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Amended claims in accordance with Rule 137(2) EPC.

(54) **EMBEDDED FRAME FOR SLIDING PANES OF ENCLOSURES**

(57) Embedded frame for sliding panes of an enclosure, comprising a support profile assembly arranged below floor panels, wherein the support profile assembly comprises a base section of the profile that forms respective upper channels configured to immobilize wheelcarrier profiles corresponding to at least two sliding panes of an enclosure, and at least one central column section of the profile that extends substantially perpendicular to the base section of the profile, configured to support a first support profile that houses a central portion of the floor panel, so that the central column section of the profile is arranged between two upper channels of the base section of the profile, wherein the central column section of the profile is removable with respect to the base section of the profile and comprises two first lower channels configured to couple tightly with free ends of upper projections of the base section of the profile.

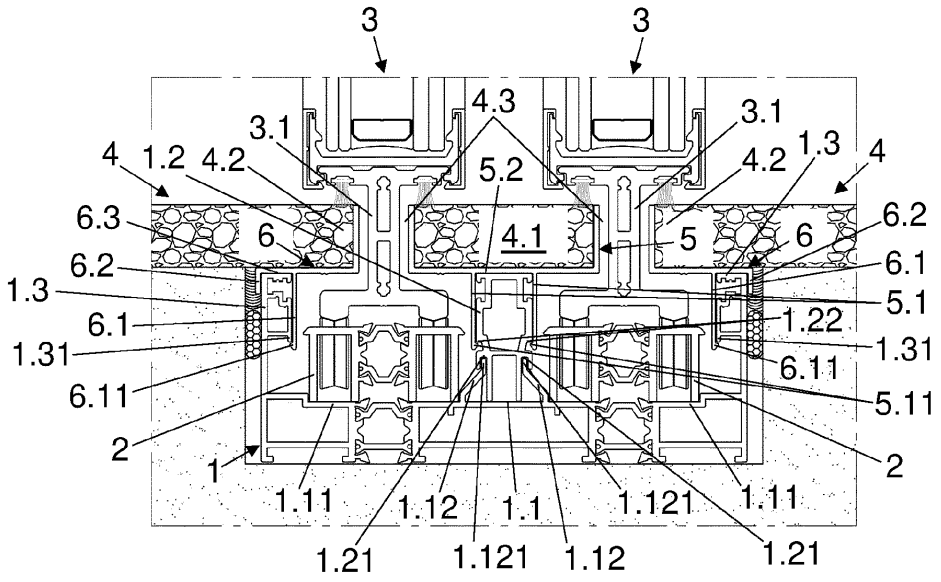

Fig. 1

EP 4 311 904 A1

Description

TECHNICAL FIELD OF THE INVENTION

[0001] The present invention lies within the field of fixed constructions, dealing specifically with frames for sliding panes of enclosures, i.e., those that close any opening in a building, such as doors or windows, which include multiple elements of sliding panes, or walls formed with said elements used as dividers of interior spaces in a building, or on its exterior facade.

BACKGROUND OF THE INVENTION

[0002] Various solutions are known for sliding doors or windows, as well as sliding panel systems for forming walls used as interior space dividers, or alternatively, as facade wall elements in buildings; in any case, made up of multiple vertical panes or panels that slide laterally along as many rails or channels arranged substantially horizontally. Such rails or channels that serve as guides for the lateral sliding of said sliding panes or panels are usually mounted on a perimeter frame.

[0003] To prevent these perimeter frames from becoming an obstacle to passage through the opening formed when the sliding panes that make up the door, wall or window are withdrawn to one or more sides, the lower section of said frame is usually embedded in the floor, that is, it is arranged below the floor elements or panels that cover the floor of the building, or the window sill, as appropriate.

[0004] Basically, these embedded frames usually comprise a support profile assembly which, in turn, comprises a section of a base profile that forms two upper channels configured to immobilize wheel-carrier profiles corresponding to at least two sliding door panes, and at least one central column section of the profile, the latter extending substantially perpendicular to the base section of the profile and configured to support a first support profile that houses a central portion of the floor panel, such that the central column section of the profile is arranged between two upper channels of the base section of the profile. Thus, between the central portion of the floor panel and the cantilevered ends of the adjacent floor panels, as well as between the central portions of the floor panel when the enclosure comprises more than two sliding panes, longitudinal openings are created that are adapted to be traversed by the respective rolling profiles of the sliding enclosure panes, so that said rolling profiles can slide on the wheels of the corresponding wheel-carrier profiles in order to open or close the door, window or wall they are a part of.

