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(54) **Multifunctional guiding profile for mobile screens and fastening system comprising such profile**

(57) A multifunction guiding profile (1) for mobile screen (1) is described, composed of a first "U"-shaped profile (1a) having at least one outwards opening coupled in parallel along at least one baffle (3d) with a second "U"-shaped profile (1b) having at least one outwards

opening, an end portion of such second profile (1b) being coupled with a third "U"-shaped profile (1c) having at least one outwards opening and that is orthogonal to the first and the second profile (1a, 1b). A fastening system is further described, comprising at least one profile (1) and at least one casing profile (20).

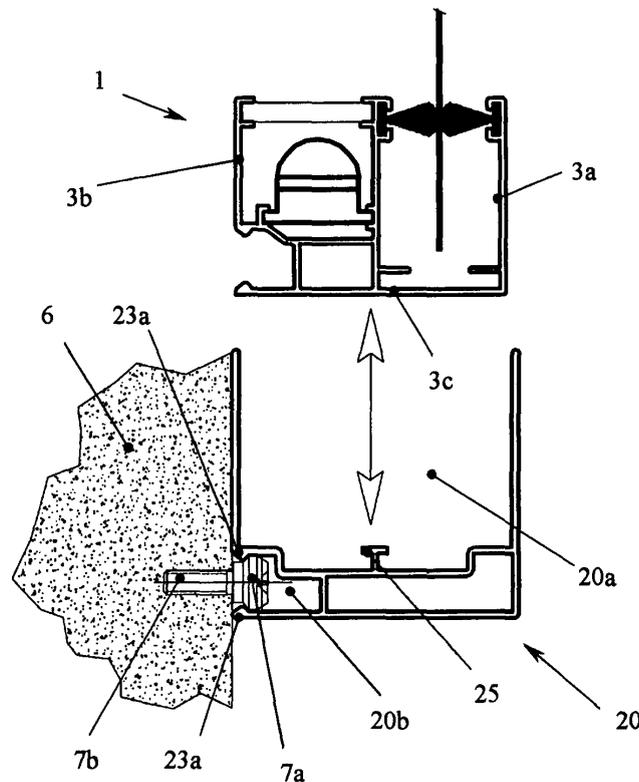


FIG. 6

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Description

[0001] The present invention refers to a multifunction guiding profile and to a fastening system for mobile screens, in particular for revolving screens such as sun screens, curtains, mosquito nets, thermal screens.

[0002] As known, the art proposes a great number of arrangements dealing with guiding profiles for mobile screens, typically made of a metal alloy such as aluminium or plastic material, whose function is clearly being secured along the vertical sides of the frame of a door or window opening in order to guide the rise and descent of the screen itself when opening or closing it.

[0003] In the years, such profiles have evolved, being proposed according to the most different shapes, in such a way as to be 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 and DE20317871U disclose guiding profiles according to the prior art.

[0004] Object of the present invention is providing a multifunction guiding profile for mobile screens, in particular for revolving screens such as sun screens, curtains, mosquito nets, thermal screens, that allows being laid more easily and quickly with respect to what is proposed by the prior art.

[0005] Another object of the present invention is providing a multifunction guiding profile for mobile screens that allows being equipped simultaneously and/or disjointly with at least one integrated alarm system and/or at least one screen guiding brush and/or at least one screen locking rack.

[0006] A further object of the present invention is providing a fastening system through the multifunction guiding profile for mobile screens further comprising at least one casing profile for embedding the multifunction guiding profile itself.

[0007] The above and other objects and advantages of the invention, as will appear from the following description, are obtained with a multifunction guiding profile for mobile screens as described in claim 1. Preferred embodiments and non-trivial variations of the present invention are the subject-matter of the dependent claims.

[0008] It will be immediately obvious that numerous variations and modifications (for example related to shape, sizes and parts with equivalent functionality) can be made to the described profile, without departing from the scope of the invention as appears from the enclosed claims.

[0009] 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:

- FIG. 1 shows an orthogonal sectional view of a preferred embodiment of the multifunction guiding profile for mobile screens according to the present invention;
- 5 - FIG. 2 shows an orthogonal sectional view of the multifunction guiding profile for mobile screens of FIG. 1 in a possible use configuration thereof;
- FIG. 3 shows an orthogonal sectional view of the multifunction guiding profile for mobile screens of
- 10 - FIG. 4 shows an orthogonal sectional view of the casing profile for embedding the multifunction guiding profile of the fastening system according to the present invention;
- 15 - FIG. 5 shows an orthogonal sectional view of the casing profile of FIG. 4 in a possible use configuration thereof;
- FIG. 6 and 7 show orthogonal sectional views of the casing profile of FIG. 4 coupled with a multifunction guiding profile of the fastening system according to the present invention; and
- 20 - FIG. 8 and 9 show orthogonal sectional views of the casing profile of FIG. 4 in another possible use configuration thereof coupled with a multifunction guiding profile of the fastening system according to the present invention.
- 25

