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(54) Multifunctional guiding profile

(57) A multifunction profile (1) is described, composed of at least one guiding profile (1a) adapted to guide a sliding of moving and/or roller screens (40), such guiding profile (1a) having at least one opening towards outside, coupled in parallel at least by interposing at least one inter-space profile (2) to a casing profile (1b) adapted to install profiles (51) of further roller screens (50), such casing profile (1b) being coupled on its rear with at least one third "U"-shaped profile (20b) having at least one opening towards outside and being orthogonal to such guiding profile (1a) and to such casing profile (1b).

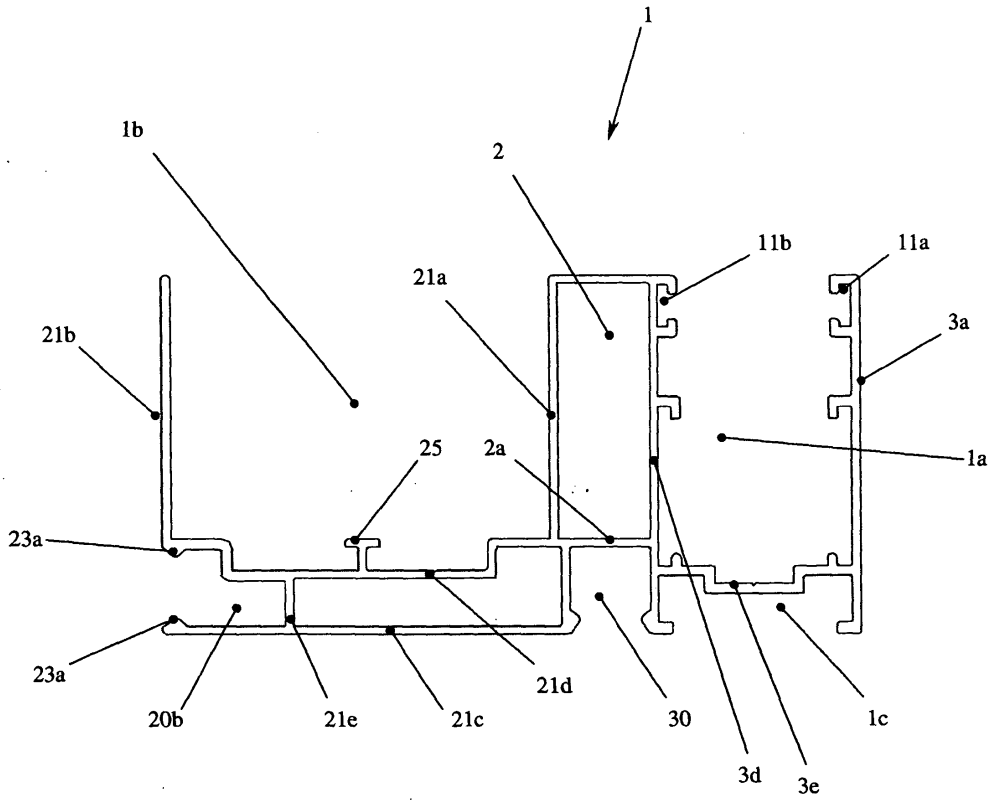

FIG. 1

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Description

[0001] The present invention refers to a multifunction profile equipped with a guiding profile for moving and/or roller screens, such as in particular roller shutters, and with at least one casing profile for installing further roller screens, such as, for example, sun screens, curtains, mosquito nets, thermal screens.

[0002] As known, the art proposes a wide number of solutions dealing with guiding profiles for moving screens, typically made of a metal alloy like aluminium or of a plastic material, whose function is clearly being fastened along the vertical sides of the edges of a door or window frame to guide the rise and descent of the screen during its opening or closing steps.

[0003] During the years, such profiles evolved, having been proposed according to the most various shapes, in such a way as to become more and more practical, easy and quick in their laying and more versatile in their possible customisation. For such purpose, patents n. EP1739273, EP1522672, EP1541800, EP1541799, DE10060345, DE19901320, AT406790B, DE19720266, DE4310639, DE4106390, DE3443470, DE3301410, EP1091081, EP0936340, DE19823853, DE19748861, FR2753478 and EP0577107 and utility models n. DE202004012397U, DE202005000476U, DE29824805U, DE29802020U and DE20317871U disclose guiding profiles according to the prior art.

