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(54) Mounting system for a facing of a building structure

(57) The invention relates to a mounting system for a facing for a building structure. The system comprises brackets (15) which can be mounted to the building structure to be covered and profiles or connecting strips (16) which can be connected to the brackets (15). The brackets (15) have an in a cross section rectangular first compartment which is provided with two ribs (11a, 11b),

placed perpendicular to it. In a preferred embodiment a rectangular second compartment (18) is made in the ribs, which is much smaller than the first compartment. In the connecting strips (16) pins (17a) are fixed, in such a way that a connecting strip (16) may slide through the bracket (15), where the pins (17a) fixed in the mounting strips (16) slide through the second compartment (18).

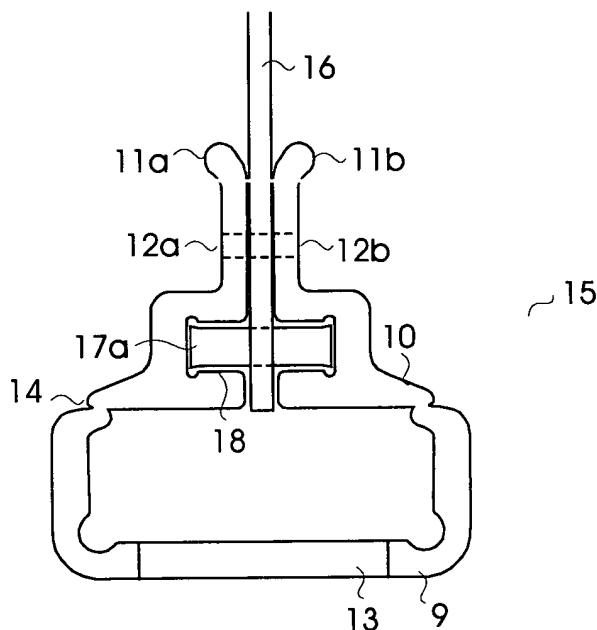


Fig. 3A

EP 1 445 398 A1

Description

[0001] The invention relates to a mounting system for a facing of a building structure, like a wall or a ceiling, comprising brackets which may be secured to a building structure to be covered and profiles which may be mounted to the brackets. Subsequently, panels are hooked up or otherwise mounted to the profiles, which panels form the actual facing and operationally run parallel to the building structure.

[0002] Mounting systems of this kind exist in different versions, each with their specific shortcomings. In a well known mounting system, two different kinds of brackets are used, of which the first bracket, consisting of an L-shaped aluminium profile, forms a supporting point and of which the second bracket, consisting of for example a C-shaped profile with a slidably mounted strip in it, forms a sliding point. Sliding points prevent profiles from breaking free from the building structure, for example due to wind, and they must meet of differences in the coefficients of expansion of the building structure and the profile. The disadvantage of this known system is that two types of brackets are needed and moreover that operationally the mounting holes for both types of brackets are not mutually aligned. Furthermore, especially the second bracket is difficult to handle, especially when gloves must be worn while working, due to cold weather conditions.

[0003] The mounting system according to the invention substantially obviates these disadvantages and is characterised in that a bracket comprises a piece of an extruded material, like aluminium or an injection-moulded part made of a synthetic material, that the profile comprises a first compartment having a substantially rectangular cross section of which one side is operationally placed against the building structure and of which a second side, located opposite to the first side, is provided with two ribs, positioned at least substantially perpendicular to the second side and extending mutually parallel along a longitudinal direction of the profile. A profile or a connecting strip may now simply be put between the ribs, where it will remain in place due to the resilience of the ribs, after which the profile or the connecting strip can be fastened with for example a screw or a blind rivet.

[0004] A favourable embodiment of the inventive mounting system is characterised in that in the ribs of a bracket an at least substantially rectangular second compartment is made, which is much smaller than the first compartment and which extends substantially parallel to it. This embodiment is important in situations where a connecting strip is placed between the bracket and a profile. According to an aspect of the invention, a projection of the connecting strip may slide in the second compartment, which results in a very effective connection being created. Preferably, the projection consists of a pin, fixed in the connecting strip, of which the ends are upset. A further favourable embodiment of the inventive

mounting system is therefore characterised in that ends of the second compartment, as seen in a direction perpendicular to the longitudinal direction, are widened in order to provide space to the wider upset ends of the pin.