[0010] With reference in particular to FIG. 1, it is possible to note that a preferred embodiment of the multifunction guiding profile according to the present invention is a section bar with an external orthogonal section with a substantially quadrangular shape, composed of a first "U"-shaped profile 1a having at least one opening towards its outside, coupled in parallel along a side thereof

30 with a second "U"-shaped profile 1b, also having at least one opening towards its outside, an end portion of such second profile 1b being coupled with a third "u"-shaped profile 1c, also having at least one opening towards its outside and being orthogonal to the first and second profile, respectively 1a e 1b.

[0011] The profile 1 according to the present invention is therefore defined on its perimeter by two, mutually parallel side walls 3a, 3b, and one rear wall 3c orthogonal to the side walls 3a, 3b. Between the side walls 3a, 3b, a baffle 3d is interposed, also parallel to the side walls 3a, 3b. The first "U"-shaped profile 1a is therefore defined by a side wall 3a, by a portion of the rear wall 3c and by the baffle 3d. The third "U"-shaped profile 1c is defined by the remaining portion of the rear wall 3c and by a new

40 internal bottom wall 3e of the second "U"-shaped profile 1b. The second "U"-shaped profile 1b is then defined by the opposite side wall 3b, by its internal bottom wall 3e and by the baffle 3d shared with the first "U"-shaped profile 1a.

[0012] Possibly, in order to increase the global stiffness of the profile 1 according to the present invention, the third "U"-shaped profile 1c could internally contain at least one longitudinal stiffening rib 3f that joins the re-

maining portion of the rear wall 3c and the internal bottom wall 3e of the second "U"-shaped profile 1b.

[0013] With reference to FIG. 2, it is possible to note that the third "U"-shaped profile 1c is adapted to allow fastening the profile 1 according to the present invention to the surface of the frame 6 of an opening, 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 outwards opening, the third "U"-shaped profile 1c is internally equipped, respectively along the remaining portion of the rear wall 3c and the internal bottom wall 3e, with two mutually parallel and opposite ribs 5a (which, in the orthogonal sections of the Figures, assume the shape of two small teeth) adapted to sealingly engage by mechanical interference, for example two to being restrained by elastic distortion of the third "U"-shaped profile 1c, the head 7a of at least one screw 7b, preferably a special screw of the "Schuring" type. In this way, the profile 1 can be laid simply by pressing, therefore without the use of further tools.

[0014] With reference instead to FIG. 3, that shows a second alternative and preferred mode for laying the profile 1 according to the present invention to the frame 6 surface, it is possible to note that the rear wall 3c, next to the first "U"-shaped profile 1a, can be equipped with through-holes or drilled according to needs, in order to allow the passage of known fastening means, such as screws or small blocks 9, to which it is possible to easily access, with the most adequate fastening tool, through the external opening of the first "U"-shaped profile 1a.

[0015] With reference now to FIG. 2 and 3, it is possible to note that, next to its own outwards opening, the first "U"-shaped profile 1a, adapted to guide the sliding of the mobile screen 15 when opening and closing, is internally equipped, respectively along the side wall 3a and the baffle 3d, with two mutually parallel and opposite grooves, respectively 11a and 11b, the first one of such grooves 11a being adapted to receive inside it, by means of restraining or sliding insertion, at least one rack 13 for blocking a possible handle-bar (not shown) of the mobile screen 15 (FIG. 2) or at least one brush 17, of a substantially known type (FIG. 3). Similarly, the second one of such grooves 11b is adapted to receive, inside it, by means of restraining or sliding insertion, at least one other brush 17 of a substantially known type (FIG. 2 and 3), that, in cooperation with the brush 17 inserted inside the first groove 11a, helps minimising possibly existing spaces and clearances between the first "U"-shaped profile and an edge of the mobile screen 15.

[0016] Always with reference to FIG. 2 and 3, it is possible to note that, next to its own outwards opening and of its own internal bottom wall 3e, the second "U"-shaped profile 1b is internally equipped, respectively along and next to the side wall 3b and along the baffle 3d, with two pairs of grooves, respectively 17a and 17b, mutually parallel and opposite pair by pair, adapted to receive, inside them, by means of restraining or sliding insertion, the components of an integrated alarm system 19 such as,

for example, at least one proximity sensor 19a in a first pair of grooves 17a and a protecting screen 19b of such sensor in a second pair of grooves 17b. Obviously, the profile 1 according to the present invention can also be used without installing the alarm system 19, however leaving, advantageously, the arrangement for a possible future installation thereof, without the need of possible and unpleasant disassembling or laying modifications of profile 1.

