(11) EP 3 330 451 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:

06.06.2018 Bulletin 2018/23

(51) Int Cl.:

E04D 13/03 (2006.01)

E06B 3/968 (2006.01)

(21) Application number: 17204366.3

(22) Date of filing: 29.11.2017

(84) Designated Contracting States:

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated Extension States:

BA ME

Designated Validation States:

MA MD

(30) Priority: 05.12.2016 DK 201670962

- (71) Applicant: VKR Holding A/S 2970 Hørsholm (DK)
- (72) Inventor: ATZEN, Bent 8700 Horsens (DK)
- (74) Representative: Awapatent A/S Strandgade 56 1401 Copenhagen K (DK)

(54) AN INSTALLATION FRAME FOR A ROOF WINDOW, A KIT OF PARTS COMPRISING SUCH INSTALLATION FRAME, AND A METHOD OF INSTALLING THE INSTALLATION FRAME

(57) An installation frame (100) for a roof window for installation in a roof structure comprising battens (302, 303), said installation frame (100) comprising a top part (140), a bottom part (120), and two side parts (130), the side parts (130) being connectable to the top part (140) and bottom part (120) at ends thereof to form the installation frame (100) as a rectangular frame. At least one of the side parts (130) is movably connectable to the top part (140) and/or the bottom part (120) for said side parts (130) to be shiftable by lateral at least relative movement towards and away from each other for said side parts (130) to assume respectively a defined proximal position and a defined distal position relative to each other.

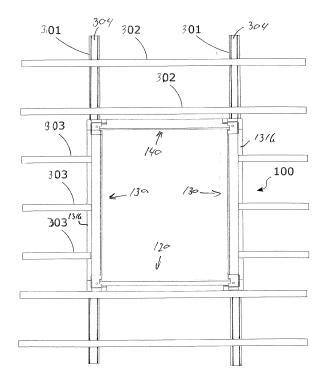


Figure 7

EP 3 330 451 A1

20

25

40

45

Description

[0001] The present invention relates to an installation frame for a roof window for installation in a roof structure comprising battens, said installation frame comprising a top part, a bottom part, and two side parts, the side parts being connectable to the top part and bottom part at ends thereof to form the installation frame as a rectangular frame.

1

[0002] The present invention further relates to a kit of parts comprising a roof window, an installation frame according to the invention, and optionally an additionally insulation frame for insertion between the installation frame and the roof window.

[0003] The present invention further relates to a method of installation of an installation frame according to the

[0004] EP 2 405 072 A2 discloses an installation frame of the art mentioned in the first paragraph. The side parts have a generally L-shaped cross-sectional profile the two legs of the L-shape having different thickness whereby the frame may be assembled to present lateral parts of the side parts with one of two different thicknesses. The installation frame is constructed to enable it to provide for supporting and fixing the roof window. When installing the installation frame the battens of the roof structure are marked and cut to provide a hole for mounting the window and the installation frame is inserted into the hole thus provided for the lateral parts of the side parts to be positioned below the cut ends of the remaining parts of the battens. However, EP 2 405 072 A2 does not mention how the installation frame is inserted into said position. [0005] Generally, the use of an installation frame for installation of a roof window is well known. The installation frame may also provide for insulation and additional insulating frames may be inserted between the installation frame and the roof window, which usually comprises a window frame. Thus the insulating frame will be inserted between the installation frame and the window frame. Usually the window frame is fixed to the roof construction, such as to the battens, by means of brackets, which are known in many embodiments.

[0006] Thus e.g. EP 0 954 659 B1 discloses a roof window comprising a window frame received in an insulation and installation frame mounted in a roof structure, said window frame being fixed to battens of the roof structure by means of brackets.

[0007] Thus there is a need for improvement of such frames to provide for facilitating the installation thereof and accordingly it is an object of the present invention in general to facilitate mounting of a roof window.

[0008] This is obtained by an installation frame of the above mentioned kind, which is characterized in that at least one of the side parts is movably connectable to the top part and/or the bottom part for said side parts to be shiftable by lateral at least relative movement towards and away from each other for said side parts to assume respectively a defined proximal position and a defined

distal position relative to each other.

[0009] In an embodiment the side parts comprise lateral parts, which are adapted to fit beneath the battens. [0010] In an embodiment the side parts have L-shaped cross-sections, whereby in a further embodiment a leg of the L-shape constitutes a lateral part which fits beneath the battens.

[0011] The relative movability of the side parts or the installation frame facilitates mounting of the installation frame in a roof structure comprising battens cut to provide an opening for a roof window.

[0012] In an embodiment the at least one side part is adapted to be locked relative to the top part and/or the bottom part for the side parts to be locked in at least one of said proximal position and said distal position. This facilitates handling of the installation frame during installation because a risk of the side parts shifting unintended relative to each other during the installation process is may be eliminated by the side part relative to the top part and /or bottom part.

