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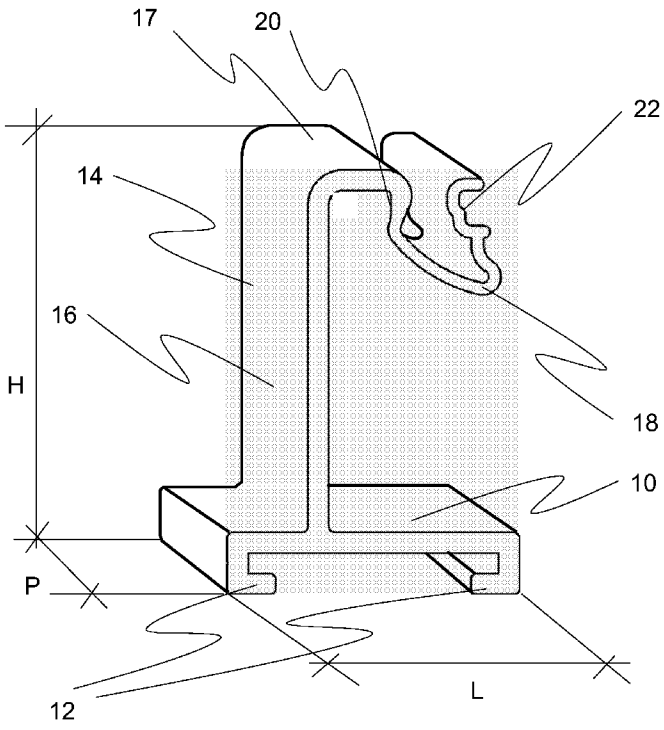
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(54) **Title:** FASTENER FOR A SUNSHADE



(57) **Abstract:** The invention relates to a fastener for fastening a sunshade to the edge profile of a balcony glazing including a gap. In the fastener, there are a base (10) in which are arranged L-shaped fastening brackets (12) for fastening to the sunshade and a fastening part (14) by means of which the fastener is fastened to the edge profile. Advantageously, the shape of the base is plate-like, whereby the fastening part is arranged on a first surface of the base and the fastening brackets are arranged on a second surface of the base. By means of the fastening part, the fastener can be fastened to the gap of the edge profile without separate fastening elements and without tools or auxiliary devices. In the fastening part, there are a first mating surface (20) which is arranged to settle against the first edge surface of the gap, and a second mating surface (22) which is arranged to settle against the second edge surface of the gap. Advantageously, the shape of at least the second mating surface is through-like. The first mating surface and the second mating surface are connected to each other by a spring part (18) for pressing the mating surfaces against the edge surfaces of the gap. The material of the fastener is advantageously plastic, composite material or metal, such as aluminium.

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Fastener for a sunshade

The invention relates to a fastener for fastening a sunshade to an edge profile including a gap, in which fastener there are a base, fastening brackets for fastening to the sunshade and a fastening part for fastening the fastener to the edge profile without separate fastening elements.

Many times in glazed balconies, curtains are used as sunshades to prevent the access of excess solar radiation to the balcony. The sunshades are usually fastened either to the ceiling of the balcony structure or to the edge profile of the balcony glazing. When fastening to the edge profile, a so-called ceiling bracket is used which is fastened by fastening screws on the downwards-pointing surface of the edge profile.

Known prior-art installation of a sunshade to be fastened to the edge profile of a balcony glazing includes several disadvantages. For the fastening screw, one has to first drill a hole in the edge profile, after which the fastening screw is screwed in its place. Because of this, the installation of ceiling brackets is not successful at all without suitable drilling and screwing tools. Usually the sunshading of a balcony is structured of several sunshade units each of which is fastened by at least two ceiling brackets. The drilling of all required fastening holes and the screwing of fastening screws in their places is a slow work phase, which increases the costs of installation work. If one wishes to remove the sunshades for some reason, the fastening holes drilled in the edge profile of the balcony glazing remain clearly visible.

Documents DE19705423 and EP1221530 and German utility model DE7343410 presented fasteners for a sunshade by means of which sunshades can be fastened to a window or a door without fastening screws. These fasteners have two mating surfaces which in the fastening situation settle against edge surfaces on different sides of a window frame or a door leaf. These fasteners function reliably only when the edge of the door leaf or the window frame is such of its width and cross-sectional shape that it can be tightly fitted between the mating surfaces.

The object of the invention is to introduce a fastener for a sunshade by means of which flaws and disadvantages related to known prior art can be substantially minimised.