[0017] With reference now to Figures 4 to 8, it is possible to note that a preferred embodiment of the fastening system according to the present invention comprises:

- at least one multifunction guiding profile 1 like the previously described one; and
- at least one casing profile 20 adapted to contain inside it, by means of restraining, the multifunction guiding profile 1.

[0018] With reference in particular to FIG. 4, it is possible to note that a preferred embodiment of the casing profile 20 according to the present invention is a section bar with an external orthogonal section with a substantially quadrangular shape composed of a fourth "U"-shaped profile 20a having at least one outwards opening coupled with a fifth "U"-shaped profile 20b also having at least one outwards opening and that is orthogonal to the fourth profile 20a.

[0019] The casing profile 20 according to the present invention is therefore defined on its perimeter by two, mutually parallel side walls 21a, 21b and a rear wall 21c orthogonal to the side walls 21a, 21b. The fourth "U"-shaped profile 20a is therefore defined by a portion of a side wall 21a, by the opposite side wall 21b and by an internal bottom wall 21d. The fifth "U"-shaped profile 20b is instead defined by the remaining portion of the side wall 21a, by the internal bottom wall 21d and by the rear wall 21c.

[0020] Possibly, in order to increase the global stiffness of the casing profile 20 according to the present invention, the fifth "U"-shaped profile 21b could internally contain at least one longitudinal stiffening rib 21e that joins the internal bottom wall 21d of the fourth "U"-shaped profile 20a and the rear wall 21c.

[0021] With reference to FIG. 5, it is possible to note that the fifth "U"-shaped profile 20b is adapted to allow fastening the casing profile 20 according to the present invention to the surface of the frame 6 of an opening, 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 outwards opening, the fifth "U"-shaped profile 20b is internally equipped, respectively along the internal bottom wall 21d of the fourth "U"-shaped profile 20a and the rear wall 21c of two mutually parallel and opposite ribs 23a (which, in the orthogonal sections of the Figures, assume the shape of two small teeth) adapted to sealingly engage, two to mechanical interference, for example two to restraining for an elastic distortion of the fifth

"U"-shaped profile 20b, on the head 7a of at least one screw 7b, preferably a special screw of the "Schuring" type. In this way, the casing profile 20 can be laid simply by pressing, therefore without the use of further tools.

[0022] With reference instead to FIG. 8, that shows a second alternative and preferred mode of laying the casing profile 20 according to the present invention to the surface of the frame 6, it is possible to note that the internal bottom wall 21d of the fourth "U"-shaped profile 20a 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 or small blocks 9, to which it is possible to easily access, with the most adequate fastening tools, through the external opening of the fourth "U"-shaped profile 20a.

[0023] Once having performed the laying of the casing profile 20 onto the frame 6 according to one of the above described modes, it is then enough to insert, inside the fourth "U"-shaped profile 20a, the profile 1 according to the present invention (as shown in FIG. 6 and 8) within which it is made integral two to mechanical interference, for example two to a restraining by elastic distortion of the fourth "U"-shaped profile 20a. In this way, the fastening system according to the present invention allows, through the use of the casing profile 20, to install the profile 1 by pressing without having to use a tool, guaranteeing the necessary seal and an easy disassembly, for example in case of maintenance or replacement.

[0024] Possibly, the fourth "U"-shaped profile 20a could be internally equipped, along the internal bottom wall 21d, with at least one supporting rib 25 of the rear wall 3c of profile 1.

[0025] Obviously the multifunction profile 1 according to the present invention, and its related casing profile 20, can be made of any material suitable for this purpose. In particular, such profiles 1, 20 are produced through an extrusion of a metal alloy such as aluminium, but it is wholly clear that any other material can be used, such as for example a plastic or composite material, as well as any other adequate production process.

