



(11) **EP 2 518 250 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
31.10.2012 Bulletin 2012/44

(51) Int Cl.:
E05D 15/58 (2006.01) E05D 15/06 (2006.01)
E06B 3/92 (2006.01)

(21) Application number: **12165613.6**

(22) Date of filing: **26.04.2012**

(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

(72) Inventor: **Salonsaari, Kari**
84100 Ylivieska (FI)

(74) Representative: **Karppinen, Olavi Arto**
Kolster Oy Ab
P.O. Box 148
(Iso Roobertinkatu 23)
00121 Helsinki (FI)

(30) Priority: **28.04.2011 FI 20114015 U**

(71) Applicant: **Alutec Oy**
84100 Ylivieska (FI)

(54) **Glazing arrangement**

(57) A glazing arrangement (100) comprises a top frame structure (108) that comprises two top rail parts (110, 112) at a corner (106) of a balcony (102) at an angle to each other that equals that of the corner (106). A bottom frame structure (114) comprises two straight bottom rail parts (116, 118) at the corner (106) at an angle to each other that equals that of the corner (106). At least one of two panes (122 to 126) is movable over the corner (106). A top strip structure (128) fastens to said at least one pane (122 to 126) to be moved over the corner (106), wherein each top strip structure (128) comprises a roll mechanism (206) that supports against the top frame structure (108) for moving each pane (122 to 126) along the top frame structure (108). A bottom strip structure (130) fastens to said at least one pane (122 to 126) to be moved over the corner (106), wherein each bottom strip structure (130) comprises a guide structure (214) for moving each pane (122 to 126) in accordance with the bottom frame structure (114). A bottom frame structure (114) comprises at least one wedge-shaped platform part (300, 500) which is narrower at its ends (302, 304) than in the middle, and different ends (302, 304) of which extend to different bottom rail parts (116, 118). Each platform part (300, 500) supports the pane (112 to 126) by being in contact with the guide structure (214) when the pane (122 to 126) is in the corner (106) area.

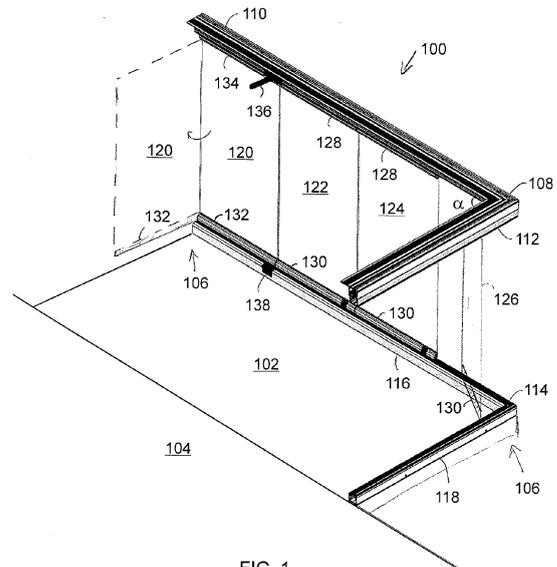


FIG. 1

EP 2 518 250 A1

Description**Field**

[0001] The invention relates to a glazing arrangement for a balcony or the like.

Background

[0002] People do not want walls that hinder visibility on their balcony, but on the other hand, an open balcony is windy and possibly even cold. However, visibility and protection from wind can be provided with a balcony glazing arrangement that comprises several panes usually made of glass. The panes may also be turned aside when necessary, whereby they also need to be moved over a corner in the balcony.

[0003] However, moving over a corner is problematic, because at the corner the support structures in the pane will be in a twisted position in relation to the guide rails fastened to the balcony. The twisting also causes a vertical directional displacement of the pane which prevents a precise dimensioning of the balcony glazing arrangement and/or may entirely prevent the moving of a pane over the corner, especially if subsidence has occurred in the balcony/building structures over time.

[0004] Thus, there is a need for a new type of glazing arrangement.

Brief description

[0005] It is an object of the invention to provide an improved glazing arrangement. This is achieved by the glazing arrangement of claim 1.

[0006] Preferred embodiments of the invention are disclosed in the dependent claims.

[0007] The glazing arrangement of the invention provides several advantages. Each movable pane is easy to move over a corner and the vertical positions of the movable panes in relation to the other positions do not change at the corner. Thus, movable panes do not move harmfully in the vertical direction when they are moved over a corner.

