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(54) **MODULE FOR FRAMES FOR PARTITION WALLS**

(57) A module (10, 110, 210, 310) for frames of partition walls, comprising at least one longitudinally-extended profiled element (11, 111, 211, 311) shaped like a triple "C" with one core (12, 112, 212, 312) and four parallel primary wings (13a, 13b, 13c, 13d, 113a, 113b, 113c, 113d, 213a, 213b, 213c, 213d, 313a, 313b, 313c, 313d) which are perpendicular to said core (12, 112, 212, 312).

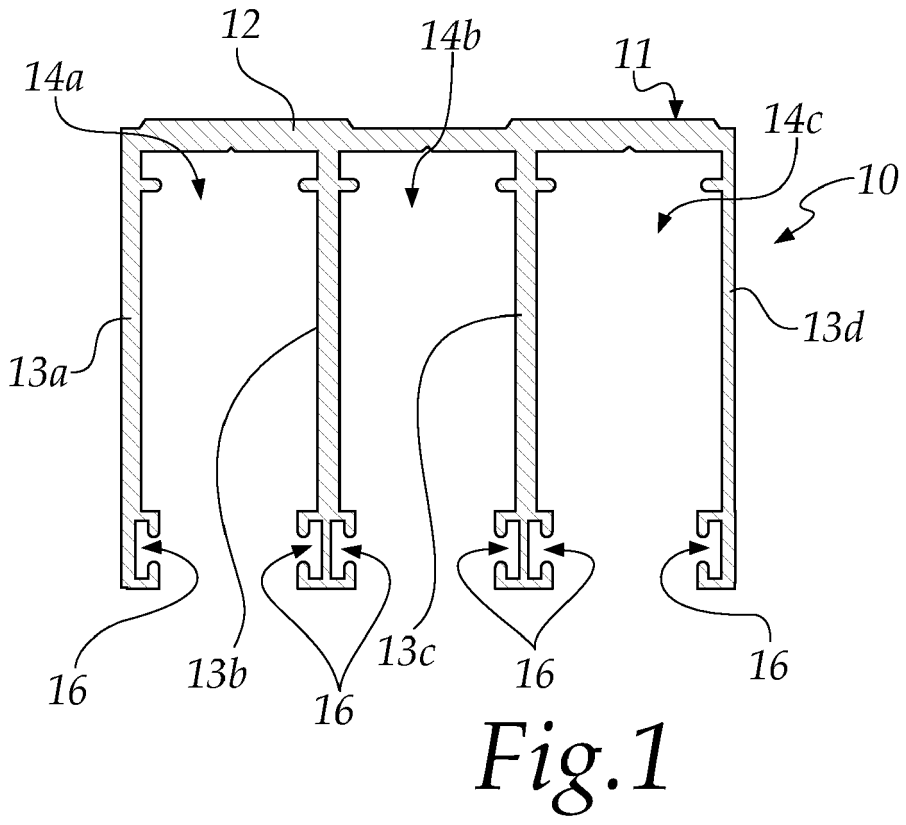

Fig.1

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Description

[0001] The present invention relates to a module for frames for partition walls.

[0002] The invention is used in the construction sector, in the area of prefabricated and/or modular partition walls.

[0003] Nowadays, partition walls are widely used in environments such as, for example: dwellings, offices, shops, airports, hospitality structures, etc.

[0004] Normally, such partition walls are:

- in masonry, made of bricks directly on site,
- prefabricated and/or modular, at least partially made in the factory and then assembled on site.

[0005] Some of the known prefabricated/modular partition walls have:

- a frame for holding a closing panel, the frame being fixed to other walls, to the floor and/or to the ceiling,
- the closing panel.

[0006] Frames are normally made of profiled metal, while the closing panels can be made of glass, wood, plywood, metallic material or the like.

[0007] According to user requirements, a closing panel of glass, in preference to plywood or another material, is therefore used, and is optionally thermally and/or acoustically insulated.

[0008] Such known art has a number of aspects that show room for improvement.

[0009] In particular, usually, a specific panel is paired with a specific type of frame, and therefore of profiled element, and it is necessary to decide in advance what type of panel to install in a certain environment, so as to source the correct frame to bring to the installation site, and therefore the correct composition of profiled elements.

[0010] Furthermore, usually, the profiled elements adapted to support panels made of glass are different from those adapted to support panels of other materials, and one type cannot be installed in place of the other types.

[0011] Basically, the profiled elements adapted to support panels make it possible, generally, to install a single type of panel.

[0012] Also, the profiled elements adapted to support panels make it possible, generally, to install only one panel and, most of the time, it is not possible to install two or more panels side-by-side, on parallel planes, inside the same frame.

[0013] The aim of the present invention is to provide a module for frames for partition walls which is capable of improving the known art in one or more of the above-mentioned aspects.

[0014] Within this aim, an object of the invention is to provide a module for frames for partition walls which enables the installation of any type of panel: glass, plywood, metallic material, etc., and without the necessity to choose the type of panel in advance, instead offering the possibility to choose and/or modify it even after the installation of the frame.

[0015] Another object of the invention is to provide a module for frames for partition walls which enables the installation of more than one panel and/or of other elements.

[0016] A further object of the present invention is to overcome the drawbacks of the known art in an alternative manner to any existing solutions.

[0017] Another object of the invention is to provide a module for frames for partition walls that is highly reliable, easy to implement and at low cost.