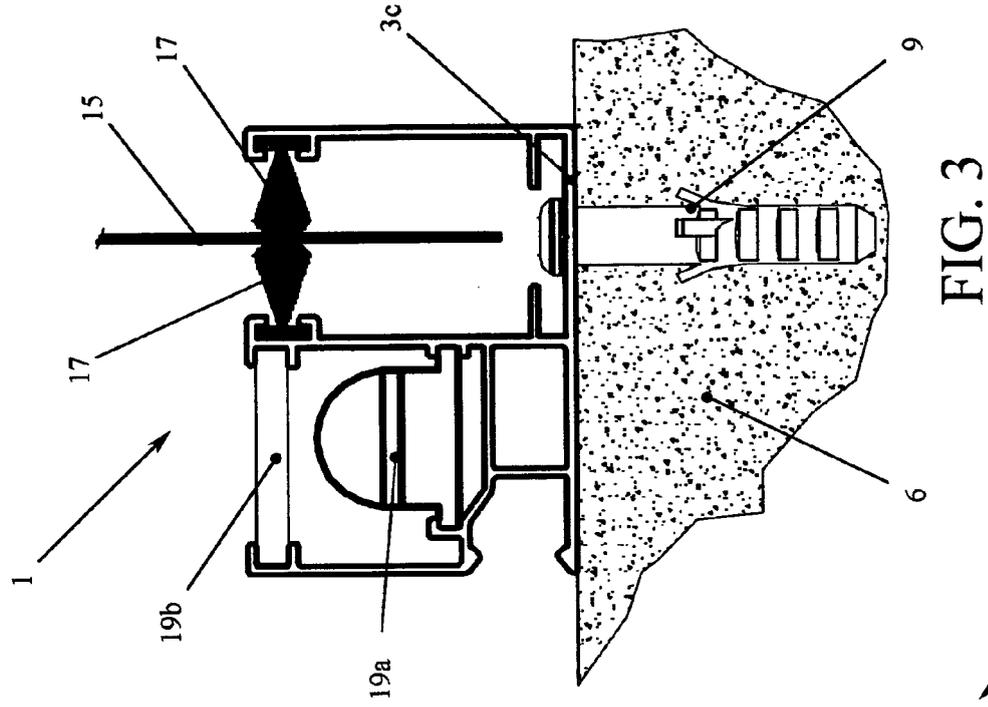
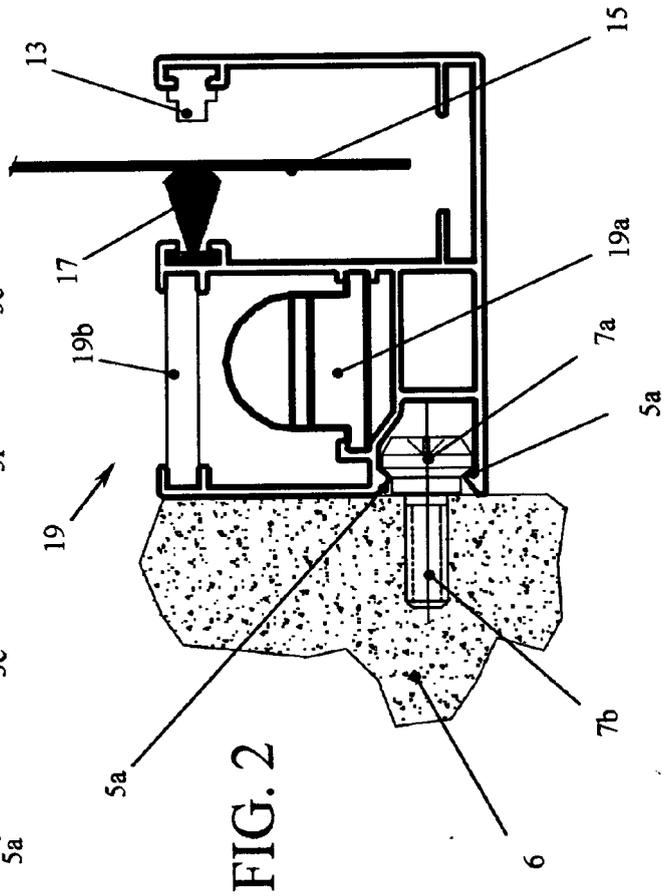
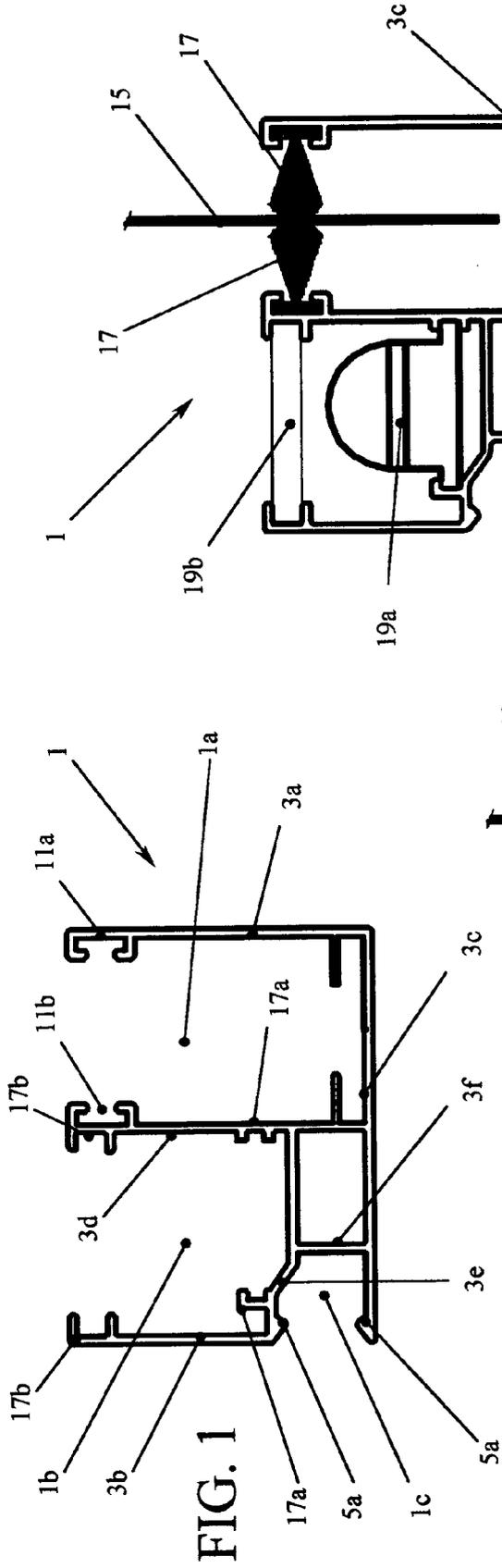
Claims