[0005] A disadvantage of these known embedded frames is that it is complex to extract the wheel-carrier profiles from the support profile assembly, for example, to replace them when they break. Said task entails lifting the floor panels, which complicates and slows down the tasks of replacing the damaged wheel-carrier profiles.

[0006] The subject matter of the present invention is therefore aimed at achieving an embedded frame for sliding enclosure panes whose particular configuration facilitates extraction of the wheel-carrier profiles.

DESCRIPTION OF THE INVENTION

[0007] The present invention is defined and characterized by the independent claim, while the dependent claims describe other characteristics thereof.

[0008] The object of the invention is an embedded frame for sliding panes for enclosures. An enclosure is understood as the closing of any opening in a building, for example, doors or windows, with multiple sliding pane elements, or walls formed with said elements used as dividers of interior spaces in a building or on its exterior facade.

[0009] The embedded frame comprises a support profile assembly arranged below the floor panels, that is, the support profile assembly is arranged below the floor elements or panels that cover the floor of the building or the window sill, as appropriate.

[0010] Likewise, the frame support profile assembly comprises a base section of the profile that forms upper channels, extending in a plane substantially parallel to the plane of the floor in which the frame is embedded, and configured to immobilize wheel-carrier profiles corresponding to at least two sliding panes of an enclosure. The support profile assembly also comprises at least one central column section of the profile, which extends substantially perpendicular to the base section of the profile and thus to the floor in which the frame is embedded. The central column of the profile is configured to support a first support profile that houses a central portion of the floor panel, such that the central column section of the profile is arranged between two upper channels of the base section of the profile.

[0011] Wherein the central column section of the profile is removable with respect to the base section of the profile and comprises respective first lower channels configured to couple tightly with free ends of upper projections of the base section of the profile.

[0012] Thus, in the event of the need to replace one or more of the damaged wheel-carrier profiles with new ones, the corresponding central column section of the profile can be easily disassembled with respect to the base section of the profile, pulling on the first support profile from above to remove the central portion of the floor panel, and thus gaining free access to the wheel-carrier profiles retained in the upper channels of the base section of the profile inside the support profile assembly without having to lift or remove the adjacent floor panels that partially overlap the frame. Once the one or more damaged wheel-carrier profiles have been replaced, the central column section of the profile can be reattached with the same ease and simplicity to the section of the base profile of the support profile assembly.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] The present specification is complemented by a set of figures which illustrate a preferred embodiment, and which in no way limit the invention.

Figure 1 shows a front view of the embedded frame for sliding panes of enclosures.

Figure 2 shows a partially exploded front view of the frame of Figure 1.

Figure 3 shows a front view of the frame of Figure 1, showing how the wheel-carrier profiles are extracted.

DETAILED DESCRIPTION OF THE INVENTION

[0014] The present invention is an embedded frame for doors or windows, for example, with multiple sliding pane elements, or for walls formed with said elements used as dividers of interior spaces in a building or as an exterior facade of said building.

[0015] As shown in Figure 1, the frame comprises a support profile assembly (1) arranged below the floor panels (4). The support profile assembly (1) in turn comprises a base section of the profile (1.1) that forms upper channels (1.11) that are configured to immobilize wheel-carrier profiles (2) that correspond to at least two sliding panes (3) of the enclosure. In other words, in use, the wheel-carrier profiles (2) fit into the upper channels (1.11) so that they are retained in the latter.

[0016] Additionally, the support profile assembly (1) comprises at least one central column section of the profile (1.2) that extends substantially perpendicular to the base section of the profile (1.1), said central column section of the profile (1.2) being arranged between two upper channels (1.11) of the base section of the profile (1.1). The central column section of the profile (1.2) is configured to support a first support profile (5) that houses a central portion (4.1) of the floor panel (4).

[0017] Thus, between the central portion (4.1) of the floor panel (4) and the cantilevered ends (4.2) of the adjacent floor panels (4), as well as between the central portions (4.1) of the floor panel (4), when the enclosure (door, window or wall) comprises more than two sliding panes (3) (an embodiment not shown in the figures), longitudinal openings (4.3) are created that are adapted to be traversed by the rolling profiles (3.1) of the sliding panes (3) of the enclosure in order to ensure that said rolling profiles (3.1) of the sliding panes (3) of the enclosure can slide on the corresponding wheel-carrier profiles (2) that are arranged below the floor panels (4), so that said wheel-carrier profiles (2) do not hinder passage through the enclosure when it is open.

