(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 2 666 918 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
22.07.2015 Bulletin 2015/30

(51) Int Cl.:
E04B 1/00 *(2006.01)*

(21) Application number: **13168166.0**

(22) Date of filing: **17.05.2013**

(54) **Balcony**

Balkon

Balcon

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

(30) Priority: **21.05.2012 FI 20125534**

(43) Date of publication of application:
27.11.2013 Bulletin 2013/48

(73) Proprietor: **LO Rakenne Oy**
30100 Forssa (FI)

(72) Inventor: **Karimies, Martti**
FI-13130 Hämeenlinna (FI)

(74) Representative: **Berggren Oy Ab**
P.O. Box 16
Antinkatu 3 C
00101 Helsinki (FI)

(56) References cited:
EP-A2- 2 261 430
DE-U1- 29 920 081
FR-A1- 2 954 370

EP 2 666 918 B1

Printed by Jouve, 75001 PARIS (FR)

Description

Technical background

[0001] The invention relates to a steel frame balcony. The invention is particularly useful in renovation, but also in new construction.

[0002] It is prior known to manufacture and attach steel frame balconies by constructing a balcony with an attachment flange at its rear edge in register with the frame and with brackets at the corners of its front edge for fastening a tension rod. The balcony frame includes a G-shaped edge profile with a flat external side. The balcony is secured to a wall with the attachment flanges and the tension rods, followed by placing a wooden grid on top of the frame. One example of such balcony is the Producta balcony from LO Rakenne Oy.

[0003] In DE utility model 29920081 is disclosed a balcony which has a rectangular frame comprising a rear plate to be set against a wall, two side plates and a front plate, in which balcony at least two of the plates have between top and bottom edges a chute-like inward protrusion, and these plates are opposite to each other, which balcony is installed to rest on wall-mounted load bearing girders and which balcony has elements for adjusting the balcony's height.

[0004] In document EP 2261430 is disclosed a balcony which has a rectangular frame comprising a rear plate to be set against a wall, two side plates and a front plate, which balcony is installed to rest on wall-mounted load bearing girders and which balcony has elements for adjusting the balcony's height.

[0005] Document DE 299 20 081 U1 discloses the preamble of claim 1.

General description of the invention

[0006] There is now provided an invention as presented in the claims.

[0007] This invention relates to a balcony according to claim 1.

[0008] According to a first feature of the invention, at least two of the plates have a chute-like inward protrusion between top and bottom edges. These two plates are those on opposite sides. Other plates may also have a similar protrusion. The chute bottom is most preferably vertical.

[0009] In one embodiment, a top surface of the protrusion in the plates is preferably inward sloping or a bottom surface of the protrusion is straight or inward sloping. The sloping top surface can be used for directing water. To the protrusion below the top surface, preferably to the bottom surface, can be fixed a waterproofing board. Water runs from the top surface onto this board, along which it can be directed for example into and out of a rain gutter present at the edge. The waterproofing board material can be for example corrugated sheet metal. In a second embodiment, the protrusion's top surface is straight or outward sloping and the bottom surface is outward sloping. In this case, water can be directed away from an outer edge of the top protrusion surface. For this purpose, inside the protrusion can be constructed a rain gutter, into which water is directed from an edge of the plate above the protrusion. The second embodiment can also be implemented by turning upside down the frame assembly composed of the edge plates.

[0010] The balcony has a frame edge plate with a chute-like inward protrusion between top and bottom edges.

[0011] There is a frame assembly composed of edge plates, which can be used in a balcony with either side up.

[0012] At a top edge of the plate can be an upper face, preferably inward from the edge. To be supported by such a top edge can be preferably installed a floor, for example a board floor. Alternatively, the plate can have a straight top edge. In this case, to be supported by the protrusion can be installed a floor, for example a tile floor. The various options can also be implemented with one and the same frame composed of edge plates, which has been constructed for a capability of being used with either side up.