[0018] This aim and these and other objects which will become better apparent hereinafter are achieved by a module for frames for partition walls, characterized in that it comprises at least one longitudinally-extended profiled element shaped like a triple "C" with one core and four parallel primary wings which are perpendicular to said core.

[0019] Further characteristics and advantages of the invention will become more apparent from the description of some preferred, but not exclusive, embodiments of the module for frames for partition walls according to the invention, which are illustrated for the purposes of non-limiting example in the accompanying drawings wherein:

- Figure 1 is a cross-sectional view of a module for frames for partition walls, according to the invention, in a first embodiment;
- Figure 2 is a cross-sectional view of a module for frames for partition walls, according to the invention, in a second embodiment;
- Figure 3 is a cross-sectional view of a module for frames for partition walls, according to the invention, in a third embodiment;
- Figure 4 is an exploded cross-sectional view of a module for frames for partition walls, according to the invention, in a fourth embodiment;
- Figures 5a and 5b show two different components of a module for frames according to the invention;
- Figure 6 shows a configuration of use of the module of Figure 1;
- Figure 7 shows a configuration of use of the module of Figure 2;
- Figure 8 shows a configuration of use of the module of Figure 3;
- Figure 9 shows a configuration of use of the module of Figure 4.

[0020] With reference to the figures, a module for frames for partition walls, according to the invention, in a first embodiment, is generally designated by the reference numeral 10.

[0021] The module 10 comprises at least one longitudinally-extended profiled element 11 shaped like a triple

"C" with one core 12 and four parallel primary wings 13a, 13b, 13c and 13d, which are perpendicular to the core 12.

[0022] The primary wings 13a, 13b, 13c and 13d are, in order:

- a first primary wing 13a, arranged at a first end of the profiled element 11,
- a second primary wing 13b and a third primary wing 13c, which are intermediate,
- a fourth primary wing 13d, arranged at a second end of the profiled element 11 which is opposite to its first end.

[0023] The four primary wings 13a, 13b, 13c and 13d define three primary receptacles 14a, 14b, 14c for one or more panels 15, as shown in Figure 6, or other elements, not shown in the figures.

[0024] Advantageously, the primary wings 13a, 13b, 13c and 13d have one or more longitudinal first seats 16, for optionally accommodating a sealing element/gasket 17, as shown in Figure 1.

[0025] In particular, the first seats 16 are arranged proximate to/at the free ends of the primary wings 13a, 13b, 13c, 13d.

[0026] Preferably:

- the first primary wing 13a has a first seat 16 which is directed toward the second primary wing 13b,
- the second primary wing 13b has a first seat 16 that is directed toward the first primary wing 13a and a first seat 16 that is directed toward the third primary wing 13c,
- the third primary wing 13c has a first seat 16 that is directed toward the second primary wing 13b and a first seat 16 that is directed toward the fourth primary wing 13d,
- the fourth primary wing 13d has a first seat 16 which is directed toward the third primary wing 13c.

[0027] The module 10 is, for example, a module that can be fixed to the ceiling by coupling the core 12 to the ceiling of the room in which the partition wall is to be erected.

[0028] In one of the primary receptacles 14a, 14b, 14c, it is possible to insert a doorframe, not shown in the figures, for supporting a sliding and/or leaf door.

[0029] Advantageously, one or more primary receptacles 14a, 14b, 14c can be closed by a closure element 20, 30.

[0030] With reference to Figures 5a and 5b:

- the closure element 20 of Figure 5a is a longitudinal element which is adapted to close a single primary receptacle 14a, 14b, 14c;
- the closure element 30 of Figure 5b is a longitudinal element which is adapted to close two of the primary receptacles 14a, 14b, 14c.

[0031] The closure element 20 has:

- a longitudinal plate 21 the width of which is greater than or equal to the width of a primary receptacle 14a, 14b, 14c;
- two curved appendages 22a, 22b which extend from the plate 21 and shaped so as to obtain an interlocking/interference with two successive primary wings 13a, 13b, 13c, 13d in the closed configuration of the corresponding primary receptacle 14a, 14b, 14c.

[0032] The closure element 30 has:

- a longitudinal plate 31 the width of which is greater than or equal to the width of two successive primary receptacles 14a, 14b, 14c;
- two curved appendages 32a, 32b which extend from the plate 31 and shaped so as to obtain an interlocking/interference with two primary wings 13a, 13b, 13c, 13d in the closed configuration of the corresponding two primary receptacles 14a, 14b, 14c.

[0033] Figure 2 shows a module for frames for partition walls, according to the invention, in a second embodiment, generally designated by the reference numeral 110.

[0034] The module 110 has elements that are similar to the elements of the module in the previously illustrated first embodiment.

[0035] The elements of the module 110 of Figures 2 and 7, corresponding to the elements of the module 10 of Figures 1 and 6, have been indicated with the same reference numerals, increased by 100.

[0036] In such embodiment the profiled element 111 has a core 112 which is defined by a longitudinal portion that is quadrangular in cross-section and internally hollow.

[0037] Furthermore, the profiled element 111 has two longitudinal portions 118a, 118b, respectively:

- a first longitudinal portion 118a extending from the free end of the first primary wing 113a, parallel to the core 112, outward from the profiled element 111,
- a second longitudinal portion 118b, extending from the free end of the fourth primary wing 113d, parallel to the core 112, outward from the profiled element 111.