[0018] On the other hand, advantageously, as can be seen in Figure 2, the central column section of the profile (1.2) is detachable with respect to the base section of the profile (1.1), and comprises first lower channels (1.21), that is, channels extending below the central column section of the profile (1.2), which are configured to couple, in a tight manner, with two free ends (1.121) of upper projections (1.12) of the base section of the profile (1.1), that is to say, projections that extends upwards from the base section of the profile (1.1) . For example, the upper channels (1.11) could be formed between one of these upper projections (1.12) of the base section of the profile (1.1) and a lateral step (1.111) formed in said base section of the profile (1.1) or between two upper projections (1.12) when the enclosure comprises more than two sliding panes (3).

[0019] On the other hand, the first lower channels (1.21) of the central column section of the profile (1.2) are preferably formed by respective separations (e) of first lower inner projections (1.23) with respect to first lower outer projections (1.24). By inner we mean those closest to the central axis of the central column section of the profile (1.2), and by outer we mean those furthest from said central axis of the central column section of the profile (1.2).

[0020] Likewise, the first lower inner projections (1.23) have a first length (L1) that is less than or substantially equal to a height (h) of the upper projections (1.12) of the base section of the profile (1.1), and the first lower outer projections (1.24) have a second length (L2) that is less than or substantially equal to a third length (L3) of the free ends (1.121) of the upper projections (1.12).

[0021] Thus, in any case, in the event of the need to replace one or more of the damaged wheel-carrier profiles (2) with new ones, the corresponding central column section of the profile (1.2) can easily be disassembled from the base section of the profile (1.1), pulling the first support profile (5) from above so that the first lower channels (1.21) of the central column section of the profile (1.2) are disengaged from the free ends (1.121) of the upper projections (1.12) of the base section of the profile (1.1), thus being able to remove the central portion (4.1) of the floor panel (4), and thus, as shown in Figure 3, gaining free access to the wheel-carrier profiles (2) retained in the upper channels (1.11) of the base section of the profile (1.1) inside the support profile assembly (1), without the need to lift or remove the adjacent floor panels (4) that partially overlap the frame. Once the one or more damaged wheel-carrier profiles (2) have been replaced, the central column section of the profile (1.2) can be reattached with the same ease and simplicity to the base section of the profile (1.1) of the support profile assembly (1), by reinserting the free ends (1.121) of the upper projections (1.12) of the base section of the profile (1.1) into the first lower channels (1.21) of the central column section of the profile (1.2).

[0022] Additionally, with a view to achieving greater ease in the decoupling of the central column section of the profile (1.2) with respect to the section of the base profile (1.1), the first support profile (5) can also be made to be removable from the central column section of the

profile (1.2). To achieve this, as shown in Figure 2, the first support profile (5) preferably comprises first lower projections (5.1), that is, projections extending below the first support profile (5), so that said projections (5.1) form a second lower channel (5.2) that is configured to couple tightly with the central column section of the profile (1.2). That is, by inserting said central column section of the profile (1.2) between the first lower projections (5.1) that make up the second lower channel (5.2) of the first support profile (5), a removable assembly is achieved between the first support profile (5) and the central column section of the profile (1.2). Additionally, the first lower projections (5.1) could comprise first lateral projections (5.11) facing each other and configured to engage in respective lateral channels (1.22) of the central column section of the profile (1.2). In any case, the aim is to support and retain the first support profile (5) on the central column section of the profile (1.2).

[0023] Thus, in this last preferred embodiment, when pulling the first support profile (5) from above, the first lower projections (5.1) of the latter are disengaged from the central column section of the profile (1.2) without any obstacle, and in the event that said first lower projections (5.1) include the first lateral projections (5.11), the latter are disengaged from the corresponding lateral channels (1.22) of the central column section of the profile (1.2), also achieving the decoupling of the first support profile (5) from the central column section of the profile (1.2), the latter becoming accessible from above in the support profile assembly (1); and then, by pulling from above the central column section of the profile (1.2), its first lower channels (1.21) are decoupled from the free ends (1.121) of the corresponding upper projections (1.12) of the base section of the profile (1.1), thus achieving greater ease of access to the wheel-carrier profiles (2) for their replacement if necessary.