[0004] Object of the present invention is providing a multifunction profile equipped with a guiding profile for moving and/or roller screens that allows an easier and quicker installation of further roller screens such as, for example, sun screens, curtains, mosquito nets, thermal screens using the same profile and without the need, therefore, of adding further profiles dedicated to the additional roller screen.

[0005] Another object of the present invention is providing a multifunction profile simultaneously equipped with a guiding profile for moving and/or roller screens and a casing profile for installing, even afterwards, further roller screens, such as, for example, sun screens, curtains, mosquito nets, thermal screens, leaving however, advantageously, without the need of possible and unpleasant disassembling or laying modifications.

[0006] The above and other objects and advantages of the invention, as will result from the following description, are obtained with a multifunction profile as claimed in claim 1. Preferred embodiments and non-trivial variations of the present invention are the subject matter of the dependent claims.

[0007] It will be immediately obvious that numerous variations and modifications (for example related to shape, sizes, arrangements and parts with equivalent functionality) without departing from the scope of the invention as appears from the enclosed claims.

[0008] The present invention will be better described by some preferred embodiments thereof, provided as a non-limiting example, with reference to the enclosed drawings, in which:

- Figure 1 shows an orthogonal sectioned view of a preferred embodiment of the multifunction profile according to the present invention;
- Figures 2, 3 and 4 show orthogonal sectioned views of the multifunction profile of FIG. 1 in some of its possible fastening configurations;
- Figure 5 shows a front and exploded perspective view of a roller shutter installed by means of the multifunction profile according to the present invention; and
- Figure 6 shows a front and exploded perspective view of a roller shutter and of a vertical roller mosquito net installed by means of the multifunction profile according to the present invention.

[0009] With reference in particular to Figure 1, it is possible to note that a preferred embodiment of the multifunction profile 1 according to the present invention is a section bar with an external orthogonal section subtending a substantially quadrangular shape composed of at least one guiding profile 1a adapted to guide the sliding of moving and/or roller screens, such as in particular roller shutters, and of at least one casing profile 1b adapted to install further roller screens, such as, for example, sun screens, curtains, mosquito nets, thermal screens.

[0010] In particular, the guiding profile 1a is a first "U"-shaped profile having at least one opening towards outside and the casing profile 1b is a second "U"-shaped profile also having at least one opening towards outside coupled on the rear with at least one third "U"-shaped profile 20b also having at least one opening towards outside and being orthogonal to the guiding profile and to the casing profile respectively 1a and 1b, the guiding profile 1a and the casing profile 1b being coupled in parallel along the respective, mutually parallel internal side walls 3d and 21a by interposing at least one inter-space profile 2.

[0011] The profile 1 according to the present invention is then defined on its perimeter by two, mutually parallel, side walls 3a, 21b and by a rear wall 21c orthogonal to the side walls 3a, 21b. The inter-space profile 2 is placed between the side walls 3a, 21b. The guiding profile 1a is then defined by a side wall 3a, by a portion of the rear wall 21c and by the internal side wall 3d. Thereby, as can be noted by Figure 1, the guiding profile 1a can be equipped on its rear side with a fourth restraining profile 1c having at least one opening towards outside opposite to the openings of the guiding profile 1a and the casing profile 1b and orthogonal to the opening of the third "U"-shaped profile 20b: in particular, the fourth restraining profile 1c shares part of the side wall 3a and interrupts the continuity of the rear wall 21c providing the guiding profile 1a with a background wall 3e.

[0012] Moreover, next to its own opening towards outside, the guiding profile 1a, adapted to guide the sliding of a moving screen when opening and closing, is inter-

nally equipped, respectively along the side walls 3a and 3d, with two mutually parallel and opposite grooves, respectively 11a and 11b, the first one of such grooves 11a being adapted to receive inside, by restraining or sliding insertion, at least one rack (not shown) for blocking a possible handle bar (not sown) of the moving screen or at least one brush (35 in Figures 5 and 6) of a substantially known type. Similarly, the second one of such grooves 11b is adapted to receive inside, by restraining or sliding insertion, at least one other brush of a substantially known type that, by cooperating with the brush inserted inside the first groove 11a, contributes to minimising possibly existing spaces and clearances between the guiding profile 1a and an edge of the moving screen.