[0038] The profiled element 111 further comprises:

- a first auxiliary wing 119a, extending from the end of the first longitudinal portion 118a arranged opposite to the end proximate to the free end of the first primary wing 113a, the first auxiliary wing 119a being parallel to the first primary wing 113a,
- a second auxiliary wing 119b, extending from the end of the second longitudinal portion 118b arranged opposite to the end proximate to the free end of the

fourth primary wing 113d, the second auxiliary wing 119b being parallel to the fourth primary wing 113d.

[0039] Advantageously, the profiled element 111 has one or more second longitudinal seats 140 for optionally accommodating a sealing element/gasket.

[0040] Such second seats 140 are arranged at the same level as the core 112. In particular:

- the first auxiliary wing 119a has a second seat 140 which is directed toward the first primary wing 113a,
- the first primary wing 113a has a second seat 140 which is directed toward the first auxiliary wing 119a,
- the fourth primary wing 113d has a second seat 140 which is directed toward the second auxiliary wing 119b,
- the second auxiliary wing 119b has a second seat 140 which is directed toward the fourth primary wing 113d.

[0041] The first auxiliary wing 119a, the first longitudinal portion 118a and the first primary wing 113a define a first auxiliary receptacle 141a.

[0042] The second auxiliary wing 119b, the second longitudinal portion 118b and the fourth primary wing 113d define a second auxiliary receptacle 141b.

[0043] The module 110 is, for example, a module that can be fixed to the ceiling by coupling the core 112 to the ceiling of the room in which the partition wall is to be erected.

[0044] Alternatively, such module 110 can be self-supporting: in such case the auxiliary receptacles 141a, 141b can contain electrical cables and/or LED lighting apparatuses.

[0045] In one or more of the receptacles 114a, 114b, 114c, it is possible to insert a panel 115 and/or a door frame, not shown in the figures, for supporting a sliding and/or leaf door.

[0046] Advantageously, one or more receptacles 114a, 114b, 114c and/or one or more auxiliary receptacles 141a, 141b can be closed by a closure element 20, 30.

[0047] Figure 3 shows a module for frames for partition walls, according to the invention, in a third embodiment, generally designated by the reference numeral 210.

[0048] The module 210 has elements that are similar to the elements of the module in the previously illustrated first embodiment.

[0049] The elements of the module 210 of Figures 3 and 8, corresponding to the elements of the module 210 of Figures 1 and 6, have been indicated with the same reference numerals, increased by 200.

[0050] In such embodiment, each primary wing 213a, 213b, 213c, 213d corresponds to a secondary wing 213a', 213b', 213c', 213d' which is mirror-symmetrical thereto with respect to the plane of symmetry coinciding with the plane of arrangement of the core 212.

[0051] Furthermore, each primary receptacle 214a, 214b, 214c, each defined by two successive primary wings 213a, 213b, 213c, 213d, corresponds to a secondary receptacle 214a', 214b', 214c', each defined by two successive secondary wings 213a', 213b', 213c', 213d'.

[0052] Each primary receptacle 214a, 214b, 214c and each secondary receptacle 214a', 214b', 214c' is adapted for the insertion of a panel 215 and/or of a door frame for a sliding and/or leaf door and/or for closure by means of a closure element 20, 30.

[0053] Each secondary wing 213a', 213b', 213c', 213d' has a third seat 216' which is similar to the first seat 216 of the corresponding primary wing 213a', 213b', 213c', 213d'.

[0054] The module 210 is adapted, for example:

- to be an intermediate module which can be installed horizontally, parallel to a module 10, in the first embodiment thereof or to a module 110, in the second embodiment thereof,
- and/or to be installed vertically.

[0055] Figure 4 shows a module for frames for partition walls, according to the invention, in a fourth embodiment, generally designated by the reference numeral 310.

[0056] The module 310 has elements that are similar to the elements of the module in the previously illustrated first embodiment.

[0057] The elements of the module 310 of Figures 4 and 9, corresponding to the elements of the module 10 of Figures 1 and 6, have been indicated with the same reference numerals, increased by 300.

[0058] In such embodiment the profiled element 311 has a core 312 which is defined by a longitudinal portion that is substantially quadrangular in cross-section and internally hollow.

[0059] In the module 310, the first primary wing 313a and the fourth primary wing 313d are made in a separate body with respect to the body of the core 312 and are associated with the latter by means of the lateral interlocking of two respective tabs 351a, 351b, 352a, 352b in a corresponding engagement portion 360a, 360b of the core 312.

[0060] Each primary receptacle 314a, 314b, 314c is adapted for the insertion of a panel 315 and/or of a door-frame for a sliding and/or leaf door and/or for closure by means of a closure element 20, 30.

[0061] The module 310 is, for example, a module adapted for installation on the floor, by coupling the core 312 to the floor of the room in which the partition wall is to be erected.

[0062] The module 10, 110, 210, 310 according to the invention is preferably made of metallic material.

[0063] It should be noted that, with a module for frames for partition walls, according to the invention, a plurality of combinations and implementation solutions for the partition wall is possible.

[0064] It should also be noted that with the module according to the invention it is possible to install any type

of panel: glass, wood, plywood, metallic material, etc., and without the necessity to choose the type of panel in advance, instead offering the possibility to choose and/or modify it even after the installation of the frame.

[0065] Furthermore, with a module according to the invention it is possible to install up to three parallel panels on a same module.

[0066] In practice it has been found that the invention fully achieves the intended aim and objects by providing a module for frames for partition walls which enables the installation of any type of panel: glass, plywood, metallic material, etc., and without the necessity to choose the type of panel in advance, instead offering the possibility to choose and/or modify it even after the installation of the frame.