[0013] In a practical embodiment the at least one side part is connected to the top part and/or bottom part through a sliding guide allowing the side part to be shifted in a longitudinal direction of the top part and bottom part. The sliding guide provides for guiding the movements between the side part and the top part and/or bottom part. [0014] In a further practical embodiment, the sliding guide comprises a protrusion extending from one of the side part and the top part and/or the bottom part, said protrusion extending, when the installation frame is assembled, into a groove in the other of the side part and the top part and/or the bottom part.

[0015] In an embodiment the installation frame comprises at least one abutment limiting lateral movement of said at least one side part relative to the top part and/or the bottom part. This facilitates defining at least one position of the side parts relative to the top part and/or bottom part and relative to each other.

[0016] In a practical embodiment a locking element is movable between a locking position, in which it locks said at least one side part relative to the top part and/or the bottom part, and a release position in which it releases said at least one side part to be shifted relative to the top part and/or the bottom part. In a further practical embodiment, the locking element is a resilient element urging in its locking position said at least one side part and the top part and/or the bottom part against each other in a frictional engagement. This facilitates maintaining the side parts in intended positions relative to the top part and/or the bottom part and to each other.

[0017] The object of the invention is further obtained by a kit of parts comprising a roof window, an installation frame according to the invention, and optionally an additional insulation frame for insertion between the installation frame and the roof window.

[0018] The object of the invention is further obtained by a method of installation of an installation frame according to the invention, whereby the top part, the bottom

4

part, and the side parts are assembled to provide the rectangular frame, the side parts being shifted towards each other, positioning the frame thus assembled on a roof structure comprising battens, marking and cutting the battens at external sides of the side parts, removing cut parts of the battens, repositioning the frame in the place of the cut parts of the battens, shifting the side parts away from each other for lateral parts of the side parts to be positioned below remaining cut ends of the battens. [0019] A further embodiment of the method comprises locking the at least one side part to the top part and/or the bottom part after assembling the top part, the bottom part, and the side parts to provide the rectangular frame, the side parts being shifted towards each other, and unlocking the side part(s) from the top part and/or bottom part before shifting the side parts away from each other for lateral parts of the side parts to be positioned below remaining cut ends of the battens.

[0020] In the following the invention will be described in more detail by way of example and with reference to the accompanying drawings, in which:

Fig. 1 is a perspective view from above of an assembled installation frame with locking elements in a first position,

Fig. 2 is a perspective view similar to Fig. 1 with the locking elements in a second position,

Fig. 3 is an enlarged detailed perspective view from above of a disassembled bottom part and side part, Fig. 4 is perspective view from below of the elements shown in Fig. 3,

Fig. 5 is an enlarged side view of the installation frame shown in Fig. 2,

Fig. 6 is a top view of the installation frame with side parts in a proximal position,

Fig. 7 is a plane view of the installation frame mounted in a roof structure,

Fig. 8 is a perspective view from above of an insulation frame,

Fig. 9 is a perspective view from above showing a cross sectioned assembly of the installation frame and the insulation frame, and

Fig. 10 is an enlarged detail of Fig. 8 seen in a longitudinal direction of the side parts.

[0021] An installation frame 100 is illustrated in perspective in Figs. 1 and 2. The installation frame 100 comprises two side parts 130, a bottom part 120, and a top part 140. The parts 130, 120, 140 are connected to form a rectangular frame. The side parts 130 comprise locking elements 133, which are in Fig. 1 in a locking position and in Fig. 2 in a release position.

[0022] Figs. 3 and 4 are detailed views of the lower left corner 100a of the installation frame 100 in a disassembled condition and shows ends of the side part 130 and the bottom part 120, wherein the side part 130 includes the locking element 133, a protrusion 135, and a longitudinal side member 131, and wherein the bottom part

120 includes a longitudinal bottom member 121 and an abutment element 123. The locking element 133 is shown in the release position. The locking element 133 is a resilient element that is shaped such that it has a spring effect. The abutment element 123 comprises a protruding region providing an abutment 123a for the side part 130, as it will be explained below, and a lock-enabling region with a bump 123b. The protrusion 135 comprises a first flat part 135a extending from an end face 131a of the longitudinal side member 131 generally in parallel with a general plane of the installation frame 100. At an extreme end relative to the end face 131a the protrusion is bent to provide a flange portion 135b extending perpendicular to a longitudinal direction A of the side part 130 (see Fig. 6).

[0023] The longitudinal side member 131 has a general L-shape in cross-section providing a lateral part 131b with a reduced height h (see Fig. 5). The remaining part of the longitudinal side member 131 is extending beyond the height h by an additional height H (see Fig. 5).

