



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
04.10.2023 Bulletin 2023/40

(51) International Patent Classification (IPC):
E04B 2/96 ^(2006.01) **E04F 10/00** ^(2006.01)
E06B 9/00 ^(2006.01)

(21) Application number: **23165541.6**

(52) Cooperative Patent Classification (CPC):
E04B 2/967

(22) Date of filing: **30.03.2023**

(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 ME MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA
Designated Validation States:
KH MA MD TN

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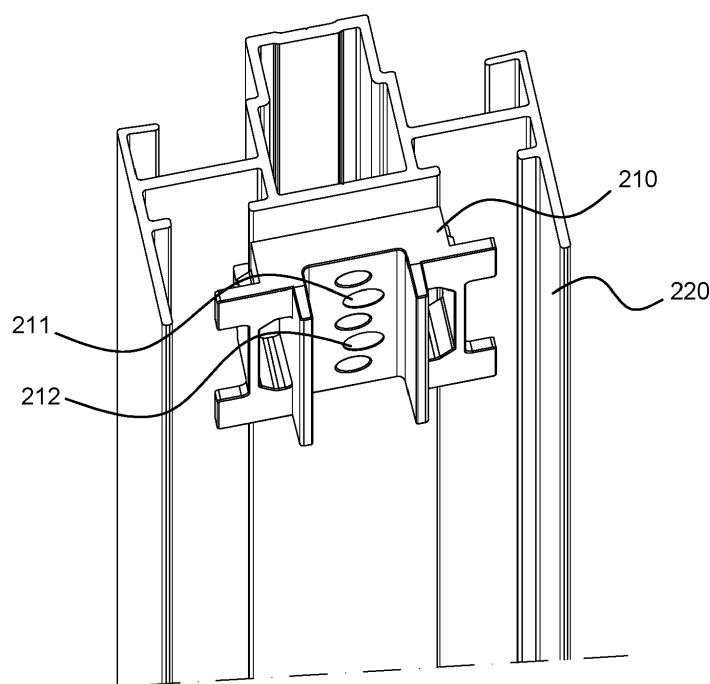
(30) Priority: **30.03.2022 BE 202205233**
11.04.2022 BE 202205269

(54) **PROFILE ASSEMBLY FOR A CURTAIN WALL, AS WELL AS A METHOD FOR MANUFACTURING A PROFILE ASSEMBLY**

(57) The invention is in the field of screen assemblies for curtain walls. The invention is based on a profile assembly for a curtain wall comprising a window profile as-

sembly for receiving a panel of the curtain wall and a screen profile assembly to receive a lateral side of a screen for covering the glazing.

Fig. 3



Description

[0001] The invention is in the field of screen assemblies for curtain walls. The invention is based on a profile assembly for a curtain wall comprising a window profile assembly for receiving a panel of the curtain wall and a screen profile assembly to receive a lateral side of a screen for covering the glazing.

State of the Art of Technology

[0002] A curtain wall, also called a glass wall, is a non-load bearing wall. Because the curtain wall is non-bearing, it is made of light materials such as glass, aluminium and wood. Because the usually great amount of glass, a solution is needed to keep the building cool when the sun shines on it. Fabric sun protection, wherein a screen of fabric is attached to the outside of the window glass is an efficient solution.

[0003] For curtain walls, sun protection is traditionally installed on the inside of the glazing. Sun protection on the inside is less efficient, however, than sun protection that can be installed on the outer. Installing sun protection on the outer of the curtain wall is not easy. A great number of fabric sun protection systems must be installed next to each other to protect the entire surface of the curtain wall. However, there is only a narrow window profile present between two successive glass surfaces, through which the ability to install a vertical guide for the fabric is limited.

[0004] This type of sun protection system of installing screens on fabric rolls that roll up and down on the outside of the glazing of the curtain walls is known. In these sun protection systems, a screen profile assembly is attached to the window profile of the curtain wall. In this type of motorized screen installation, there is still the problem that window profiles of various producers require a different screen profile assembly.

[0005] Profile assemblies, such as these described in BE 1,026,798 and BE 1,028,484 comprise a clamp profile of the window profile and a cover profile linked to the clamp profile for covering the clamp profile. For this, the clamp and protection profile have complementary, side-ways coupling agents to click the profiles into each other. Because the shape, dimension and position of the clamp profile is not standardized, for each other form of clamp profile, another form of the cover profile is required and thus more time, storage space and costs are required.

Objective of the invention

[0006] The current invention and the preferred designs of it have the objective of offering a solution for one or more of the aforementioned disadvantages. One objective of the invention can therefore be to provide a screen profile assembly that can be applied for the various types of window profiles for curtain walls. An additional objective of the invention may be to provide a screen profile

assembly that is easy to align with window profiles for curtain walls. An additional objective of the invention may be to provide a profile assembly that is less complex and/or that can be produced with fewer parts.

Description of the invention

[0007] This objective is achieved, according to the invention, with a profile assembly that displays the technical characteristics of the independent claims. The current invention is a profile assembly for a curtain wall. The current invention also includes method for the installation for this type of profile assembly.

[0008] In a first aspect of the invention, which may occur in combination with the other aspects and embodiments of the invention described herein, the invention comprises a profile assembly for a curtain wall.

The profile assembly comprises a window profile assembly for receiving glass panels of the curtain wall. The window profile assembly comprises a support profile for supporting the curtain wall and a clamp profile for clamping the glass panes between the support profile and clamp profile. The window profile assembly of this type of profile assembly is suitable for receiving glass panels, but an also be used for receiving other panels or grids.

The profile assembly further comprises a screen profile assembly for receiving a lateral side of the screen for screening off the glass panel. The screen profile assembly comprises one or more profiles for screening off the clamping profile and receiving the lateral side of the screen. In one embodiment, the one or more profiles are formed by protection profile for covering the clamping profile and a guide profile that form at least one passage for receiving a lateral side of the screen.

[0009] The screen profile assembly further comprises at least one mounting element that extends between the clamping profile and the profile for covering the clamping profile, wherein each mounting element is set up to grip the clamping profile and which can be attached to be removed on the profile for covering the clamping profile. The profile for covering the clamp profile is further installed for covering the mounting elements. Through this, the clamp element and mounting element are simultaneously protected and an observer will not be able to see the mounting element when it is installed. The observer will not be able or nearly not be able to see the clamp profile (depending on the dimensions of the cover profile for it). This is not the case in the known profile assemblies, such as described in BE 1,028,484^{A1}, where the various elements of the screen profile assembly can clearly be seen by an observer.

[0010] The mounting element can be removably attached to the protection profile, meaning the profile for the protection of the clamping profile with the use of a click-connector. The protection profile can be equipped with first click-in units and the clamping profile with second click-in units corresponding to the first click-in units.