List of figures

[0008] The invention will now be described in greater detail by means of preferred embodiments, with reference to the accompanying drawings, in which:

Figure 1 shows a glazing arrangement on a balcony, for instance,
 Figure 2A shows a part of a pane equipped with a hinge guide,
 Figure 2B shows a part of a pane equipped with a port guide,
 Figure 3A shows a top view of a platform part in a corner of rails,

Figure 3B is a side view of the platform part,
 Figure 4A shows a corner guide approaching the platform part,
 Figure 4B shows a corner guide on top of the platform part,
 Figure 5A shows a port guide approaching the platform part, and
 Figure 5B shows a port guide on top of the platform part.

Description of embodiments

[0009] Let us first examine a solution related to the present glazing arrangement by means of Figure 1. The glazing arrangement 100 is generally suitable as transparent walls in a space 102 that may be a balcony or a terrace of a building 104 and has at least one corner 106.

[0010] The top frame structure 108 of the glazing arrangement 100 comprises at least two consecutive and straight top rail parts 110, 112 with an angle α between them. The size of the angle α depends on the angle of the corner 106. The angle between the top rail parts 110, 112 may be the same as the angle of the corner 106 or differ from it, but the angle α conforms to the corner 106 in such a manner that it cannot be much larger than the size of the opening of the corner 106. The top rail parts 110, 112 form a long shape that is mainly a U profile in cross-section with the open portion downward.

[0011] The bottom frame structure 114 of the glazing arrangement 100 comprises at least two straight bottom rail parts 116, 118 that form at the corner 106 of the space 102 an angle in the same manner as the top frame structure 108. The bottom rail parts 116, 118 also have a shape that is mainly a U profile. The top frame structure 108 and the bottom frame structure 114 with their top and bottom rails 110, 112, 116, 118 may be made of metal, such as aluminium.

[0012] The glazing arrangement 100 comprises at least two panes 120, 122, 124, 126, of which at least one pane 112 to 126 is movable over a corner 106. Each pane may be made of glass or some other material that permeates light to a desired extent and in a desired manner. Each pane may comprise agents absorbing and/or scattering optical radiation at a desired band (approximately 10 nm to 500 μm). This way, the pane may be resistant to ultraviolet radiation, for example. Similarly, the permeation of infrared and thermal radiation may be adjusted in the pane. The pane may also be coloured, in which case its light transmission differs at different wavelengths. When the pane comprises scattering particles, its colour, diffused or undiffused permeation may be controlled with the size and number of particles in a desired manner.

[0013] The top strip structure 128 of the glazing arrangement 100 is fastened to the at least one pane 112 to 126 to be moved over a corner 106. The top strip structure 128 of each pane comprises two rolls, for instance, on the edges of the pane. The rolls support against a

bracket in the top frame structure 128, which makes it possible to move the panes along the top strip structure 128 to different parts of the space 102.

[0014] A bottom strip structure 130 of the glazing arrangement 100 is fastened to the at least one pane 122 to 126 to be moved over a corner 106. The bottom strip structure 130 of each pane is positioned in the U groove of the bottom frame structure 114, 116, which prevents the movement of the pane 122 to 126 in any other direction than in the longitudinal direction of the top and bottom frames 108, 114.

[0015] The glazing arrangement 100 may also comprise at least one pane 120 that is not movable along the top frame structure 108 and bottom frame structure 114. Yet the pane 120 made stationary in this manner may comprise a bottom strip structure 132 and top strip structure 134 and be turnable sideways to open the space 102 relative to the other rail parts 110, 116, to which the stationary pane 120 is fastened by its hinge structure. Figure 1 indicates with a dashed line the stationary pane 120 that has been turned sideways. For turning, the top strip structure 134 of the stationary pane 120 may have a handle 136.

[0016] In Figure 1, the pane 126 is being moved over the corner 106.

[0017] The bottom frame structure 116 may have a port, with which the panes 120 to 126 may be turned aside in the same manner as the pane 120 indicated by a dashed line.