[0013] The rear plate define apertures by which the balcony is suspended on brackets mountable on the wall. If necessary, a further bracing of the balcony to the wall can be provided with tension rods. The rear plate have a fastener, an attachment flange, by which the balcony is secured to the bracket or the wall. The fastener lies above the floor level, whereby the balcony can be made completely ready for service prior to being lifted to its position.

[0014] The balcony has a balcony fastener, which is in attachment with the balcony above the floor level.

[0015] The balcony is also provided with elements for adjusting the balcony's height with respect to load-bearing girders. The balcony features a lengthwise beam, which is provided alongside the load-bearing girder with side legs connected above the load-bearing girder with an iron flat bar, most preferably with two of those. The iron flat bar defines a threaded hole. A screw fitted therein enables a height adjustment. As a result, variations in the height differences of load-bearing girders can be cancelled out.

Drawings

[0016] The attached drawings make up a part of a written specification for the invention and relate to the subsequently presented detailed description for a few embodiments of the invention. In the drawings, fig. 1 shows one balcony frame in a horizontal view, fig. 2 shows a balcony with the frame of fig. 1 in a cross-section parallel to the wall, fig. 3 shows a balcony with the frame of fig. 1 in a cross-section perpendicular to the wall, fig. 4 is a plan view of a balcony with another type of frame, fig. 5 shows a cross-section of fig. 4 parallel to the wall, and fig. 6 shows a cross-section of an edge plate profile for

the balcony of fig. 4.

Detailed description for a few embodiments of the invention

[0017] The balcony frame of figs. 1-3 comprises a rear plate 1 parallel to the wall, side plates 2 perpendicular to the wall at the ends of the rear plate, and a front plate 3 parallel to the wall and connecting the outer ends of the side plates. The rear plate and the front plate are connected at a top edge with a sufficient number of upper beams 5 and at a bottom edge with a sufficient number of lower beams 6. The side plates and the upper beams are connected at a top edge with a sufficient number of cross beams 7.

[0018] The rear plate 1 defines apertures 8 near its ends and, above the apertures, rear plate flanges 9 slightly wider than the apertures and extending higher than the rear plate. Into the apertures are installed load-bearing girders 10. These have a tubular body 11, an attachment flange 12 fixed to its top surface and mountable to the rear plate flange with bolts, and at its rear end a wall flange 13 mountable to the wall with bolts. When using short load-bearing girders such as those in fig. 1, the frame has its outer corners further fitted with attachment brackets for tension rods by which the balcony is also suspended on the wall. If the wall is provided with long load-bearing girders capable of supporting the balcony without tension rods, the attachment beams will be omitted and the balcony will be installed by the rear plate apertures to rest on the load-bearing girders.

[0019] The rear plate 1 and the side plates 2 consist of press-brake bent profile sheet with a thickness of 5-6 mm. It includes both an inward upper face 13 at the top edge and a similar type of lower face 14 at the bottom edge. Slightly below the midpoint is a wide U-shaped inward protrusion 15 lengthwise of the profile. The protrusion has its top surface slightly inclined inward for promoting the flow of water. The protrusion's bottom is vertical and its bottom edge is most preferably sharp for easy water droplet release. The protrusion's bottom surface is slightly inward sloping. The front plate 3 has at its top edge an inward upper face 16 and at its bottom edge an internal rain gutter 17 with a hole at least at one of its ends for the outflow of water.

[0020] The frame is most preferably constructed from zinc-plated steel.

[0021] In the embodiment of figs. 2 and 3, the protrusion 15 included in a profile of the side plates 2 has a drain panel 18 mounted on its lower surface. The drain panel is fastened preferably with screws, such that the screw points will be concealed inside the protrusion. Between the drain panel and the protrusion's lower surface can further be a water seal, for example a sealing tape. The drain panel material is hot-dip galvanized sheet metal with its grooves lengthwise of the balcony. The drain panel is inclined sufficiently (1:100 - 1:80) towards the front plate for enabling water to flow along the panel into the front plate's rain gutter 17. On the frame edges are mounted railings and other possibly necessary fixtures.

