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(54) **A device for use on a corner of a frame**

(57) A device for use on a corner of a sash frame of the type having a recess along the outer frame side edges, the device includes a first part securable within the recess of the sash frame and a second part securable within the recess of the sash frame and adjacent the first

part, wherein the second part is configured to locate a part of a sash hardware component or act as a blanking plate, such that the first part forms a universal part for cooperating with a range of second parts according to the functionality required at a corner of the sash frame.

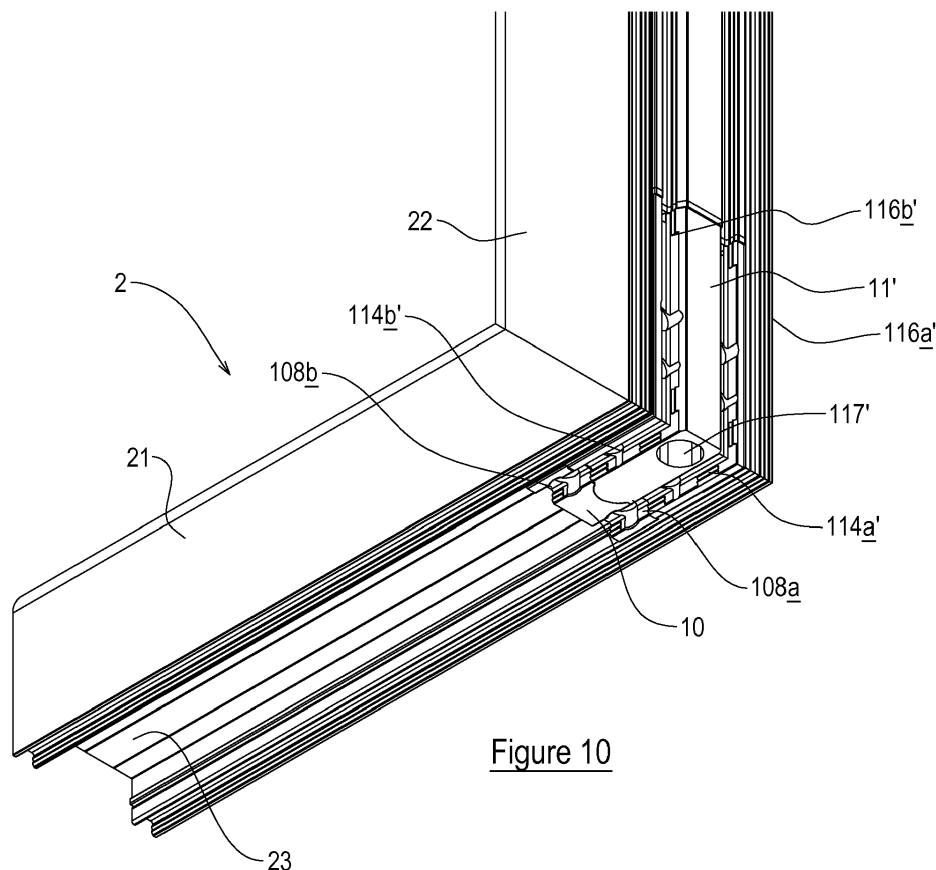


Figure 10

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Description

Description of Invention

[0001] This invention relates to a device for use on a corner of a frame and to a kit of parts including such a device. In particular, the invention relates to a device for use on a frame (e.g. a sash frame for a window, a door; or a bi-fold or multi-fold door) including, but not limited to, sash frames formed from un-plasticised polyvinyl chloride (PVC-U) or composite materials.

[0002] Sash frames (i.e. glazed doors or windows) are typically constructed from glazed panels mounted within a frame. The frame members may, for example, be formed from PVC-U or composite materials (e.g. wood-plastics composite materials) which are typically fabricated as extrusions and then cut to a desired length and joined together to form the frame. The frame members may be welded together to form the corner joints or may be secured by other fixing methods, such as utilising corner brackets that are fixed to adjoining frame members around the corners.

[0003] Frame corners typically provide a convenient location for mounting sash hardware, such as sliding door runners, bogie assemblies, hinge assemblies, corner drives, and buffers and so forth; and for accommodating parts of sash hardware that may be mounted elsewhere on the sash frame, such as locking assembly parts, e.g. shoot bolts.

[0004] It is an object of the present invention to provide a device which seeks to improve the flexibility of a sash frame with respect to locating and/or accommodating sash hardware.

[0005] It is a further object of the present invention to provide a device which seeks to decrease the time it takes to fabricate a sash frame at a site of installation.

[0006] In one aspect of the present invention we provide a device for use on a corner of a sash frame of the type having a recess along the outer frame side edges, the device including a first part securable within the recess of the sash frame and a second part securable within the recess of the sash frame and adjacent the first part, wherein the second part is configured to locate a part of a sash hardware component or act as a blanking plate, such that the first part forms a universal part for cooperating with a range of second parts according to the functionality required at a corner of the sash frame.

[0007] Further features of the invention are set out in the dependent claims thereto which are appended hereto.

[0008] Embodiments of the various aspects of the invention will now be described by way of example only, with reference to the accompanying drawings, of which:

Figure 1 shows views (a to d) of a device according to a first embodiment;

Figure 2 shows views (a to d) of a device according to a second embodiment;

Figure 3 shows views (a to d) of a device according to a third embodiment;

Figure 4 shows views (a to d) of a device according to a fourth embodiment;

Figure 5 shows views (a to f) of a first part of the device;

Figure 6 shows a view of the first part of the device fitted to a corner of a sash frame;

Figure 7 shows views (a to f) of a second part of the device according to the first embodiment;

Figure 8 shows a view of the second part shown in figure 7 fitted to a corner of a sash frame;

Figure 9 shows views (a to f) of a second part of the device according to the second embodiment;

Figure 10 shows a view of the second part shown in figure 9 fitted to a corner of a sash frame;

Figure 11 shows the view of figure 10 including a part of a sash hardware component;

Figure 12 shows views (a to f) of a second part of the device according to the third embodiment;

Figure 13 shows a view of the second part shown in figure 12 fitted to a corner of a sash frame;

Figure 14 shows the view of figure 13 including a part of a sash hardware component;

Figure 15 shows views (a to f) of a second part of the device according to the fourth embodiment;

Figure 16 shows a view of the second part shown in figure 15 fitted to a corner of a sash frame; and

Figure 17 shows the view of figure 16 including a part of a sash hardware component.

[0009] Referring initially to figures 1 to 4 of the appended drawings, there are shown devices, indicated generally at 1, 1', 1'', 1''', according to respective first, second, third and fourth embodiments of the invention.

[0010] Each embodiment includes a universal first part 10 (figure 1a, 2a, 3a, 4a).

[0011] Device 1 includes a second part 11 (figure 1b). The first and second parts 10, 11 are shown attached to one another in perspective (figure 1c) and from the side (figure 1d).

[0012] Device 1' includes a second part 11' (figure 2b). The first and second parts 10, 11' are shown attached to one another in perspective (figure 2c) and from the side (figure 2d).

[0013] Device 1'' includes a second part 11'' (figure 3b). The first and second parts 10, 11'' are shown attached to one another in perspective (figure 3c) and from the side (figure 3d).

[0014] Device 1''' includes a second part 11''' (figure 4b). The first and second parts 10, 11''' are shown attached to one another in perspective (figure 4c) and from the side (figure 4d).

[0015] Figure 5 shows side (b-e) and end views (a, f) of the first part 10. The first part 10 may be substantially L-shaped and include a pair of members 10a, 10b arranged substantially orthogonal to one another. First member 10a may be provided with pairs of apertures 101

a, 101b; 102a, 102b; 103a, 103b for receiving screws. The first member 10a may also include a mating formation, indicated generally at 106, in the form of a semi-circular channel extending along the length of the first member 10a from one open end to another open end. In some embodiments the mating formation 106 need not be open ended at one or both ends of the first member 10a. Indeed, in some embodiments the mating formation 106 may extend partially along the length of the first member 10a. In some embodiments the mating formation 106 may take other forms, such as the form of a rebate, groove or projection and so forth.

[0016] Additional or alternative mating formations 106a, 106b may be provided in the first member 10a. In some embodiments the mating formations 106, 106a, 106b may be provided on an outwardly facing surface of the first part 10. By outwardly facing, we mean that the surface is visible once the first part 10 has been fitted to a frame.

[0017] The second member 10b may be provided at its distal end with an extension 107 that is thicker than the remainder of the second member 10b when viewed from the side (figures 5b and 5d). The extension 107 may be provided with a pair of tracks 108a, 108b for receiving, for example, sealing strips (not shown). The second member 10b may also include an aperture 109, which aperture 109 has a larger periphery than the apertures intended for receiving screws. The extension 107 may include a mating formation 109a (figure 5f), which mating formation 109a may define at least a portion of the periphery of the aperture 109.

[0018] Figure 6 shows a perspective view from below of a corner of a sash frame, indicated generally at 2, fitted with the first part 10. The sash frame 2 is formed from at least two sash frame members 21, 22 which are typically fabricated as extrusions and then cut to a desired length and joined together at their ends. The sash frame members 21, 22 may be formed from PVC-U or composite materials (e.g. wood-plastics composite materials). The sash frame members 21, 22 have a recess 23 along the outer frame side edges within which the first part 10 is wholly receivable. Because the first part 10 may be substantially L-shaped it fits into a corner of the sash frame 2 to secure the sash frame members 21, 22 to one another. As will be appreciated the mating formations 106, 106a, 106b are visible.