The objects according to the invention are achieved by means of a fastener for a sunshade which is characterised by what is presented in the independent claim. Some advantageous embodiments of the invention are described in the dependent claims.

The invention relates to a fastener by means of which a sunshade, such as a curtain, can be fastened to the edge profile of a balcony glazing including a gap. In the fastener according to the invention, there is a base including a first surface and a second surface. To the base are arranged L-shaped fastening brackets for fastening to the sunshade and a fastening part by means of which the fastener is fastened to the edge profile. Advantageously, the shape of the base is plate-like, whereby the fastening part is arranged on the first surface of the base and the fastening brackets are arranged on the second surface of the base. By means of the fastening part, the fastener can be fastened to the gap of the edge profile without separate fastening elements and without tools or auxiliary devices. In the fastening part, there are a first mating surface which is arranged to settle against the first edge surface of the gap, and a second mating surface which is arranged to settle against the second edge surface of the gap. Advantageously, the shape of at least the second mating surface is through-like.

In an advantageous embodiment of the invention, the first mating surface and the second mating surface are connected to each other by a spring part for pressing the mating surfaces against the edge surfaces of the gap.

In a second advantageous embodiment of the invention, the fastener is manufactured by cutting pieces of specific length of a profile bar having a suitable cross-section. Advantageously, the material of the fastener is plastic, composite material or metal, such as aluminium.

An advantage of a fastener according to the invention is that it can be installed to its place and, if required, removed manually without any tools.

A further advantage of the invention is that it substantially shortens the time required of installing sunshades, because conventional drilling and screwing work phases are totally eliminated. Thus, savings are created in installation costs and the edge profile of the balcony glazing stays whole in the installation.

Furthermore, an advantage of the invention is that it can be fastened to edge profiles of different widths and cross-sectional shapes. The only prerequisite of the fastening is that the edge profile includes a gap for fastening the fastener.

The invention will now be described in detail. The description refers to the accompanying drawings in which

Fig. 1 shows by way of an example a perspective view of a fastener for a sunshade according to the invention,

Figs. 2a and 2b show the fastening of a fastener for a sunshade according to the invention to the edge profile of a balcony glazing, and

Fig. 3 shows by way of an example a side view of a fastener for a sunshade according to the invention installed in place and a sunshade fastened to it.

Fig. 1 shows by way of an example a perspective view of a fastener for a sunshade according to the invention. In the fastener, there is a plate-like base 10 of rectangular shape including a first surface and a second surface. On the opposite edges of the second surface of the base, there are L-shaped fastening brackets 12 pointing at each other for fastening the sunshade. On the first surface of the base, there is a fastening part 14 by means of which the bracket is fastened to the edge profile of the glazing in a way described below. In the fastening part, there is a plate-like arm part 16 which is fastened from its first end to the base so that the base and the arm part form a substantially right angle. The second end of the arm is designed so that, in it, there are first a horizontal part 17 turning to an angle from the plane of the arm and as its extension a hooked spring part 18. At the head end of the spring part, there is a vertical or slightly through-shaped first mating surface 20 and, at the tail end, there is a through the inner surface of which forms a second mating surface 22. The first and the second mating surface are located substantially at the same distance from the base 10.

A fastener according to the invention can be manufactured of plastic, some suitable composite material or advantageously of metal material, such as aluminium. Advantageously, the fastener is manufactured by first forming a profile bar with a known technique the cross-section of which bar corresponds the cross-section of the fastener described above and by cutting pieces of specific length of the profile bar. The cross-sectional dimensions of the fastener are defined by the dimensions of the edge profiles of sunshades and glazings on the market. The main dimensions of fasteners suitable for the edge profiles of some known balcony-glazing manufacturers are: width L around 25 mm, total height H in the direction of the normal of the base around 35 mm and length P around 30 mm. The thickness of the structural parts of the fastener is advantageously of the order

of 1–2 mm and the distance between the mating surfaces in the unstressed state 5–6 mm. The fastener is manufactured of elastic material, whereby the mating surfaces can be pressed towards each other, whereby the distance between them decreases. Then, to the spring part 18 builds stress which tries to restore the original distance of the mating surfaces i.e. the stressed spring part pushes the mating surfaces away from each other.