[0022] In the embodiment of figs. 2 and 3, to be supported by the plates' upper faces 13 and 16 and by the top beams 5 and the crosswise beams 7 is installed a terrace board flooring 19. Underneath the drain panel is a fireproof insulation sheet 20 (fireproof rockwool 30 mm), resting on the profile's lower face 14 and the bottom surface flooring. To a bottom surface of the lower face is secured a baseboard 21, which is made for example of calcium silicate.

[0023] In principle, the edge plate frame of figs. 1-3 can be used in a balcony also in an upside-down position for enabling the installation of a different type of flooring.

[0024] In the frame of figs. 4 and 5, both a rear plate 1.1, side plates 2.1 and a front plate 3.1 are made of metal profile sheet. Slightly above the middle part, it has an inward protrusion 15.1, which is lengthwise of the profile sheet and has a U-shaped cross-section. The protrusion's top surface and bottom surface are outward inclined and its bottom is vertical. The bottom edge has an inward lower face 14.1.

[0025] The rear plate 1.1 and the front plate 3.1 are interconnected with two beams 5.1. These have a top edge flush with a top surface of the profile sheet's protrusion 15.1. The rear plate 1.1 defines apertures 22 in register with the beams. The beam 5.1 has two vertical legs 23 and two iron flat bars 24 connecting the same and provided with a threaded hole 25. The invention is intended for use in projects involving wall-mounted load bearing girders upon which the balcony is rested. The load-bearing girders place themselves between the legs of the balcony beams underneath the iron flat bars. Into the holes of the iron flat bars are inserted screws, by means of which the balcony's height with respect to the load-bearing girders can be adjusted exactly as desired regardless of height differences. The balcony frame is installed in a precisely horizontal position. The inward bent U-shaped protrusions present in the profile sheets are horizontal or inclined in a longitudinal direction.

[0026] To be supported by the top surface of the profile sheet protrusion 15.1 is placed a concrete slab 19.2. The slab is dimensioned so as to leave a small gap between its front edge and the edge of the profile sheet. The front plate protrusion 15.1 has its upper face provided with holes for allowing the outflow of water. If desired, inside the protrusion can be further fitted a rain gutter for removing water in a controlled manner for example from the gutter's end.

[0027] Above its floor level, the frame can have a fastener for securing a balcony to the frame.

[0028] The edge plate frame of figs. 4 and 5 is also applicable in the embodiment of figs. 1-3.

[0029] The bottom surface of each version includes a steel frame supporting both the fireproofing sheet and the board system therebelow.

Claims

1. A balcony, which has a rectangular frame comprising a rear plate (1; 1.1) to be set against a wall, two side plates (2; 2.1), and a front plate (3; 3.1), in which at least two of the plates have between top and bottom edges a chute-like inward protrusion (15; 15.1), and these plates are opposite to each other, which the balcony is installed to rest on wall-mounted load bearing girders, and the balcony has elements (5.1, 24, 25) for adjusting the balcony's height with respect to the load-bearing girders, and the rear plate (1) has apertures (8), **characterized in that** the rear plate flanges (9) are extending above the rear plate, the apertures (8) having fitted therein load-bearing girders (10) which have a tubular body (11), to the top surface of which is fixed an attachment flange (12) capable of being fastened to the rear plate flange.

2. A balcony as set forth in claim 1, wherein a top surface of the protrusion (15) is inward sloping or a bottom surface of the protrusion (15) is inward sloping or horizontal.

3. A balcony as set forth in claim 1 or 2, wherein to the protrusion (15), below the top surface, is attached a waterproofing insulation board (18) inside the balcony.

4. A balcony as set forth in any of the preceding claims, wherein the plate (1; 2; 3) has at its top edge an upper face (13) or the top edge of the plate (1.1; 2.1; 3.1) is straight.

5. A balcony as set forth in claim 4, wherein the plate (1; 2; 3) has at its top edge an upper face (13) and to be supported thereby is installed a floor (19) or the top edge of the plate (1.1; 2.1; 3.1) is straight and to be supported by the protrusion (15.1) is installed a floor (19.1).