[0019] During fabrication of a sash frame 2 a fabricator fits a universal first member 10 into each corner to provide the sash frame 2 with a secure and robust configuration. Fixings, such as screws, may be provided within some or all of the apertures 101 a, 101b; 102a, 102b; 103a, 103b; 104a, 104b; 105a, 105b. Typically, fixings are provided within apertures 103a, 103b; 104a, 104b to first releasably secure the first part 10 to the sash frame 2. Additionally or alternatively, the first part 10 may be secured to the sash frame 2 by other means, such as by utilising adhesive or another bonding agent. In such embodiments, the apertures for receiving screws need not

be included on the first part 10.

[0020] Figure 7 shows side (b-e) and end views (a, f) of the second part 11 of the device 1 according to an embodiment of the invention. The second part 11 may be substantially L-shaped and include a pair of members 11 a, 11 b arranged substantially orthogonal to one another. The first member 11 a may be provided with pairs of apertures 111 a, 111 b; 112a, 112b for receiving screws. The first member 11 a may include a pair of tracks 116a, 116b for receiving, for example, sealing strips (not shown).

[0021] The second member 11 b may be provided with a pair of apertures 113a, 113b for receiving screws. The second member may include a pair of tracks 114a, 114b. The second part 11 may include mating formations 115a, 115b, 115c provided on one or both of the first and second members 11 a, 11 b. The mating formations 115a, 115b, 115c may be in the form of semi-circular projections, although other formations are anticipated.

[0022] Figure 8 shows a perspective view from below of a corner of a sash frame 2 fitted with the first and second parts 10, 11. During fabrication of a sash frame 2 a fabricator fits a second part 11 into a corner of the sash frame 2 where no sash hardware is to be mounted or accommodated. The second part 11 is securable within the recess 23 and in contact with the first part 10. The outwardly facing surface (i.e. the bit visible when in use) of the second part 11 is generally flat and is aesthetically pleasing on the eye. Typically, fixings are provided within apertures 111 a, 111 b; 113a, 113b. The fixings extend through the first and second parts 10, 11 and into the sash frame 2 to permit the second part 11 to be releasably secured to the sash frame 2. During assembly the mating formations 115a, 115b, 115c of the second part 11 fit within the corresponding mating formations 106, 109a of the first part 10 to permit the fabricator to assemble the sash frame quickly and easily. In some embodiments, at least one aperture of the first part 10 may be aligned with a corresponding aperture of the second part 11, such that fixings may extend through both the first and second parts 10, 11 and into the sash frame 2. This further improves alignment of the first and second parts 10, 11 and permits ease of assembly of the sash frame 2. It will be appreciated that it is important to accurately align the first and second parts 10, 11 so as to ensure a secure and robust frame construction. It is also important to align the first and second parts 10, 11 to ensure that the corresponding tracks 108a, 108b; 114a, 114b of the respective first and second parts 10, 11 are in line so as to receive the sealing strips.

[0023] Figure 9 shows side (b-e) and end views (a, f) of the second part 11' of the device 1' according to another embodiment of the invention. The second part 11' may be substantially L-shaped and include a pair of members 11 a', 11 b' arranged substantially orthogonal to one another. The first member 11 a' may be provided with pairs of apertures 111 a', 111 b'; 112a', 112b' for receiving screws. The first member 11 a' may include a pair of

tracks 116a', 116b'.

[0024] The second member 11 b' may be provided with a pair of apertures 113a', 113b' for receiving screws. The second member 11 b' may include a pair of tracks 114a', 114b'. The second part 11' may include mating formations 115a', 115b', 115c' provided on one or both of the first and second members 11 a', 11b'.

[0025] The second part 11' includes a channel 117'. The channel 117' may be provided on an inwardly facing surface of the first member 11a'. By inwardly facing, we mean that the channel 117' is located between the first part 10 and the second part 11' once the second part 11' has been fitted to the sash frame 2. The channel 117' may extend from one open end of the first member 11 a' to another open end, so as to accommodate and guide a part of a locking assembly of the sash frame 2. In some embodiments the channel 117' may extend partially along the first member 11a'. In some embodiments the channel 117' need not be open-ended.

[0026] Figure 10 shows a perspective view from below of a corner of a sash frame 2 fitted with the first and second parts 10, 11'. Fabrication of the sash frame 2 may follow the same construction as previously described with reference to figure 8, though where a corner of the sash frame 2 is to accommodate a shoot bolt 3 of a sash locking assembly (not shown) the fabricator fits a second part 11' to that corner of the sash frame 2. During assembly the mating formations 115a', 115b', 115c' of the second part 11' fit within the corresponding mating formations 106, 109a of the first part 10 to permit the fabricator to assemble the sash frame 2 quickly and easily. The outwardly facing surface (i.e. the bit visible when in use) of the second part 11' is generally flat and is aesthetically pleasing on the eye. The channel 117' permits a shoot bolt 3 (shown in figure 11) to be guided through the second part 11'. Thus, whilst providing the corner of the sash frame 2 with aesthetic appeal the device 1' provides the corner with a means to accommodate required functionality.

[0027] Figure 12 shows side (b-e) and end views (a, f) of the second part 11" of the device 1" according to another embodiment of the invention. The second part 11" may be substantially L-shaped and include a pair of members 11 a", 11b" arranged substantially orthogonal to one another. The first member 11 a" may be provided with pairs of apertures 111 a", 111 b"; 112a", 112b" for receiving screws.

[0028] The second member 11b" may be provided with a pair of apertures 113a", 113b" for receiving screws. The second part 11" may include mating formations 115a", 115b", 115c" provided on one or both of the first and second members 11 a", 11b". The second member 11b" may be provided at its distal end with an extension 118" that is thicker than the remainder of the second member 11b" when viewed from the side (figures 12b and 12d).

[0029] The second part 11" includes a channel 117". The channel 117" may be provided on an outwardly fac-

ing surface of the first member 11 a", so as to locate a part of a hinge assembly of the sash frame 2. The channel 117" may extend from one open end of the first member 11 a" to another open end. In some embodiments the channel 117" may extend partially along the first member 11a". In some embodiments the channel 117" need not be open-ended.

[0030] Figure 13 shows a perspective view from below of a corner of a sash frame 2 fitted with the first and second parts 10, 11". Fabrication of the sash frame 2 may follow the same construction as previously described with reference to figures 8 and 10, though where a corner of the sash frame 2 is to accommodate a part 41 of a hinge assembly 4 (shown in figure 14) the fabricator fits a second part 11" to that corner of the sash frame 2. During assembly, the mating formations 115a", 115b", 115c" of the second part 11" fit within corresponding mating formations 106, 109a of the first part 10 to permit the fabricator to assemble the sash frame 2 quickly and easily. The outwardly facing surface (i.e. the bit visible when in use) of the second part 11" includes the channel 117", which channel 117" permits the part 41 to fit within the second part 11". It is to be appreciated that (when installed) the channel 117" of the second part 11" accommodates the part 41 when the system (e.g. a bi-fold door) within which the sash frame 2 is incorporated is closed.

[0031] Figure 15 shows side (b-e) and end views (a, f) of the second part 11" of the device 1" according to another embodiment of the invention. The second part 11" may be substantially L-shaped and include a pair of members 11 a", 11b" arranged substantially orthogonal to one another. The first member 11a" may be provided with pairs of apertures 111 a", 111b"; 112a", 112b"; 113a", 113b"; 114a", 114b" for receiving screws. The first member 11 a" may include an extension 1100" at one end thereof. The extension 1100" may be thicker than the remainder of the first member 11 a". The extension may include a socket 1101" for accommodating a part of a sash hardware component (not shown). The socket 1101" may be adapted so that the part of the sash hardware component may be releasably secured to the first member 11 a". For instance, the socket 1101" may be defined by a screw thread.

[0032] The second member 11b" may be provided with a pair of apertures 119a", 119b" for receiving screws. The second part 11" may include mating formations 115a", 115b", 115c" provided on one or both of the first and second members 11a", 11b". The second member 11b" may be provided at its distal end with an extension 118" that is thicker than the remainder of the second member 11b" when viewed from the side (figures 15b and 15d).

[0033] The second part 11" includes a channel 117". The channel 117" may be provided on an inwardly facing surface of the first member 11 a", so as to locate a part of a bogie assembly of the sash frame 2. The channel 117" may extend from one open end of the first member

11a''' to another open end. In some embodiments the channel 117''' may extend partially along the first member 11 a'''. In some embodiments the channel 117''' need not be open-ended.

[0034] Figure 16 shows a perspective view from below of a corner of a sash frame 2 fitted with the first and second parts 10, 11'''. Fabrication of the sash frame 2 may follow the same construction as previously described with reference to figures 8, 10 and 13, though where a corner of the sash frame 2 is to accommodate a part 51 of a bogie assembly 5 (shown in figure 17) the fabricator fits a second part 11''' to that corner of the sash frame 2. During assembly, the mating formations 115a'', 115b''' fit within corresponding mating formations 106a, 106b of the first part 10 and mating formation 115c''' fits within corresponding mating formation 109a of the first part 10. The outwardly facing surface (i.e. the bit visible when in use) of the second part 11'' includes the channel 117'', which channel 117'' permits the part 51 to fit within the second part 11''. A locking part (not shown) of the bogie assembly 5 may be fitted (e.g. screwed) within the socket 1101''' to hold the bogie assembly 5 securely in place.

[0035] The devices 1, 1', 1'', 1''' of the present invention provide flexibility to a sash frame 2 when it comes to the type of functionality required to locate or accommodate parts of sash hardware. Moreover, the devices 1, 1', 1'', 1''' enable a fabricator to quickly and easily assemble a sash frame 2.