[0005] A favourable embodiment according to another aspect of the invention is characterised in that a central part of the second side of the bracket, including the ribs, is removed. In this way, the first side of the bracket may be reached from the front side, for mounting the bracket to the building structure. Preferably, in a central part of the first side of the bracket a slotted hole is made, of which a longitudinal direction is positioned at least substantially perpendicular to the longitudinal direction of the bracket, for easily compensating errors made during the drilling of fixing holes in the building structure.

[0006] A further favourable embodiment is characterised in that the mounting system moreover comprises connecting strips, for connecting profiles to the brackets. With these connecting strips, which may have different lengths, tolerances of the building structure itself may be compensated. Generally, the supporting points for a facing of a building are secured in a floor in the building structure, which is usually slightly recessed, while the sliding points are placed more or less at random.

[0007] A favourable embodiment of the mounting system is characterised in that a connecting strip is provided with a clip on a first side and with two pins, positioned at least substantially perpendicular to the connecting strip on a second side. The pins may be slid in the second compartment of the bracket, after which the connecting strip, if it concerns a supporting point, may be fixed with for example a screw or a blind rivet. Subsequently, the profile is pushed into the clips and fixed with for example screws or blind rivets. In order to simplify this fixing of the profiles, the first side of a connecting strip is preferably moreover provided with at least two holes, which means that only in the profile holes have to be drilled at the proper places.

[0008] The invention also relates to a bracket or a connecting strip, suitable for use in a system as described in the above.

[0009] The invention also relates to a facing for a building structure, provided with brackets and/or connecting strips as described in the above.

[0010] The invention will now be further explained with a reference to the following figures, in which:

- Fig. 1 schematically represents a front, provided with a mounting system;
- Fig. 2A represents a possible embodiment of a bracket according to the invention in top view;
- Fig. 2B represents this embodiment in front view;
- Fig. 3A represents an alternative embodiment of a bracket according to the invention in top view;
- Fig. 3B represents this embodiment in front view;

Fig. 4A represents a possible embodiment of a connecting strip according to the invention in side view;

Fig. 4B represents this embodiment in top view;

Fig. 5 represents a possible embodiment of a bracket according to the invention in perspective.

[0011] Fig. 1 schematically represents a front 1, provided with a mounting system 2, consisting of profiles 3 which are mounted to front 1 with the aid of brackets, not visible in this figure. Subsequently, panels 4a are connected to profiles 3. It is also possible to connect horizontally oriented profiles 5 to profiles 3, to which panels 4b may be hooked up or otherwise connected. In general, profiles 3 do not run all the way from the upper edge to the bottom edge of front 1. Instead, a profile 3 is split up into sub-profiles 6a, 6b, 6c, ... each having a length of for example three metres. A top side of a sub-profile is connected with one or two brackets in a floor 7, together forming a supporting point, while for example three brackets, spread over the length of the sub-profile, keep the profile at a previously determined distance from front 1. These three brackets form sliding points; they keep the profile at a distance but permit the profile to slide freely in a longitudinal direction. In case the length of front 1 and the length of a sub-profile change in a different way, for example due to a temperature change, no tensions will occur. In case front 1 is very flat, profiles 3 may be mounted to front 1 directly with the aid of brackets. In case front 1 is not flat, strips which are available in different lengths may be included between profiles 3 and the brackets, in such a way that profiles 3 together define a perfectly flat surface.

[0012] In the example shown here, starting point is that the inventive mounting system is used for covering a front. Obviously, the inventive mounting system may also be used for covering a ceiling or any other building structure.