6. A balcony as set forth in claim 5, wherein the plate (1; 2; 3) has at its top edge an upper face (13) and to be supported thereby is installed a board floor (19) or the top edge of the plate (1.1; 2.1; 3.1) is straight and to be supported by the protrusion (15.1) is installed a tile floor (19.1).

7. A balcony as set forth in any of the preceding claims, wherein the frame is capable of being used also in an upside-down position in the balcony.

Patentansprüche

1. Balkon, der einen rechteckigen Rahmen aufweist, umfassend eine Rückplatte (1; 1.1) zum Einrichten an einer Wand, zwei Seitenplatten (2; 2.1) und eine Frontplatte (3; 3.1), wobei zumindest zwei der Platten zwischen Ober- und Unterkante einen rutschenartigen Vorsprung (15; 15.1) nach innen aufweisen und die Platten einander gegenüberliegen, wobei der Balkon zum Ruhen auf wandmontierten tragenden Balken eingerichtet ist und der Balkon Elemente (5.1, 24, 25) zum Einstellen der Höhe des Balkons bezüglich der tragenden Balken aufweist und die Rückplatte (1) Öffnungen (8) aufweist, **dadurch gekennzeichnet, dass** die Rückplattenflansche (9) über der Rückplatte verlaufen, die Öffnungen (8) tragende Balken (10) daran gepasst aufweisen, die einen röhrenförmigen Körper (11) aufweisen, an dessen oberer Oberfläche ein Anbringungsflansch (12) befestigt ist, der am Rückplattenflansch befestigt sein kann.

2. Balkon nach Anspruch 1, wobei eine obere Oberfläche des Vorsprungs (15) nach innen geneigt ist oder eine Bodenfläche des Vorsprungs (15) nach innen geneigt oder horizontal ist.

3. Balkon nach einem der Ansprüche 1 oder 2, wobei am Vorsprung (15) unterhalb der oberen Oberfläche ein wasserabweisendes Isolierbrett (18) innerhalb des Balkons angebracht ist.

4. Balkon nach einem der vorhergehenden Ansprüche, wobei die Platte (1; 2; 3) eine obere Fläche (13) an ihrer Oberkante aufweist oder die Oberkante der Platte (1.1; 2.1; 3.1) gerade ist.

5. Balkon nach Anspruch 5, wobei die Platte (1; 2; 3) an ihrer Oberkante eine obere Fläche (13) aufweist und zum Stützen dadurch ein Boden (19) eingerichtet ist oder die Oberkante der Platte (1.1; 2.1; 3.1) gerade ist und zum Stützen durch den Vorsprung (15.1) ein Boden (19.1) eingerichtet ist.

6. Balkon nach Anspruch 5, wobei die Platte (1; 2; 3) an ihrer Oberkante eine obere Fläche (13) aufweist und zum Stützen dadurch ein Dielenboden (19) eingerichtet ist oder die Oberkante der Platte (1.1; 2.1; 3.1) gerade ist und zum Stützen durch den Vorsprung (15.1) ein Fliesenboden (19.1) eingerichtet ist.

7. Balkon nach einem der vorhergehenden Ansprüche, wobei der Rahmen außerdem in einer umgedrehten Position im Balkon benutzt sein kann.

Revendications

1. Balcon comportant un cadre rectangulaire comprenant une plaque arrière (1 ; 1.1) destinée à être installée contre un mur, deux plaques latérales (2 ; 2.1) et une plaque avant (3 ; 3.1), dans lequel au moins

deux des plaques présentent une saillie vers l'intérieur (15 ; 15.1), du genre rigole, entre des bords supérieur et inférieur, et ces plaques sont opposées les unes aux autres, le balcon étant installé de manière à s'appuyer sur des poutres de soutènement montées sur le mur, et le balcon comporte des éléments (5.1, 24, 25) pour l'ajustement de la hauteur du balcon par rapport aux poutres de soutènement, et la plaque arrière (1) comporte des ouvertures (8), **caractérisé en ce que** des rebords de plaque arrière (9) s'étendent au-dessus de la plaque arrière, les ouvertures (8) accueillant des poutres de soutènement (10) ajustées dans celles-ci et comportant un corps tubulaire (11), vers la surface supérieure sur laquelle est fixé un bord de fixation (12) apte à être fixé au rebord de plaque arrière.