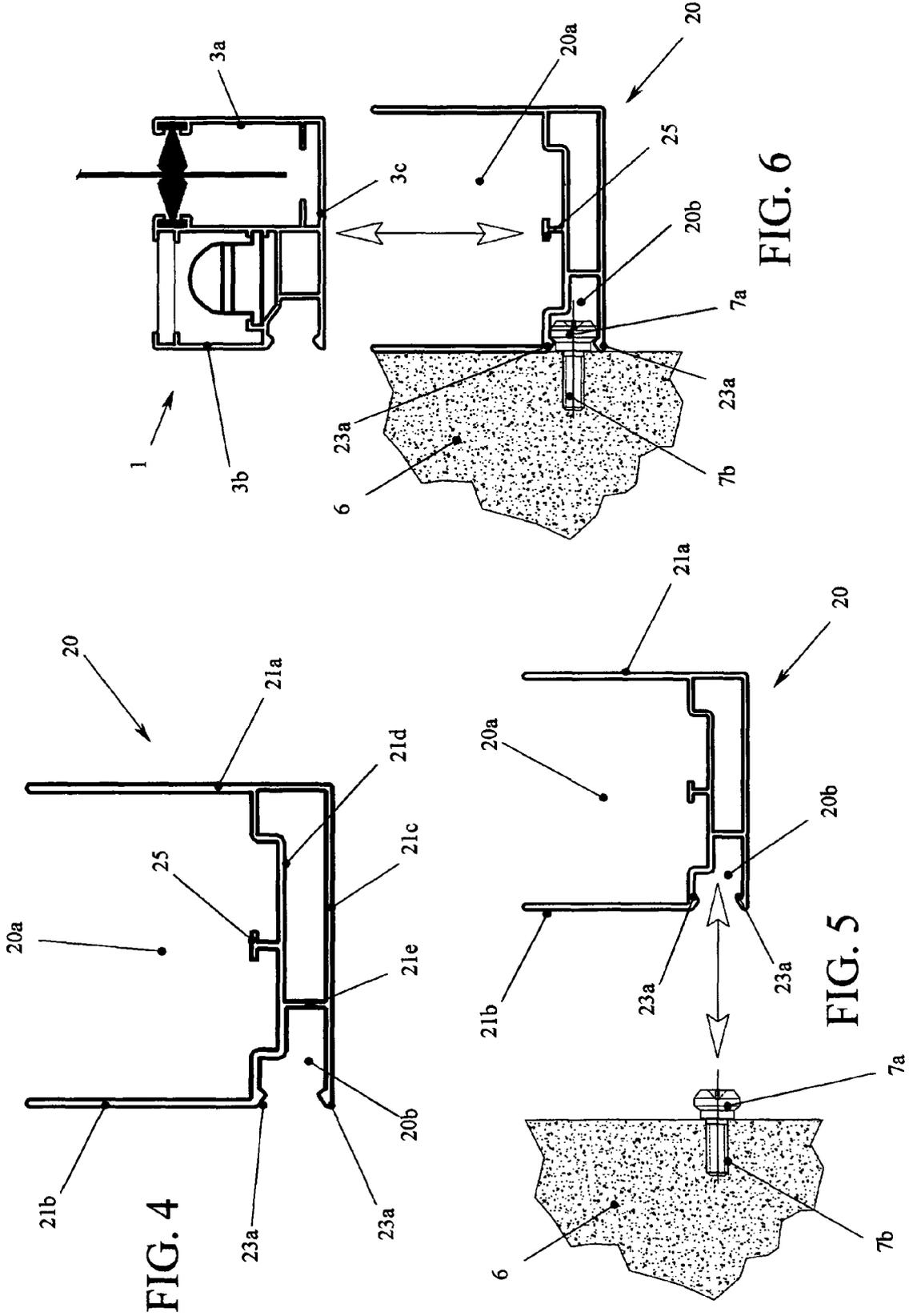
1. Multifunction guiding profile (1) for a mobile screen (1), **characterised in that** it is composed of a first "U"-shaped profile (1a) having at least one outwards opening coupled in parallel along at least one baffle (3d) with a second "U"-shaped profile (1b) having at least one outwards opening, an end portion of such second profile (1b) being coupled with a third "U"-shaped profile (1c) having at least one outwards opening and that is orthogonal to said first and said second profile (1a, 1b).
2. Profile (1) according to claim 1, **characterised in that** it is defined on its perimeter by two, mutually parallel side walls (3a, 3b) and a rear wall (3c) or-