[0011] Because this type of profile assembly does not

require a connection to the clamp profile, the screen profiles are easily mounted on various types of curtain walls from various constructors. With a limited number of mounting elements, a very broad range of window profiles can be covered. An additional advantage is that when new window profiles come onto the market, it is not necessary to develop a completely new screen profile. If there is still an unsuitable mounting element present, it is only necessary to develop a mounting element or to adapt it.

[0012] The inventors have further found that the type of profile assembly as described above is particularly advantageous and saves much work, time and costs. For example, a cover profile no longer has to be provided by the window manufacturer. In addition, the space between the clamp profile and the cover profile is used optimally and it is possible to install the screen profile assembly against the window in a more compact manner.

[0013] In a first embodiment, which can occur in combination with the other aspects and embodiments of the invention described herein, comprises an aforementioned profile assembly, wherein the clamp profile has a recess on an outer side that extends in the longitudinal direction L from the clamp profile and the mounting element on an outer side has one or more protrusions that extend into the recess in a transverse direction B transfers to the longitudinal direction L between the wall sections of the clamp profile surrounding or defining the recess. In the transverse direction B, the distance between the wall section is nearly the same as a measurement of the part of the mounting element extending into the recess in such a way that there is minimal play between the one or more protrusions and the recess. Through this it is possible to easily align the cover profile with the clamp profile to attach this cover profile centred and at the correct distance. This simplifies the installation of the profile assembly considerably because the mounting element ensures that the screen profile is perfectly centred on the window profile assembly.

[0014] A second embodiment, which may occur in combination with the other aspects and embodiments of the invention described herein, encompasses an aforementioned profile assembly, wherein each mounting element is formed by a body with a maximum length in the longitudinal direction L of the clamp profile and a maximum width in the width B of the clamp profile, wherein the maximum width is greater than 1/10 of the maximum length, preferably a quarter of the maximum length, but even more preferably the half of the maximum length, even more at the maximum length. In other words, the mounting element will only have a limited dimension in the longitudinal direction and does not extend over the full length of the clamp profile. A third embodiment, which can occur in combination with the other aspects and embodiments of the invention described herein, encompasses an aforementioned assembly, wherein multiple mounting elements are provided that are at a distance from each other. In both embodiments, there will be fewer

material costs with regard to a complete profile and installation is simplified. In addition, it is possible to make recesses in the cover profile to protect the clamping profile to allow the horizontal profiles to run through them.

5 **[0015]** A fourth embodiment, which can occur in combination with the other aspects and embodiments of the invention described herein, encompasses an aforementioned profile assembly, wherein each mounting element has multiple spaced out attachment passages for receiving a longitudinal fixation body, such as a screw or a nail, for connecting the clamp profile with the profile for covering the clamp profile. By providing multiple fixation passages, it is possible to circumvent the original screw in the clamp profile of the window profile at all times.

10 **[0016]** A fifth embodiment, which can occur in combination with the other aspects and embodiments of the invention described herein, encompasses an aforementioned profile assembly, wherein the one or more profiles comprise two different profiles that together form at least one lateral passage to receive a lateral side of the screen. This makes disassembly easier when service is required. The lateral side guides can be removed by removing the front profile without removing the back profile.

In embodiments, the two separate profiles have fixation passages for receiving a longitudinal fixation body, such as a screw, to connect the two separate profiles; and a finishing passage for receiving and reversible fixation of a finishing profile for the protection of the longitudinal fixation body. The finishing profile can be removably fixed in the finishing passage using a click-in connection. The finishing profile can be equipped with first click-in units and one of the separate profiles can be equipped with second click-in units corresponding to the first click-in units.

25 In embodiments, the finishing profile (...) can be designed to be attached to and removed from the two separate profiles to protect the finishing passage and designed to be attached to and removed from the two separate profiles to protect a lateral passage. In other words, the same finishing profile can be installed at various locations. It also allows for the formation of coupling guide in a simple guide. Thus the production of the various parts is simplified in various manners.

30 **[0017]** A sixth embodiment, which can occur in combination with the other aspects and embodiments of the invention described herein, encompasses an aforementioned profile assembly, wherein the one or more profiles are designed for the formation of opposite lateral passages to receive a lateral side of consecutive screens. In other words, this is a coupling guide.

35 **[0018]** In a second aspect of the invention, which may occur in combination with the other aspects and embodiments of the invention described herein, the invention comprises an aforementioned screen profile assembly.

40 **[0019]** In a third aspect of the invention, which may occur in combination with the other aspects and embodiments of the invention described herein, the invention comprises a procedure for the creation of an aforementioned

tioned profile assembly. The process comprises the steps of the attachment of at least one mounting element to the profile to protect the clamp profile; and then the attachment of the cover profile for covering the clamp profile on the clamp profile.

[0020] A seventh embodiment, which may occur in combination with the other aspects and embodiments of the invention described herein, is an aforementioned process wherein the cover profile is attached to the clamp profile by a first longitudinal fixation body that extends through the mounting element.

[0021] An eighth embodiment, which can occur in combination with the other aspects and embodiments of the invention described herein, encompasses an aforementioned process, further comprising the subsequent attachment of one guide profile on the cover profile wherein they together form a lateral passage to receive a lateral side of the screen.

[0022] A ninth embodiment, which can occur in combination with the other aspects and embodiments of the invention described herein, involves an aforementioned process, wherein the guide profile is attached to the cover profile (220) is attached using a second longitudinal fixation body.

[0023] A tenth embodiment, which can occur in combination with the other aspects and embodiments of the invention described herein, involves an aforementioned method, further involving the attachment of a finishing profile to the guide profile to protect the second longitudinal fixation body.

[0024] An eleventh embodiment, which can occur in combination with the other aspects and embodiments of the invention described herein, involves an aforementioned method, further involving the step of removing a decorative profile from the window profile assembly.

Summary description of the figures

[0025] The invention will be explained in more detail using an example embodiment shown in the figure.

Figure 1 shows a perspective view of a profile assembly according to an embodiment of the current invention;

Figures 2A and 2B show a front view and perspective view an assembly of a cover profile and multiple mounting elements as shown in figure 1;

Figure 3 shows a detailed view of the assembly shown in figure 2B;

Figures 4 and 5 show installed mounting elements according to various embodiments of the current invention;

Figures 6A-6E show a profile assembly in various phases of an assembly process according to one embodiment of the current invention;

Figures 7A-7B show the profile assembly shown in figure 1 in various phases of an assembly process according to one embodiment of the current inven-

tion; and

Figure 8 shows a perspective view of a curtain wall according to one embodiment of the current invention.

Detailed description of the figures

[0026] The current invention will be described with regard to particular embodiments and with reference to certain figures, but the invention is not limited to these and is only determined by the claims. The figures described are only schematic and non-limiting. In the figures, the size of certain elements is exaggerated and not drawn to scale for illustrative purposes. The dimensions and the relative dimensions are not necessarily consistent with actual practical designs of the invention.