[0013] Fig. 2A represents a possible embodiment of a bracket 8 according to the invention in top view, consisting of a piece of an extruded aluminium profile, provided with a first compartment having a rectangular cross section, of which a side 9 is operationally mounted to the building structure and of which a second side 10 is provided with two substantially parallel ribs 11a, 11b, between which a profile 3 may be clasped. In this way, a profile may be fixed temporarily, after which a top side of the profile is fixed permanently with some screws that are screwed through ribs 11a, 11b and profile 3. For that purpose, ribs 11a, 11b are provided with slotted holes 12a, 12b, extending in a longitudinal direction, so that only profile 3 must be drilled through. For the brackets that are positioned below, which must form a sliding point, a relatively small hole is drilled through profile 3 in which a self-tapper is screwed. In this way, profile 3 may slide between ribs 11a, 11b, but the distance between the front side of profile 3 and side 9 is fixed, which

prevents the wind from ripping off panels and the profiles to which they are attached.

[0014] Fig. 2B represents this embodiment in top view, clearly showing that a central part of side 10, together with ribs 11a, 11b is removed, so that slotted hole 13 becomes visible, via which bracket 8 can be fixed onto the building structure. For removing this central part, a part of bracket 8 may be milled away but in the embodiment shown here, bracket 8 is provided with a reduction 14 on both sides, in such a manner that it is sufficient to saw into the profile up to this reductions and to snap off the central wall parts.

[0015] Fig. 3A represents an alternative embodiment of a bracket 15 according to the invention in top view, here consisting of a piece of an extruded aluminium profile, provided with a first compartment having a rectangular cross section, of which a side 9 is operationally mounted to the building structure and of which a second side 10 is provided with two substantially parallel ribs 11a, 11b, between which a profile 3 or a connecting strip 16, like shown here, may be clasped. In this way, a profile or a connecting strip may be fixed temporarily. Next, a top side of the profile can be fixed permanently with some screws that are screwed through ribs 11a, 11b and profile 3. In a connecting strip and perpendicular to the strip, two pins 17a, 17b are fixed, of which only pin 17a is visible here, and bracket 15 is provided with a second compartment 18, in such a manner that connecting strip 16 together with pins 17a, 17b may slide through it, albeit with some resistance. In this way, a sliding point is created, without the need of any additional operations being performed.

[0016] Fig. 3B represents this embodiment in front view, clearly showing that a central part of side 10, together with ribs 11a, 11b is removed, so that slotted hole 13 becomes visible, via which bracket 15 can be fixed onto the building structure. For removing this central part, a part of bracket 15 may be milled away but in the embodiment shown here, bracket 15 is provided with a reduction 14 on both sides, in such a manner that it is sufficient to saw into the profile up to this reductions and to snap off the central wall parts.

[0017] Fig. 4A represents a possible embodiment of a connecting strip 16 according to the invention in side view, consisting of an aluminium plate in one side of which a clip 19 is pressed with which a profile 3 may be temporarily fixed and in which two or more holes 20a, 20b, ... are drilled via which profile 3 may be fixed permanently. On the other side, two pins 17a, 17b are fixed in connecting strip 16 which operationally may slide through a second compartment 18 of a bracket 15.

[0018] Fig. 4B represents this embodiment in top view, provided with clip 19 with which profile 3 may be temporarily fixed and holes 20a, 20b, ... via which profile 3 may be fixed permanently. Also the two pins 17a, 17b can be seen which operationally may slide through a second compartment 18 of a bracket 15. After being placed, the pins have been slightly upset, for example

by blowing them, so that the ends have become somewhat thicker. For that reason, second compartment 18 is slightly widened near the edges.

[0019] Fig. 5 represents a possible embodiment of a bracket 15 according to the invention in perspective, with first side 9, provided with a slotted hole 13, the first and second compartments, the ribs 11a, 11b, the holes 12a, 12b and the reduction 14. Bracket 15 may be produced of aluminium in an extrusion process very well, but it may also be produced of a synthetic material in an injection moulding process.