[0013] The casing profile 1b according to the present invention is instead defined on its perimeter by the side wall 21b and by a portion of the internal side wall 21a that are mutually parallel, and by an internal background wall 21d orthogonal to the side walls 21a, 21b. The third "U"-shaped profile 20b is instead defined by the remaining portion of the internal side wall 21a, by the internal background wall 21d and by the rear wall 21c. Possibly, in order to increase the global stiffness of the casing profile 1b according to the present invention, the third "U"-shaped profile 20b could internally contain at least one longitudinal stiffening rib 21e joining the internal background wall 21d of the casing profile 1b and the rear wall 21c.

[0014] Between the third "U"-shaped profile 20b and the fourth restraining profile 1c, a fifth "U"-shaped profile 30 can be interposed, having at least one opening towards outside opposite to the openings of the guiding profile 1a and the casing profile 1b and orthogonal to the opening of the third "U"-shaped profile 20b: in particular, the fifth "U"-shaped profile 30 is defined by part of the internal side wall 21a, 3d, by a background wall 2a of the inter-space profile 2 and also interrupts the continuity of the rear wall 21c.

[0015] With particular reference to Figure 2, it is possible to note that the third "U"-shaped profile 20b is adapted to allow fastening the multifunction profile 1 according to the present invention to the surface of a frame 6 of a space, such as a door or a window for its laying according to a first possible and preferred mode. For such purpose, next to its own opening towards outside, the third "U"-shaped profile 20b is internally equipped, respectively along the internal background wall 21d of the casing profile 1b and the rear wall 21c, with two mutually parallel and opposite ribs 23a (that, in the orthogonal sections of the Figures have the shape of two small teeth) adapted to engage, by mechanical interference, for example due to a restraining by elastic deformation of the third "U"-shaped profile 20b, the head 7a of at least one screw 7b, preferably a special screw of the "Schuring" type. In this way, the multifunction profile 1 according to the present invention can be operatively installed simply with a pressure, without therefore the use of further tools.

[0016] With reference instead to Figure 3, it is possible to note that also the fifth "U"-shaped profile 30 is adapted to allow fastening the multifunction profile according to the present invention to the surface of a frame 6 of a space, such as a door or a window for its laying according to a second possible and preferred mode. For such purpose, next to its own opening towards outside, also the fifth "U"-shaped profile 30 is internally equipped, respectively along the pertaining portions of the side walls 21a and 3d, with two mutually parallel and opposite ribs 31 (that, in the orthogonal sections of the Figures have the shape of two small teeth) adapted to seal by mechanical interference, for example due to a restraining by elastic deformation of the fifth "U"-shaped profile 30, the head 7a of at least one screw 7b, preferably a special screw of the "Schuring" type. Also in this way, the multifunction profile 1 according to the present invention can be operatively installed simply with pressure, without therefore using further tools.

[0017] With reference instead to Figure 4, that shows a third alternative and preferred mode for laying the guiding profile 1 according to the present invention onto the surface of the frame 6, it is possible to note that the internal background wall 21d of the casing profile 1b and the rear wall 21c can be equipped with corresponding through-holes or drilled according to needs to allow the passage of known fastening means, such as screws 9 or small blocks, to which it is possible to easily access, with the most suitable fastening tool, through the external opening of the casing profile 1b.

[0018] With reference to Figure 5, it is possible to note that, once having performed the laying of at least one pair of multifunction profiles 1 according to the present invention on the opposite frames of a door or window frame according to one of the above described modes, it is enough to insert inside the guiding profile 1a, possibly after having installed into the grooves 11a, 11b, possibly necessary fittings (racks, brushes 35, etc.), the moving and/or roller screen, such as in particular a roller shutter 40, possibly arranging on the top part of each guiding profile 1a a respective installation-facilitating component41 of the restraining type, in order to facilitate the insertion and sliding of the roller shutter 40 inside the guiding profile 1a.