[0067] According to the invention a module for frames for partition walls has been devised which enables the installation of more than one panel and/or of other elements.

[0068] The invention thus conceived, is susceptible of numerous modifications and variations all of which are within the scope of the appended claims. Moreover, all the details may be substituted by other, technically equivalent elements.

[0069] In practice the materials employed, provided they are compatible with the specific use, and the contingent dimensions and shapes, may be any according to requirements and to the state of the art.

[0070] The disclosures in Italian Utility Model Application No. 202023000000933 from which this application claims priority are incorporated herein by reference.

[0071] Where technical features mentioned in any claim are followed by reference signs, such reference signs have been inserted for the sole purpose of increasing the intelligibility of the claims and accordingly such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. A module (10, 110, 210, 310) for frames for partition walls, **characterized in that** it comprises at least one longitudinally-extended profiled element (11, 111, 211, 311) shaped like a triple "C" with one core (12, 112, 212, 312) and four parallel primary wings (13a, 13b, 13c, 13d, 113a, 113b, 113c, 113d, 213a, 213b, 213c, 213d, 313a, 313b, 313c, 313d) which are perpendicular to said core (12, 112, 212, 312).

2. The module (10, 110, 210, 310) according to claim 1, **characterized in that** said primary wings (13a, 13b, 13c, 13d, 113a, 113b, 113c, 113d, 213a, 213b, 213c, 213d, 313a, 313b, 313c, 313d) are, in order:

   - a first primary wing (13a, 113a, 213a, 313a) arranged at a first end of said profiled element (11, 111, 211, 311),
   - a second primary wing (13b, 113b, 213b, 313b) and a third primary wing (13c, 113c, 213c, 313c), which are intermediate,
   - a fourth primary wing (13d, 113d, 213d, 313d) arranged at a second end of said profiled element (11, 111, 211, 311) which is opposite to its first end.

3. The module (10, 110, 210, 310) according to one or more of the preceding claims, **characterized in that** said primary wings (13a, 13b, 13c, 13d, 113a, 113b, 113c, 113d, 213a, 213b, 213c, 213d, 313a, 313b, 313c, 313d) define three primary receptacles (14a, 14b, 14c, 114a, 114b, 114c, 214a, 214b, 214c, 314a, 314b, 314c) for one or more panels (15, 115, 215, 315).

4. The module (10, 110, 210, 310) according to one or more of the preceding claims, **characterized in that** said primary wings (13a, 13b, 13c, 13d, 113a, 113b, 113c, 113d, 213a, 213b, 213c, 213d, 313a, 313b, 313c, 313d) have one or more longitudinal first seats (16, 116, 216, 316) for accommodating a sealing element/gasket (17, 117, 317).

5. The module (10, 110, 210, 310) according to one or more of the preceding claims, **characterized in that** said first seats (16, 116, 216, 316) are arranged proximate to/at the free ends of said primary wings (13a, 13b, 13c, 13d, 113a, 113b, 113c, 113d, 213a, 213b, 213c, 213d, 313a, 313b, 313c, 313d).

6. The module (110, 310) according to one or more of the preceding claims, **characterized in that** said profiled element (111, 311) has a core (112, 312) which is defined by a longitudinal portion that is quadrangular in cross-section and internally hollow.

7. The module (110) according to one or more of the preceding claims, **characterized in that** said profiled element (111) has two longitudinal portions (118a, 118b), respectively:

   - a first longitudinal portion (118a) extending from the free end of said first primary wing (113a), parallel to said core (112), outward from said profiled element (111),
   - a second longitudinal portion (118b) extending from the free end of said fourth primary wing (113d), parallel to said core (112), outward from said profiled element (111).

8. The module (110) according to one or more of the preceding claims, **characterized in that** said profiled element (111) comprises:

   - a first auxiliary wing (119a), extending from the

end of said first longitudinal portion (118a) arranged opposite to the end proximate to the free end of said first primary wing (113a), said first auxiliary wing (119a) being parallel to said first primary wing (113a),
- a second auxiliary wing (119b), extending from the end of said second longitudinal portion (118b) arranged opposite to the end proximate to the free end of said fourth primary wing (113d), said second auxiliary wing (119b) being parallel to said fourth primary wing (113d).

9. The module (110) according to one or more of the preceding claims, **characterized in that** said profiled element (111) has one or more second longitudinal seats (140) for accommodating a sealing element/gasket, said second longitudinal seats (140) being arranged at the same level as said core (112).

10. The module (110) according to one or more of the preceding claims, **characterized in that**:

- said first auxiliary wing (119a), said first longitudinal portion (118a) and said first primary wing (113a) define a first auxiliary receptacle (141a),
- said second auxiliary wing (119b), said second longitudinal portion (118b) and said fourth primary wing (113d) define a second auxiliary receptacle (141b).

11. The module (210) according to one or more of the preceding claims, **characterized in that** each one of said primary wings (213a, 213b, 213c, 213d) corresponds to a secondary wing (213a', 213b', 213c', 213d') which is mirror-symmetrical thereto with respect to the plane of symmetry coinciding with the plane of arrangement of said core (212).

12. The module (210) according to one or more of the preceding claims, **characterized in that** each one of said primary receptacles (214a, 214b, 214c) corresponds to a secondary receptacle (214a', 214b', 214c') for accommodating a panel (215).

13. The module (210) according to one or more of the preceding claims, **characterized in that** each secondary wing (213a', 213b', 213c', 213d') has a third seat (216') which is similar to one of said first seats (216) of the corresponding one of said primary wings (213a', 213b', 213c', 213d').