[0027] In addition, the terms first, second, third and the like are used in the description and claims to differentiate between similar elements and not necessarily to describe a sequential or chronological sequence. The terms are interchangeable under fitting circumstances and the embodiments of the invention can be applied in sequences other than those described or illustrated here.

[0028] In addition, the terms, top, bottom, over, under and the like in the description and claims are used for illustrative purposes and not necessarily to describe relative positions. The terms used are interchangeable under fitting circumstances and the embodiments of the invention described can be applied in other orientations than described or illustrated here.

[0029] Furthermore, the various embodiments, even though called "preferred designs" must be considered rather as a manner of example of how the invention can be designed than as a limitation of the range of the invention.

[0030] The term "comprising", used in the claims, must not be interpreted as being limited to the resources or steps listed after it. The term does not exclude other elements or steps. The term should be interpreted as specifying for the presence of the listed features, elements, steps or components which are referenced, but does not exclude the presence or addition of one or more other features, elements, steps or components or groups thereof. The range of the expression "a design encompassing resources A and B" must thus not be limited to designs that consist only of A and B. The intention is that, with regard to the current invention, only the components A and B of the design are summarized, and the claim must be further interpreted as they also contain equivalents of these components.

[0031] A profile as used here refers to a rigid and preferably oblong body, typically used to box in a frame. Depending on the desired embodiment, a profile can be round or flat, with a wide or narrow wall, hollow inside or filled with a filler materials, ribbed or smooth, and/or have ornamental finishes; the advantages and disadvantages of the various profile embodiments are assumed to be known to the professional. The profiles are typically made

of a rigid material. This may be metal, for example, preferably aluminium. Aluminium has many advantages as a profile material. It is namely simultaneously robust and light, has good weather resistance and requires little maintenance. Other materials are also suitable and the benefits and disadvantages of these are assumed to be known to the professional.

[0032] Figures 1-3 show a profile assembly 10 for a curtain wall. The profile assembly 10 comprises a window profile assembly 100 to receive glass panels 4 of the curtain wall and a cover profile assembly 200 for receiving a lateral side of the screen for covering the glass panel 4. The window profile assembly 100 comprises a support profile 2 for supporting the curtain wall 1 and a clamp profile 6 for clamping the glass panes 4 between the support profile 5 and clamp profile. The screen profile assembly 200 comprises one or more profiles 220, 230, 240 for covering the clamping profile 6 and receiving the lateral side of the screen.

[0033] The screen profile assembly 200 also comprises at least one mounting element 210 that extends between the clamp profile 6 and the profile 220 for covering the clamp profile 6. The mounting element 210 is designed to grip onto the clamp profile 6 and is attached and can be removed from the profile 220 using a click-in connection. The clamp profile 6 comprises on one outer side a recess 5 that extends in the longitudinal direction L from the clamp profile 6 and the mounting element 210 comprises on the outer side one or more protrusions that extend in a transverse direction B transverse to the longitudinal direction L between the wall sections for the clamp profile 6 defining the recess. In the transverse direction B, the distance between the wall section is nearly the same as a measurement of the part of the mounting element extending into the recess 210 in such a way that there is minimal play between the one or more protrusions and the recess.

[0034] In the embodiment shown, the screen profile assembly 200 comprises a cover profile 220 for covering the clamp profile 6, wherein the cover profile 220 is attached to the clamp profile 6 by a first longitudinal fixation body 221 in a manner so that it can be removed. The screen protection profile 200 further comprises a guide profile 230 that can be attached to and removed from the screen profile 220 through a second longitudinal fixation body 231 to together form a lateral passage 225 to receive a lateral side of the screen. The screen profile assembly 200 also comprises a finishing profile 240 that can be attached to and removed from the guide profile to protect the second longitudinal fixation body.

[0035] In the embodiment shown, lateral passages 225a, 225b are provided on opposite lateral sides of the screen profile assembly 200. In the right passage 225b, a plastic interior profile 250 is provided to guide the lateral side of the screen. The left passage 225a is not used here and is closed off with a finishing profile 240a that is the same in dimension and shape with a finishing profile 240 to protect the second longitudinal fixation body.

[0036] Figures 3-5 show mounting elements 210, 210', 210" according to the various embodiments of the current invention to connect the same screen profile 220 to various types of clamp profiles 6, 6', 6". Each mounting element 210, 210', 210" has multiple spaced fixation passages to receive the first longitudinal fixation body 221 to connect the clamp profile 6 to the profile 220 to protect the clamp profile 6.

10 List with reference numbers

[0037]

- | | |
|------------------|--------------------------|
| 1. | Curtain wall |
| 2. | Support profile |
| 4. | Glass panel |
| 5. | Recess |
| 6. | Clamp profile |
| 7. | Screw |
| 10. | Profile assembly |
| 100. | Window profile assembly |
| 200. | Screen profile assembly |
| 210. | Mounting element |
| 211, 212. | Fixation passage |
| 220. | Cover profile |
| 221. | First screw |
| 225, 225a, 225b. | Passage |
| 230. | Guide profile |
| 231. | Second screw |
| 240, 240a. | Finishing profile |
| 250. | Plastic interior profile |

35 Claims

1. Profile assembly (10) for a curtain wall (1), comprising:

a window profile assembly (100) to receive glass panels (4) of the curtain wall (1), the window profile assembly (100) comprising a support profile (2) for supporting the curtain wall (1) and a clamp profile (6) for clamping the glass panels (4) between the support profile (5) and clamp profile (6); and

a screen profile assembly (200) to receive a lateral side of a screen to protect the glass panel (4), the screen profile assembly (200) comprising one or more profiles (220, 230) for covering the clamp profile (6) and to receive a lateral side of the screen;

characterised in, that the screen profile assembly (200) further comprises at least one mounting element (210; 210a, 210b) that extends between the clamp profile (6) and the profile (220) for covering the clamp profile (6), wherein each mounting element (210; 210a;