[0036] Whilst the parts 10, 11, 11', 11'', 11''' of the illustrated embodiment include pairs of apertures for receiving screws, other embodiments may include a single row or apertures without departing from the scope of the invention. Indeed, the parts 10, 11, 11', 11'', 11''' of some embodiments may include fewer or greater numbers of apertures than that illustrated. For instance, a single aperture may be provided in one or the other of the first or second members of one or more of the parts 10, 11, 11', 11'', 11'''. Some embodiments need not include any apertures, and instead may be securable by other methods, such as by utilising adhesive or another bonding agent.

[0037] When used in this specification and claims, the terms "comprises" and "comprising" and variations thereof mean that the specified features, steps or integers are included. The terms are not to be interpreted to exclude the presence of other features, steps or components.

[0038] The features disclosed in the foregoing description, or the following claims, or the accompanying drawings, expressed in their specific forms or in terms of a means for performing the disclosed function, or a method or process for attaining the disclosed result, as appropriate, may, separately, or in any combination of such features, be utilised for realising the invention in diverse forms thereof.

Claims

1. A device for use on a corner of a sash frame of the type having a recess along the outer frame side edges, the device including a first part securable within the recess of the sash frame and a second part securable within the recess of the sash frame and adjacent the first part, wherein the second part is configured to locate a part of a sash hardware component or act as a blanking plate, such that the first part forms a universal part for cooperating with a range of second parts according to the functionality required at a corner of the sash frame.
2. A device according to claim 1, wherein the first part is, or is substantially, L-shaped so as to be securable within the recess around a corner of the sash frame.
3. A device according to claim 1 or claim 2, wherein the second part is, or is substantially, L-shaped so as to be securable within the recess and around at least a portion of an outwardly facing surface of the first part.
4. A device according to any preceding claim, wherein the second part is provided with a channel which extends at least partially along an axis aligned with the recess of the sash frame, and wherein a part of a sash hardware component is locatable within the channel; OR wherein the second part is provided with a channel which extends at least partially along an axis aligned with the recess of the sash frame, and wherein a part of a sash hardware component is locatable within the channel and wherein the channel extends from a first opening at one end of the second part to a second opening at the other end of the second part so as to provide a passageway through the second part from the first opening to the second opening.
5. A device according to claim 4, wherein the channel is provided with a socket at one or both of the first and second openings, the or each socket being configured to permit attachment of a part of a sash hardware component to the second part.
6. A device according to claim 4 or claim 5, wherein the channel is provided in an outwardly facing surface of the second part; OR wherein the channel is provided in an inwardly facing surface of the second part.
7. A device according to any preceding claim, wherein a part of the sash hardware component is one of a hinge assembly a bogie assembly and a locking assembly.
8. A device according to any preceding claim, wherein

the first and second parts are configured to locate a part of a sash hardware component.

9. A device according to any one of claims 1 to 6, wherein the second part is a blanking plate for use when no sash hardware is to be utilised at a corner of the sash frame. 5

10. A device according to any preceding claim, wherein at least one member of the first part is provided with at least one aperture for receiving a screw that engages the sash frame to permit the first part of the device to be releasably secured to the sash frame. 10

11. A device according to any preceding claim, the first part of the device including two members, wherein each member is provided with at least one aperture for receiving respective screws that engage adjacent frame members of the sash frame around a corner thereof to releasably secure the first part of the device to the sash frame. 15
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12. A device according to any preceding claim, wherein the second part is provided with at least one aperture for receiving a screw that engages the first part to permit the second part to be releasably secured to the sash frame. 25

13. A device according to any preceding claim, wherein at least one member of each of the first part and second part is provided with at least one aperture aligned with respect to each other for receiving a screw that engages the sash frame to permit the first and second parts to be releasably secured to the sash frame. 30
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14. A device according to any preceding claim, wherein the first and second parts are provided with corresponding mating formations for aligning the first part with the second part during assembly thereof. 40

15. A kit of parts including:
 - at least one sash frame member of the type having a recess along the outer side edge thereof; 45
 - and
 - a device including a first part securable within the recess of the sash frame member and a second part securable within the recess of the sash frame member and adjacent the first part, wherein the second part is configured to locate a part of a sash hardware component or act as a blanking plate, such that the first part forms a universal part for cooperating with a range of second parts according to the functionality required at a corner of the sash frame. 50
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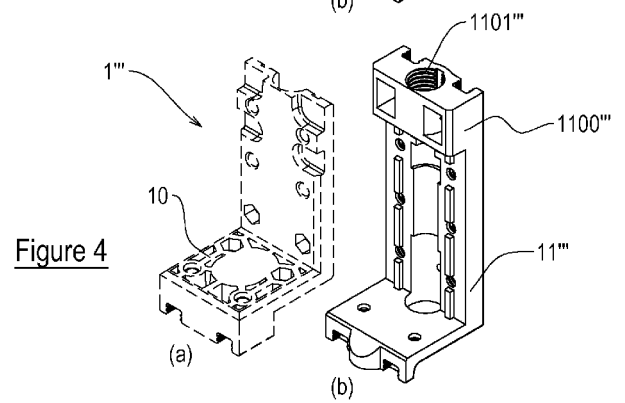
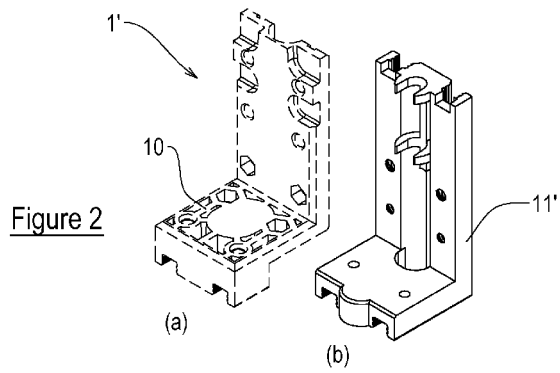
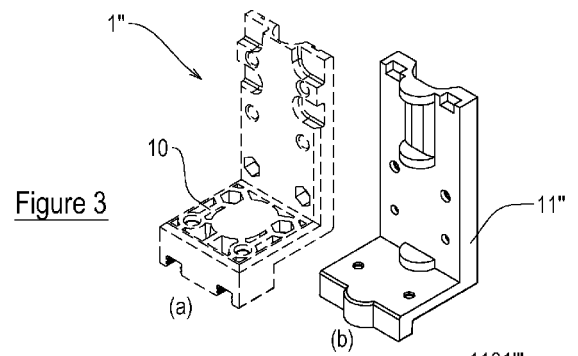
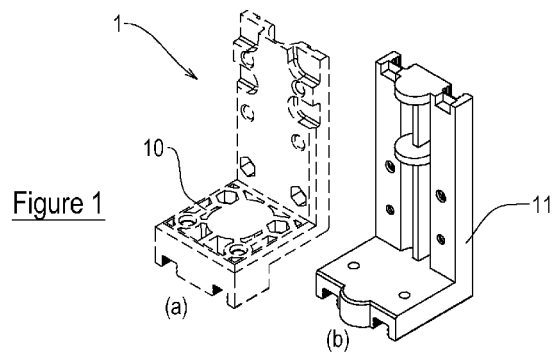


Figure 1

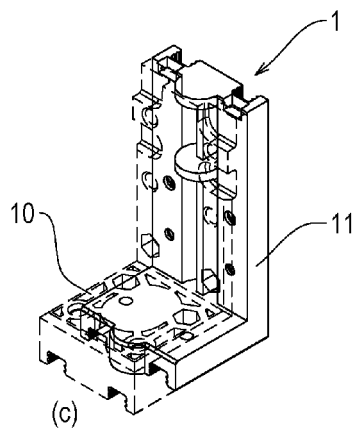


Figure 3

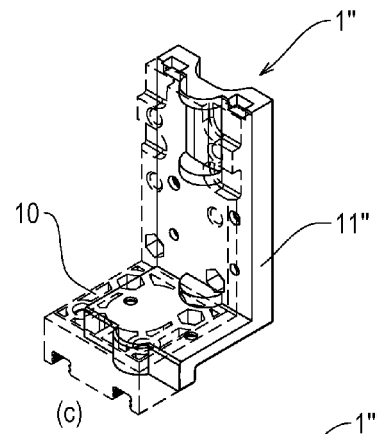


Figure 2

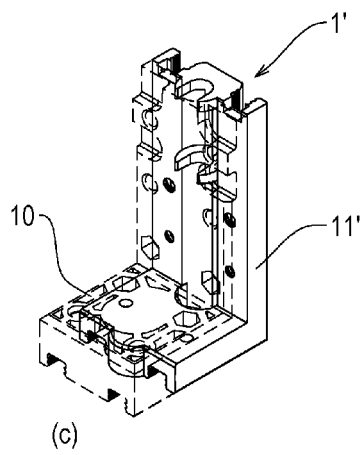
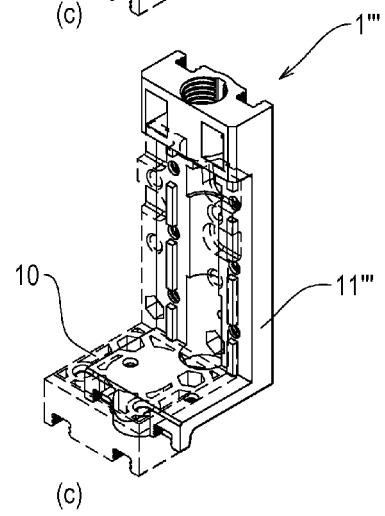


Figure 4



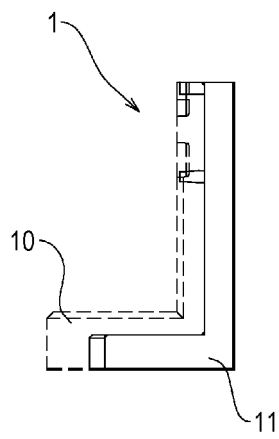


Figure 1(d)