[0024] Next, to reassemble the frame for use, it can be understood that the easiest thing to do is first to insert the free ends (1.121) of the upper projections (1.12) of the base section of the profile (1.1) into the corresponding first lower channels (1.21) of the central column section of the profile (1.2), and once the latter is correctly coupled to the base section of the profile (1.1), then the central column section of the profile (1.2) is inserted into the second lower channel (5.2) of the first support profile (5), to once again achieve the assembly between the first support profile (5) and the central column section of the profile (1.2). In the event that the first lower projections (5.1) include the first lateral projections (5.11), the central column section of the profile (2) is inserted between the first lower projections (5.1) of said first support profile (5) until said first lateral projections (5.11) engage in the corresponding lateral channels (1.22) of the central column section of the profile (1.2), thus also achieving once again the coupling of the first support profile (5) with the central column section of the profile (1.2).

[0025] On the other hand, the support profile assembly (1) preferably additionally comprises respective lateral column sections of the profile (1.3) that are configured to support second support profiles (6) that house cantilevered ends (4.2) of floor panels (4) arranged facing each other.

[0026] Additionally, the second support profiles (6) preferably comprise a second lower inner projection (6.1) and a second lower outer projection (6.2) that form a third lower channel (6.3), that is, a channel extending below from the second corresponding support profile (6). The third lower channels (6.3) are configured to engage, in a tight manner, in the corresponding lateral column sections of the profile (1.3) so that, when in use, the second lower inner projections (6.1) are arranged inside the support profile assembly (1) and the second lower outer projections (6.2) are arranged outside said support profile assembly (1).

[0027] Additionally, the second lower inner projections (6.1) may comprise second lateral projections (6.11) configured to engage, in a removable manner, for example, in inner projections (1.31) of each lateral column section of the profile (1.3).

Claims

1. Embedded frame for sliding panes of an enclosure, comprising a support profile assembly (1) arranged below floor panels (4), wherein the support profile assembly (1) comprises a base section of the profile (1.1) that forms respective upper channels (1.11) configured to immobilize wheel-carrier profiles (2) corresponding to at least two sliding panes (3) of an enclosure, and at least one central column section of the profile (1.2) that extends substantially perpendicular to the base section of the profile (1.1), configured to support a first support profile (5) that houses a central portion (4.1) of the floor panel (4), so that the central column section of the profile (1.2) is arranged between two upper channels (1.11) of the base section of the profile (1.1), **characterized in that** the central column section of the profile (1.2) is removable with respect to the base section of the profile (1.1) and comprises two first lower channels (1.21) configured to couple in a tight manner with free ends (1.121) of upper projections (1.12) of the base section of the profile (1.1).

2. Embedded frame according to claim 1, wherein the first support profile (5) comprises first lower projections (5.1) that form a second lower channel (5.2) configured to couple tightly with the central column section of the profile (1.2), in such a way that the first support profile (5) couples with the central column section of the profile (1.2) in a removable manner.

3. Embedded frame according to claim 2, wherein the first lower projections (5.1) comprise first lateral projections (5.11) facing each other and configured to

engage in respective lateral channels (1.22) of the central column section of the profile (1.2).

4. Embedded frame according to claim 1, wherein the first lower channels (1.21) of the central column section of the profile (1.2) are formed by respective separations (e) of first lower inner projections (1.23) with respect to first lower outer projections (1.24).

5. Embedded frame according to claim 4, wherein the first lower inner projections (1.23) have a first length (L1) that is less than or substantially equal to a height (h) of the upper projections (1.12) of the base section of the profile (1.1), and the first lower outer projections (1.24) have a second length (L2) that is less than or substantially equal to a third length (L3) of the free ends (1.121) of the upper projections (1.12).

6. Embedded frame according to claim 1, wherein the support profile assembly (1) comprises respective lateral column sections of the profile (1.3) that are configured to support second support profiles (6) that house cantilevered ends (4.2) of floor panels (4) arranged facing each other.

7. Embedded frame according to claim 6, wherein the second support profiles (6) comprise a second lower inner projection (6.1) and a second lower outer projection (6.2) that form a third lower groove (6.3) configured to couple tightly into the section of the corresponding lateral column section of the profile (1.3).

8. Embedded frame according to claim 7, wherein the second lower inner projection (6.1) comprises a second lateral projection (6.11) configured to engage, in a removable manner, with an inner projection (1.31) of the lateral column section of the profile (1.3).