14. The module (310) according to one or more of the preceding claims, **characterized in that** said first primary wing (313a) and said fourth primary wing (313d) are made in a separate body with respect to said body of said core (312) and are associated with the latter by means of the lateral interlocking of two respective tabs (351a, 351b, 352a, 352b) in a corresponding engagement portion (360a, 360b) of said core (312).

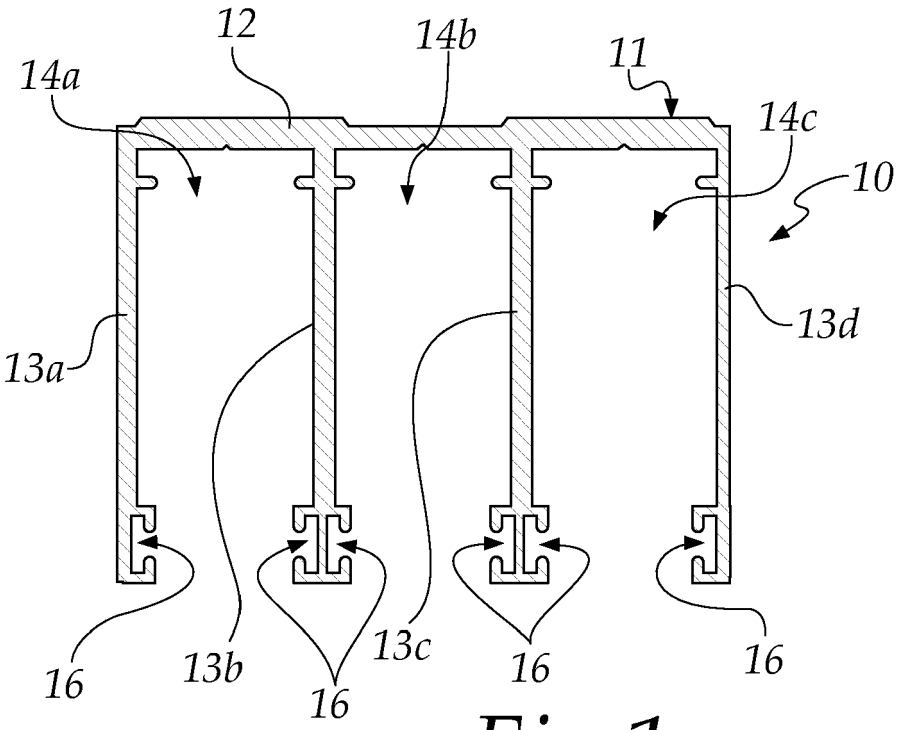
15. The module (310) according to one or more of the preceding claims, **characterized in that** it comprises at least one closure element (20, 30) of one of said primary receptacles (14a, 14b, 14c, 114a, 114b, 114c, 214a, 214b, 214c, 314a, 314b, 314c) and/or of a secondary receptacle (214a', 214b', 214c') and/or of an auxiliary receptacle (141a, 141b).

16. The module (10, 110, 210, 310) according to one or more of the preceding claims, **characterized in that** said closure element (20) has:

- a longitudinal plate (21) the width of which is greater than or equal to the width of one of said primary receptacles (14a, 14b, 14c, 114a, 114b, 114c, 214a, 214b, 214c, 314a, 314b, 314c),
- two curved appendages (22a, 22b) which extend from said plate (21) and are contoured so as to obtain an interlocking/interference with two successive said primary wings (13a, 13b, 13c, 13d, 113a, 113b, 113c, 113d, 213a, 213b, 213c, 213d, 313a, 313b, 313c, 313d) in the closed configuration of the corresponding one of said primary receptacles (14a, 14b, 14c, 114a, 114b, 114c, 214a, 214b, 214c, 314a, 314b, 314c) and/or of the corresponding secondary receptacle (214a', 214b', 214c') and/or of the corresponding auxiliary receptacle (141a, 141b).