Figs. 2a and 2b show by way of an example the installation of a fastener according to the invention in place. The fastener according to the invention is intended for fastening to an edge profile 50 of such a balcony glazing 60 on one side of which there is a gap 52. Advantageously, the edge profile is a substantially hollow aluminium profile similar to the one shown in Figs. 2a and 2b on one side of which there is a gap through the profile wall. In balcony glazings, edge profiles are generally used only in the upper and lower edges of the glazing, whereby the gap of the edge profile points either upwards or downwards. The fastener according to the invention is dimensioned so that the distance between the first and the second mating surface is slightly greater than the width of the gap 52. The free distance between the base 10 of the fastener and the horizontal part 17 of the arm is slightly greater than the total height of the edge profile.

The fastener according to the invention is fastened to the edge profile so that the tip of the spring part 18 is fitted to the gap 52 of the edge profile and the second mating surface 22 of the fastener is set against the second edge surface of the gap 52 (Fig. 2a). After this, the fastener is manually turned in the direction of arrow A towards the edge profile, whereby the spring part pushes itself inside the gap, the first mating surface 20 of the fastener settles against the first edge surface of the gap, and the horizontal part 17 of the fastener settles against the upper surface of the edge profile (Fig. 2b). The through-like shape of the second mating surface ensures that the second mating surface stays solidly settled against the second edge surface of the gap 52 during the rotational motion of the fastener. During the rotational motion, the first and the second mating surface of the fastener move towards each other, whereby the spring part stays in the final state according to Fig. 2b in the stressed state. The stress of the spring part pushes the mating surfaces tightly against the edge surfaces of the gap, which ensures that the fastener stays in place. The fastener is removed simply by turning the fastener manually to the opposite direction of arrow A. No tools or auxiliary devices or separate fastening elements are thus required in installing the fastener in place and its removal.

The figures show how the fastener according to the invention is fastened to an edge profile on the upper edge of a glazing. Fastening the fastener to an edge profile on the lower edge of a glazing takes place in a corresponding way. Fasteners to be fastened on the lower edge of the glazing are used e.g. when one wishes to fasten the sunshade solidly in place also from its lower edge.

Fig. 3 shows by way of an example a side view of a fastener for a sunshade according to the invention installed in place and a part of a sunshade 100 hung on it. In the sunshade, there is an upper rail 102 which includes opposite lugs 104 pointing away from the rail. When the lugs of the upper rail of the sunshade are fitted to the gap between the fastening brackets 12 and the base 10 of the fastener, the sunshade stays in place held by the fasteners. The mutual fastening of the upper rail and the fastener can be done e.g. by pushing the fastener in place from the direction of the end of the upper rail before fastening the fastener to the edge profile. A sunshade does not belong to the scope of this invention so its structure will not be described here in more detail.

Above were described advantageous embodiments of a fastener for a sunshade according to the invention. The invention is not limited to the above-described solutions, but it is possible to apply the inventive idea with several ways within the limitations set by the claims.

Claims

1. A fastener for fastening a sunshade to an edge profile (50) including a gap (52), in which fastener there are a base (10), fastening brackets (12) for fastening to the sunshade (100), and a fastening part (14) for fastening the fastener to the edge profile (50) without separate fastening elements, **characterised** in that, in the fastening part (14), there are a first mating surface (20) which is arranged to settle against a first edge surface of the gap (52), and a second mating surface (22) which is arranged to settle against a second edge surface of the gap (52).

2. A fastener according to claim 1, **characterised** in that, of its shape, the base (10) is a plate-like part in which there is a first and a second surface, whereby the fastening part (14) is arranged on the first surface of the base and the fastening brackets (12) are arranged on the second surface of the base.

3. A fastener according to claim 2, **characterised** in that at least the second mating surface (22) is through-like of its shape.

4. A fastener according to any one of claims 2–3, **characterised** in that the first mating surface (20) and the second mating surface (22) are connected to each other by a spring part (18) for pressing the mating surfaces against the edge surfaces of the gap (52).

5. A fastener according to any one of claims 1–4, **characterised** in that its material is plastic, composite material or metal, such as aluminium.

6. A fastener according to any one of claims 1–5, **characterised** in that it is manufactured by cutting pieces of specific length of a profile bar having a suitable cross-section.