- 210b) is designed to grip onto the clamp profile (6) and can be attached to and removed from the profile (220) for covering the clamp profile (6), and
 wherein the profile (220) for covering the clamp profile (6) is designed for covering the mounting elements (210; 210a; 210b). 5
2. Profile assembly according to claim 1, wherein the clamp profile (6) comprises on one outer side a recess (5) that extends in the longitudinal direction L from the clamp profile (6) and the mounting element (210, 210a; 210b) comprising on the outer side one or more protrusions that extend in a transverse direction B transverse to the longitudinal direction L between the wall sections for the clamp profile (6) defining the recess, wherein in the transverse direction B, the distance between the wall section is nearly the same as a measurement of the part of the mounting element extending into the recess (210; 210a; 210b) such a way that there is minimal play between the one or more protrusions and the recess. 10
 3. Profile assembly according to claim 1 or claim 2, wherein each mounting element (210; 210a, 210b) is formed by a body with a maximum length in the longitudinal direction L of the clamp profile and a maximum width in the width direction B of the clamp profile, wherein the maximum width is greater than 1/10 of the maximum length. 15
 4. Profile assembly according to one of the previous claims, wherein multiple mounting elements (210; 210a; 210b) are positioned distanced from each other. 20
 5. Profile assembly according to one of the previous claims, wherein each mounting element (210; 210a; 210b) comprises multiple fixation passages (211; 212) distanced from each other for receiving a longitudinal fixation body for connecting the clamp profile (6) to the profile (220) to protect the clamp profile (6). 25
 6. Profile assembly according to one of the previous claims, the one or more profiles comprising two separate profiles that together form at least one lateral passage to receive a lateral side of the screen. 30
 7. Profile assembly according to claim 6, the two separate profiles have fixation passages for receiving a longitudinal fixation body as a screw, to connect the two separate profiles; and a finishing passage for receiving and reversible fixation of a finishing profile for the protection of the longitudinal fixation body. 35
 8. Profile assembly according to claim 7, wherein the finishing profile is designed to be attached to and removed from the two separate profiles to protect the finishing passage and designed to be attached to and removed from the two separate profiles to protect a lateral passage. 40
 9. Profile assembly according to one of the previous claims, where the one or more profiles (220, 230) are designed to together form opposite passages to receive a lateral side of consecutive screen. 45
 10. Method for creating a profile assembly according to one of the previous claims, comprising the following steps: 50
 - the attachment of at least one mounting element (210; 210a; 210b) to the profile (220) to protect the clamp profile (6); and
 - the subsequent attachment of the cover profile (220) to protect the clamp profile (6) to the clamp profile (6). 55
 11. Process according to claim 10, wherein the cover profile (220) is attached to the clamp profile (6) by a first longitudinal fixation body that extends through the mounting element ((210; 210a; 210b)).
 12. Process according to claim 11, further comprising the subsequent attachment of a guide profile to the cover profile (220) to together form a passage to receive a lateral side of the screen.
 13. Process according to claim 12, wherein the guide profile is attached to the cover profile (220) by a second longitudinal fixation body.
 14. Process according to claim 13, further comprising the subsequent attachment of a finishing profile to the guide profile to protect the second longitudinal fixation body.
 15. Method according to one of the previous claims 10-14, further comprising the step of removing a decorative profile from the window profile assembly.