[0024] As best seen in Fig. 4 the bottom part 120 further comprises a shallow recess 125 and a groove 127, where the groove 127 is adjacent to the recess 125. At an end thereof the recess 125 provides an edge, which per se provides a second abutment 125a for the side part 130 i.e. for the first flat part 135a of the protrusion 135 thereof. [0025] It is noted that the corner diagonally opposite the corner 100a is constructed similar to the corner 100a whereas the two other corners of the installation frame 100 are mirror inverted relative to the corner 100a.

[0026] When assembling the side parts 130, the bottom part 120, and the top part 140 to the configuration shown in Fig. 2 the protrusion 135 is inserted into the recess 125 and the groove 127, the first flat part 135a being accommodated in the recess 125 and the flange portion 135b being accommodated in the groove 127. Hereby the protrusion 135, the recess 125, and especially the groove 127 provide a sliding guide allowing the side parts 130 to be shifted in a longitudinal direction B of the bottom part 120 and the top part 140 within limits determined by the first abutment 123a and the second abutment 125a, the latter being assisted by the inwardly end of the groove 127 which provides a limit for the inward lateral movement of the flange portion 135b of the protrusion and thereby for the side part 130. Correspondingly, the first abutment 123a protruding from the longitudinal bottom member 121 provides a limit of the outward lateral movement of the side part 130.

[0027] In the configuration shown in Fig. 2 the longitudinal side members 131 are abutting on the first abutments 123a the side parts 130 being positioned in defined distal positions relative to each other. From this position the side parts 130 may be shifted towards each other until the protrusions 135 abut on the second abutment 125a and the inwardly end of the grooves 127. Thereby the side parts 130 are brought to a defined proximal position relative to each other. Fig. 6 shows the installation frame 100 with the side parts 130 in the proximal position.

[0028] Fig. 5 shows the lower left corner 100a comprising the longitudinal bottom member 121, the abutment element 123 with the first abutment 123a and the bump 123b, the longitudinal side member 131, the protrusion 135 and the groove 127 accommodating the flange portion 135b. The locking element 133 is shown in the release position in which it does not engage with the abutment element 123. By rotating the locking element 133 clockwise around a pivot 133a mounting the locking element 133, a nose 133b of the locking element will ride over and snap around the bump 123b, the resilient locking element 133 flexing resiliently for the nose 133b to seize below the bump 123b and lock the position of the locking element 133. Thus the locking element 133 is in the locking position shown in e.g. Fig. 1. Hereby the locking element 133 due to the spring effect urges the longitudinal bottom element 121 against the adjacent end face 131a of the longitudinal side element 131 thereby providing a frictional engagement between the longitudinal bottom element 121 and the longitudinal side element 131 which lock the longitudinal side element 131 in its position along the slide guide provided by the protrusion 135 and the groove 127, etc. Thus the skilled person will appreciate that in the embodiment shown the side part 130 may be locked in any position relative to the bottom part 120 and the top part 140 between the proximal position and the distal position, these two positions includ-

[0029] Fig. 7 illustrates a mounted position of the installation frame 100 in a roof structure known per se, where the roof structure comprises a plurality of horizontal battens 302, 303, and a plurality of rafters 301 overlaid by counter battens 304.

[0030] The procedure for placing the installation frame 100 in the position shown in Fig. 7 is as follows: While the battens 303 are intact like the battens 302 and the counter battens 304 are also intact substantially in the extent the rafters 301, the installation frame 100 with the side parts 130 in the proximal position, as shown in Fig. 6, is placed upon the battens 303 to be used as a jig to mark where the battens 303 are to be cut to provide an opening for installing the installation frame 100. At this time the locking elements 133 are preferably in their locking positions to assure that the side parts 130 remain in their proximal position during marking. The installation frame 100 is then removed and the battens 303 and counter battens 304 are cut, and the batten parts and counter batten parts between the cuts are removed. The installation frame 100 is preplaced, but now to rest against the rafters 301. It is noted that the installation frame 100 with the side parts 130 in their proximal position will fit between the cut ends of the battens 303 because the installation frame 100 has been used a jig. The locking elements 133 are now rotated to their release position and the side parts 130 of the installation frame 100 are shifted outwards into their distal position. The lateral parts 131b of the side parts 130 are thereby slid beneath the cut ends of the battens 303 for the installation frame 100 to assume

the position shown in Fig. 7.

[0031] The locking elements may now be put back into the locking position to ensure that the side parts 130 remain in the distal position.

[0032] The height h of the lateral parts 131b is similar to the thickness of the counter battens 304 and thus the cut ends of the battens 303 rest on the lateral parts 131b. Further the height H is similar to the thickness of the battens 302, 303 and accordingly the upper surface of the installation frame 100 is substantially flush with a surface defined by the upper surfaces of the battens 302, 303.

[0033] The installation frame is fastened into place e. g. by screws inserted through the bottom part 120, the top part 140, and the side parts 130 into the rafters 301, and the cut ends of the battens 303 may be attached, e. g. by screws, to the lateral parts 131b to provide support for the cut batten ends.