Amended claims in accordance with Rule 137(2) EPC.

1. Embedded frame for sliding panes of an enclosure, comprising a support profile assembly (1) arranged below floor panels (4), wherein the support profile assembly (1) comprises a base profile section (1.1) that forms respective upper grooves (1.11) configured to immobilize wheel-carrier profiles (2) corresponding to at least two sliding panes (3) of an enclosure, and at least one central column profile section (1.2) that extends substantially perpendicular to the base profile section (1.1), the central column profile section (1.2) is configured to support a first support profile (5) that houses a central portion (4.1) of the floor panel (4), so that the central column profile section (1.2) is arranged between two upper grooves (1.11) of the base profile section (1.1), the central column profile section (1.2) is removable with respect to the base profile section (1.1), **characterized in that** the central column profile section (1.2) comprises respective first lower grooves (1.21) configured to couple in a tight manner at free ends (1.121) of upper projections (1.12) of the base profile section (1.1).

2. Embedded frame according to claim 1, wherein the first support profile (5) comprises first lower projections (5.1) that form a second lower groove (5.2) configured to couple tightly on the central column profile section (1.2), in such a way that the first support profile (5) couples with the central column profile section (1.2) in a removable manner.

3. Embedded frame according to claim 2, wherein the first lower projections (5.1) comprise first lateral projections (5.11) facing each other and configured to engage in respective lateral grooves (1.22) of the central column profile section (1.2).

4. Embedded frame according to claim 1, wherein the first lower grooves (1.21) of the central column profile section (1.2) are formed by respective separations (e) of first lower inner projections (1.23) with respect to first lower outer projections (1.24).

5. Embedded frame according to claim 4, wherein the first lower inner projections (1.23) have a first length (L1) that is less than or substantially equal to a height (h) of the upper projections (1.12) of the base profile section (1.1), and the first lower outer projections (1.24) have a second length (L2) that is less than or substantially equal to a third length (L3) of the free ends (1.121) of the upper projections (1.12).

6. Embedded frame according to claim 1, wherein the support profile assembly (1) comprises respective lateral column profile sections (1.3) that are configured to support second support profiles (6) that house cantilevered ends (4.2) of floor panels (4) arranged facing each other.

7. Embedded frame according to claim 6, wherein the second support profiles (6) comprise a second lower inner projection (6.1) and a second lower outer projection (6.2) that form a third lower groove (6.3) configured to couple tightly into the section of the corresponding lateral column profile section (1.3).

8. Embedded frame according to claim 7, wherein the second lower inner projection (6.1) comprises a second lateral projection (6.11) configured to engage, in a removable manner, with an inner projection (1.31) of the lateral column profile section (1.3).

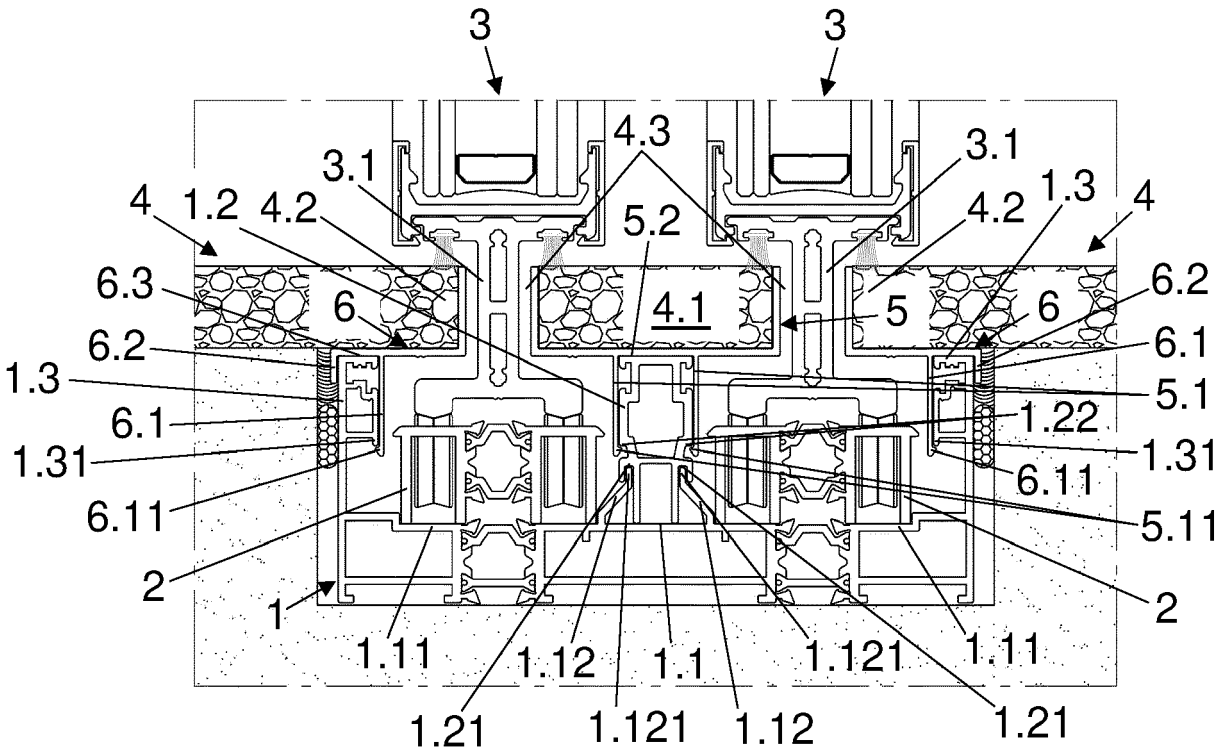
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Fig. 1