[0019] Once having installed the roller shutter 40 through the multifunction profiles 1 according to the present invention and using the guiding profiles 1a, with reference to Figure 6, it is possible to note that the casing profiles 1b remain available for a following laying of a further roller screen 50, such as, for example, a sun screen, a curtain, a mosquito net or a thermal screen, preferably pre-assembled by using the multifunction guiding profiles according to the teachings of European Patent Application n. 07425609.0 of the same Applicant. Therefore, once having performed the laying of at least one pair of multifunction profiles 1 on the opposite frames of a door or window frame according to one of the above described modes and the installation of a roller shutter 40 according to the above described modes, advanta-

geously it is then enough to insert, even afterwards, the respective profile 51 of the roller screen 50 inside the casing profile 1b, inside which it is made integral by mechanical interference, for example due to a restraining by elastic deformation of the casing profile 1b itself. In this way, the casing profile 1b allows installing the profile 51 of the roller screen 50 with pressure without having to use any tool, guaranteeing the necessary seal and an easy disassembly, for example in case of maintenance or replacement. Possibly, the casing profile 1b could be internally equipped, along the internal background wall 21d, with at least one supporting rib 25 of a rear wall 3c of the profile 51 of the roller screen 50.

[0020] In particular, the profile 51 of the roller screen 50 is preferably a multifunction guiding profile as disclosed in European Patent Application n. 07425609.0.

[0021] Obviously, the multifunction profile 1 according to the present invention can be made of any material suitable for its purpose. In particular, the profile 1 is manufactured by extruding a metallic alloy like aluminium, but it is clear that any other material can be used, such as for example a plastic or composite material, as well as any other adequate manufacturing process.

Claims

1. Multifunction profile (1) **characterised in that** it is composed of at least one guiding profile (1a) adapted to guide a sliding of moving and/or roller screens (40), said guiding profile (1a) having at least one opening towards outside, coupled in parallel, by interposing at least one inter-space profile (2), with a casing profile (1b) adapted to install profiles (51) of further roller screens (50), said casing profile (1b) being coupled on its rear part with at least one third "U"-shaped profile (20b) having at least one opening towards outside and being orthogonal to said guiding profile (1a) and to said casing profile (1b).

2. Profile (1) according to claim 1, **characterised in that** said guiding profile (1a) is internally equipped, respectively along the side walls (3a, 3d), with two mutually parallel and opposite grooves (11a, 11b).

3. Profile (1) according to claim 2, **characterised in that** at least one of said grooves (11a, 11b) is adapted to receive inside, by restraining or sliding insertion, at least one rack for blocking a handle bar of said moving screen and/or to receive inside, by restraining or sliding insertion, at least one brush (35).

4. Profile (1) according to claim 1, **characterised in that** said guiding profile (1a) is equipped on its rear part with a fourth restraining profile (1c) having at least one opening towards outside opposite to said opening of said guiding profile (1a) and of said casing profile (1b) and orthogonal to said opening of said third "U"-shaped profile (20b).

5. Profile (1) according to claim 1, **characterised in that** said third "U"-shaped profile (20b) internally contains at least one longitudinal stiffening rib (21e) joining said internal background wall (21d) of said casing profile (1b) and said rear wall (21c).

6. Profile (1) according to claim 1, **characterised in that** next to its own opening towards outside, said third "U"-shaped profile (20b) is internally equipped, along said internal background wall (21d) of said casing profile (1b) and said rear wall (21c), with two mutually parallel and opposite ribs (23a) adapted to seal by mechanical interference by means of elastic deformation said third "U"-shaped profile (20b) on a head (7a) of at least one screw (7b) of a "Schuring" type.

7. Profile (1) according to claim 5, **characterised in that**, between said third "U"-shaped profile (20b) and said fourth restraining profile (1c), a fifth "U"-shaped profile (30) is interposed, having at least one opening towards outside opposite to said aperture of said guiding profile (1a) and of said casing profile (1b) and orthogonal to said opening of said third "U"-shaped profile (20b).

8. Profile (1) according to claim 8, **characterised in that**, next to its own opening towards outside, said fifth "U"-shaped profile (30) is internally equipped, along pertaining portions of said side walls (21a, 3d), with two mutually parallel and opposite ribs (31) adapted to seal by mechanical interference by means of elastic deformation of said fifth "U"-shaped profile (30) on a head (7a) of at least one screw (7b) of a "Schuring" type.

9. Profile (1) according to any one of the previous claims, **characterised in that** said internal background wall (21d) of said casing profile (1b) and said rear wall (21c) are equipped with corresponding through-holes or drilled for passing fastening means such as screws (9) or small blocks.

10. Profile (1) according to any one of the previous claims, **characterised in that** said casing profile (1b) is internally equipped, along said internal background wall (21d) of at least one supporting rib (25), with said profile (51).

