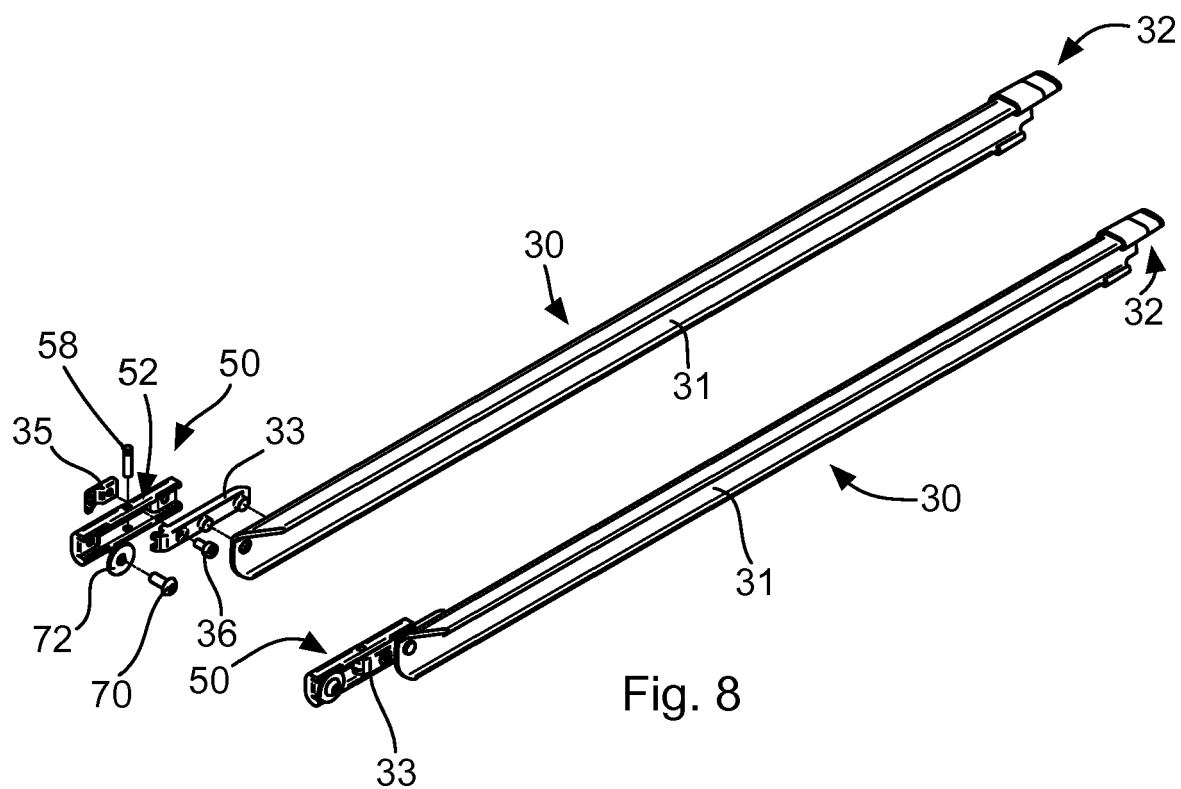


Fig. 8

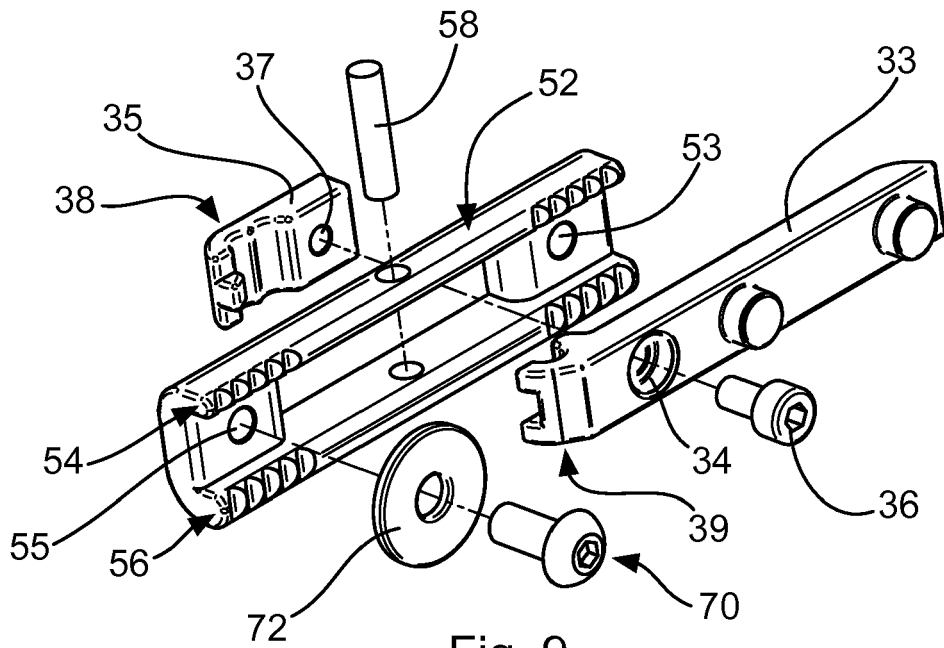


Fig. 9

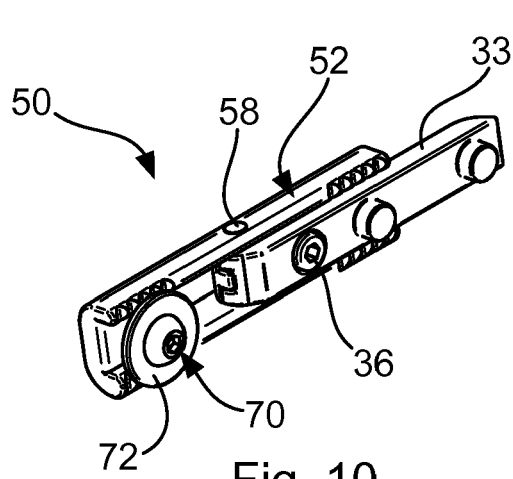


Fig. 10

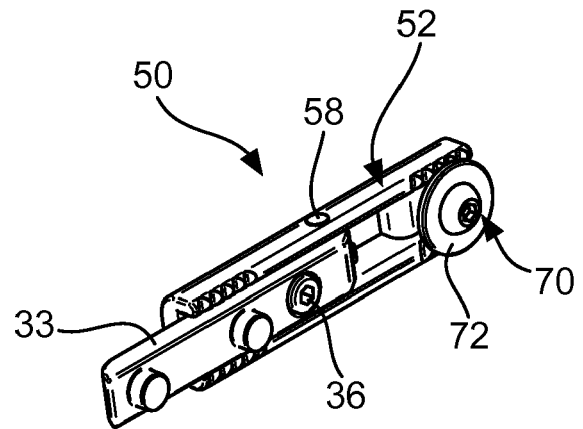


Fig. 11

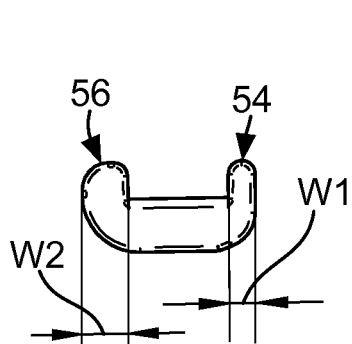


Fig. 12

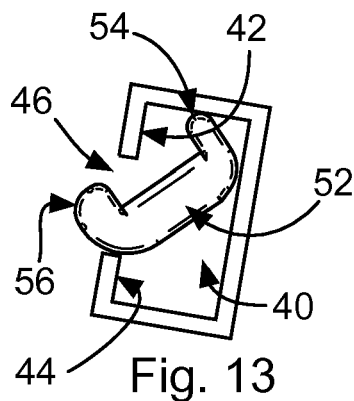


Fig. 13

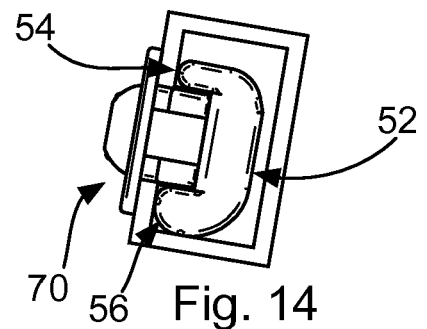
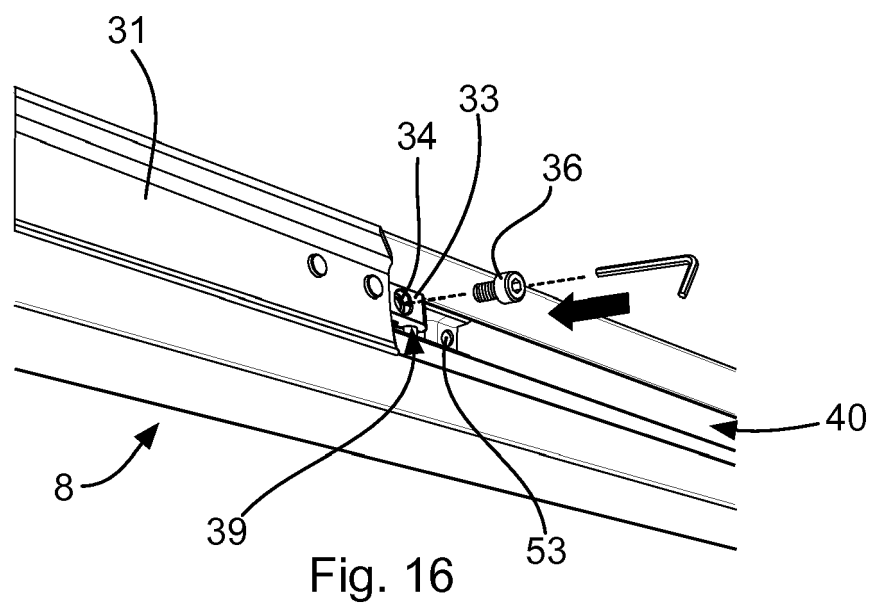
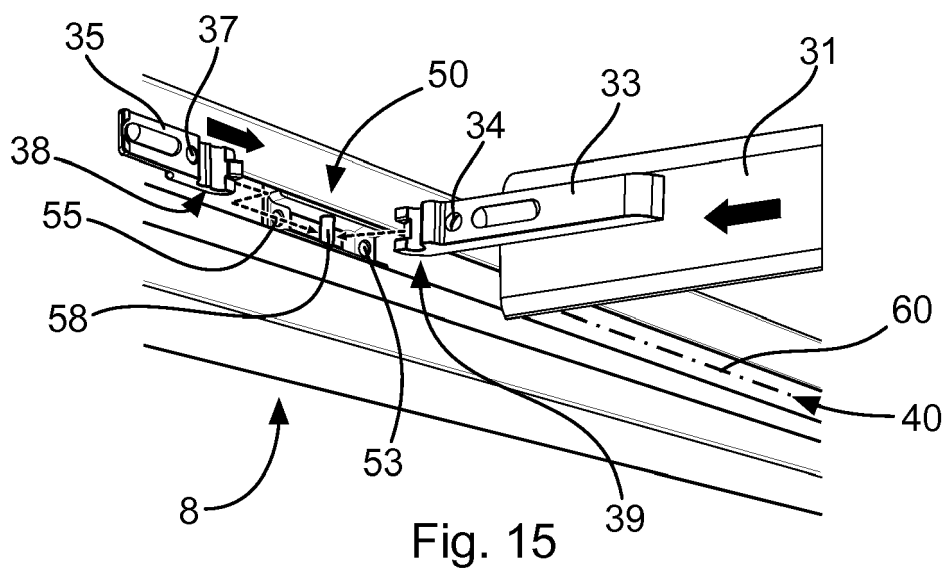


Fig. 14





PARTIAL EUROPEAN SEARCH REPORT

Application Number

under Rule 62a and/or 63 of the European Patent Convention.
This report shall be considered, for the purposes of
subsequent proceedings, as the European search report

EP 17 18 7275

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X A	EP 0 389 104 A1 (URQUHART PETER JOHN [GB]) 26 September 1990 (1990-09-26) * figures 1-4 *	1,2,4, 6-10 3,5,11	INV. E04F10/06 E04H15/64
X A	DE 26 41 789 A1 (RUP JOSEF) 23 March 1978 (1978-03-23) * figures 1,2 *	1,2,4-8, 10 3,11	