thogonal to said side walls (3a, 3b), said baffle (3d) parallel to said side walls (3a, 3b) being interposed between said side walls (3a, 3b).

3. Profile (1) according to any one of the previous claims, **characterised in that** said first "U"-shaped profile (1a) is defined by one of said side walls (3a), by a portion of said rear wall (3c) and by said baffle (3d).
4. Profile (1) according to any one of the previous claims, **characterised in that** said third "U"-shaped profile (1c) is defined by a remaining portion of said rear wall (3c) and by an internal bottom wall (3e) of said second "U"-shaped profile (1b).
5. Profile (1) according to any one of the previous claims, **characterised in that** said second "U"-shaped profile (1b) is defined by one of said opposite side walls (3b), by said internal bottom wall (3e) and by said baffle (3d).
6. Profile (1) according to any one of the previous claims, **characterised in that** said third "U"-shaped profile (1c) internally contains at least one longitudinal stiffening rib (3f) that joins said remaining portion of said rear wall (3c) and said internal bottom wall (3e).
7. Profile (1) according to any one of the previous claims, **characterised in that**, next to its own outwards opening, said third "U"-shaped profile (1c) is internally equipped, along said remaining portion of said rear wall (3c) and said internal bottom wall (3e), with two mutually parallel and opposite ribs (5a) adapted to sealingly engage by mechanical interference a head (7a) of at least one screw (7b).
8. Profile (1) according to claim 7, **characterised in that** said mechanical interference occurs by elastic distortion of said third "U"-shaped profile (1c).
9. Profile (1) according to claim 7, **characterised in that** said screw (7b) is a screw of a "Schuring" type.
10. Profile (1) according to any one of the previous claims, **characterised in that** said rear wall (3c), next to said first "U"-shaped profile (1a), is equipped with through-holes or drilled for the passage of fastening means such as screws or small blocks (9).
11. Profile (1) according to any one of the previous claims, **characterised in that** said first "U"-shaped profile 1a is adapted to guide a sliding of said mobile screen (15) and is internally equipped, respectively along said side wall (3a) and said baffle (3d), with two, mutually parallel and opposite grooves (11a,