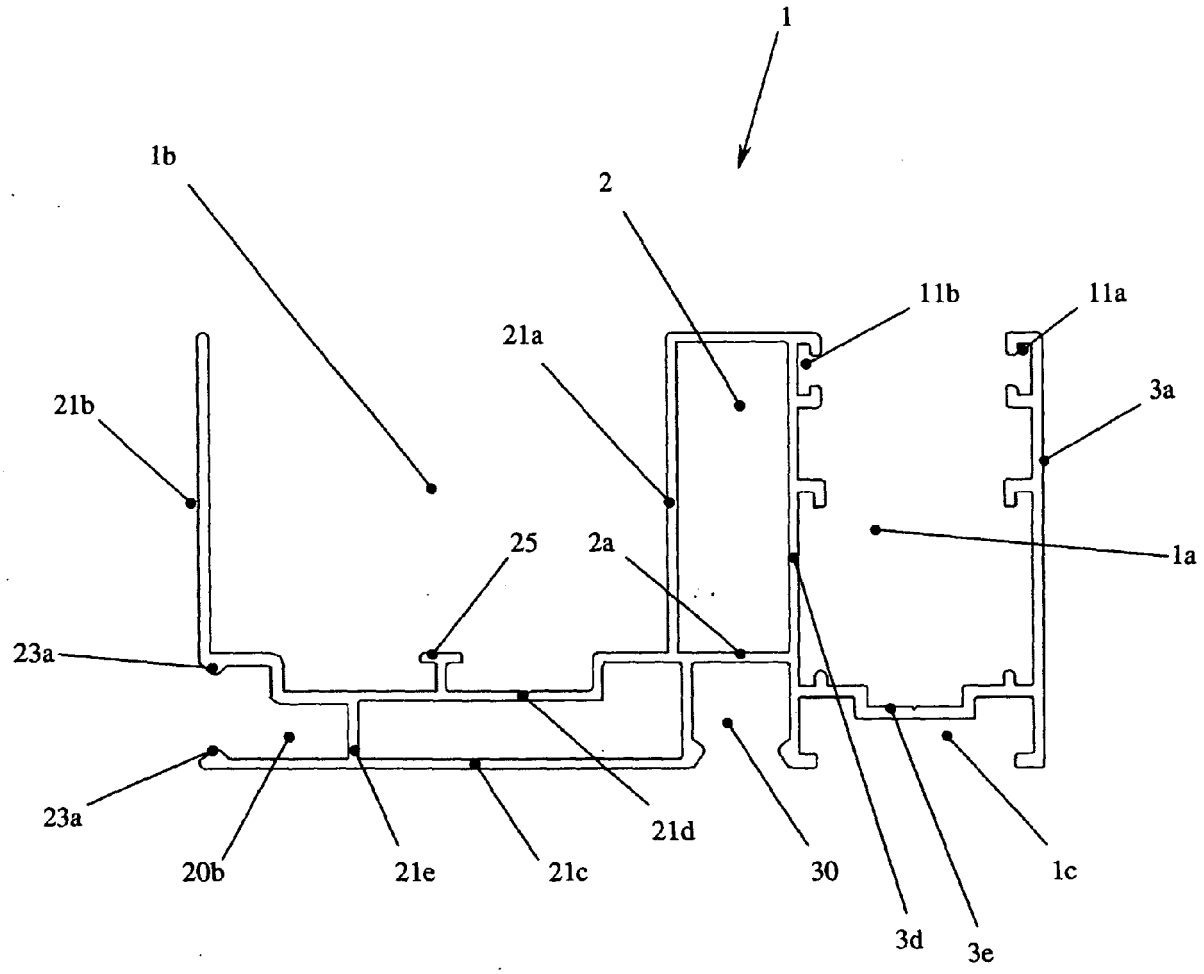

1
1b
2
11b
11a
21a
21b
3a
1a
25
2a
23a
23a
21d
20b
21e
21c
30
3d
3e
1c

FIG. 1

FIG. 2