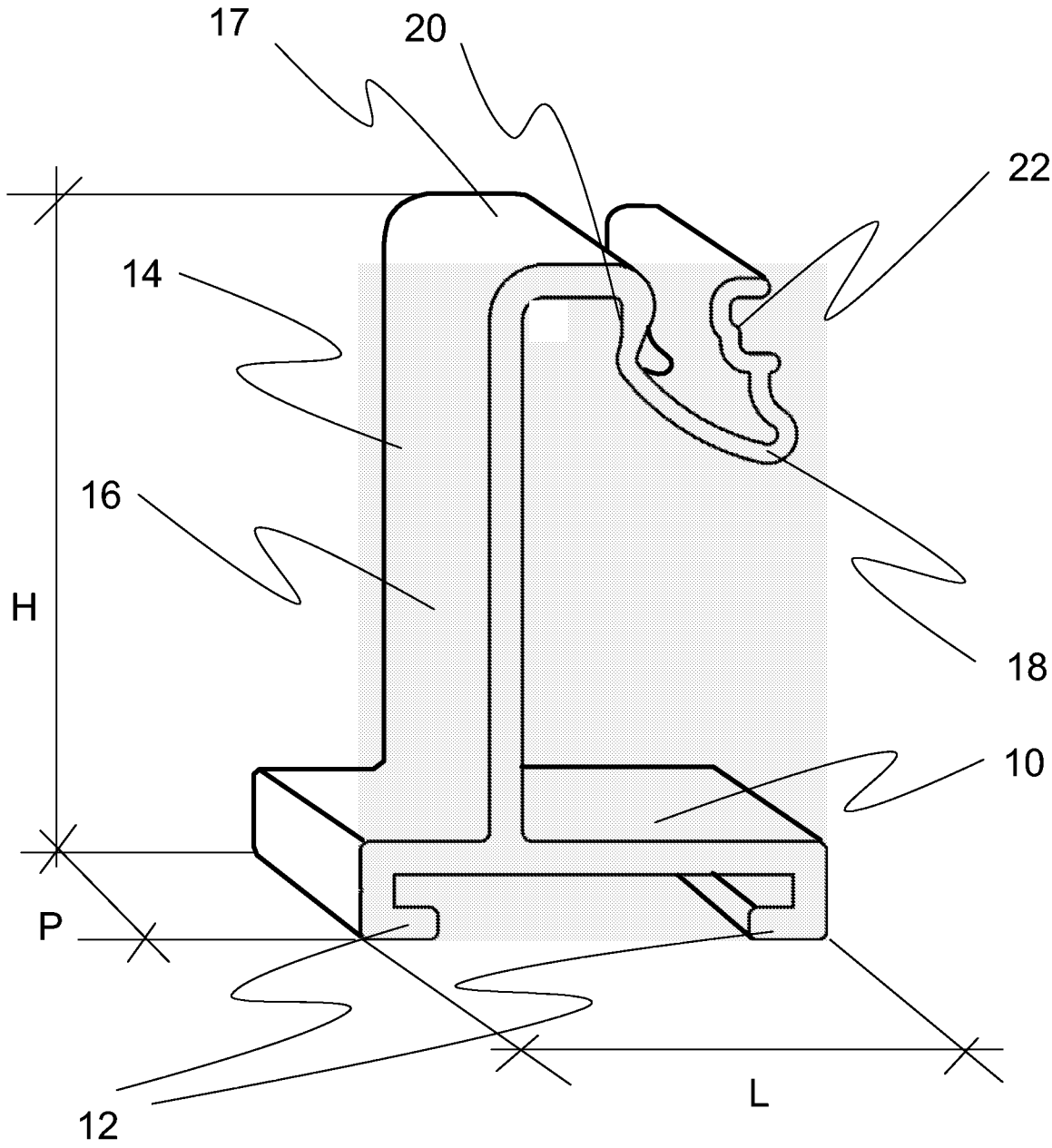


Fig. 1

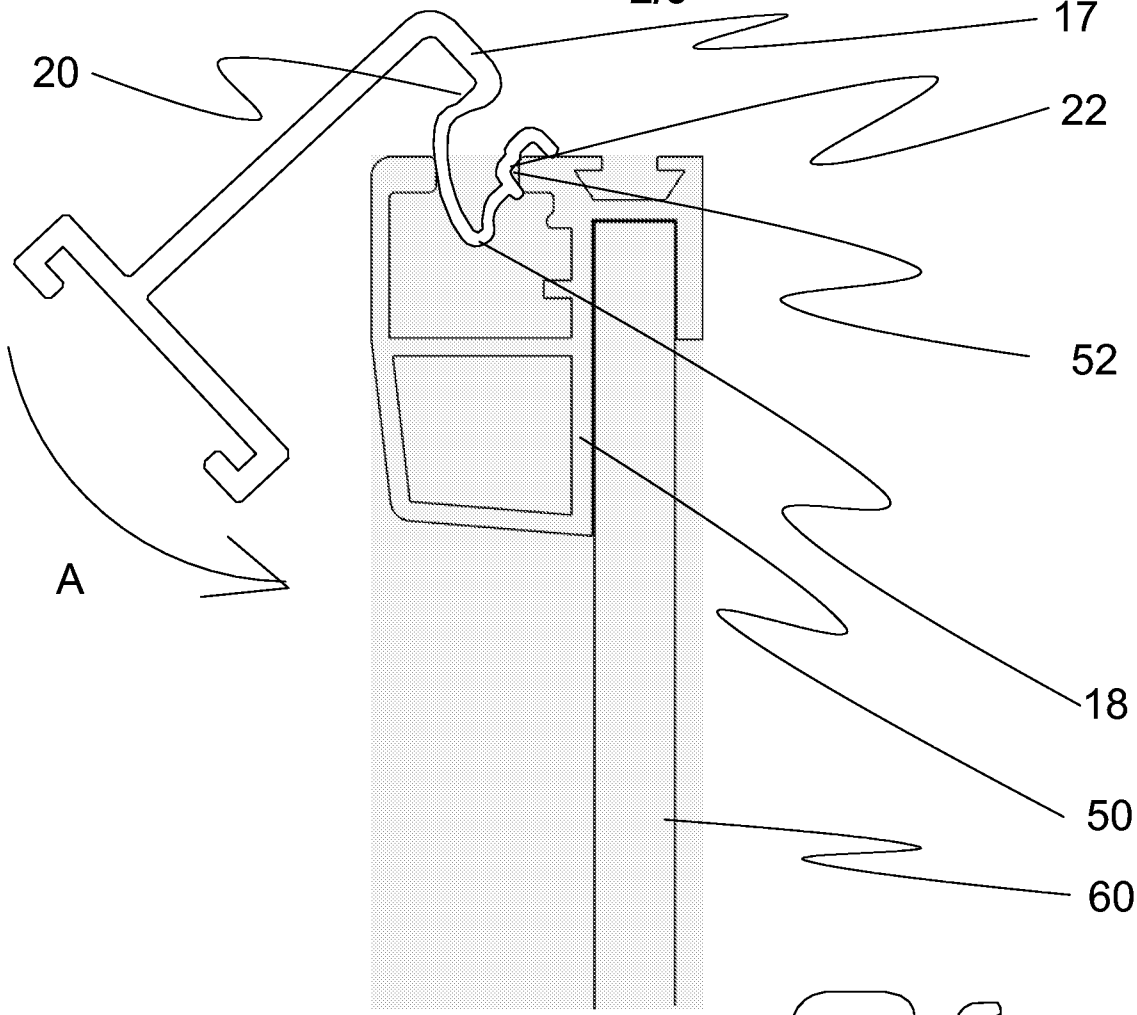


Fig. 2a

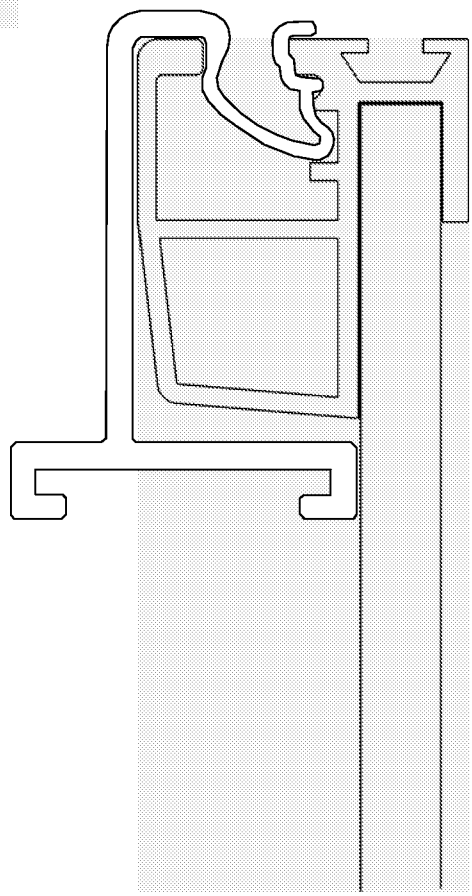


Fig. 2b

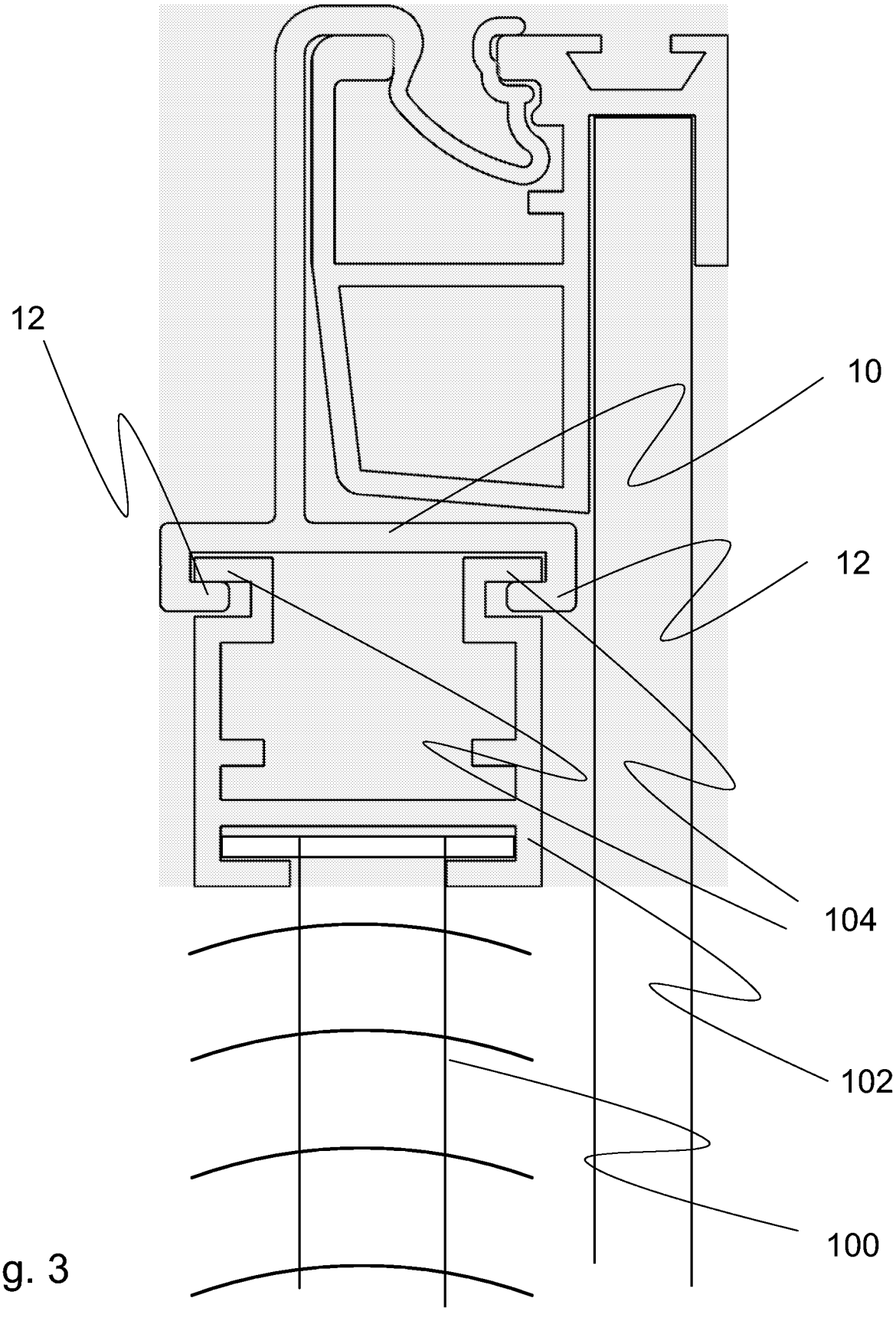


Fig. 3

INTERNATIONAL SEARCH REPORT

International application No.
PCT/FI2006/050537

A. CLASSIFICATION OF SUBJECT MATTER

See extra sheet

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC8: E06B, A47H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

FI, SE, NO, DK

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-internal, WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 102004016545 A1 (WAREMA RENKHOFF GMBH & CO KG) 20 October 2005 (20.10.2005), fig. 1a-c, claims	1-6
A	EP 1221530 A2 (IVERSEN HANS) 10 July 2002 (10.07.2002), whole document	1-6

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
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Patent document cited in search report	Publication date	Patent family members(s)	Publication date
DE 102004016545 A1	20/10/2005	None	
EP 1221530 A2	10/07/2002	PL 351513 A1	15/07/2002
		DE 20100118U U1	22/03/2001

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CLASSIFICATION OF SUBJECT MATTER

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