X A	DE 22 08 822 A1 (BENKERT GERHARD) 25 October 1973 (1973-10-25) * figures 1-8 *	1,2,5-8, 10 3,11	
X	GB 2 391 577 A (ECLIPSE BLINDS LTD [GB]; TURNILS [GB]) 11 February 2004 (2004-02-11) * figure 7 *	9	
X	GB 1 423 651 A (SMITH J B) 4 February 1976 (1976-02-04) * figures 1,2 *	9	
X	GB 1 171 693 A (INSITU DOUBLE GLAZING LTD [GB]) 26 November 1969 (1969-11-26) * figures 1,2 *	9	TECHNICAL FIELDS SEARCHED (IPC) E04F E04H

INCOMPLETE SEARCH

The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC so that only a partial search (R.62a, 63) has been carried out.

Claims searched completely :

Claims searched incompletely :

Claims not searched :

Reason for the limitation of the search:

see sheet C

Place of search

Munich

Date of completion of the search

26 February 2018

Examiner

Merz, Wolfgang

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another
document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or
after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding
document

**INCOMPLETE SEARCH
SHEET C**

Application Number

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Claim(s) completely searchable:
1-11

Claim(s) not searched:
12-15

Reason for the limitation of the search:

According to the requirements of Rule 62a EPC, only the first independent claim of a category (device and method) and the respective dependent claims were searched. Therefore the search was limited to claims 1-11 as requested by the applicant with letter of 13.02.2018

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

26-02-2018

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0389104	A1	26-09-1990	NONE
DE 2641789	A1	23-03-1978	NONE
DE 2208822	A1	25-10-1973	NONE
GB 2391577	A	11-02-2004	NONE
GB 1423651	A	04-02-1976	NONE
GB 1171693	A	26-11-1969	NONE

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