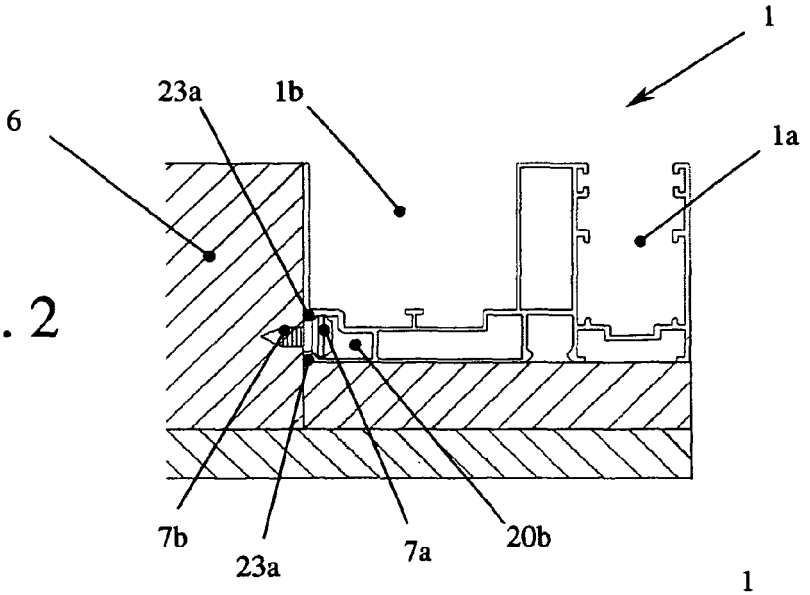


FIG. 3

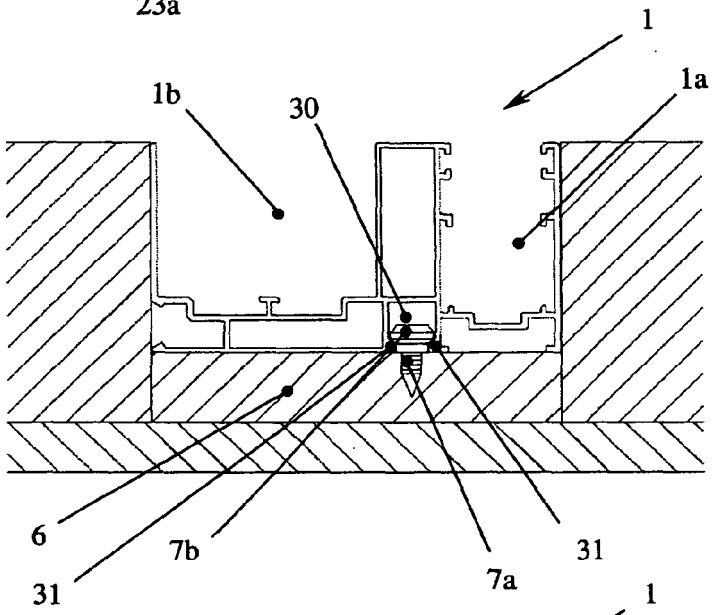
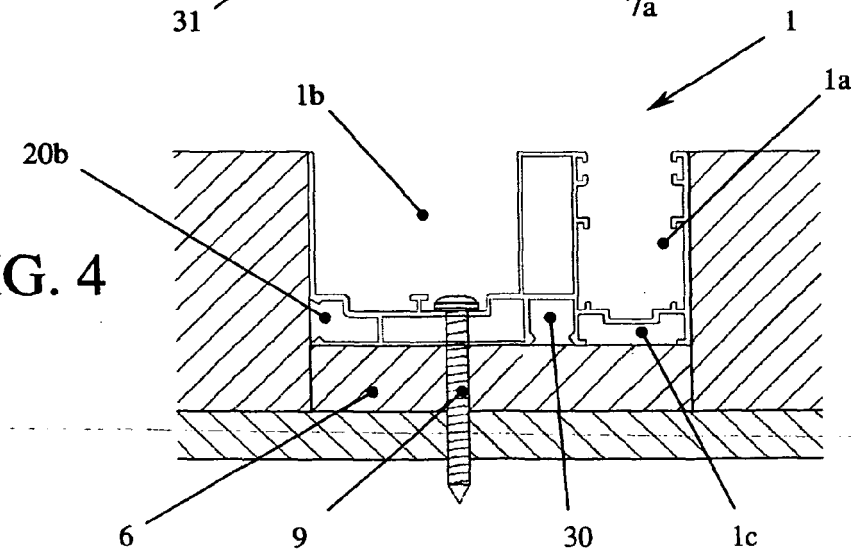