17. The module (10, 110, 210, 310) according to claim 15, **characterized in that** said closure element (30) has:

- a longitudinal plate (31) the width of which is greater than or equal to the width of two successive said primary receptacles (14a, 14b, 14c, 114a, 114b, 114c, 214a, 214b, 214c, 314a, 314b, 314c),
- two curved appendages (32a, 32b) which extend from said plate (31) and are contoured so as to obtain an interlocking/interference with two of said primary wings (13a, 13b, 13c, 13d, 113a, 113b, 113c, 113d, 213a, 213b, 213c, 213d, 313a, 313b, 313c, 313d) in the closed configuration of the corresponding two primary receptacles (14a, 14b, 14c, 114a, 114b, 114c, 214a, 214b, 214c, 314a, 314b, 314c).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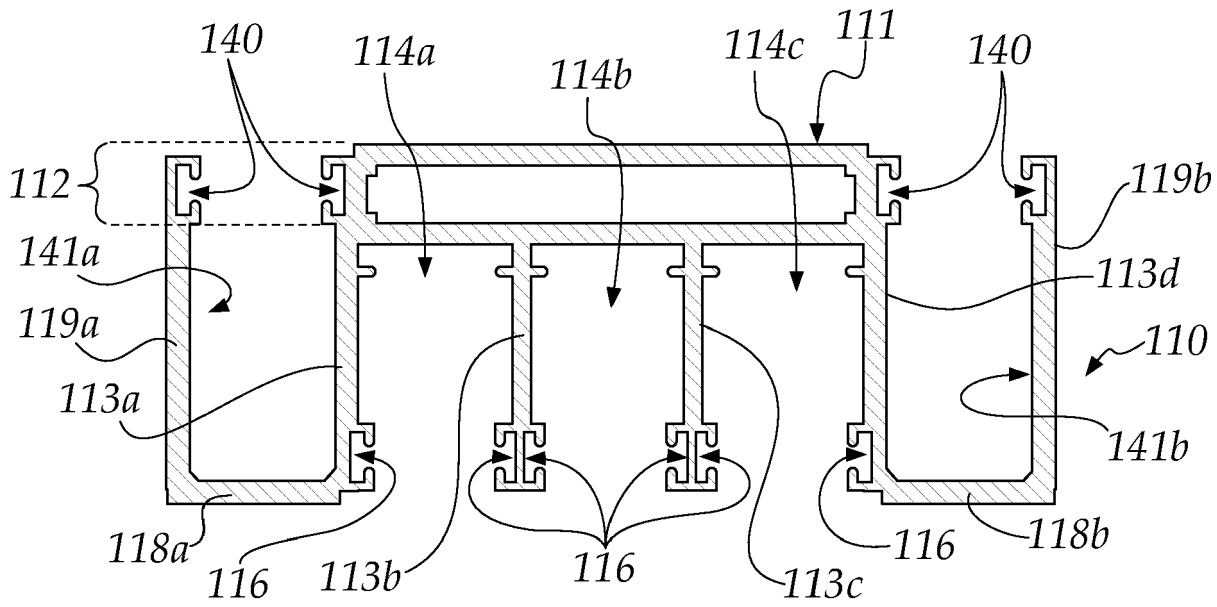
14b
11
14a
14c
10
13d
13a
16
13b
16
13c
16
16

Fig.1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114a
114b
114c
111
140
112
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113b
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116
113c
118b