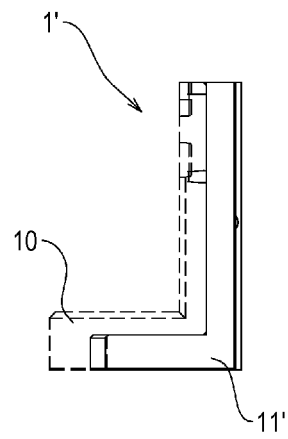


Figure 2(d)

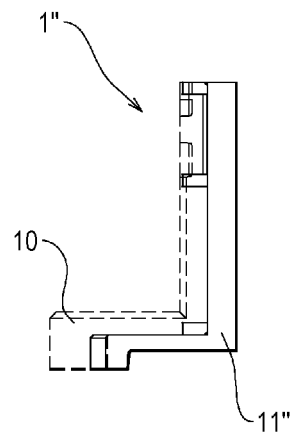


Figure 3(d)

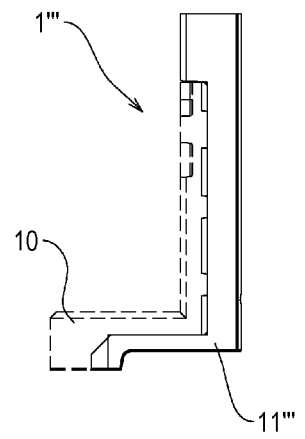


Figure 4(d)

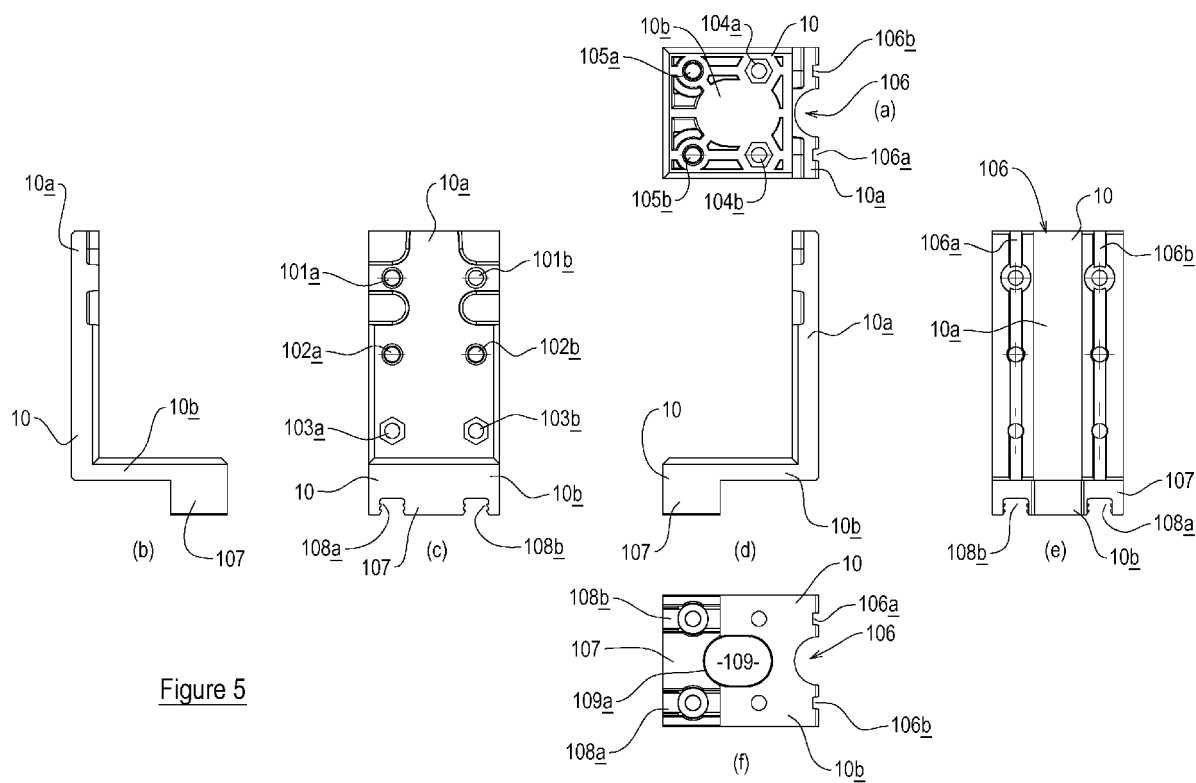
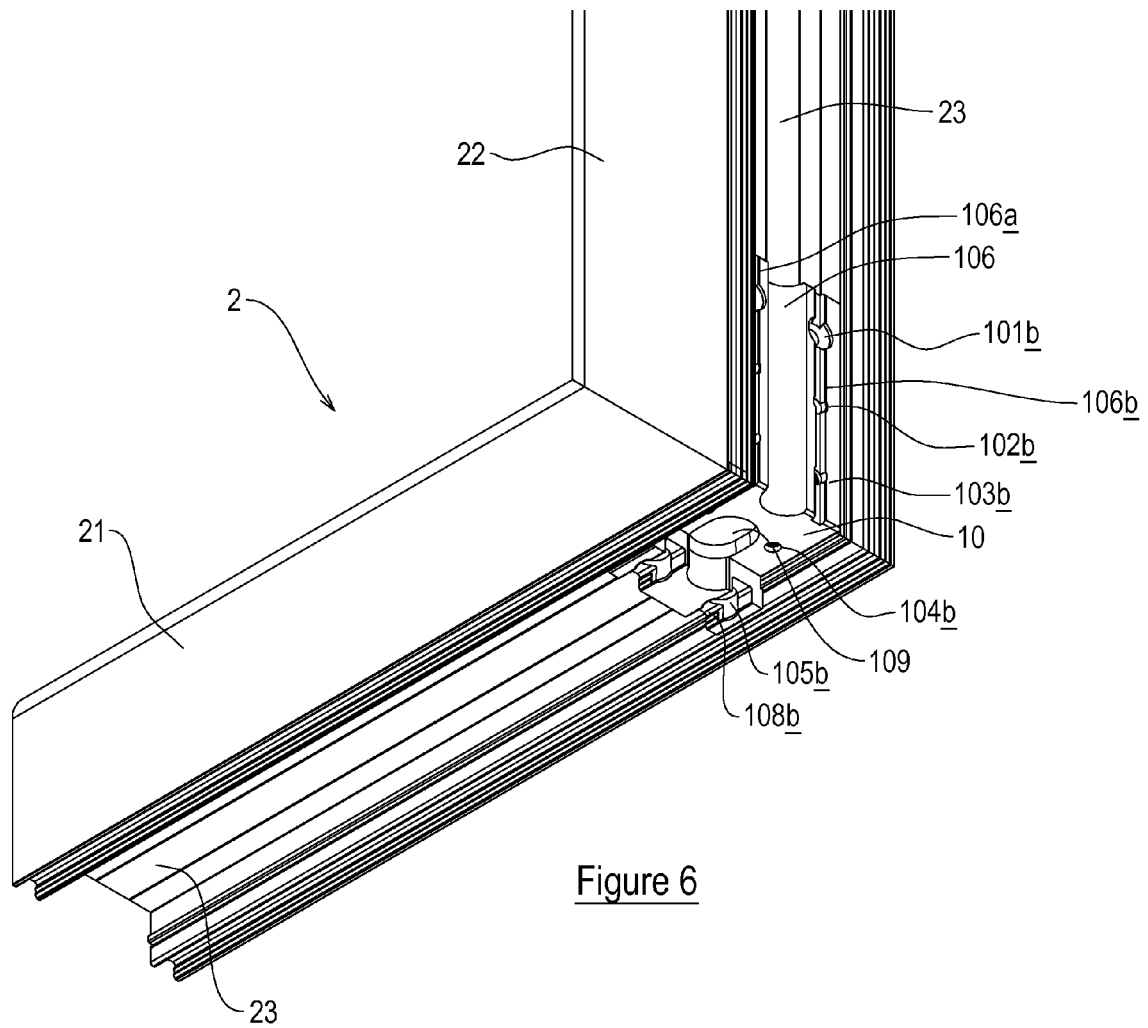