[0018] Figures 2A and 2B show the glazing arrangement in more detail. The top frame structure 108 may comprise a fastening part 200 that may be fastened with screws or the like to the structures 202 of the building. The top rail part of the top frame structure 108 may be fastened to the fastening part 200 with screws or rivets 204, for example. The top strip structure 128 of each movable pane 122 to 126 comprises a vertical roll mechanism 206 that is arranged to support against the top rail part 110, 112 for the purpose of moving each movable pane 122 to 126 along the top frame structure 108. The top rail part 110, 112 is a long shape that is mainly a U profile in cross-section with the open portion downward and having a bracket 208 extending inward. The roll 210 of the top strip structure 128 roll mechanism 206 supports against the pane 122 to 126 when stationary and against the top rail part 110, 112 bracket 208 during move-direction rolling. The top strip structure 128 may also comprise a locking mechanism 212 of the pane 122 to 126, with which each pane 122 to 126 is locked into the sideways position after having been moved aside. The locking mechanism 212 may also adjust the distance between the panes 120 to 126 when they are moved into the sideways position.

[0019] The bottom strip structure 130 of each movable pane comprises a guide structure 214 for the purpose of moving each movable pane 122 to 126 in accordance with the bottom frame structure 114. In Figure 2A, the guide structure 214 comprises a hinge guide 216, on

which each movable pane 122 to 126 may be turned sideways to the rail parts 110, 112, 116, 118 to open up the space 102 completely. The hinge guide 216 is on one edge or near one edge of each movable pane 122 to 126.

[0020] Figure 2B shows a guide structure 214 that comprises a port guide 218. The port guide 218 maybe moved away from the bottom frame structure 114 through a port 138 when turning each movable pane 122 to 126 sideways to open up the space 102.

[0021] Figures 3A and 3B show a bottom frame structure 114 that comprises at least one wedge-shaped platform part 300 which is narrower at its ends 302, 304 than in the middle, and different ends 302, 304 of which extend to different bottom rail parts 116, 118. Figure 3A is a top view of the platform part 300 and Figure 3B is a side view of the platform part 300. The platform part 300 is usually positioned at the bottom of the U profile of the bottom rail parts 116, 118. The platform part 300 may be adjustable in elevation. Figure 3B indicates the adjustability with a dashed line that shows the possible upper position of the platform part 300 and with a solid line that shows the lower position of the platform part. The height of the platform part 300 may be adjusted with screws or corresponding fastening means 306 intended for fastening the platform part 300, which fasten the platform part 300 in place to the bottom rail parts 116, 118. Alternatively, the height of the platform part 300 may be adjusted separately with means intended for elevation adjustment, such as screws or the like.

[0022] Figures 4A and 4B show a situation, in which a pane 122 to 126 is in the corner 106 area. In Figure 4A, the hinge guide 216 is close to the platform part 300. This situation occurs, when a pane 122 to 126 is being moved over the corner 106.

[0023] In Figure 4B, the pane 122 to 126 is nearly in the situation of the pane 126 in Figure 1. The platform part 300 is then in contact with the hinge guide 216. The pane 122 to 126 cannot then move downward toward the platform part 300, but the platform part 300 supports the pane 122 to 126 and may thus prevent the vertical directional displacement of the pane 122 to 126 while the pane moves over the corner. The platform part 300 may also lift the pane 122 to 126 upward, when the pane 122 to 126 is in the corner 106 area. The roll 210 of the top strip structure 128 roll mechanism 206 may then to some extent rise off its support in the top rail part 110, 112. The roll 210 may then detach and move above the top rail part 110, 112 bracket 208, which may facilitate moving the pane 122 to 126 over the corner 106, because the sideways positioned roll 210 then does not drag along the top rail part 110, 112.

[0024] If there were no platform part 300, the turning of the roll 210 sideways on the top rail part 110, 112 would cause it to drop to the bottom of the top rail part 110, 112 U profile away from the bracket 208, whereby the entire pane 122 to 126 would come downward a few millimetres. This type of vertical displacement could result in that the pane 122 to 126 would no longer be movable horizontally,

because it would wedge tightly to other structures, and moving it over the corner would fail at least without manual support.

[0025] Figures 5A and 5B show the port guide 218 in the corner area. The glazing arrangement 100 may comprise a first platform part 300 for the hinge guide 216, but as shown in Figures 5A and 5B, the glazing arrangement may also comprise a second platform part 500 for the port guide 218. In Figure 5A, the port guide 218 is close to the platform part 500. This situation occurs, when a pane 122 to 126 is being moved over the corner 106.