- 11b).
12. Profile (1) according to claim 11, **characterised in that** one of said grooves (11a) is adapted to receive inside it, by means of restraining or sliding insertion, at least one rack (13) for locking a handle-bar of said mobile screen.
13. Profile (1) according to claim 11, **characterised in that** one of said grooves (11a) is adapted to receive inside it, by means of restraining or sliding insertion, at least one brush (17).
14. Profile (1) according to claim 11, **characterised in that** one of said grooves (11b) is adapted to receive inside it, by means of restraining or sliding insertion, at least one brush (17).
15. Profile (1) according to any one of the previous claims, **characterised in that**, next to its own outwards opening and said internal bottom wall (3e), said second "U"-shaped profile (1b) is internally equipped, along and next to said side wall (3b) and along said baffle (3d), with two pairs of grooves (17a, 17b), mutually parallel and opposite pair by pair, adapted to receive inside them, by means of restraining or sliding insertion, components of an integrated alarm system (19).
16. Profile (1) according to claim 15, **characterised in that** said integrated alarm system (19) comprises at least one proximity sensor (19a) inserted in a first pair of said grooves (17a) and at least one protecting screen (19b) of such sensor inserted in a second pair of said grooves (17b).
17. Fastening system for mobile screens (15), **characterised in that** it comprises:
- at least one multifunction guiding profile (1) according to any one of claims 1 to 16; and
 - at least one casing profile (20) adapted to contain therein said multifunction guiding profile (1) by means of restraining.
18. Fastening system according to claim 17, **characterised in that** said casing profile (20) is composed of a fourth "U"-shaped profile (20a) having at least one outwards opening coupled with a fifth "U"-shaped profile (20b) having at least one outwards opening and that is orthogonal to said fourth profile (20a).
19. Fastening system according to claim 17, **characterised in that** said casing profile (20) is defined on its perimeter by two, mutually parallel side walls (21a, 21b) and a rear wall (21c) orthogonal to said side walls (21a, 21b).
20. Fastening system according to claim 18 or 19, **characterised in that** said fourth "U"-shaped profile (20a) is defined by a portion of one of said side walls (21a), by said opposite side wall (21b) and by an internal bottom wall (21d).
21. Fastening system according to claim 18, 19 or 20, **characterised in that** said fifth "U"-shaped profile (20b) is defined by a remaining portion of said side wall (21a), by said internal bottom wall (21d) and by said rear wall (21c).
22. Fastening system according to any one of claims 18 to 21, **characterised in that** said fifth "U"-shaped profile (21b) internally contains at least one longitudinal stiffening rib (21e) that joins said internal bottom wall (21d) of said fourth "U"-shaped profile (20a) to said rear wall (21c).
23. Fastening system according to any one of claims 17 to 22, **characterised in that**, next to its own outwards opening, said fifth "U"-shaped profile (20b) is internally equipped, along said internal bottom wall (21d) of said fourth "U"-shaped profile (20a) and said rear wall (21c), with two mutually parallel and opposite ribs (23a) adapted to sealingly engage by mechanical interference a head (7a) of at least one screw (7b).
24. Fastening system according to claim 23, **characterised in that** said mechanical interference occurs by elastic distortion of said fifth "U"-shaped profile (20b).
25. Fastening system according to claim 23, **characterised in that** said screw (7b) is a screw of a "Schuring" type.
26. Fastening system according to any one of claims 16 to 22, **characterised in that** said internal bottom wall (21d) of said fourth "U"-shaped profile (20a) and said rear wall (21c) are equipped with corresponding through-holes or drilled for passing fastening means, such as screws or small blocks (9).
27. Fastening system according to claim 23, **characterised in that** said restraining occurs by elastic distortion of said fourth "U"-shaped profile (20a).
28. Fastening system according to any one of claims 17 to 27, **characterised in that** said fourth "U"-shaped profile (20a) is internally equipped, along said internal bottom wall (21d), with at least one supporting rib (25) of said rear wall (3c) of said profile (1).