[0034] In the embodiment shown an insulation frame 200 is provided to be inserted between the installation frame 100 and a window (not shown) to be mounted or installed in the roof construction by means of the installation frame 100

[0035] Fig. 8 shows the insulation frame 200 comprising a plurality of attachment features or hooks 201 arranged along the circumference of the insulation frame 200.

[0036] Fig. 9 shows the installation frame 100 and the insulation frame 200 where the insulation frame 200 has been inserted into in the installation frame 100. This should be done at the time when the installation frame is installed and fixed in the roof construction as described above. For installation of the insulating frame 200 in the installation frame 100 the latter comprises an upper groove 137 in upper surfaces of the bottom part 120, the side parts 130, and the top part 140, see e. g. Figs 1 and 2 and especially Fig. 10, which shows the cross-section indicated by arrow X in Fig. 9 of one of the side parts 130 and the adjacent part of the insulating frame 200. However, Fig. 10 is seen in the longitudinal direction A of the side part 130.

[0037] Thus Fig. 10 illustrates a cross-sectional view of the insulation frame 200 mounted in the installation frame 100, where the attachment feature or hook 201 of the insulation frame 200 fits in the groove 137 located in the longitudinal side member 131 of the side part 130. The insulation frame 200 is attached similarly all along the circumference of the insulation frame 200. The insulation frame 200 further comprises a window abutment portion 202, providing an abutment for a window inserted within the insulation frame as is will be appreciated by the skilled person.

[0038] The optional insulation frame as illustrated in Fig. 8 can be attached to the installation frame as illustrated in Fig. 9 and a roof window can be inserted herein. Subsequently the window may be fixed by means of bracket fastened to a frame of the window in a manner known per se. These brackets may extend across the

40

45

15

20

25

30

35

40

45

50

insulation frame 200 and the installation frame 100 to be fixed to the battens. e.g. by means of screws, but in an embodiment such brackets are fixed to the installation frame 100 proper, e.g. by means of screws.

[0039] Throughout this text the terms "top", "bottom" and "side" are used to indicate the intended position of different parts in the mounted position even though these parts may be located differently during for example storage and transportation or prior to assembly of the insulating frame. Likewise, the term "inward" and "outward" are used to indicate that something is facing the center of the installation frame or the outer edge of the installation frame.

[0040] The person skilled in the art realizes that the present invention by no means is limited to the preferred embodiments described above. On the contrary, many modifications and variations are possible within the scope of the appended claims. For example, the sliding function of the side parts can be achieved by other means than shown in this embodiment. For example, could the protrusion be a part of the member, or any other means of translating two parts in a prismatic joint. Further shifting the side parts between their mutual distal and proximal positions might be obtained by shifting only one of the side parts relative to the bottom part and top part or by shifting the respective parts only at two diagonally opposite corners whereby also the bottom part and the top part would be shifted relative to each other in their longitudinal direction B.

[0041] The invention offers several advantages over different prior art solutions. Due to the shiftable side parts the battens may be cut to a required minimum for providing space for a window to be installed including the installation frame and any insulation frame or frames. This is a major advantage e.g. when installing a window in an existing roof e.g. at a place where a window has not previously been present because a minimum of the roof covering such as tiles need to be removed and the battens supporting such tiles are disturbed to the least possible degree and need e.g. not be loosened and lifted to allow mounting of the installation frame.

Claims

1. An installation frame (100) for a roof window for installation in a roof structure comprising battens (302, 303), said installation frame (100) comprising a top part (140), a bottom part (120), and two side parts (130), the side parts (130) being connectable to the top part (140) and bottom part (120) at ends thereof to form the installation frame (100) as a rectangular frame, charac-terized in that at least one of the side parts (130) is movably connectable to the top part (140) and/or the bottom part (120) for said side parts (130) to be shiftable by lateral at least relative movement towards and away from each other for said side parts (130) to assume respectively a defined proxi-

mal position and a defined distal position relative to each other.