2. Balcon selon la revendication 1, dans lequel une surface supérieure de la saillie (15) est inclinée vers l'intérieur, ou une surface inférieure de la saillie (15) est inclinée vers l'intérieur ou horizontale.

3. Balcon selon la revendication 1 ou 2, dans lequel un panneau isolant d'étanchéité (18) est fixé à la saillie (15), à l'intérieur du balcon, en dessous de la surface supérieure.

4. Balcon selon l'une quelconque des revendications précédentes, dans lequel la plaque (1 ; 2 ; 3) présente une surface supérieure (13) au niveau de son bord supérieur, ou le bord supérieur de la plaque (1.1 ; 2.1 ; 3.1) est droit.

5. Balcon selon la revendication 4, dans lequel la plaque (1 ; 2 ; 3) présente une surface supérieure (13) au niveau de son bord supérieur, et un plancher (19) étant installé pour le support de celle-ci, ou le bord supérieur de la plaque (1.1 ; 2.1 ; 3.1) est droit et un plancher (19.1) est installé pour le support à l'aide de la saillie (15.1).

6. Balcon selon la revendication 5, dans lequel la plaque (1 ; 2 ; 3) présente une face supérieure (13) au niveau de son bord supérieur, et un plancher de panneau (19) est installé pour supporter celle-ci, ou le bord supérieur de la plaque (1.1 ; 2.1 ; 3.1) est droit et un plancher de dalle (19.1) est installé pour le support à l'aide de la saillie (15.1).

7. Balcon selon l'une quelconque des revendications précédentes, dans lequel le cadre peut également être utilisé dans une position inversée dans le balcon.