Fig. 1

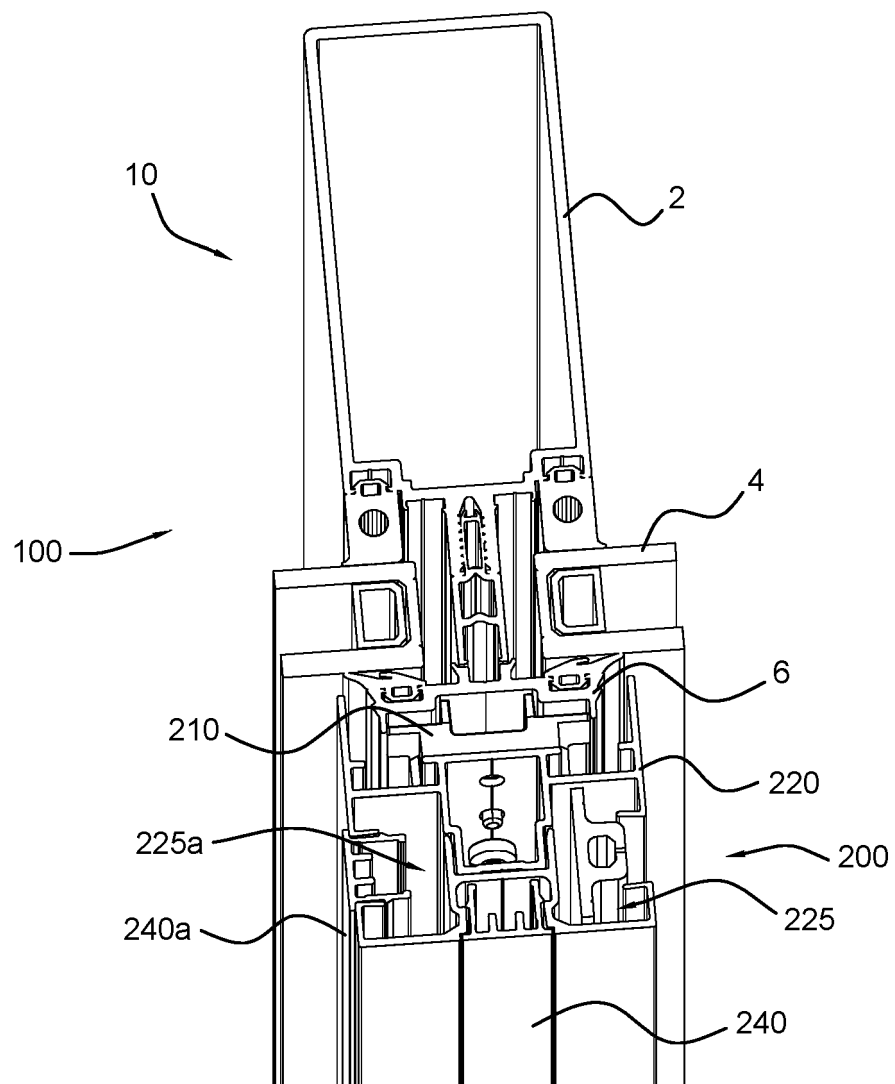


Fig. 2A

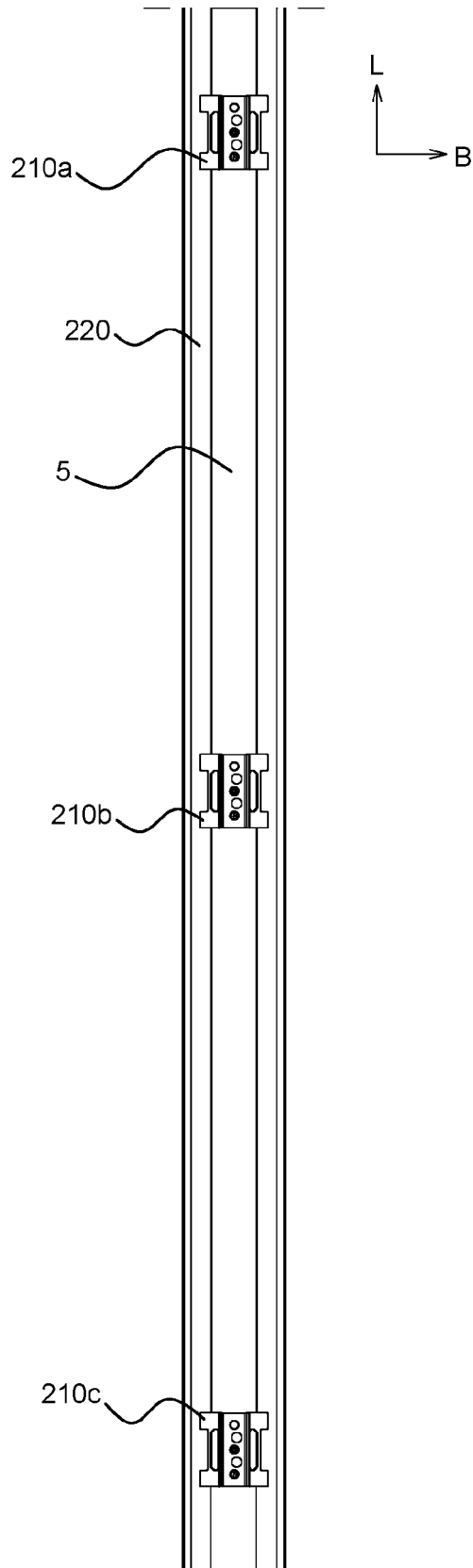


Fig. 2B

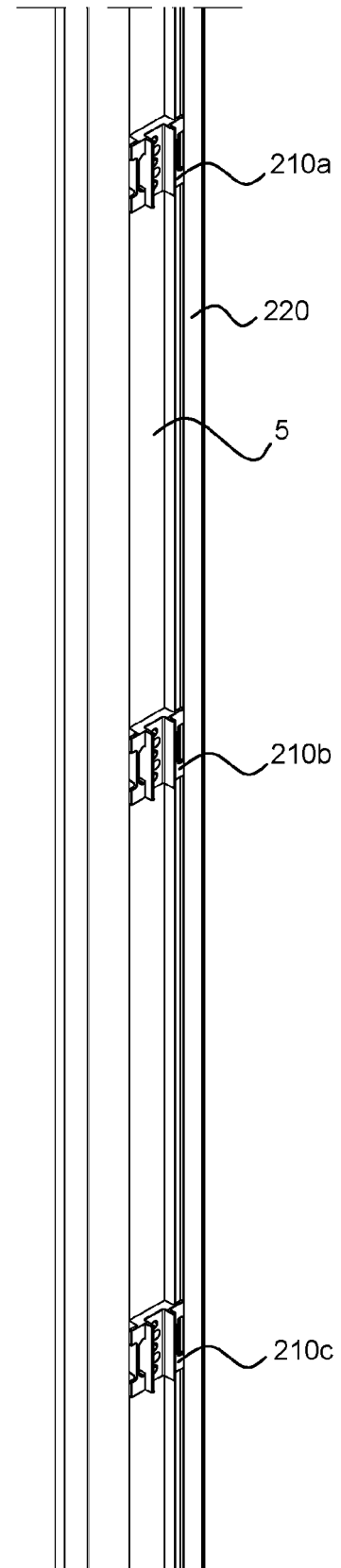


Fig. 3

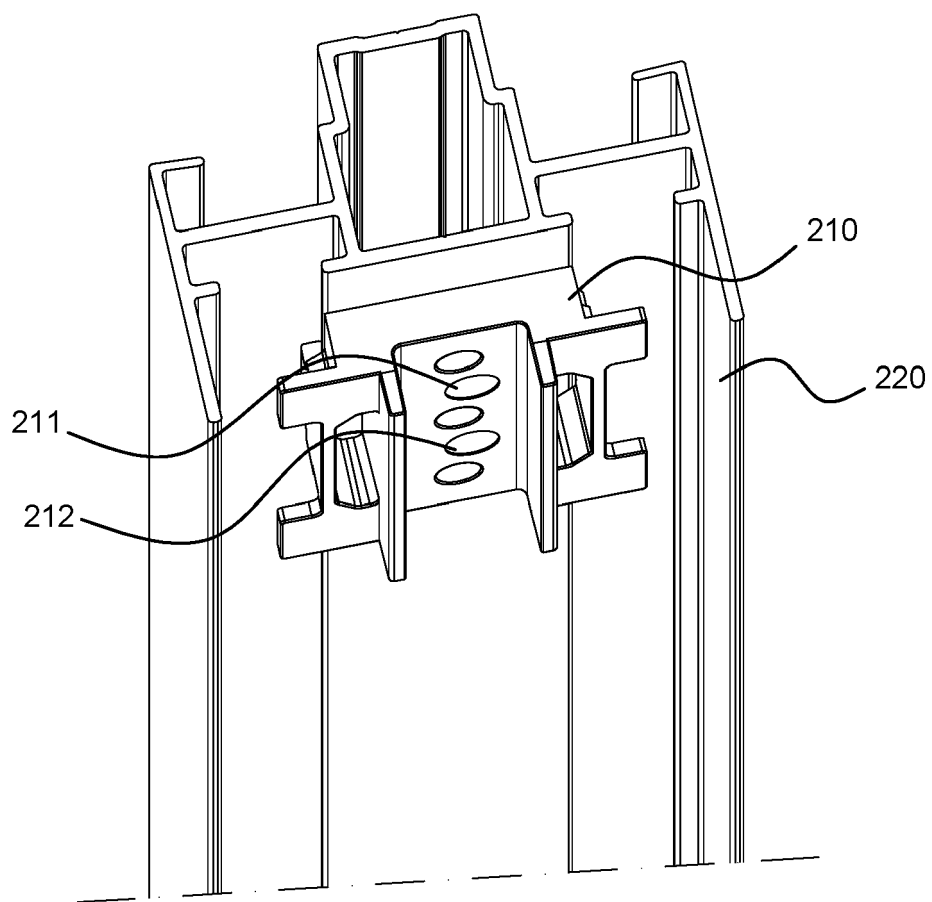