Claims

1. Mounting system for a facing of a building structure, like a wall or a ceiling, comprising brackets which may be secured to a building structure to be covered and profiles which may be mounted to the brackets, **characterised in that** a bracket comprises a piece of an extruded material, like aluminium or an injection-moulded part made of a synthetic material, that the profile comprises a first compartment having a substantially rectangular cross section of which one side is operationally placed against the building structure and of which a second side, located opposite to the first side, is provided with two ribs, positioned at least substantially perpendicular to the second side and extending mutually parallel along a longitudinal direction of the profile.
2. Mounting system according to claim 1, **characterised in that** in the ribs of a bracket an at least substantially rectangular second compartment is made, which is much smaller than the first compartment and which extends substantially parallel to it.
3. Mounting system according to claim 2, **characterised in that** ends of the second compartment, as seen in a direction perpendicular to the longitudinal direction, are widened.
4. Mounting system according to claim 1 or 2, **characterised in that** a central part of the second side of the bracket, including the ribs, is removed.
5. Mounting system according to claim 4, **characterised in that** in a central part of the first side of the bracket a slotted hole is made, of which a longitudinal direction is positioned at least substantially perpendicular to the longitudinal direction of the bracket.
6. Mounting system according to claim 2, **characterised in that** the mounting system moreover comprises connecting strips, for connecting brackets with the profiles.
7. Mounting system according to claim 6, **characterised in that** on a first side a connecting strip is provided with a clip and on a second side with two pins, positioned at least substantially perpendicular to the connecting strip.
8. Mounting system according to claim 7, **characterised in that** the first side of a connecting strip is moreover provided with at least two holes.
9. Bracket or connecting strip, suitable for use in a system according to one of the claims 1 to 8.
10. Facing for a building structure, provided with brackets and/or connecting strips according to claim 9.