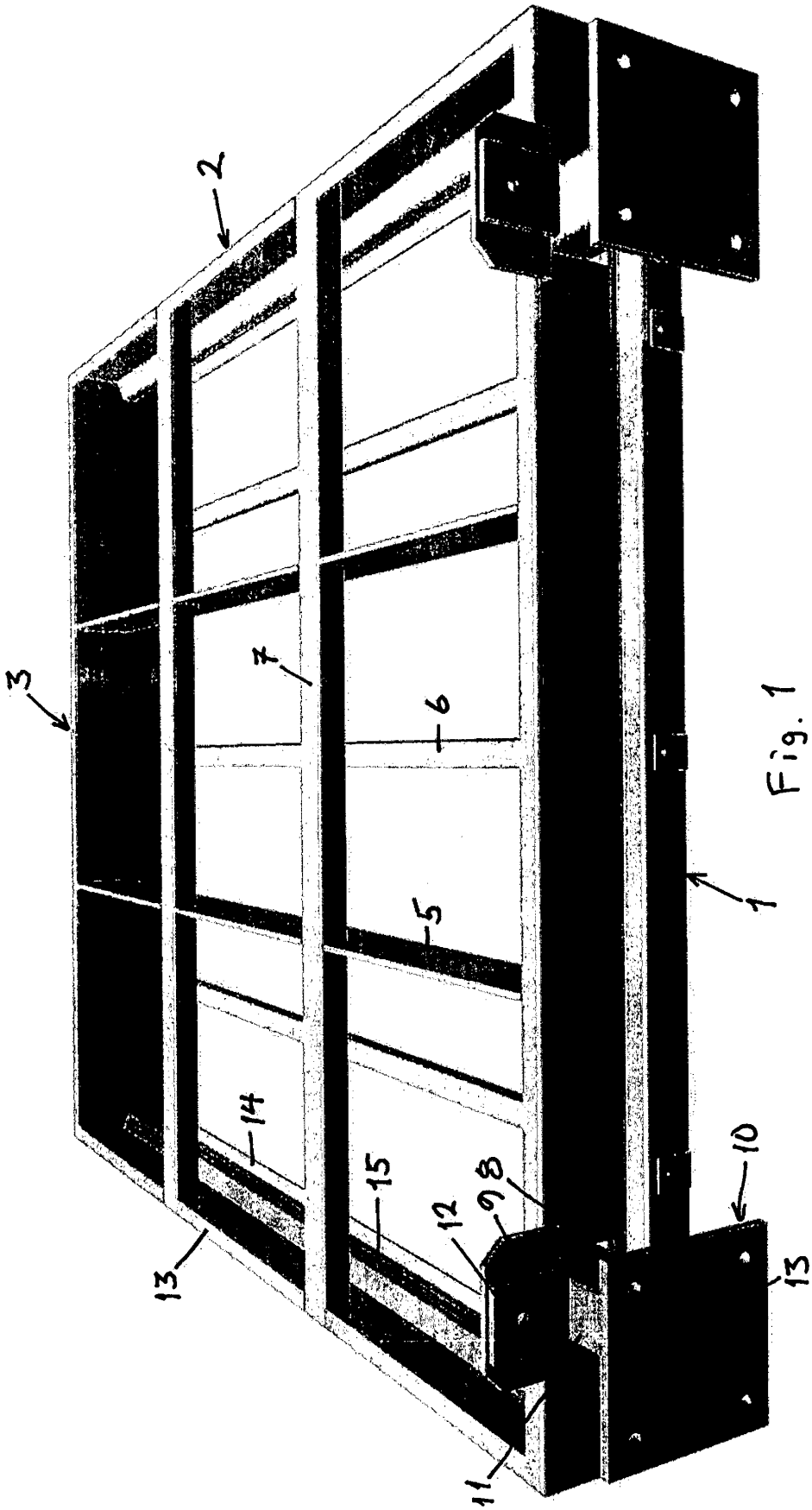

Fig. 1

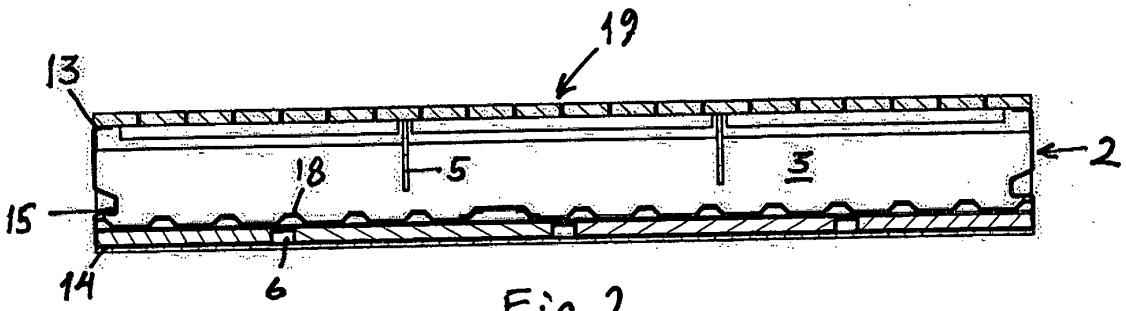

Fig. 2

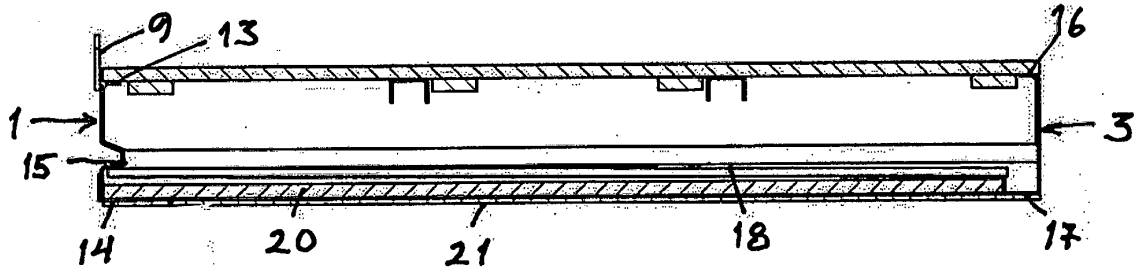