- 2. An installation frame (100) according to claim 1, characterized in that said at least one side part (130) is adapted to be locked relative to the top part (140) and/or the bottom part (120) for the side parts (130) to be locked in at least one of said proximal position and said distal position.
- 3. An installation frame (100) according to claim 1 or 2, **charac-terized** in that said at least one side part is connected to the top part (140) and/or bottom part (120) through a sliding guide allowing the side part to be shifted in a longitudinal direction of the top part (140) and bottom part (120).
- 4. An installation frame (100) according to claim 3, characterized in that said sliding guide comprises a protrusion extending from one of the side part and the top part (140) and/or the bottom part (120), said protrusion extending, when the installation frame (100) is assembled, into a groove (127) in the other of the side part and the top part (140) and/or the bottom part (120).
- 5. An installation frame (100) according to any one of the preceding claims, **characterized by** at least one abutment (123) limiting lateral movement of said at least one side part relative to the top part (140) and/or the bottom part (120).
- 6. An installation frame (100) according to any one of the preceding claims, **characterized by** a locking element movable between a locking position, in which it locks said at least one side part relative to the top part (140) and/or the bottom part (120), and a release position in which it releases said at least one side part to be shifted relative to the top part (140) and/or the bottom part (120).
- 7. An installation frame (100) according to claim 6, characterized in that said locking element is a resilient element urging in its locking position said at least one side part and the top part (140) and/or the bottom part (120) against each other in a frictional engagement.
- **8.** A kit of parts comprising a roof window, an installation frame (100) according to any one of claims 1 to 7, and optionally an additional insulation frame (200) for insertion between the installation frame (100) and the roof window.
- 9. A method of installation of an installation frame (100) according to any one of claims 1 to 7, characterized by assembling the top part (140), the bottom part (120) and the side parts (130) to provide the rectan-

gular frame, the side parts (130) being shifted towards each other, positioning the frame thus assembled on a roof structure comprising battens (302, 303), marking and cutting the battens (303) at external sides of the side parts (130), removing cut parts of the battens (303), repositioning the frame in the place of the cut parts of the battens (303), shifting the side parts (130) away from each other for lateral parts of the side parts (130) to be positioned below remaining cut ends of the battens (303).

9

10

10. A method according to claim 9 of installation of an installation frame (100) according to claim 2, characterized by locking the at least one side part to the top part (140) and/or the bottom part (120) after assembling the top part (140), the bottom part (120) and the side parts (130) to provide the rectangular frame, the side parts (130) being shifted towards each other, and unlocking the side parts from the top part (140) and/or bottom part (120) before shifting the side parts (130) away from each other for lateral parts of the side parts (130) to be positioned below remaining cut ends of the battens (303).