[0026] In Figure 5B, the pane 122 to 126 is nearly in the situation of the pane 126 in Figure 1. The second platform part 500 is then in contact with the port guide 218. The pane 122 to 126 cannot then move downward toward the second platform part 500, but the second platform part 500 possibly together with the platform part 300 prevents the vertical directional displacement of the pane 122 to 126 while it moves over the corner. If there were no second platform part 500, the turning of the roll 210 sideways on the top rail part 110, 112 would cause it to drop to the bottom of the top rail part 110, 112 U profile away from the bracket 208, whereby the entire pane 122 to 126 would come downward a few millimetres. This type of vertical displacement could result in that the pane 122 to 126 would no longer be movable horizontally, because it would wedge tightly to other structures, and moving it over the corner would fail at least without manual support.

[0027] The second platform part 500 may also be adjustable in elevation like the platform part 300. The remaining dimensioning of the platform part 300, 500 is adapted to the rail parts 110, 112, 116, 118. The total length of the outer edge of the platform part 300, 500 may be from ten centimetres to several dozens of centimetres, for instance. The greatest height may, in turn, be from less than a centimetre to a few centimetres, for instance. The material of the platform part 300, 500 may be plastic or metal, for instance.

[0028] The upward gradient of the wedge of the platform part 300, 500 may be from less than a degree to a few degrees, for example. The upward gradient of the wedge of the platform part 300 may be 3°, for example, and that of the second platform part 500 may be 1°, for example.

[0029] Even though the invention is described above with reference to the examples of the attached drawings, it is clear that the invention is not restricted to them, but may be modified in a variety of ways within the scope of the accompanying claims.

Claims

1. A glazing arrangement (100) for a balcony or some other space (102) that comprises at least one corner (106), the glazing arrangement (100) comprising a top frame structure (108) that comprises at least

two straight top rail parts (110, 112) at the corner (106) of the balcony or some other space (102) at an angle to each other that equals that of the corner (106);

a bottom frame structure (114) that comprises at least two straight bottom rail parts (116, 118) at the corner (106) of the balcony or some other space (102) at an angle to each other that equals that of the corner (106);

at least two panes (120, 122, 124, 126), of which at least one pane (112 to 126) is movable over the corner (106);

a top strip structure (128) fastened to said at least one pane (122 to 126) to be moved over the corner (106), wherein each top strip structure (128) comprises a roll mechanism (206) arranged to support against the top frame structure (108) for the purpose of moving each movable pane (122 to 126) along the top frame structure (108);

a bottom strip structure (130) fastened to said at least one pane (122 to 126) to be moved over the corner (106), wherein each bottom strip structure (130) comprises a guide structure (214) for moving each movable pane (122 to 126) in accordance with the bottom frame structure (114), **characterized in that** the bottom frame structure (114) comprises at least one wedge-shaped platform part (300, 500) which is narrower at its ends (302, 304) than in the middle and the different ends (302, 304) of which extend to different bottom rail parts (116, 118); and each platform part (300, 500) is arranged to support the pane (112 to 126) by being in contact with the guide structure (214) when the pane (122 to 126) is in the corner (106) area.

2. A glazing arrangement as claimed in claim 1, **characterized in that** the guide structure (214) comprises a hinge guide (216), on which each movable pane (122 to 126) is arranged to be turned sideways in relation to the rail parts (110, 112, 116, 118) to open up the space (102), and a port guide (218) which is arranged to be detached from the bottom frame structure (114) when each movable pane (122 to 126) is turned sideways; and the glazing arrangement (100) comprises a first platform part (300) for the hinge guide (216), and a second platform part (500) for the port guide (218).
3. A glazing arrangement as claimed in claim 1, **characterized in that** at least one platform part (300, 500) is adjustable in elevation.
4. A glazing arrangement as claimed in claim 1, **characterized in that** each platform part (300, 500) is arranged to lift the pane (112 to 126) when the pane (122 to 126) is in the corner (106) area.
5. A glazing arrangement as claimed in claim 1, **char-**

acterized in that each platform part (300, 500) is arranged to lift the pane (112 to 126) in such a manner that a roll (210) detaches from a bracket (208), when the pane (122 to 126) is in the corner (106) area.