Fig. 4

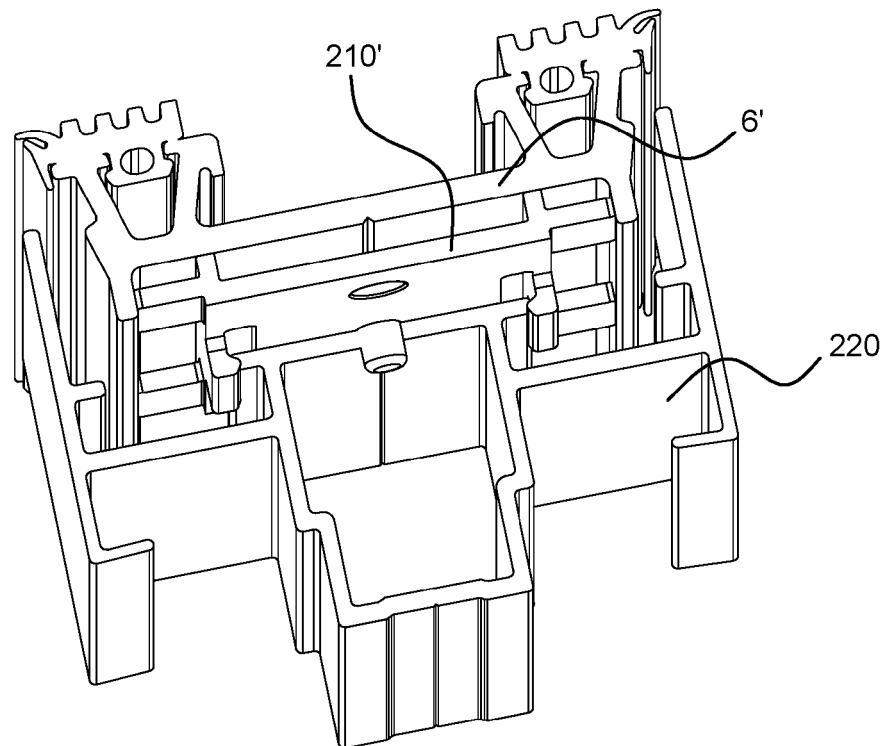


Fig. 5

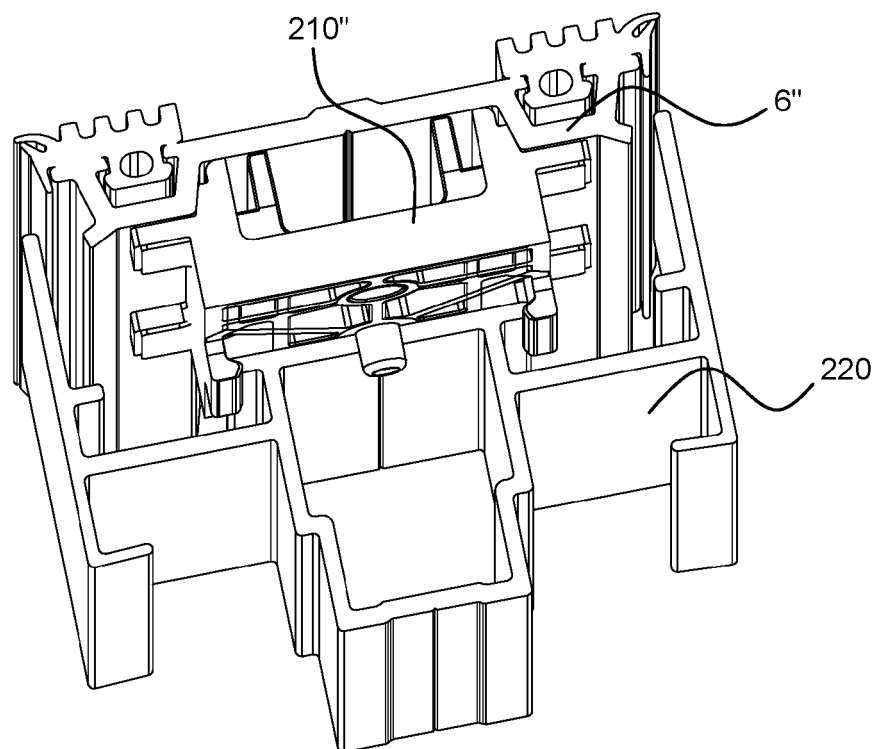


Fig. 6A

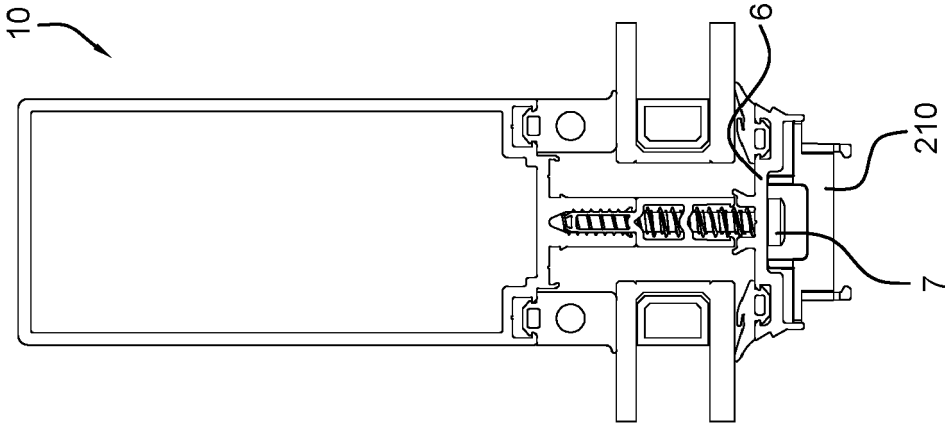


Fig. 6B