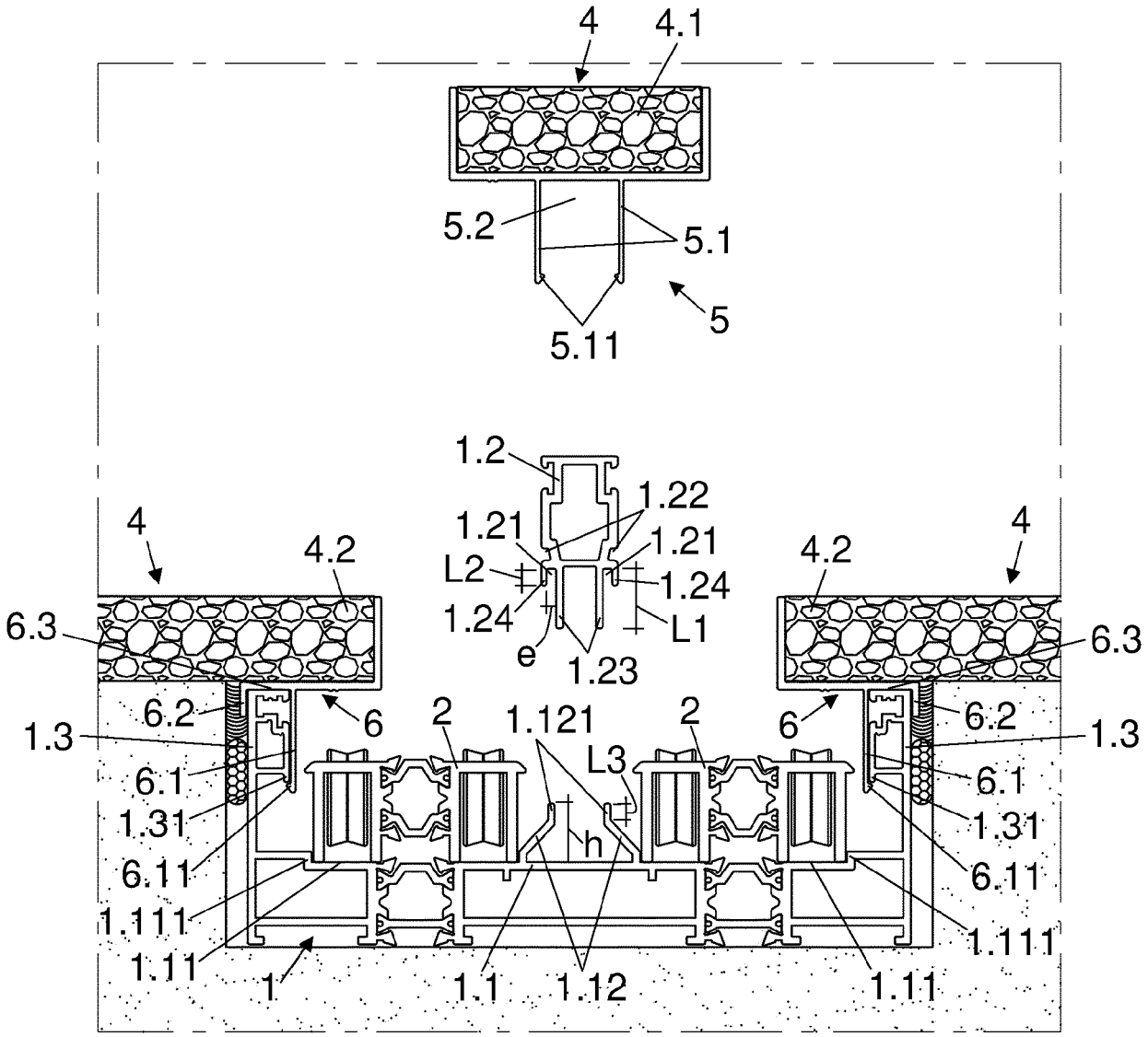
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Fig. 2