25

30

35

40

45

50

55

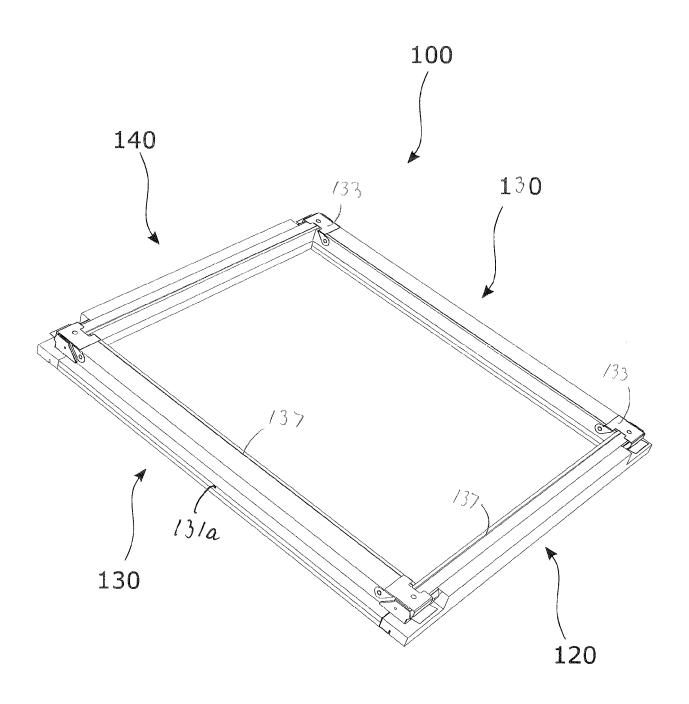


Figure /

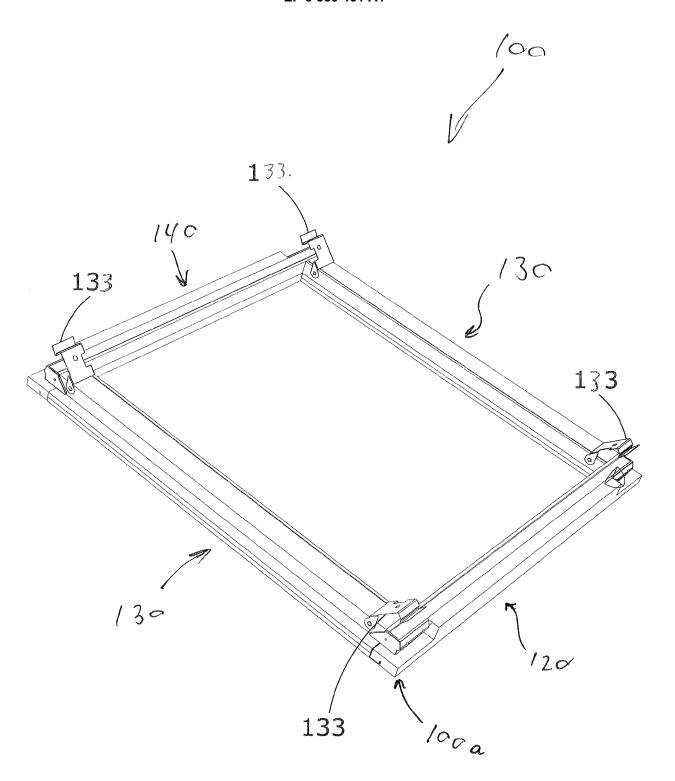


Figure 2

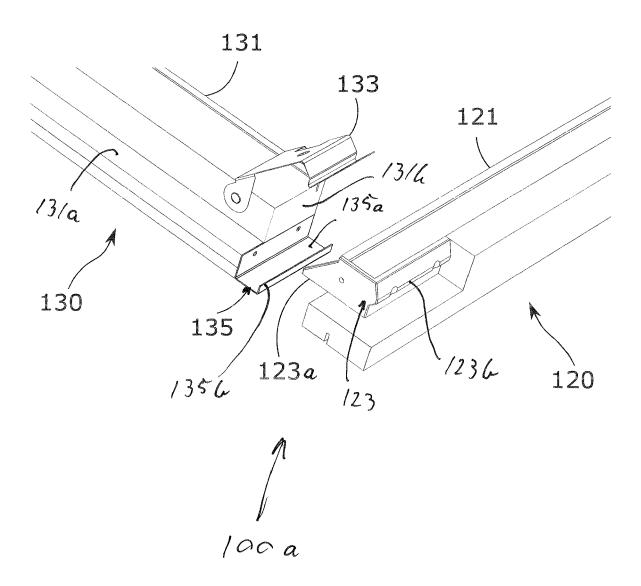


Figure 3

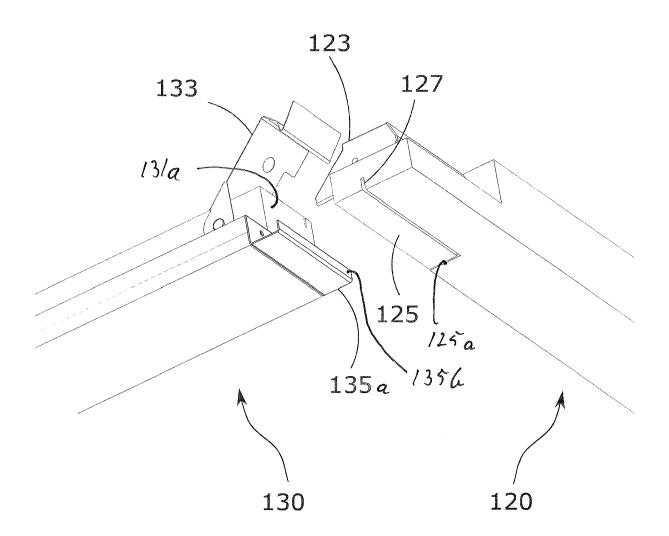


Figure 4

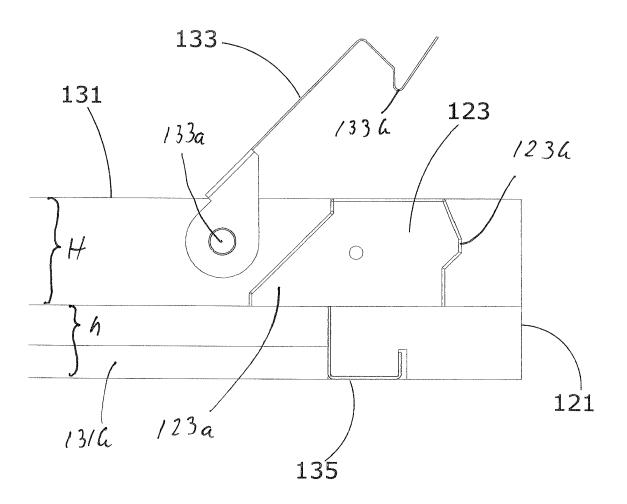


Figure 5

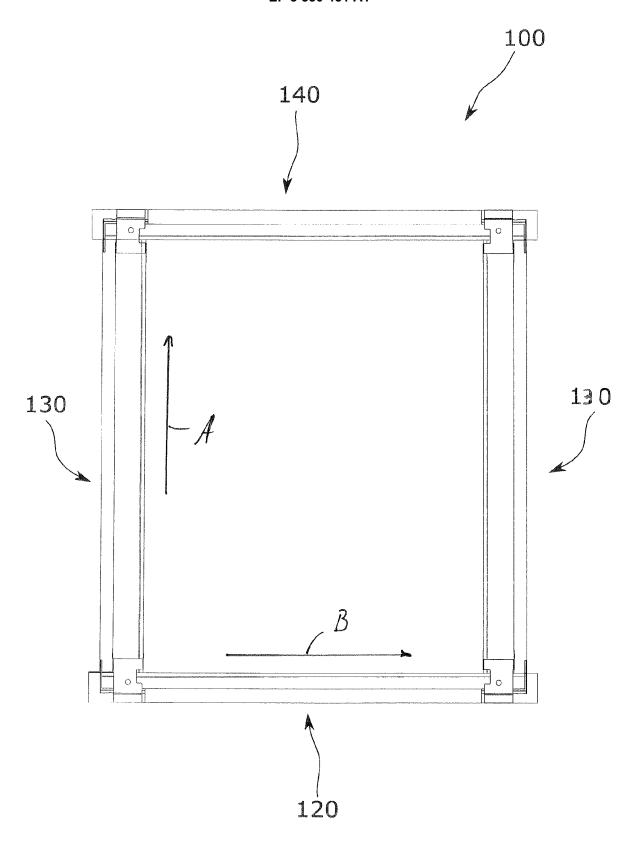


Figure 6

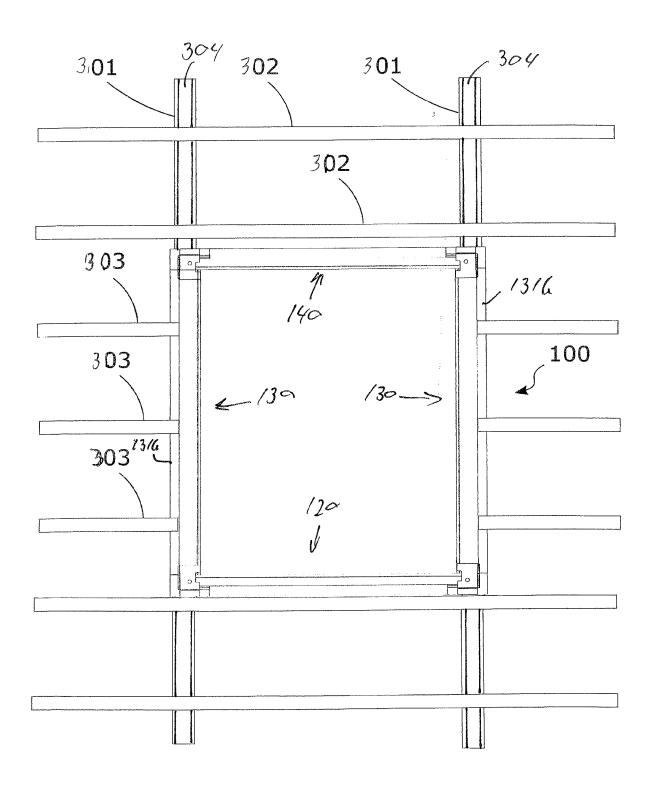


Figure 7

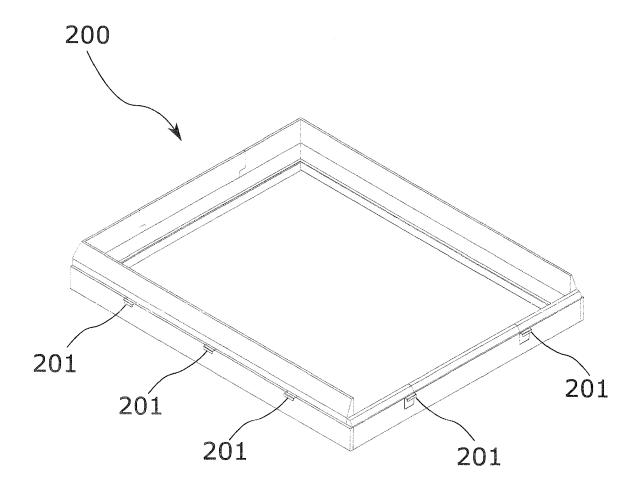


Figure ©

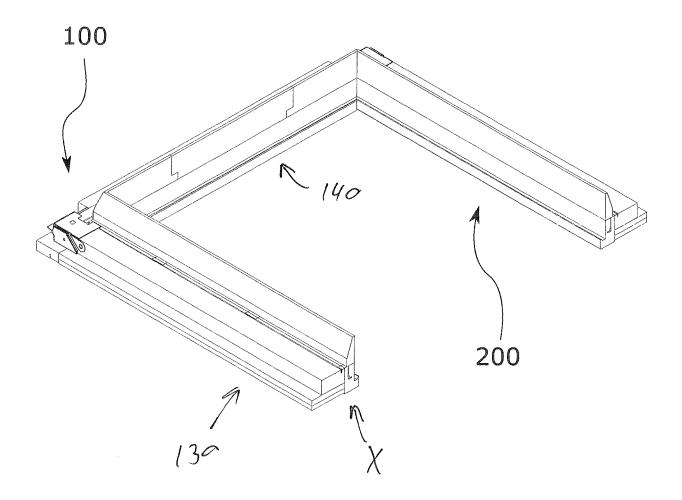


Figure 9

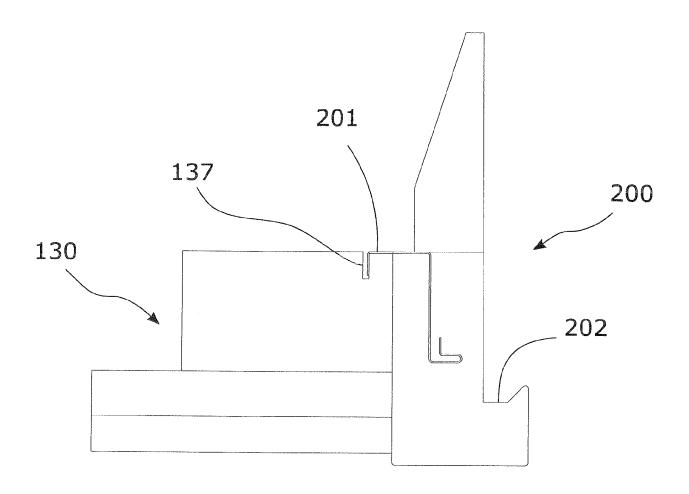


Figure 10



EUROPEAN SEARCH REPORT

Application Number EP 17 20 4366

DOCUMENTS CONSIDERED TO BE RELEVANT					
Category	Citation of document with in of relevant passa	dication, where appropriate, ges	Relevant to claim	CLASSIFICATION OF THI APPLICATION (IPC)	
X A	EP 2 487 307 A2 (FAKRO PP SPOLKA ZOO 15 August 2012 (2012-08-15) * figures 3-6 *		1-6,8 7	INV. E04D13/03	
Х	J	LINDGREN CLAES [DK] ET 002-07-25)	1-6	ADD. E06B3/968	
х	EP 2 952 646 A1 (VK 9 December 2015 (20 * claim 16; figures	15-12-09)	1-6,8		