Figure 5



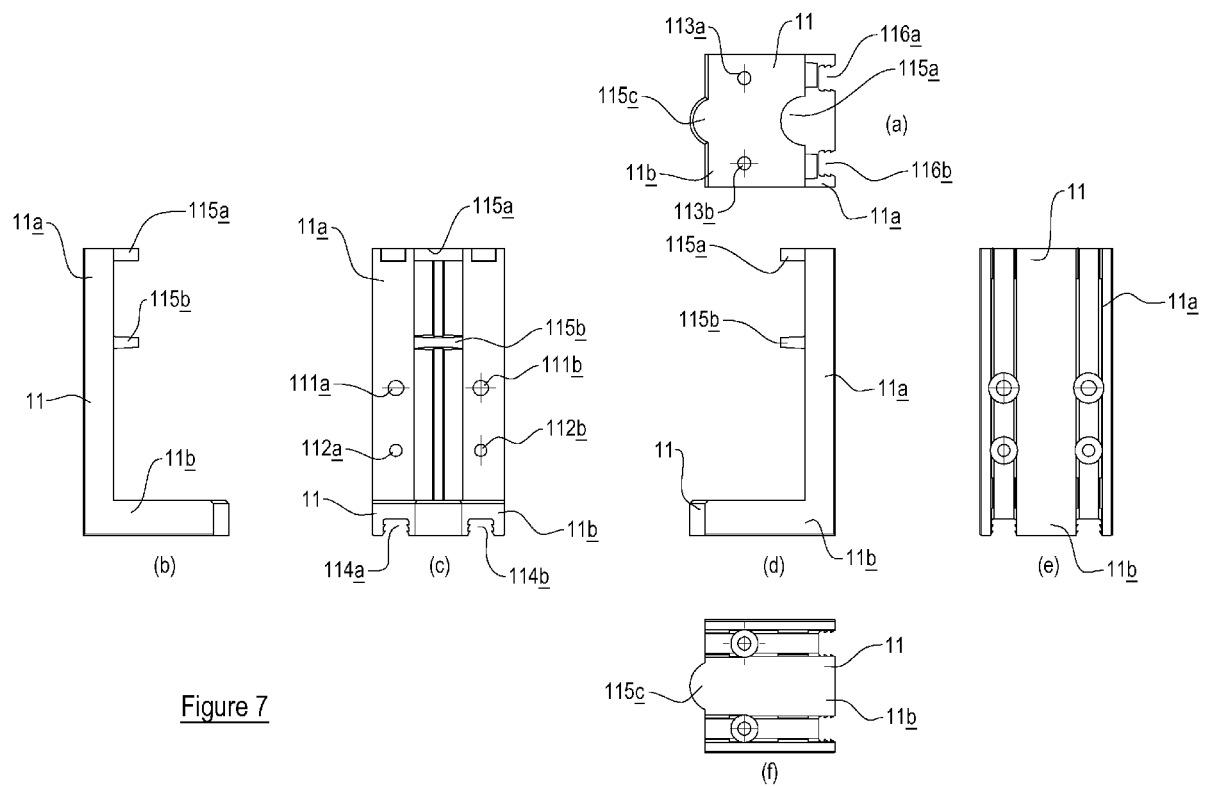


Figure 7

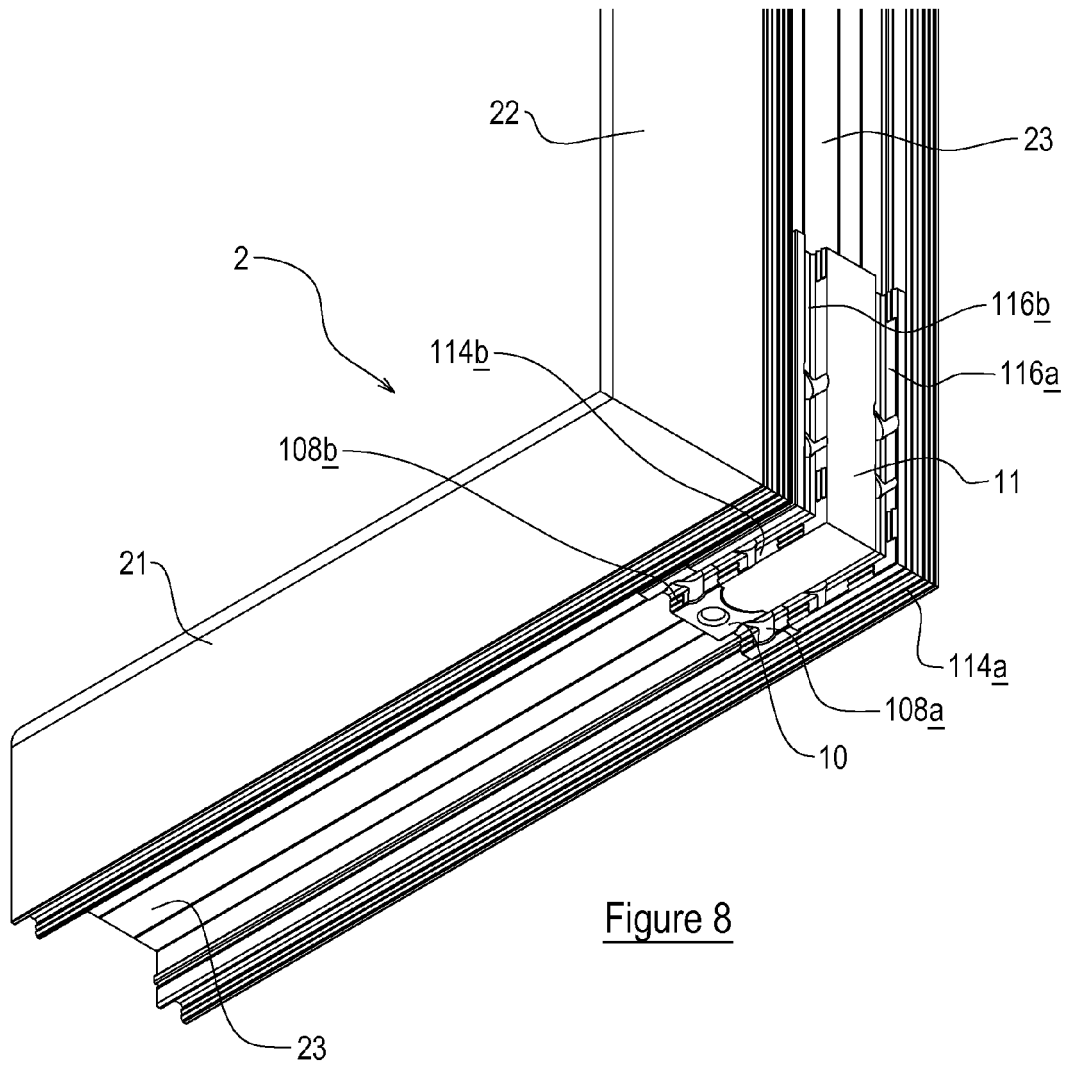


Figure 8

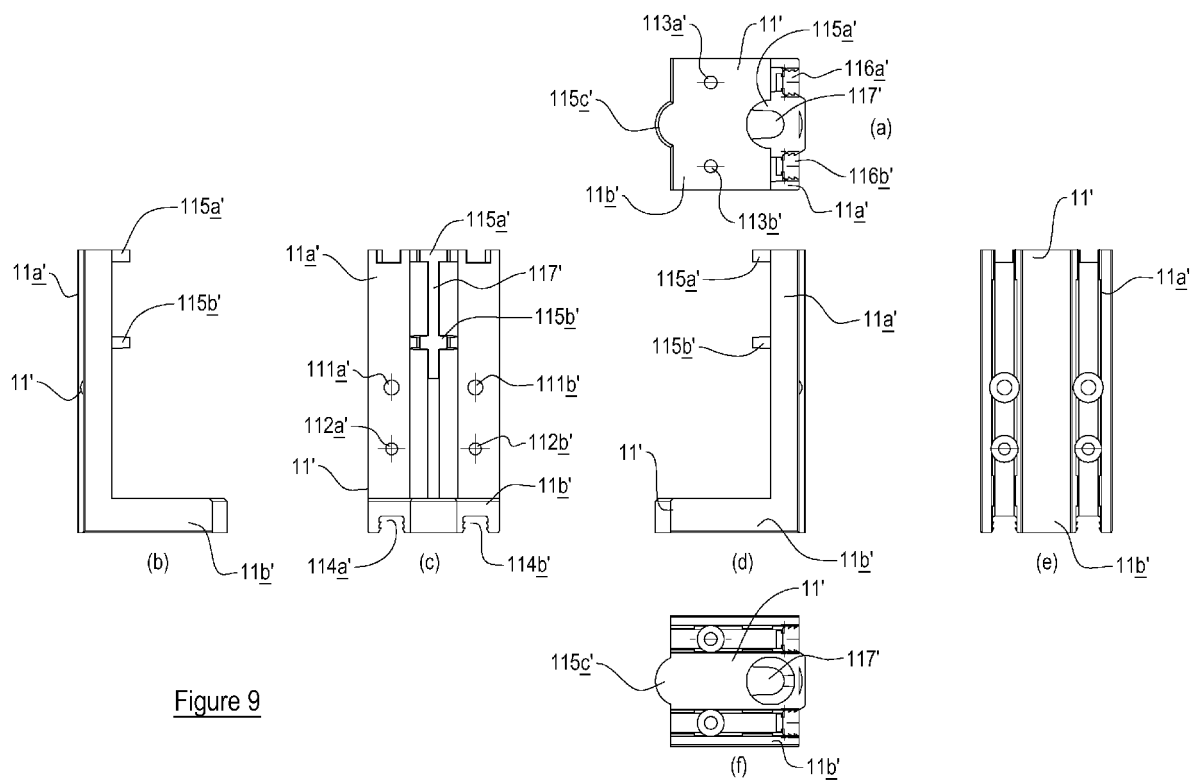


Figure 9

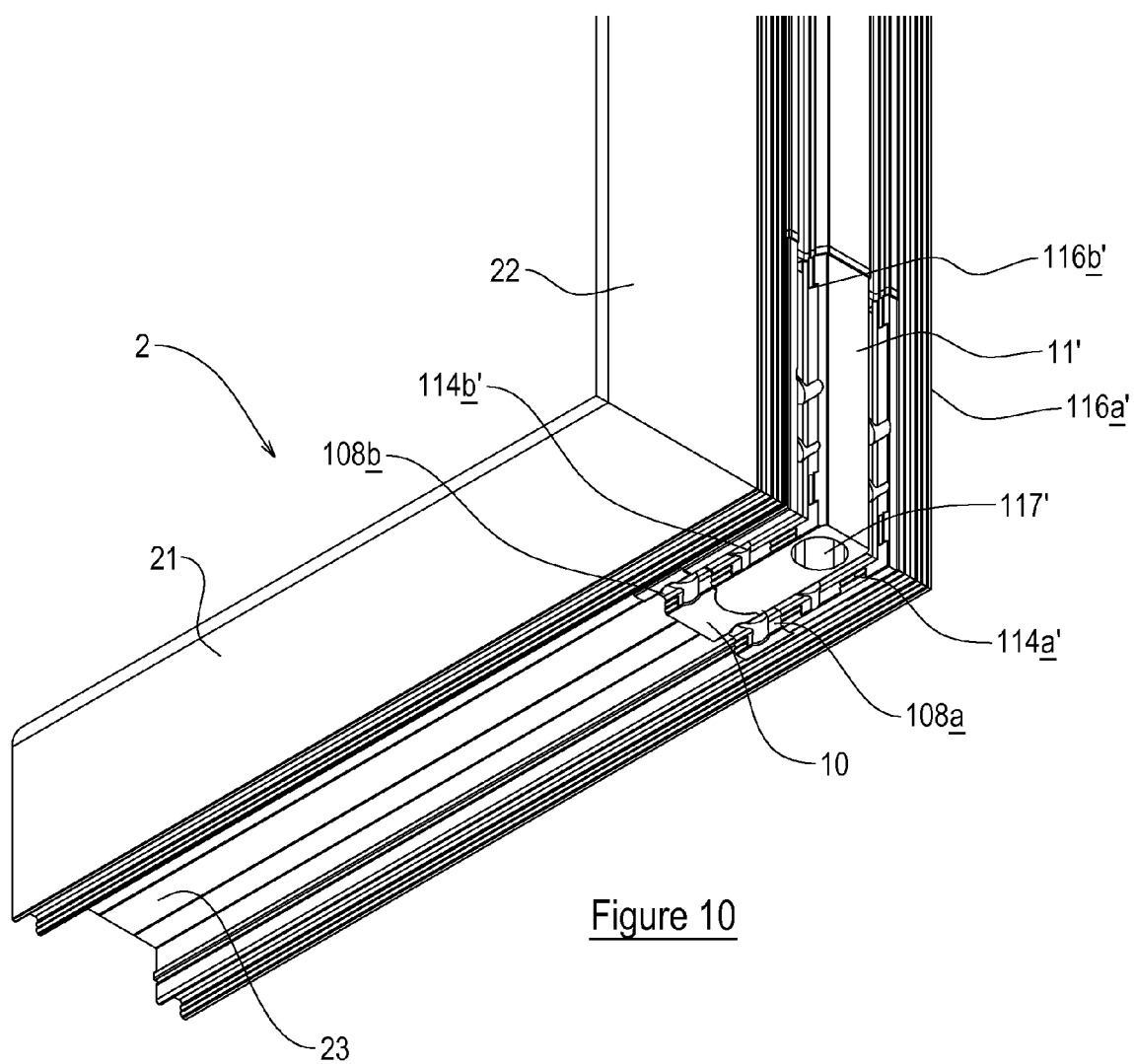


Figure 10

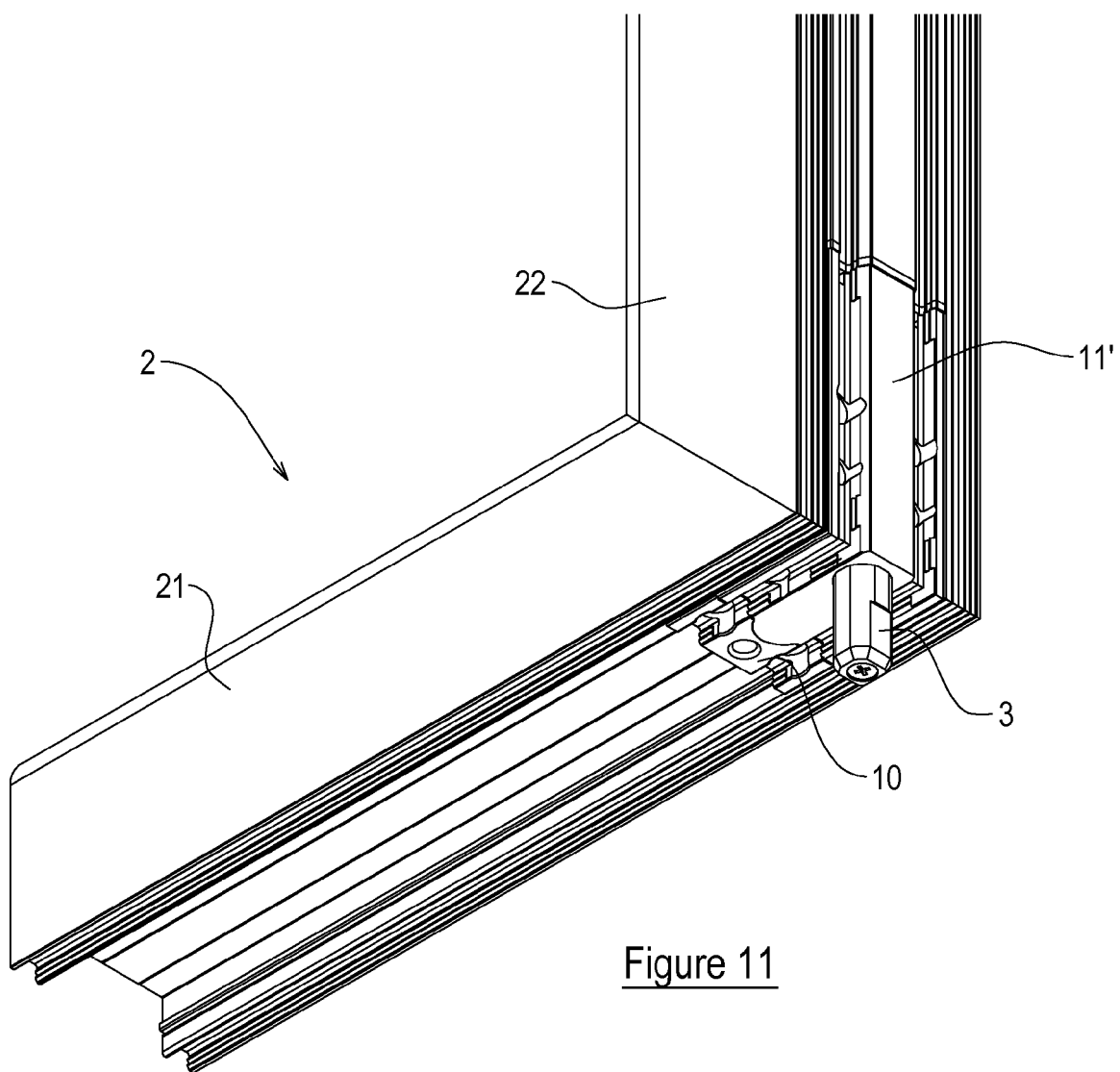


Figure 11

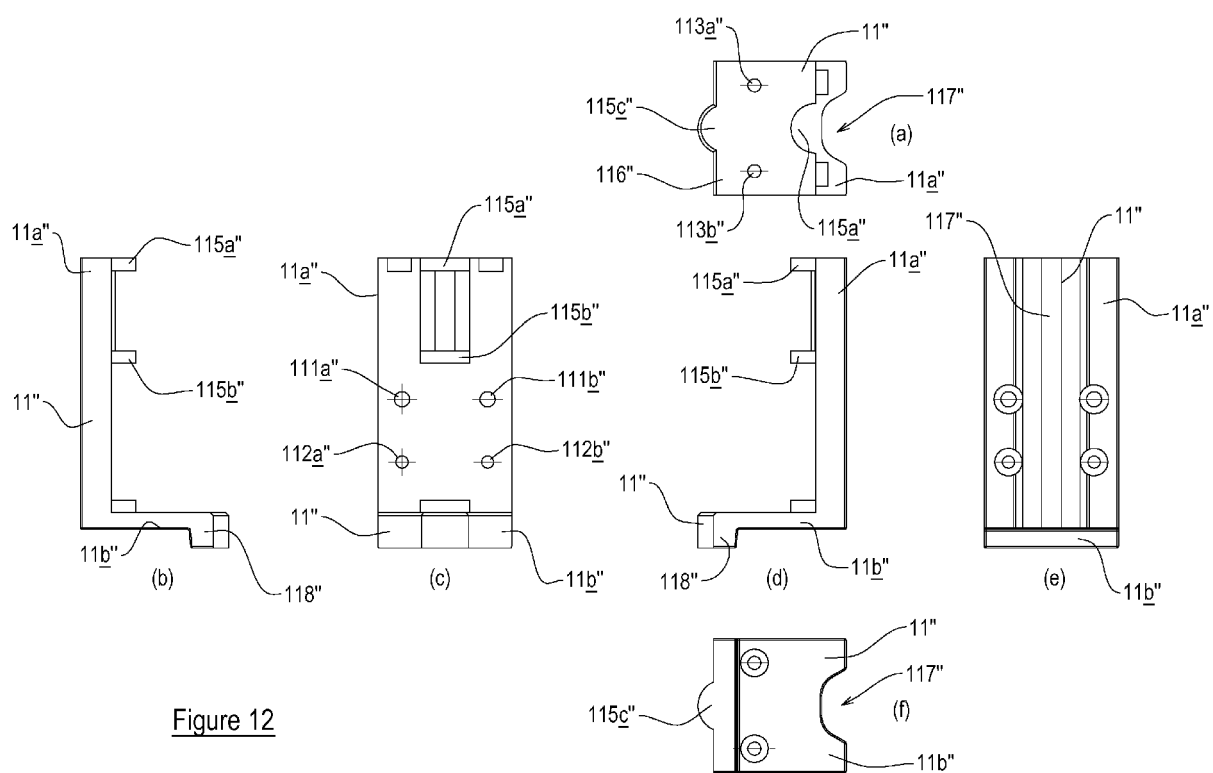


Figure 12