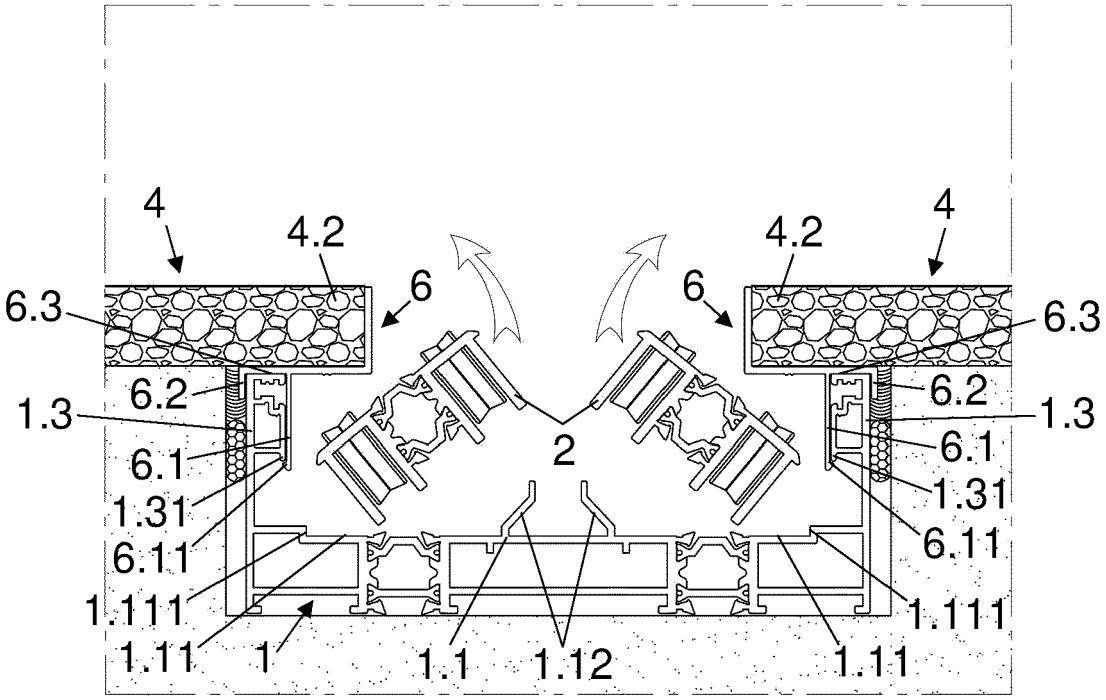
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Fig. 3

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EUROPEAN SEARCH REPORT

Application Number
EP 22 38 2719

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	US 2020/318419 A1 (GUHL BEAT [CH]) 8 October 2020 (2020-10-08) * paragraph [0011]; figure 1 *	1-8	INV. E05D15/06 E06B3/46
X	EP 3 599 332 A1 (FERREIRA FREDERICO [PT]; FARIA CORREIA MIGUEL LUIS [PT]) 29 January 2020 (2020-01-29) * figures 12-18 *	1-8	
X	KR 101 793 476 B1 (JS ENG CO LTD [KR]) 3 November 2017 (2017-11-03) * figures 1-8 *	1-8	

TECHNICAL FIELDS SEARCHED (IPC)

E05D
E05G
E06B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	29 November 2022	Cobusneanu, D

CATEGORY OF CITED DOCUMENTS

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29-11-2022

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