Fig.2

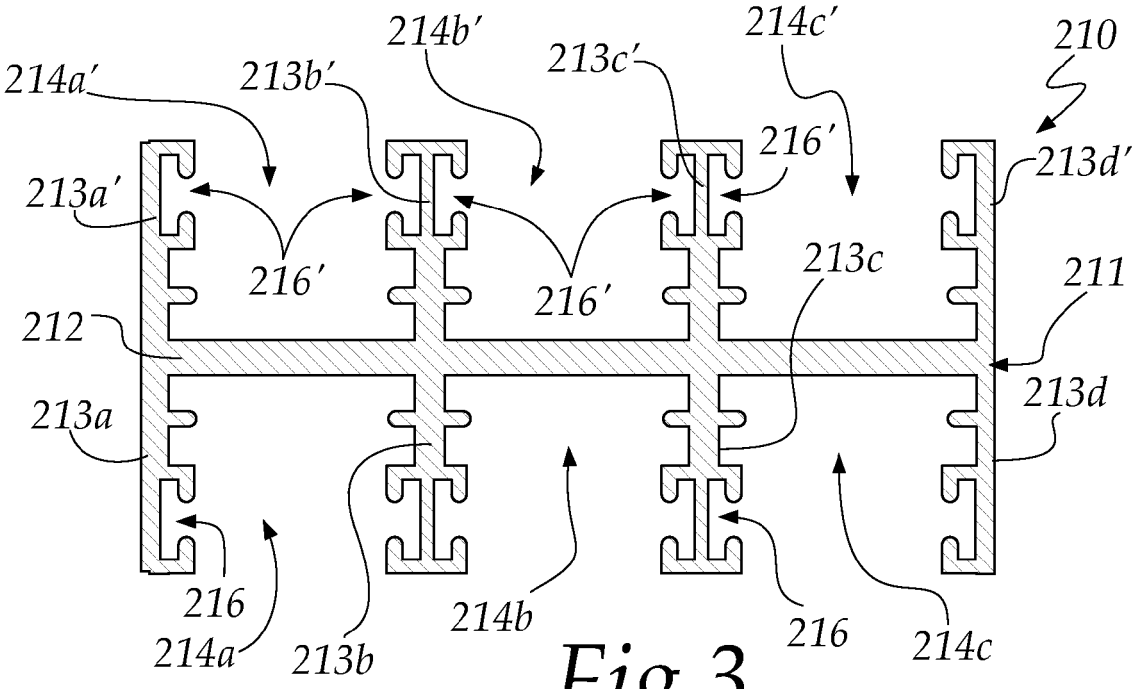

Fig.3

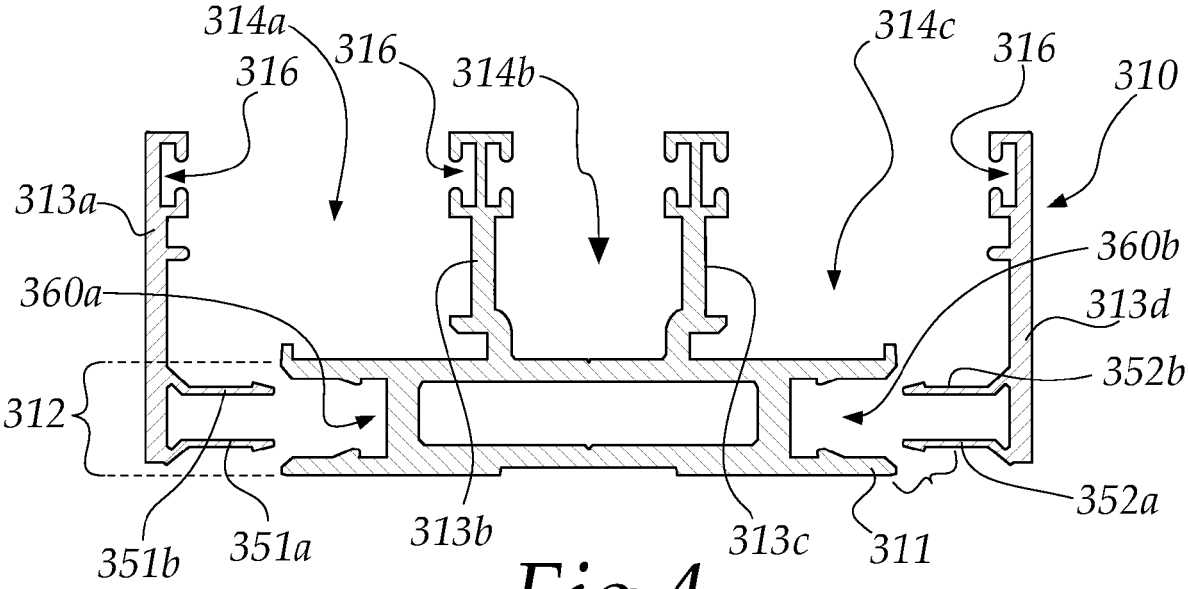

Fig.4

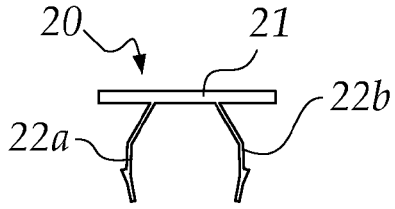

Fig5a

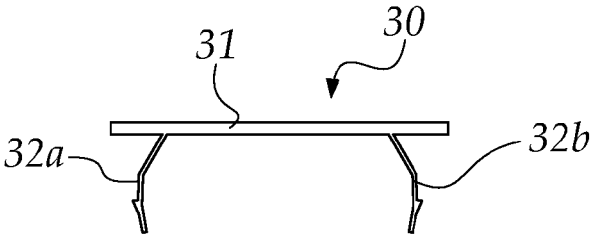

Fig.5b

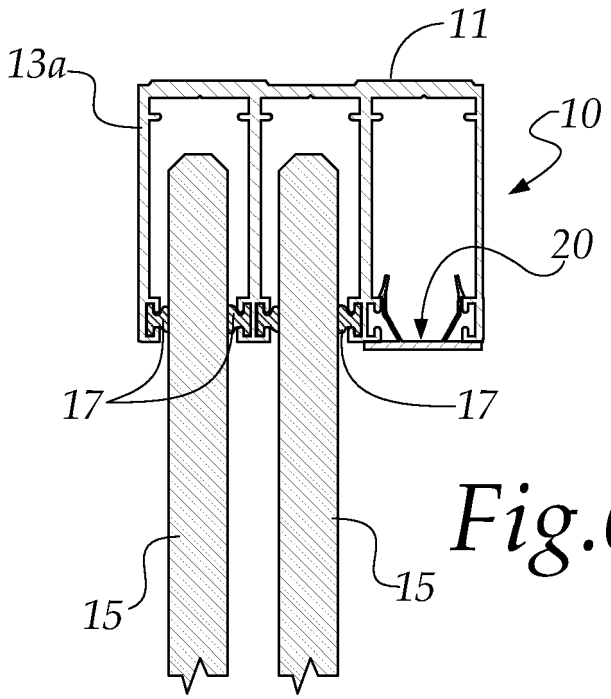

Fig.6

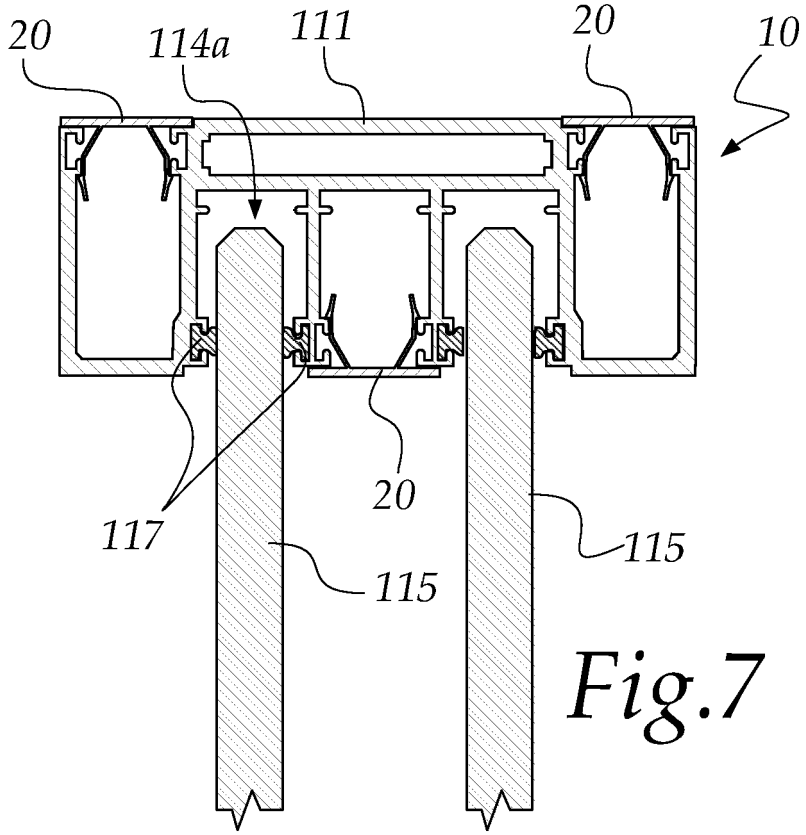

Fig.7

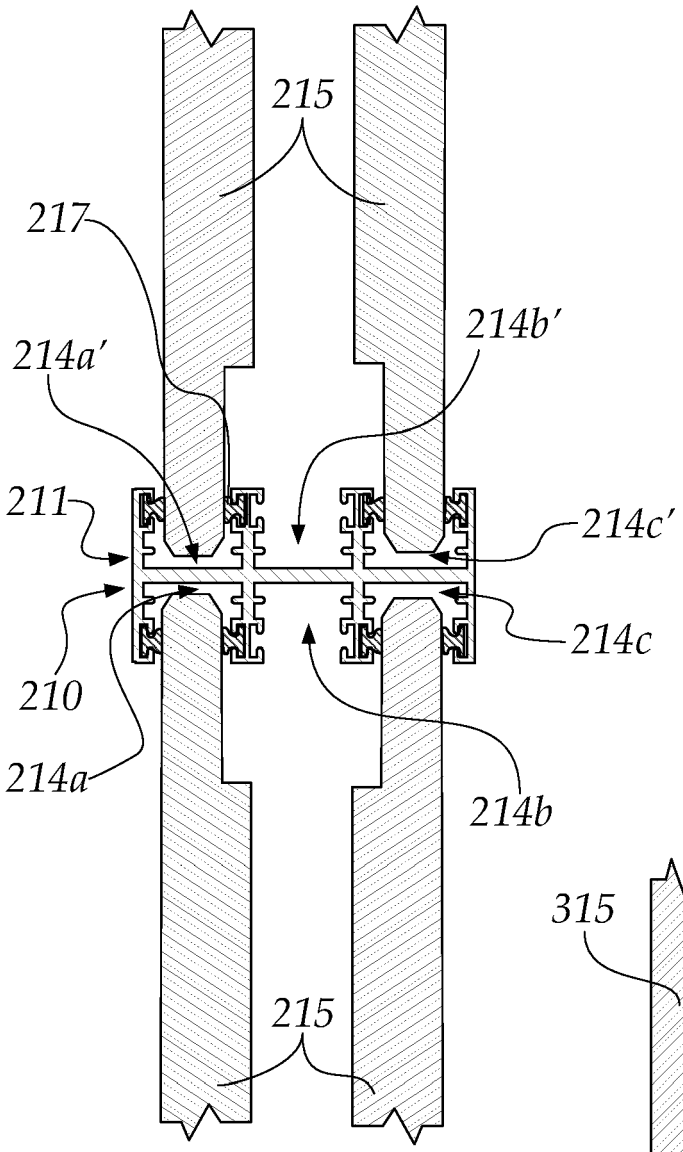
215
217
214b'
214a'
211