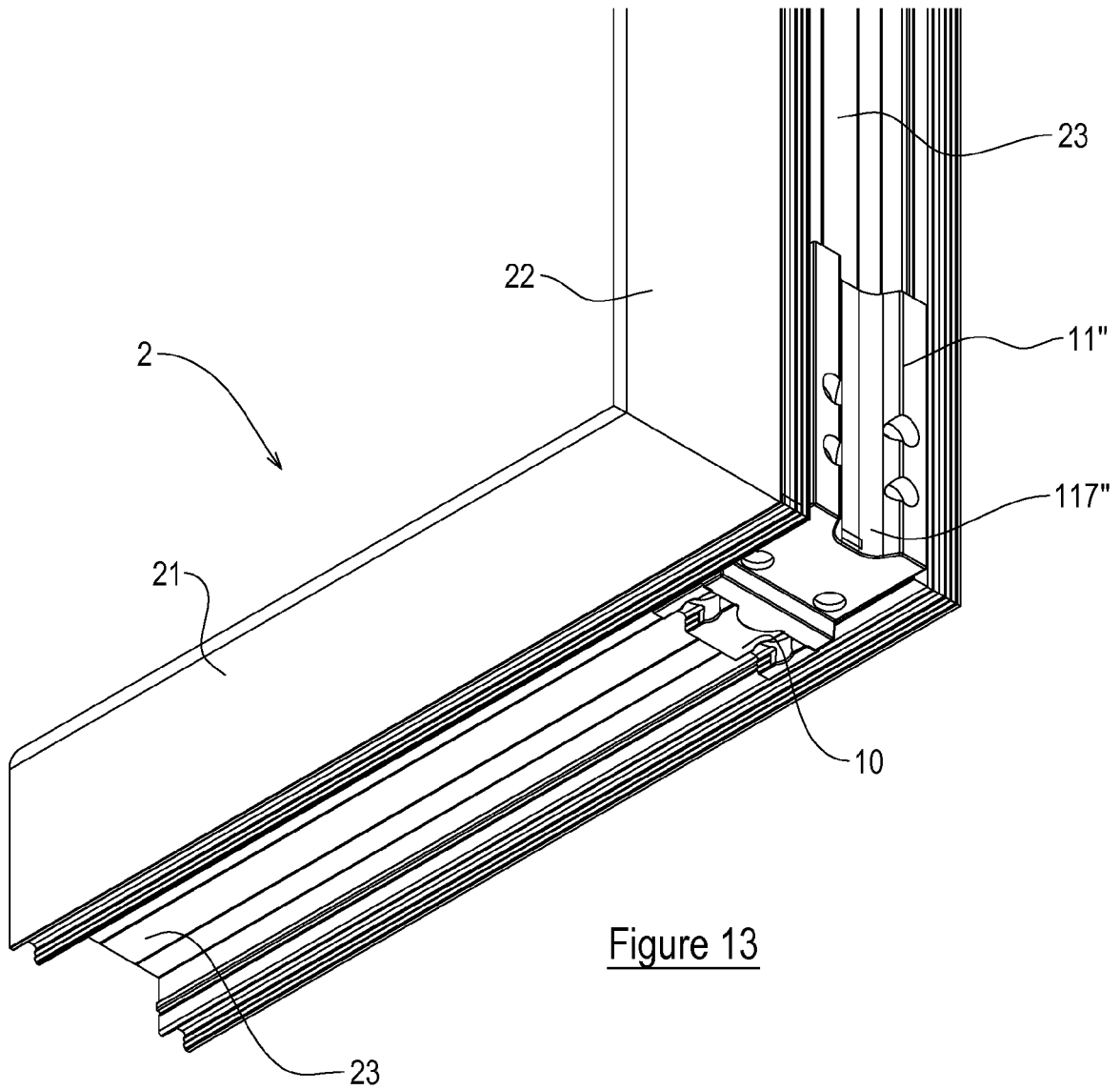


Figure 13

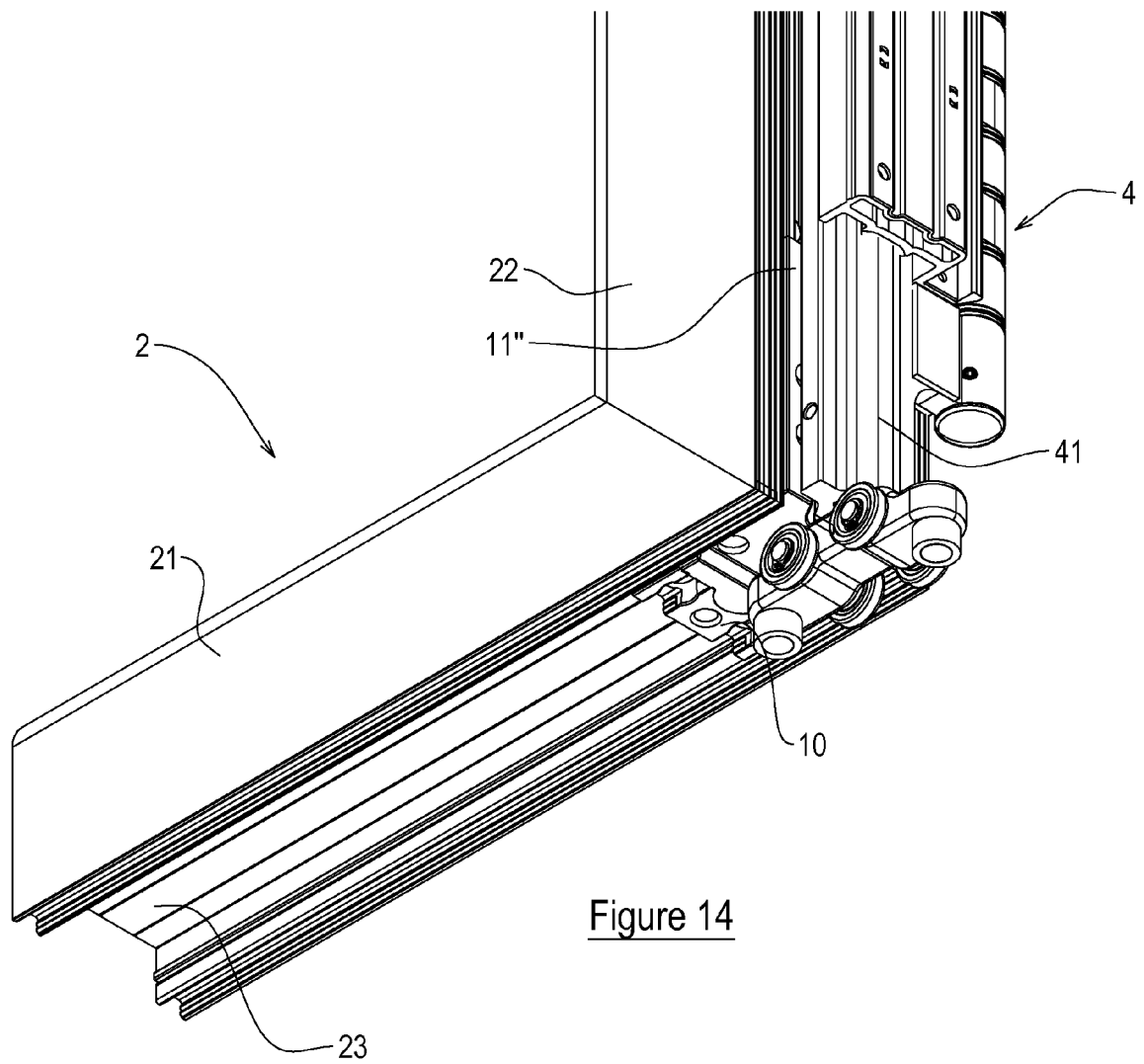


Figure 14

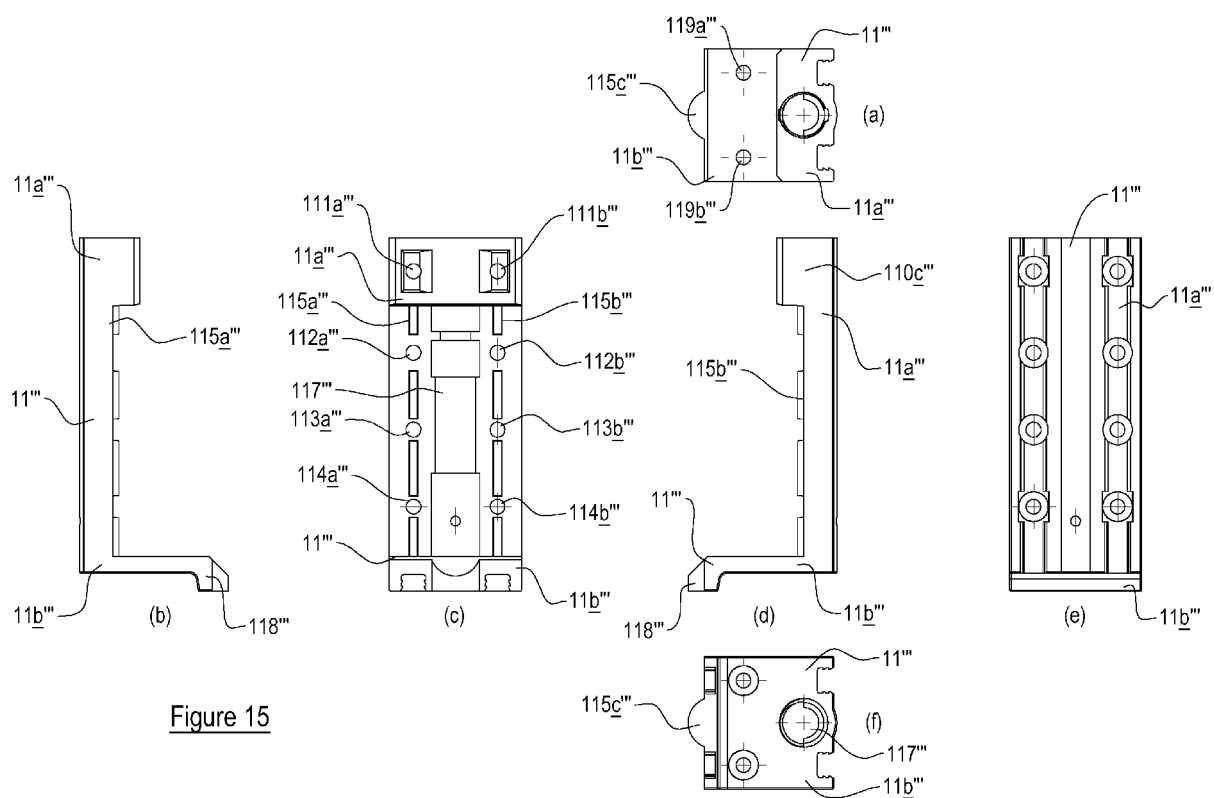


Figure 15

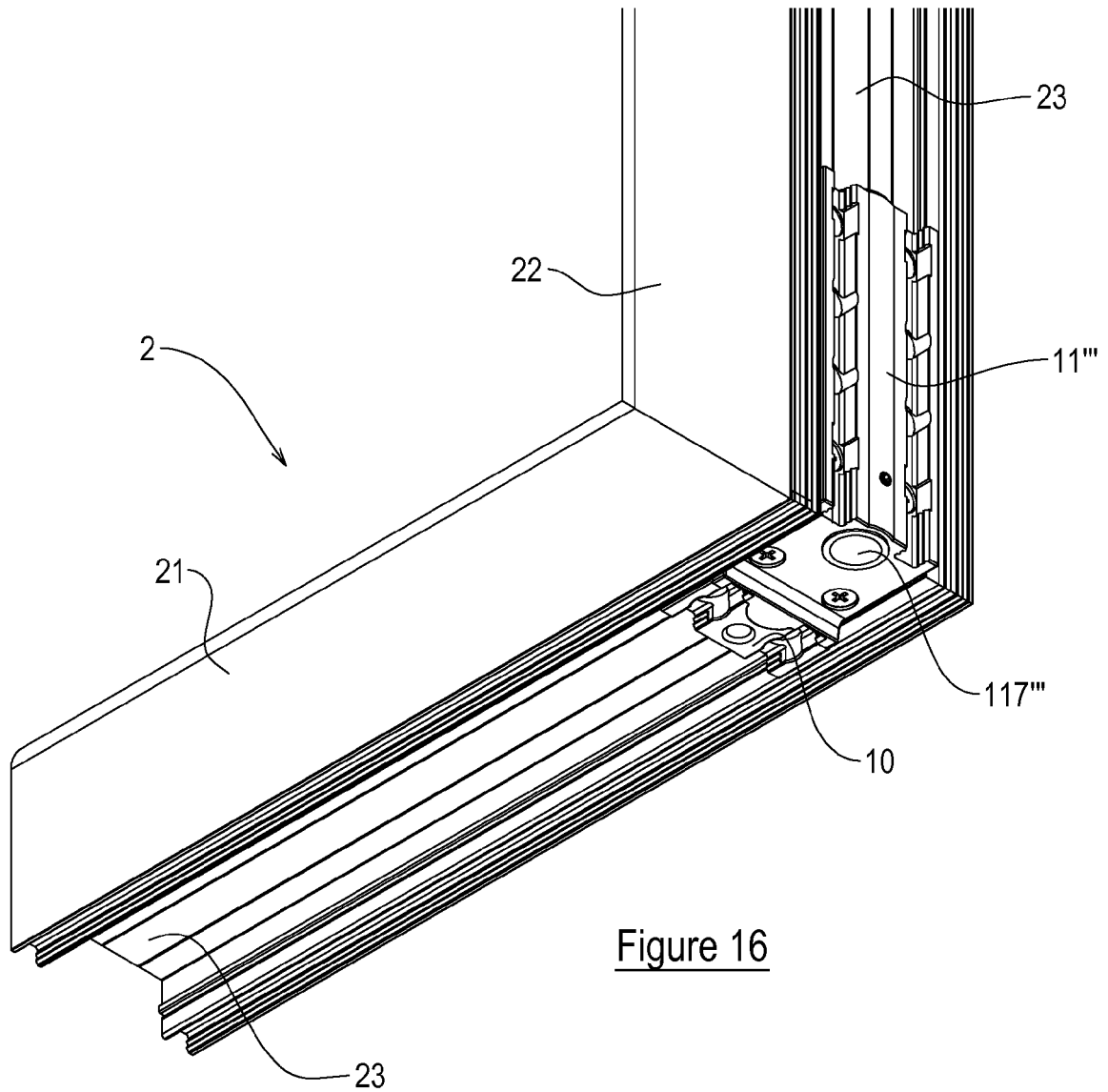


Figure 16

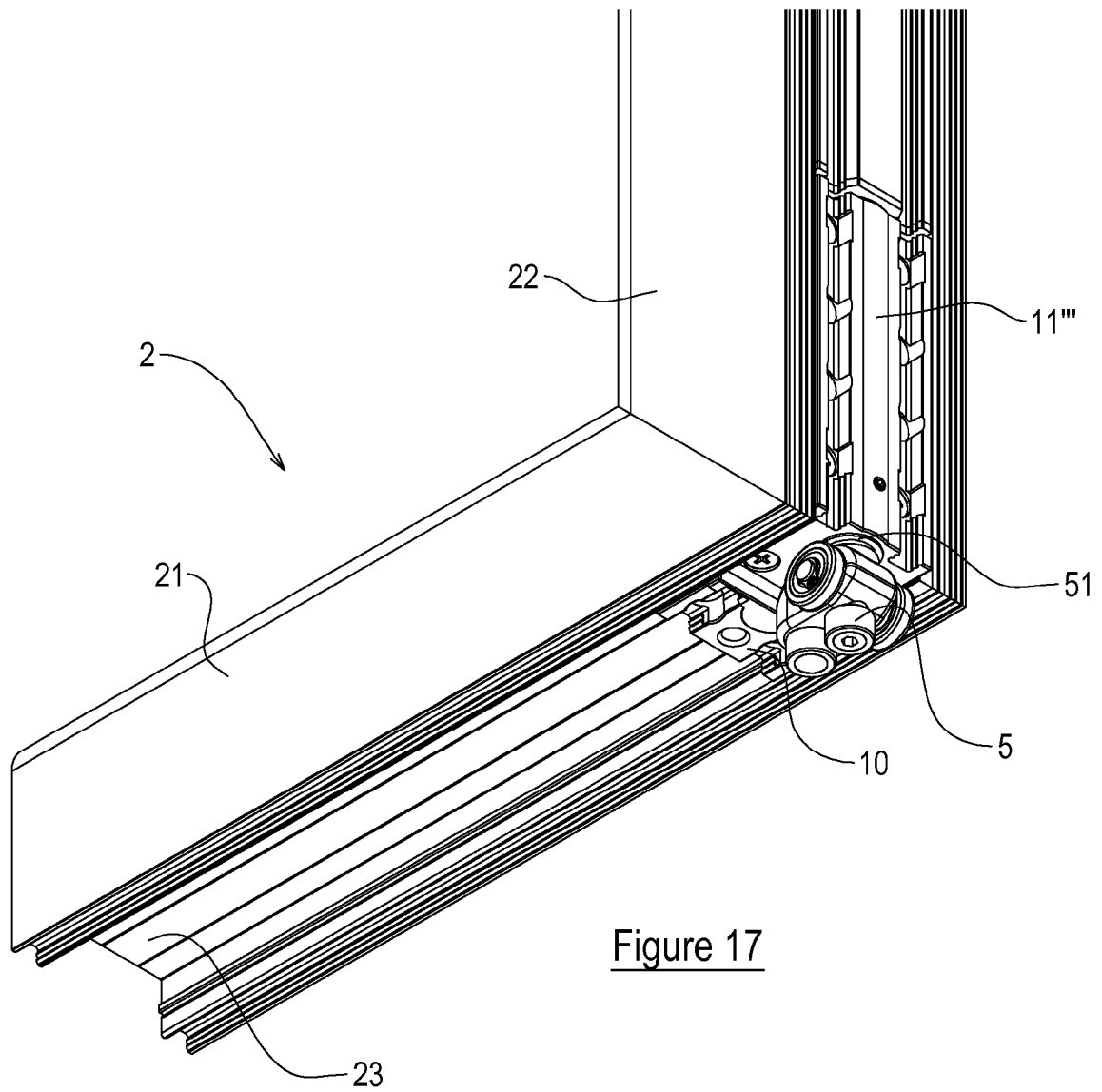


Figure 17



EUROPEAN SEARCH REPORT

Application Number
EP 14 16 5493

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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	FR 2 050 694 A5 (VALLOUREC) 2 April 1971 (1971-04-02) * page 4, line 29 - page 5, line 22 * * figures * -----	1,2,4-8, 10-15 3,9	INV. E06B1/52 E06B3/964 E05D15/06 E05C7/04 E05D5/02 E05D15/26
			TECHNICAL FIELDS SEARCHED (IPC)
			E05D E06B E05C
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 16 September 2014	Examiner 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			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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16-09-2014

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FR 2050694	A5	02-04-1971	NONE

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