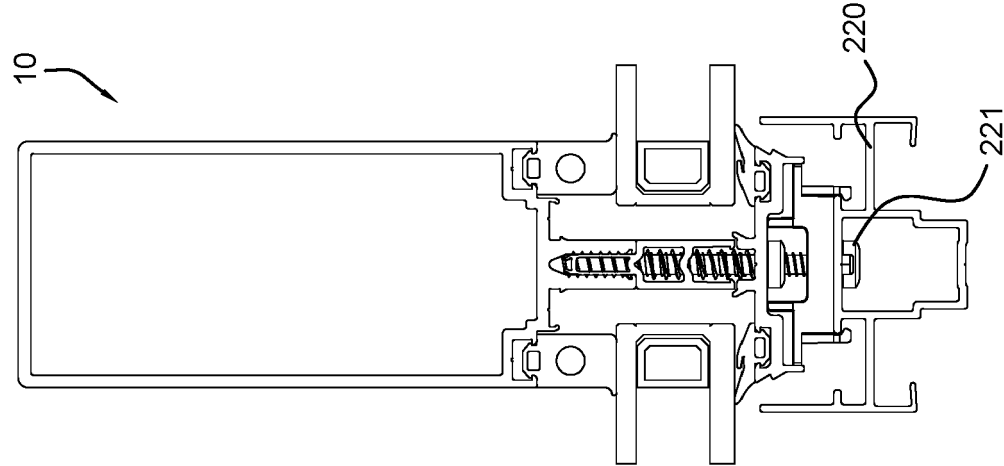


Fig. 6C

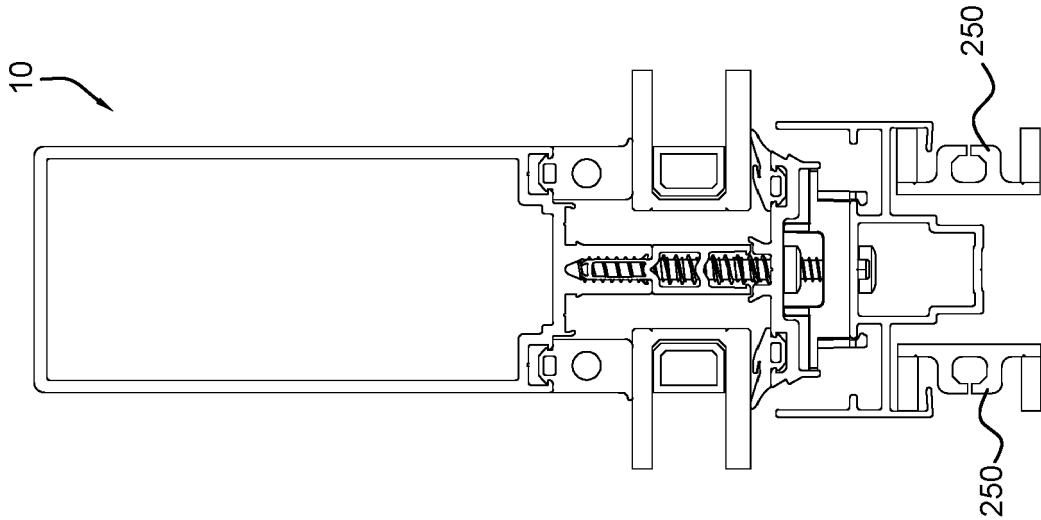


Fig. 6D

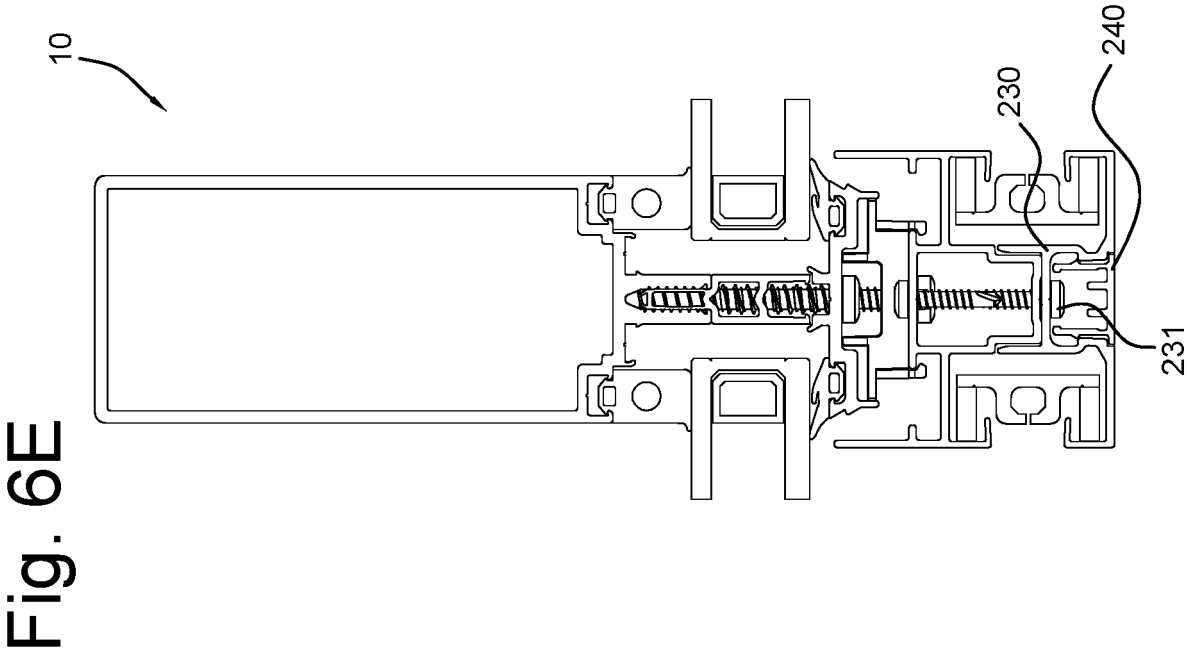
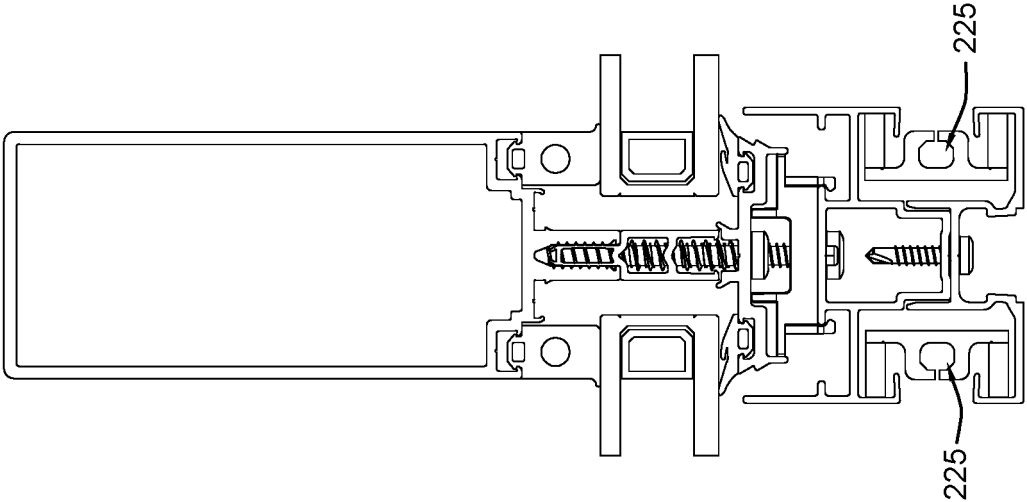