A	EP 2 700 781 A2 (VK 26 February 2014 (2 * figures 19-21 *		7		
A	EP 1 061 199 A1 (VE 20 December 2000 (2 * figures 1-6 *		9,10		
A,D	EP 2 405 072 A2 (R0 11 January 2012 (20 * figures 2-6 *		9,10	TECHNICAL FIELDS SEARCHED (IPC) E04D E06B	
A,D	EP 0 954 659 A1 (VELUX IND AS [DK]) 10 November 1999 (1999-11-10) * figures 9-11 *		9,10	EUOB	
	The present search report has be	een drawn up for all claims Date of completion of the search	<u>-</u> 	Examiner	
The Hague		6 April 2018	·		
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		E : earlier patent doc after the filing dat er D : document cited in L : document cited fo 	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 8: member of the same patent family, corresponding document		

EP 3 330 451 A1

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

EP 17 20 4366

5

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.

06-04-2018

10	Patent document cited in search report	Publication date	Patent family member(s)	Publication date
	EP 2487307	15-08-2012	EP 2487307 A2 PL 218383 B1	15-08-2012 28-11-2014
15	US 2002095884 /	A1 25-07-2002	US 2002095884 A1 US 2002095886 A1	25-07-2002 25-07-2002
20	EP 2952646	N1 09-12-2015	CN 103510662 A DK 177645 B1 EA 201300596 A1 EP 2677092 A1 EP 2952646 A1 ES 2549222 T3 HU E027557 T2	15-01-2014 27-01-2014 30-12-2013 25-12-2013 09-12-2015 26-10-2015 28-10-2016
25	EP 2700781 /	A2 26-02-2014	NONE	
30	EP 1061199 /	A1 20-12-2000	AT 349586 T CZ 20002279 A3 DK 1061199 T3 EP 1061199 A1 HU 0002286 A2 PL 340861 A1 SK 9252000 A3	15-01-2007 14-02-2001 10-04-2007 20-12-2000 28-03-2001 02-01-2001 18-01-2001
35	EP 2405072	A2 11-01-2012	DE 102010027419 A1 EP 2405072 A2	12-01-2012 11-01-2012
40	EP 0954659 /	A1 10-11-1999	AT 222982 T AU 3166697 A DE 69715044 D1 DE 69715044 T2 DK 0954659 T3 EP 0954659 A1 WO 9831896 A1	15-09-2002 07-08-1998 02-10-2002 30-04-2003 30-12-2002 10-11-1999 23-07-1998
45				
50				
55	TOTALO TOTALO			

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

EP 3 330 451 A1

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

• EP 2405072 A2 [0004]

EP 0954659 B1 [0006]