214c'
214c
210
214a
214b
215

Fig.8

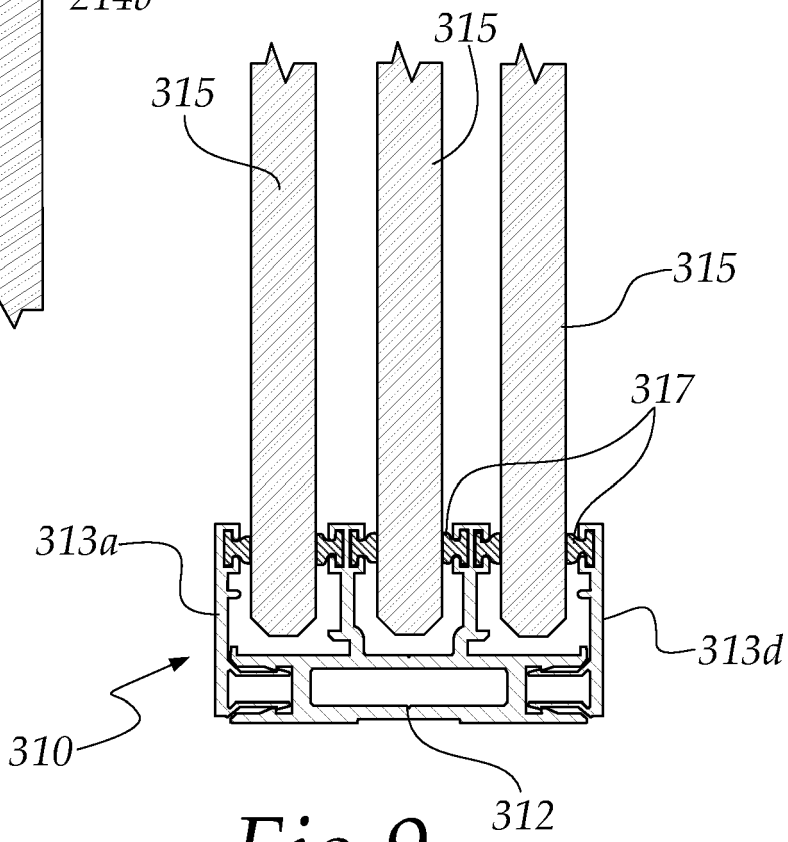
315
315
315
317
313a
313d
310
312

Fig.9

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EUROPEAN SEARCH REPORT

Application Number
EP 24 15 9604

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	25 July 2024	López-García, G

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