5

10

15

20

25

30

35

40

45

50

55

5

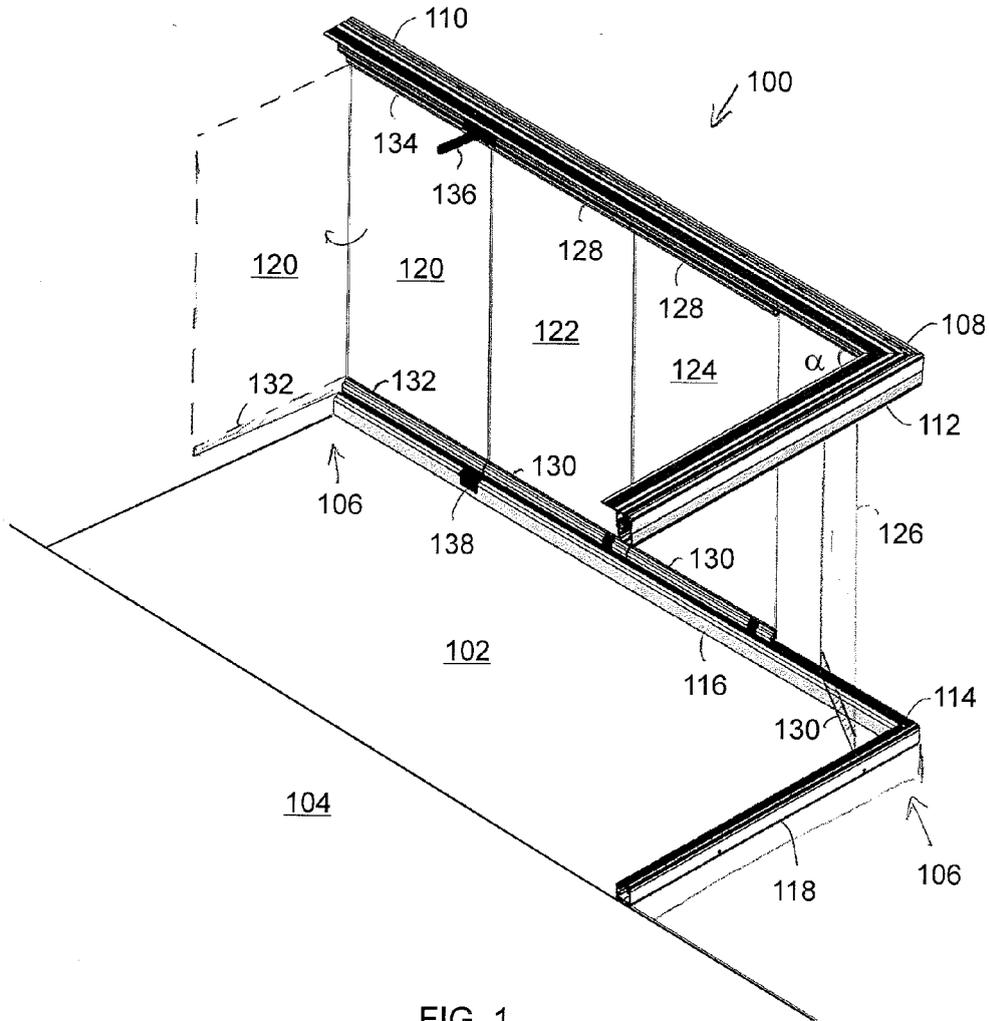


FIG. 1

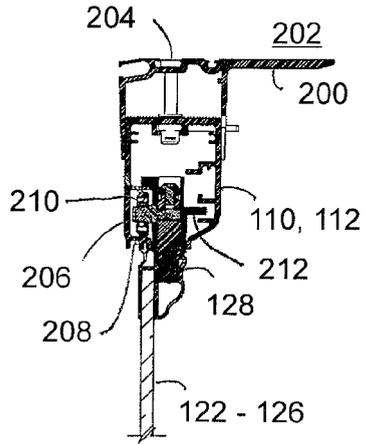


FIG. 2A

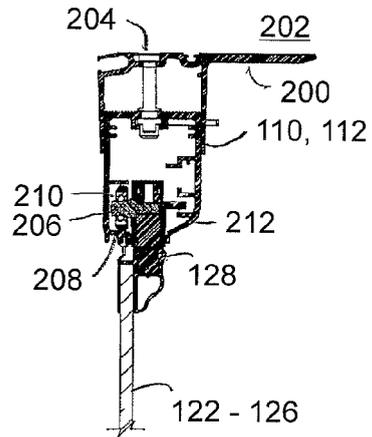
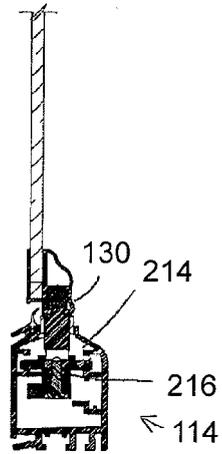
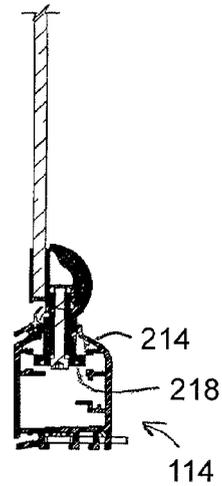