Fig. 7B

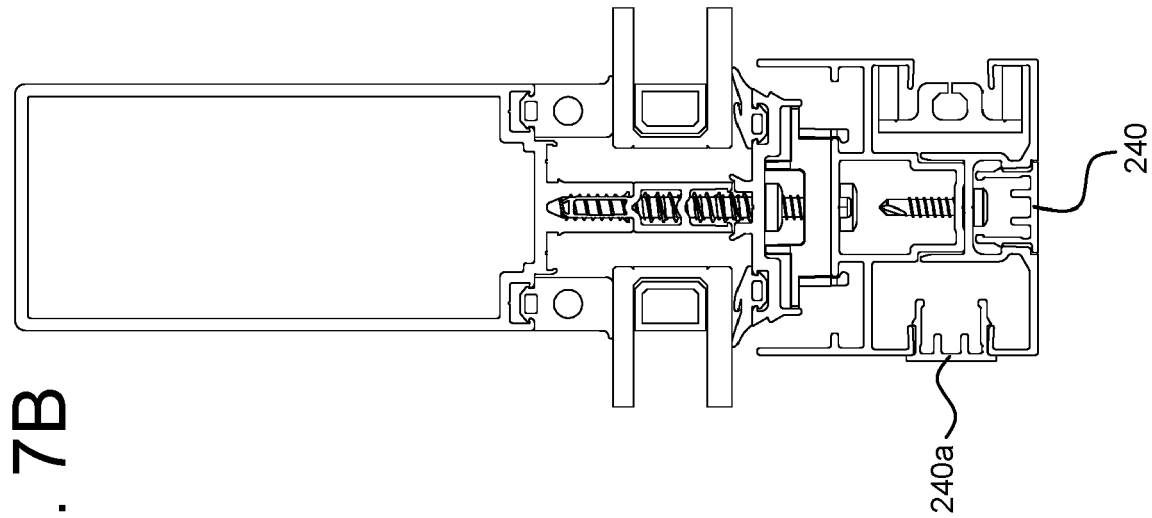
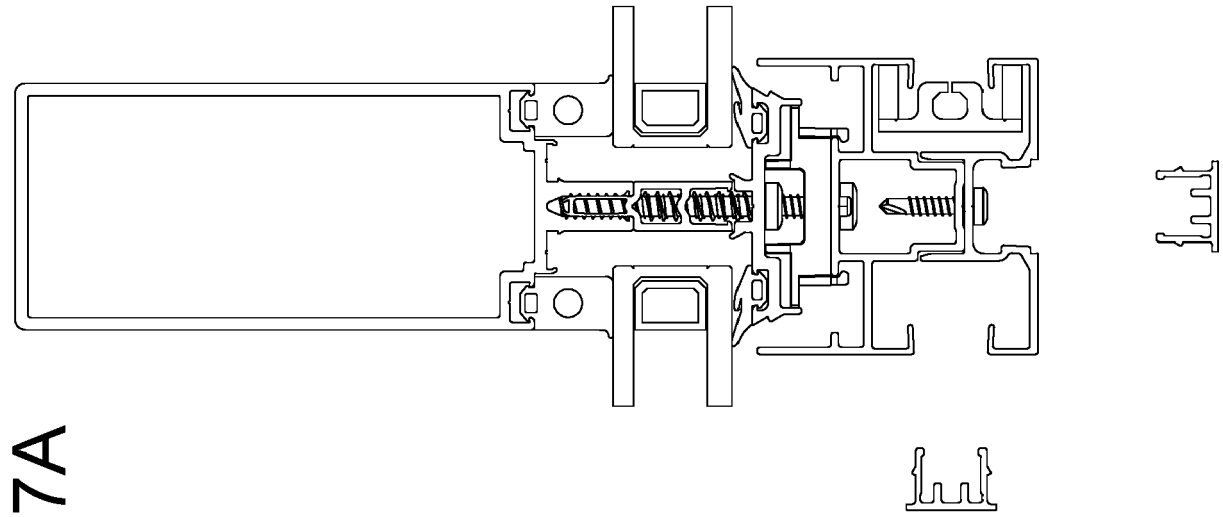


Fig. 7A



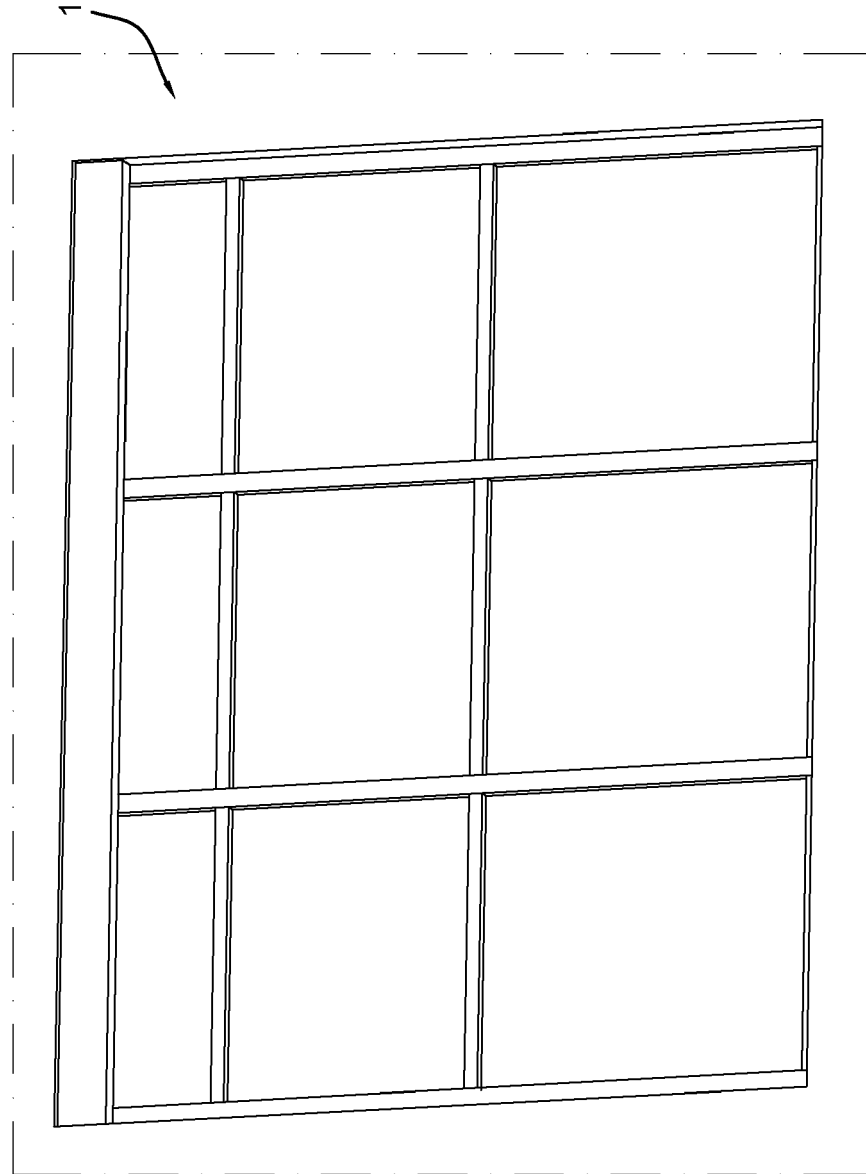


Fig. 8



EUROPEAN SEARCH REPORT

Application Number

EP 23 16 5541

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EPO FORM 1503 03.82 (P04C01)

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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			TECHNICAL FIELDS SEARCHED (IPC)
			E04B E04F E06B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 12 July 2023	Examiner Galanti, Flavio
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