FIG. 4



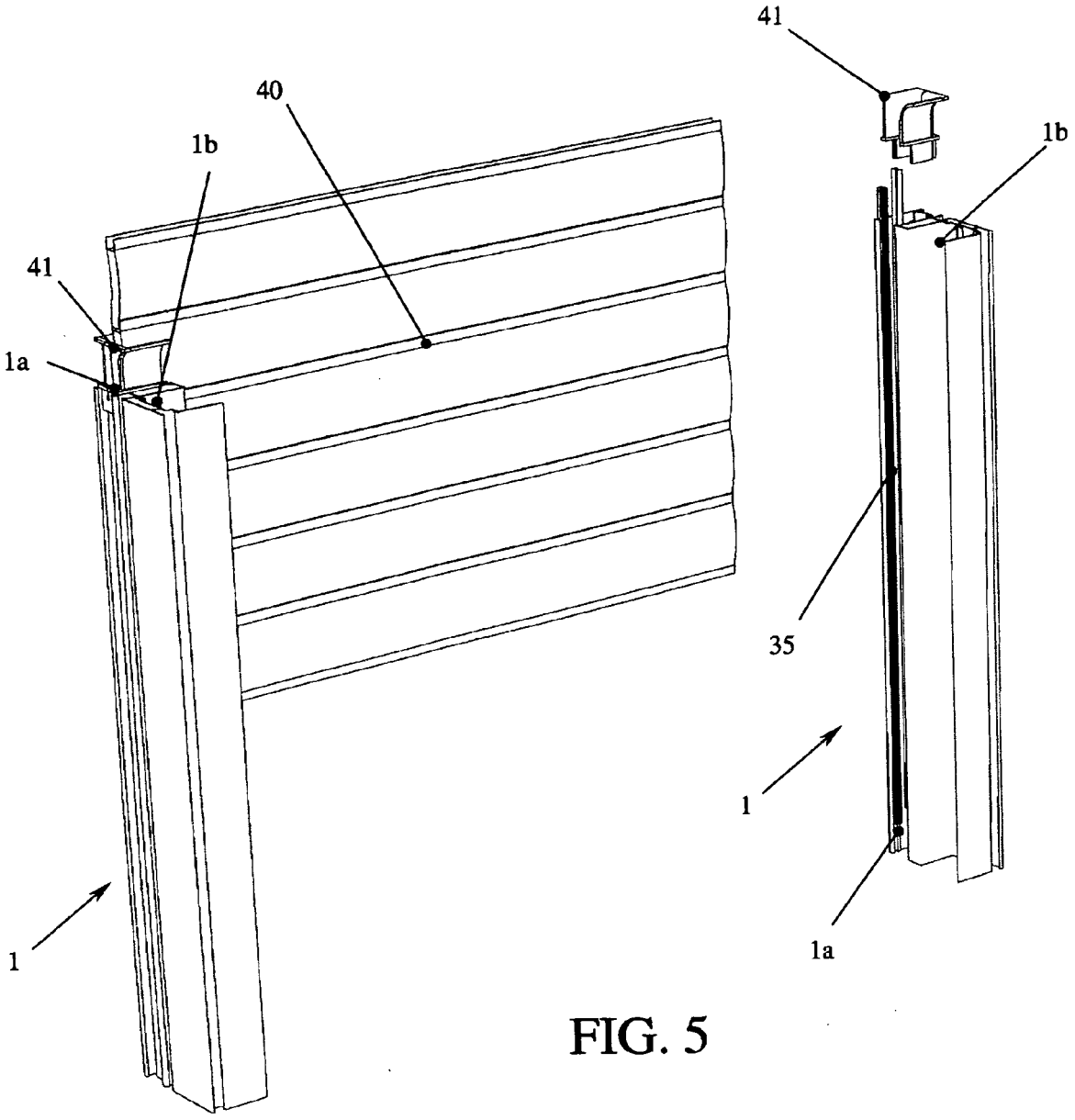


FIG. 5

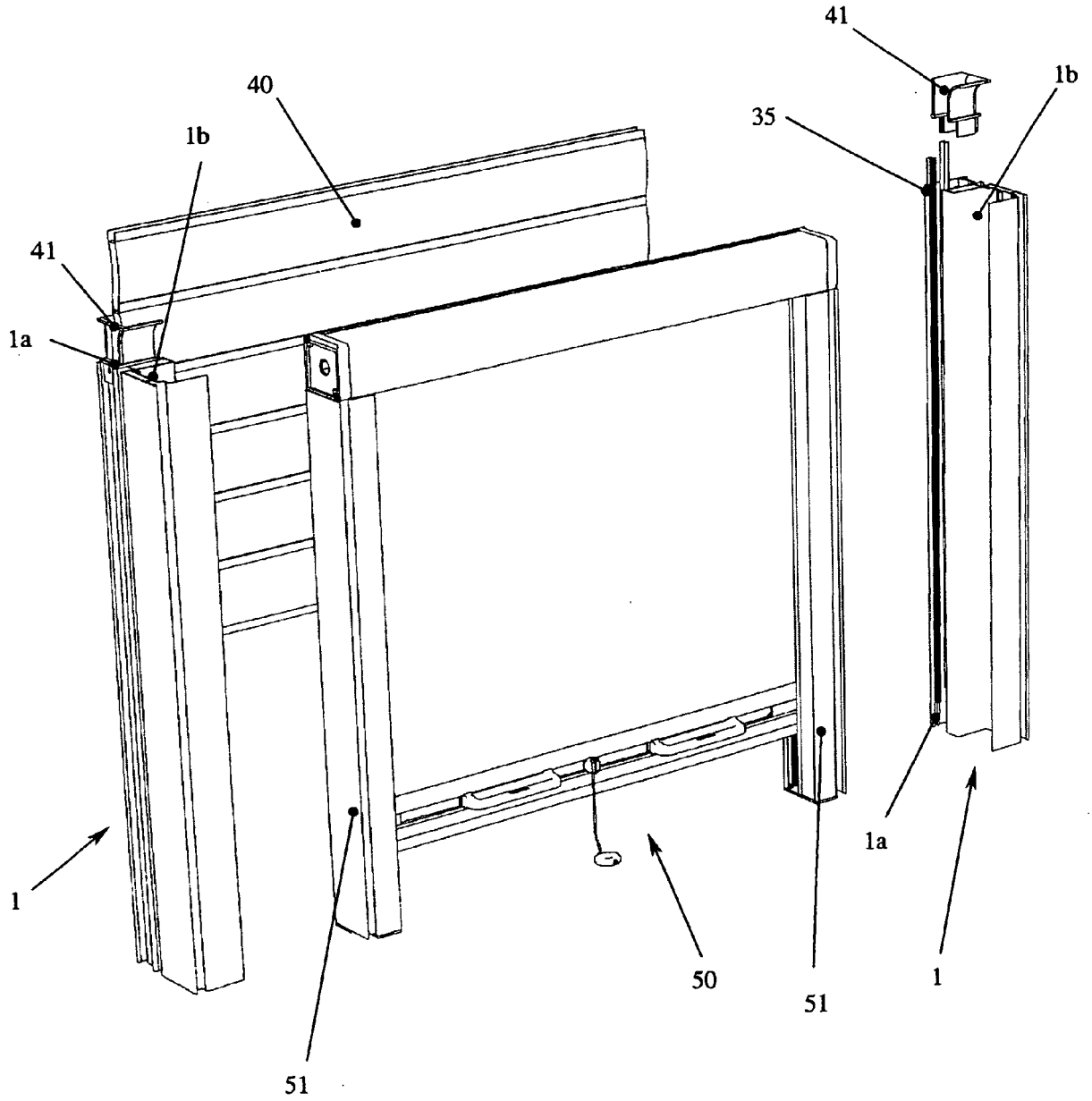


FIG. 6

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EUROPEAN SEARCH REPORT

Application Number
EP 10 00 0566

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	DE 198 13 246 A1 (ELKET KUNSTSTOFF TECHNIK GMBH [DE] SKS STAKUSIT BAUTECHNIK GMBH [DE]) 30 September 1999 (1999-09-30) * column 2, lines 1-64; figures 1-4 *	1-4,6-7	INV. E06B9/58
A	DE 20 2005 000476 U1 (MENKE KUNSTSTOFFE GMBH & CO KG [DE]) 17 March 2005 (2005-03-17) * paragraphs [0032] - [0040]; figures 1,2 *	1-10	

TECHNICAL FIELDS SEARCHED (IPC)

E06B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	8 March 2010	Kofoed, Peter

CATEGORY OF CITED DOCUMENTS

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08-03-2010

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 19813246 A1	30-09-1999	NONE	
DE 202005000476 U1	17-03-2005	NONE	

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

REFERENCES CITED IN THE DESCRIPTION

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- DE 20317871 U **[0003]**
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