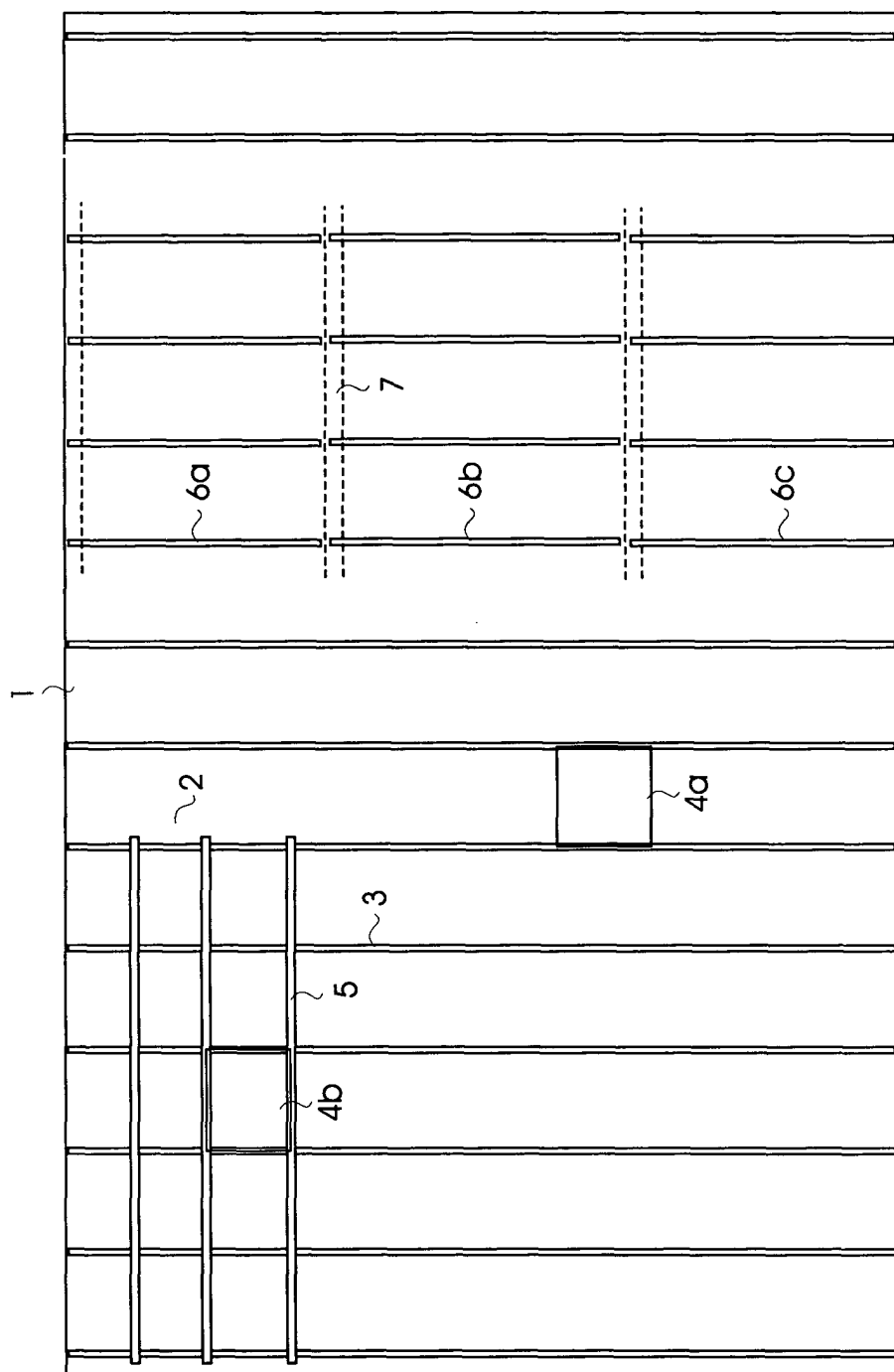


Fig. 1

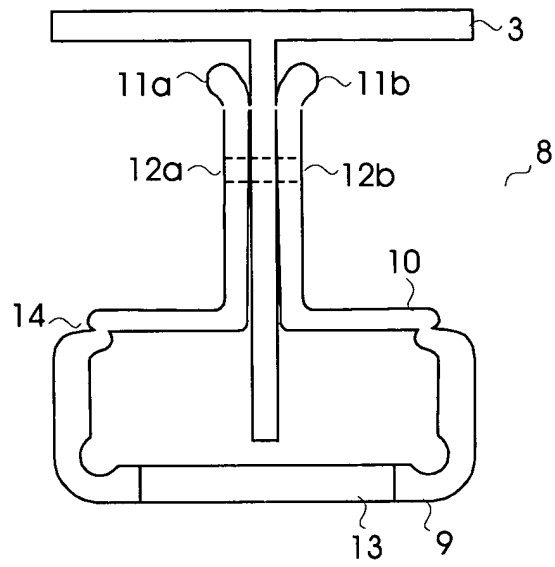


Fig. 2A

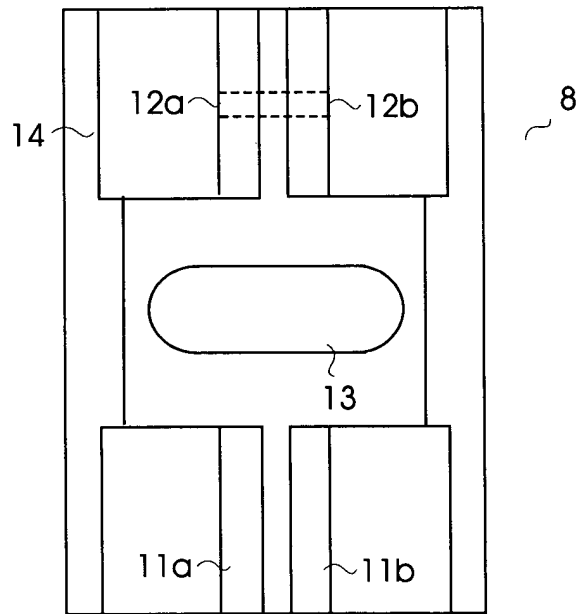


Fig. 2B

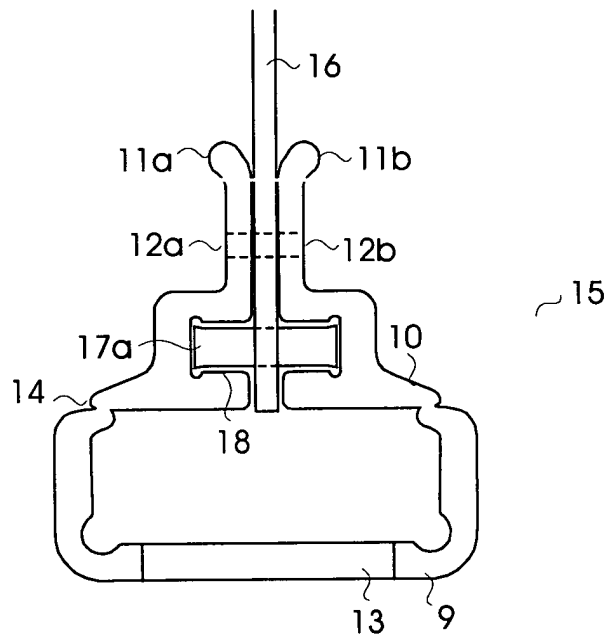


Fig. 3A

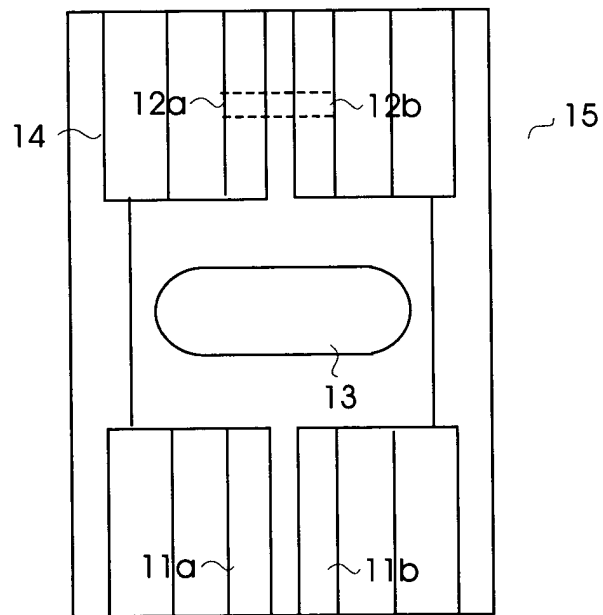


Fig. 3B

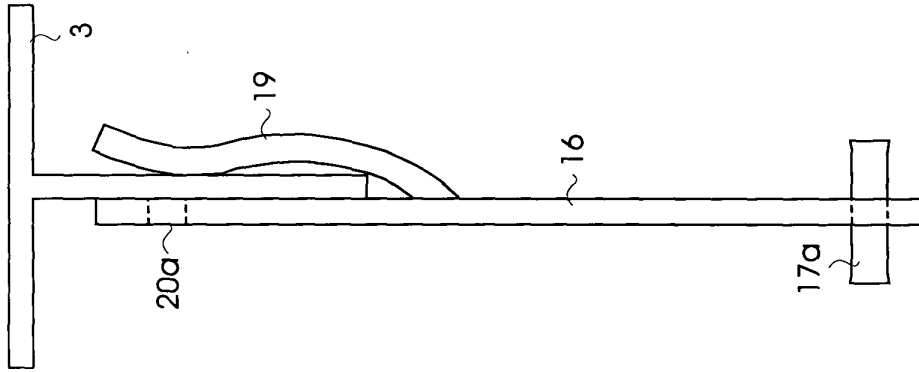


Fig. 4B

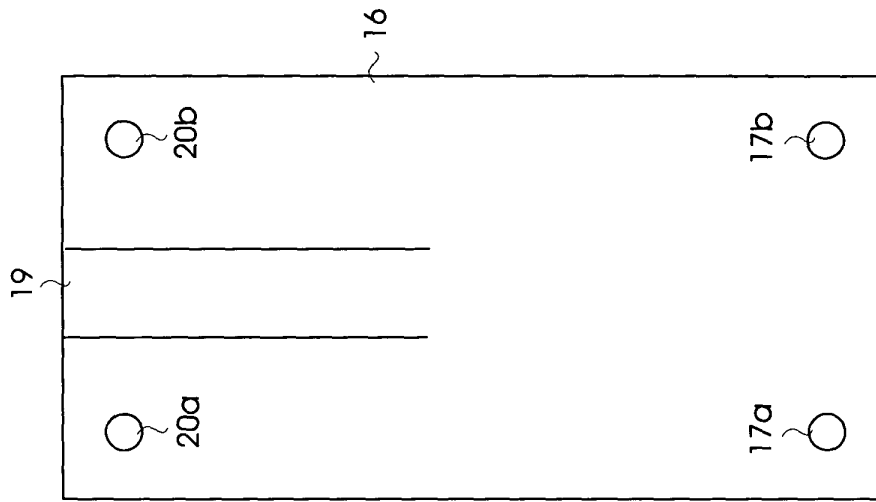


Fig. 4A

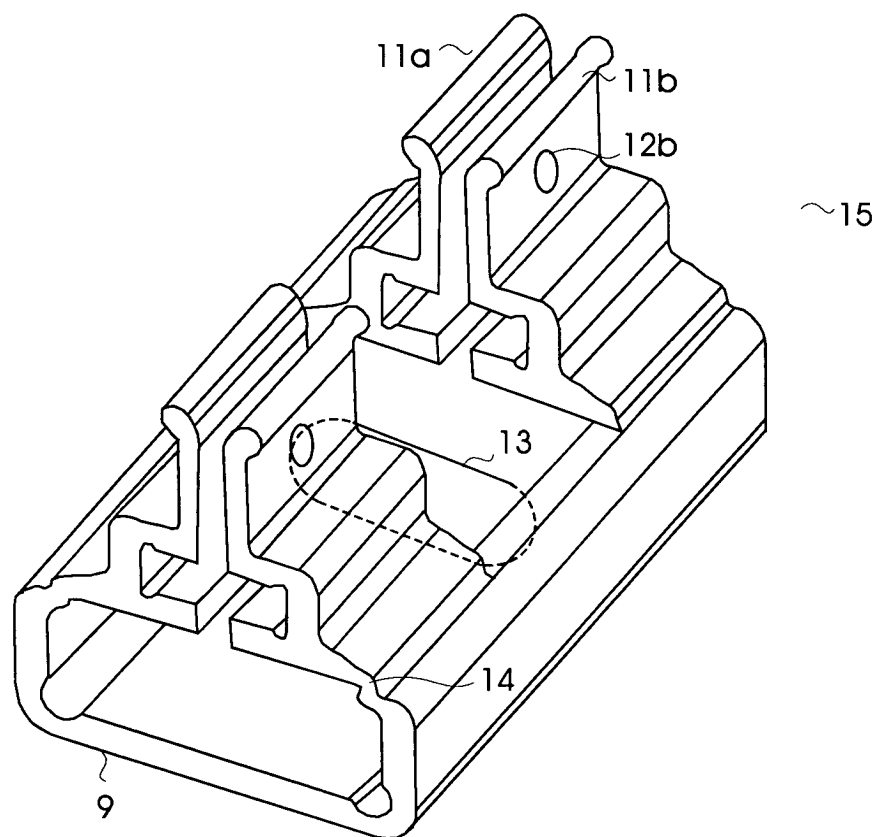


Fig. 5



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EUROPEAN SEARCH REPORT

Application Number
EP 04 07 5216

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	EP 0 067 970 A (WAGNER PETER DIPL ING) 29 December 1982 (1982-12-29)	1	E04F13/08 E04B9/18
X	* page 6, paragraph 3 - page 7, paragraph 2; figures 1,2 *	9,10	

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	* column 2, line 39 - column 3, line 36; figures *		

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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			E04F E04B
Place of search		Date of completion of the search	Examiner
MUNICH		5 April 2004	Bouyssy, V
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 04 07 5216

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