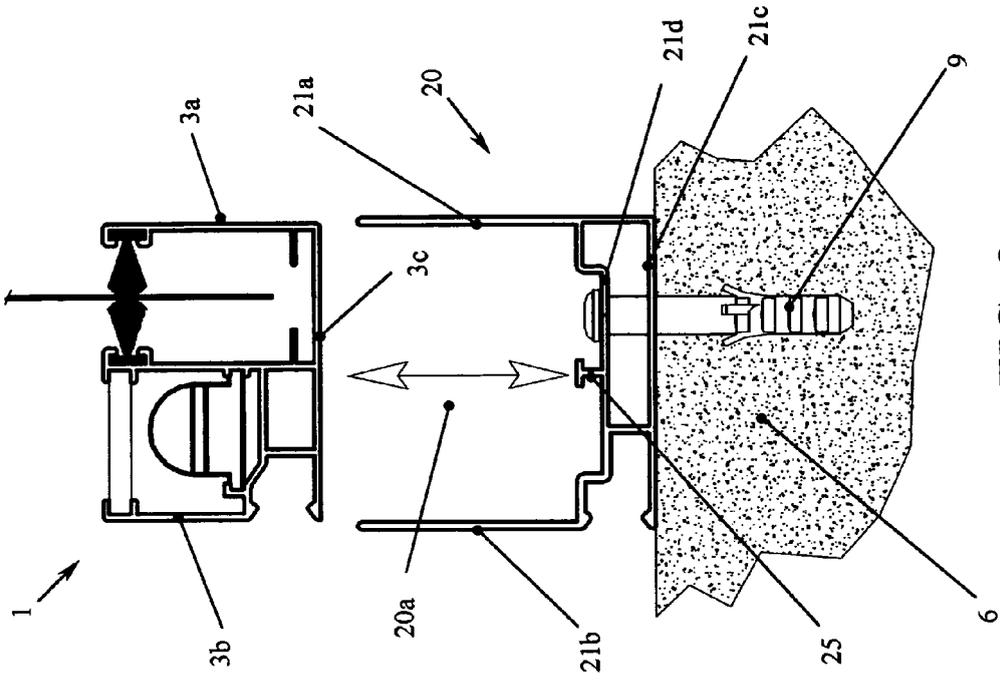


FIG. 8

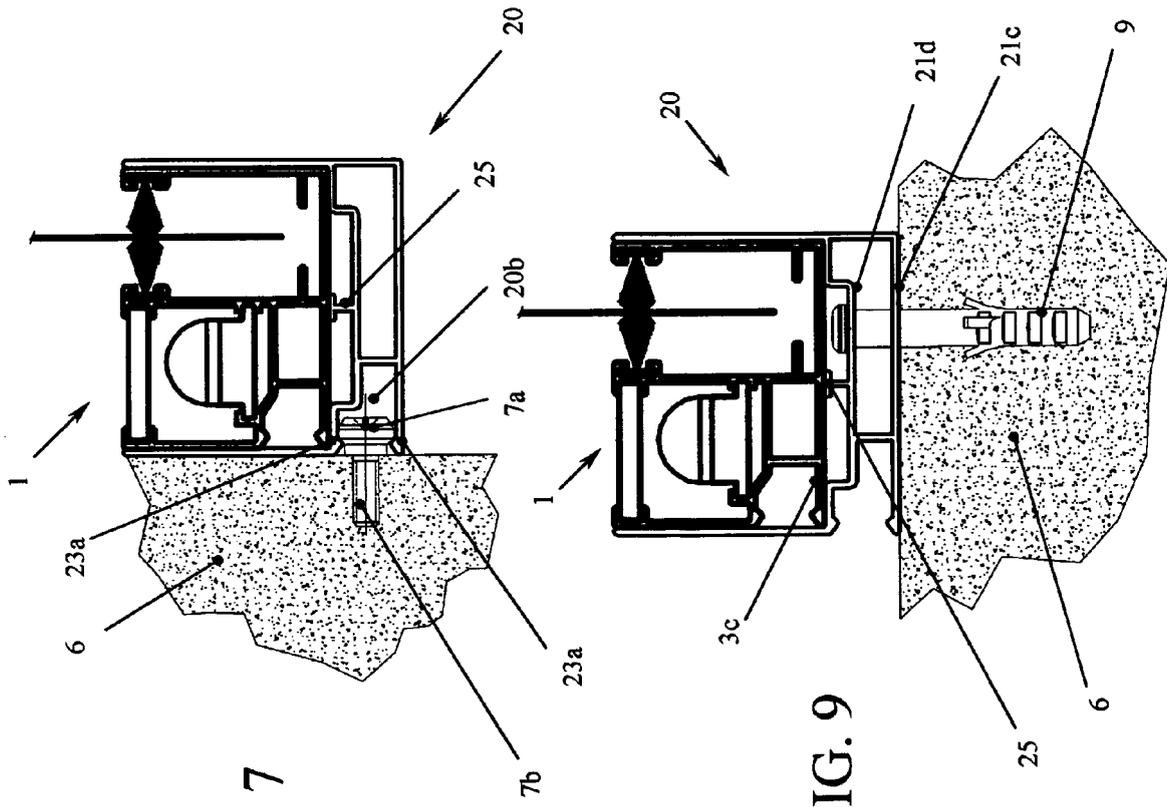


FIG. 9

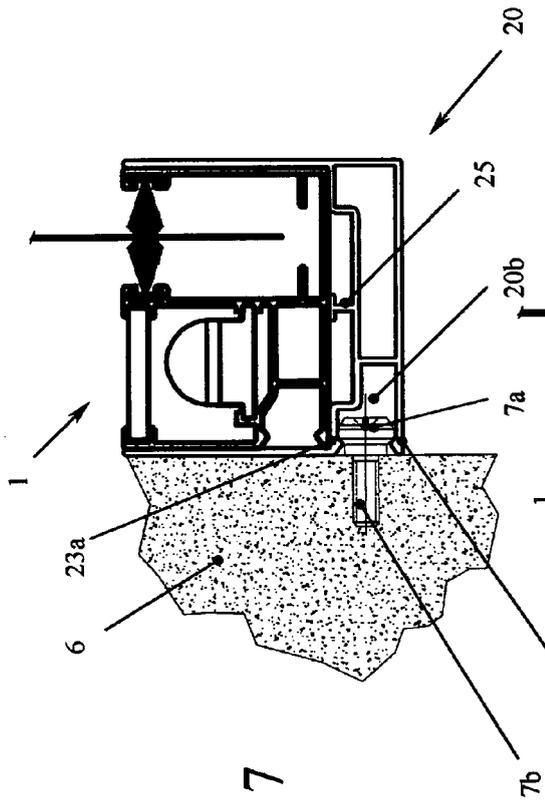


FIG. 7



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The present search report has been drawn up for all claims				
Place of search The Hague		Date of completion of the search 15 February 2008	Examiner Severens, Gert	
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Place of search The Hague		Date of completion of the search 15 February 2008	Examiner Severens, Gert
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