FIG. 2B



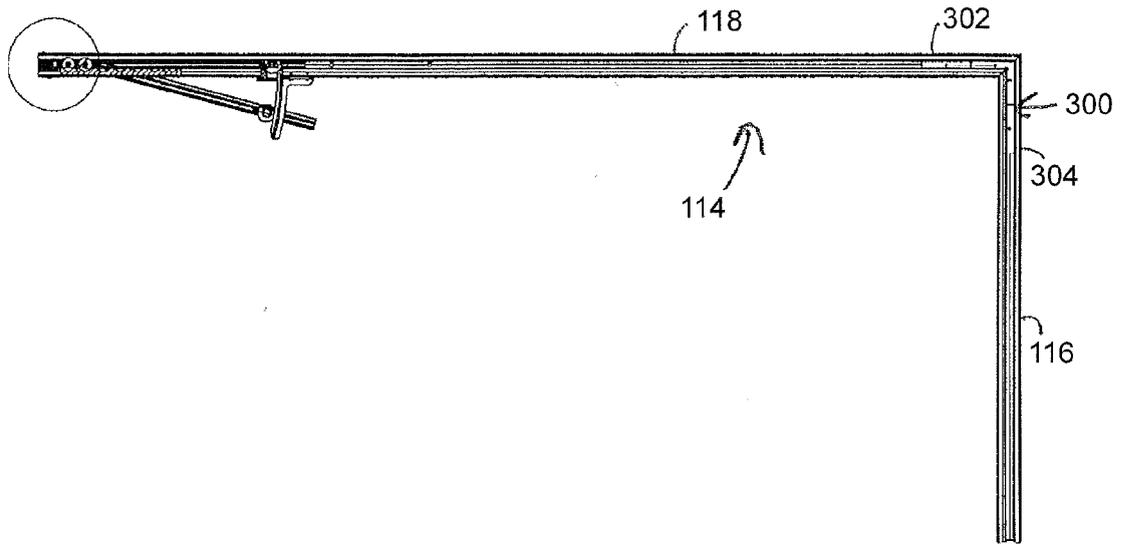


FIG. 3A

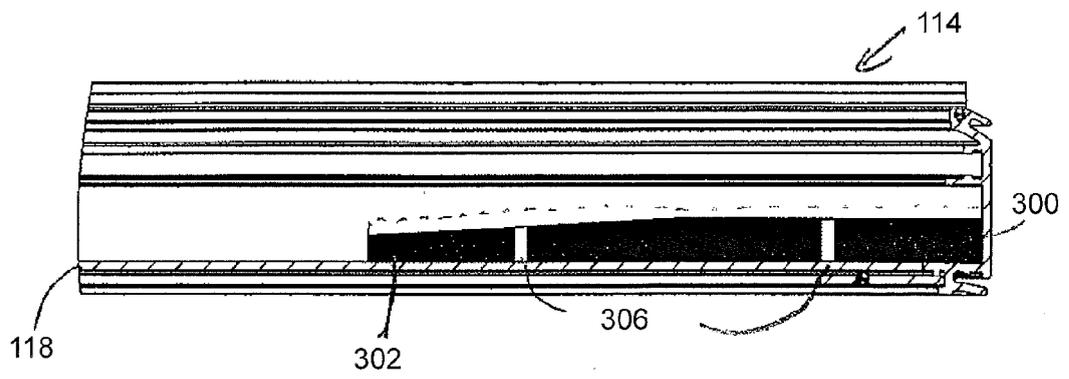


FIG. 3B

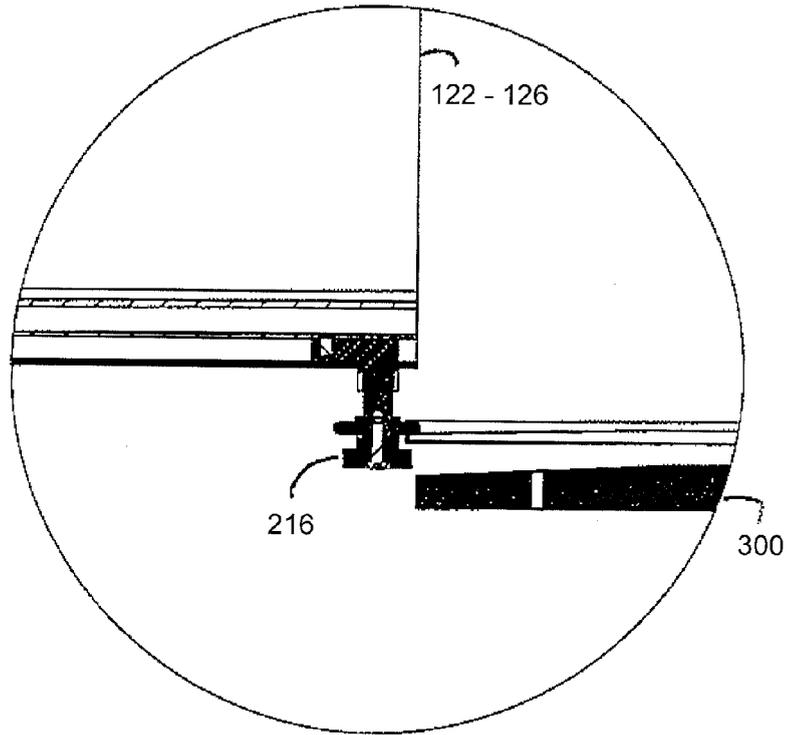


FIG. 4A

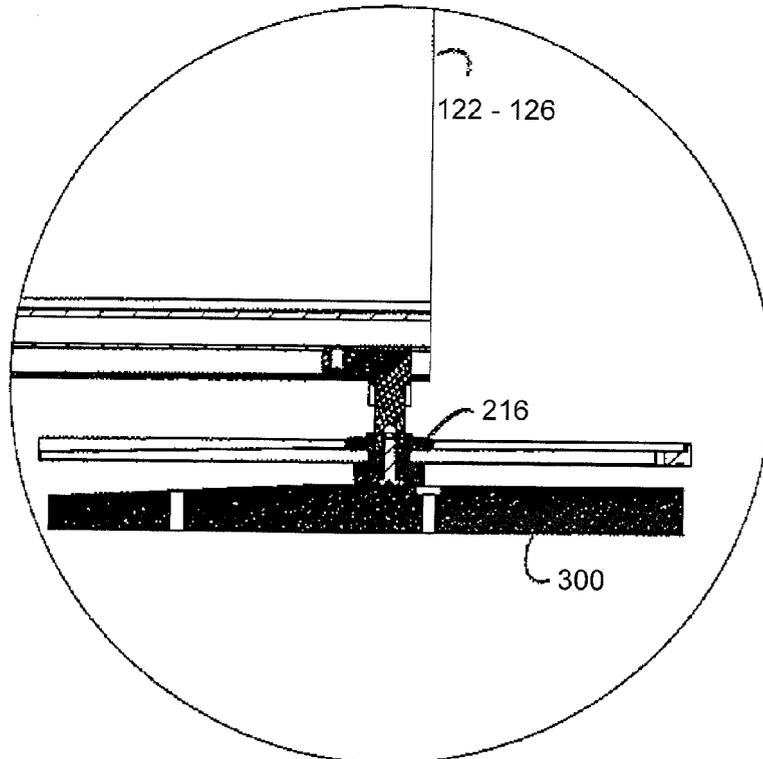


FIG. 4B

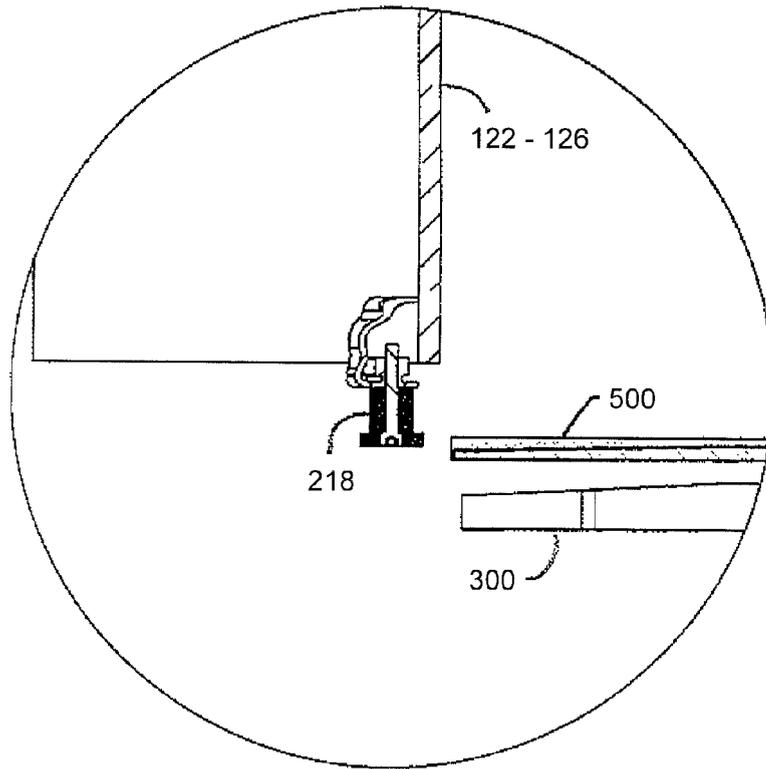


FIG. 5A

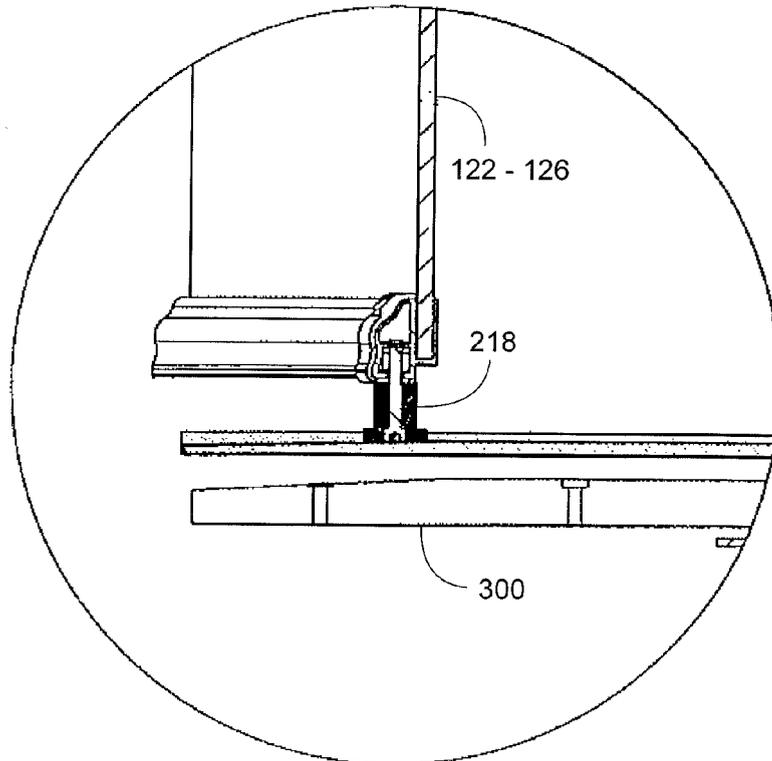


FIG. 5B



EUROPEAN SEARCH REPORT

Application Number
EP 12 16 5613

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 01/90524 A1 (ILOXI OY [FI]; KARHU NIIL OY [FI]) 29 November 2001 (2001-11-29) * page 2, line 24 - page 3; figures * -----	1	INV. E05D15/58 E05D15/06 E06B3/92
A	WO 02/14639 A1 (ILOXI OY [FI]; KARHU NIIL OY [FI]) 21 February 2002 (2002-02-21) * page 3, line 33 - page 7; figures * -----	1	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			E05D E06B
Place of search		Date of completion of the search	Examiner
The Hague		28 August 2012	Van Kessel, Jeroen
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	

1
EPO FORM 1503 03/82 (P04/C01)

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

EP 12 16 5613

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.

28-08-2012

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 0190524 A1	29-11-2001	AU 6237201 A	03-12-2001
		EP 1290308 A1	12-03-2003
		FI 20001215 A	23-11-2001
		WO 0190524 A1	29-11-2001

WO 0214639 A1	21-02-2002	AT 423262 T	15-03-2009
		AU 7984301 A	25-02-2002
		DK 1311738 T3	02-06-2009
		EP 1311738 A1	21-05-2003
		ES 2321691 T3	10-06-2009
		FI 20001815 A	17-02-2002
		NO 20030720 A	09-04-2003
WO 0214639 A1	21-02-2002		