Fig. 3

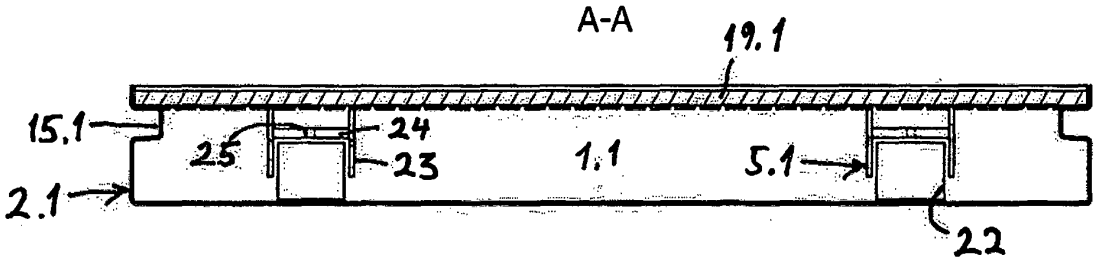

Fig. 5

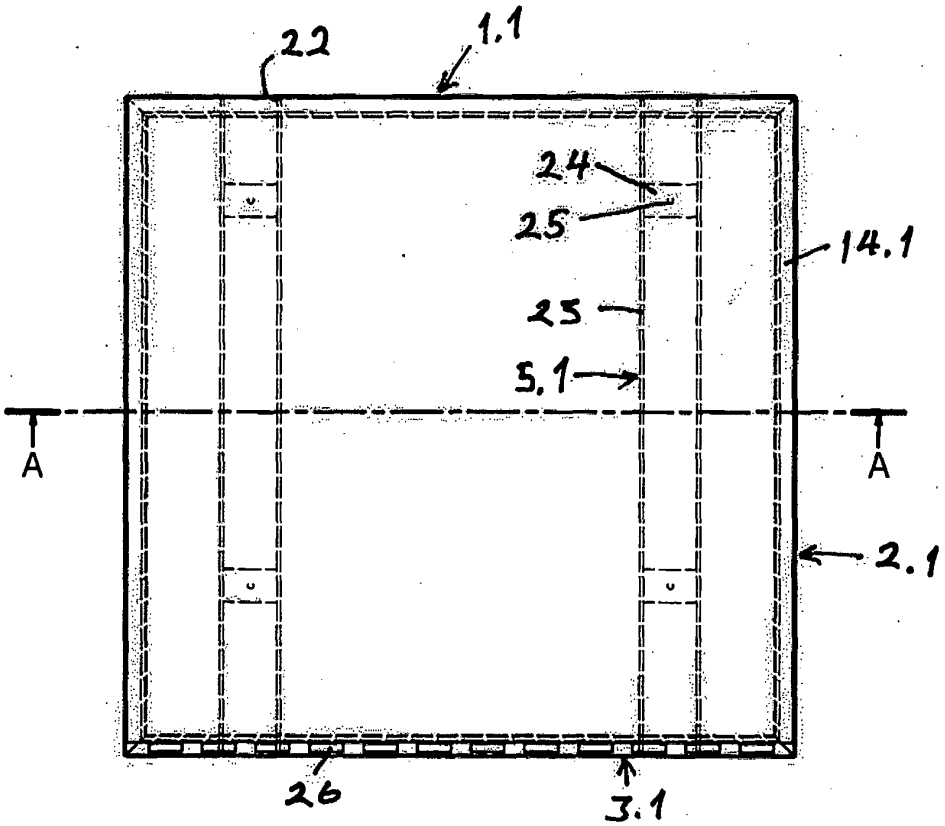

Fig. 4

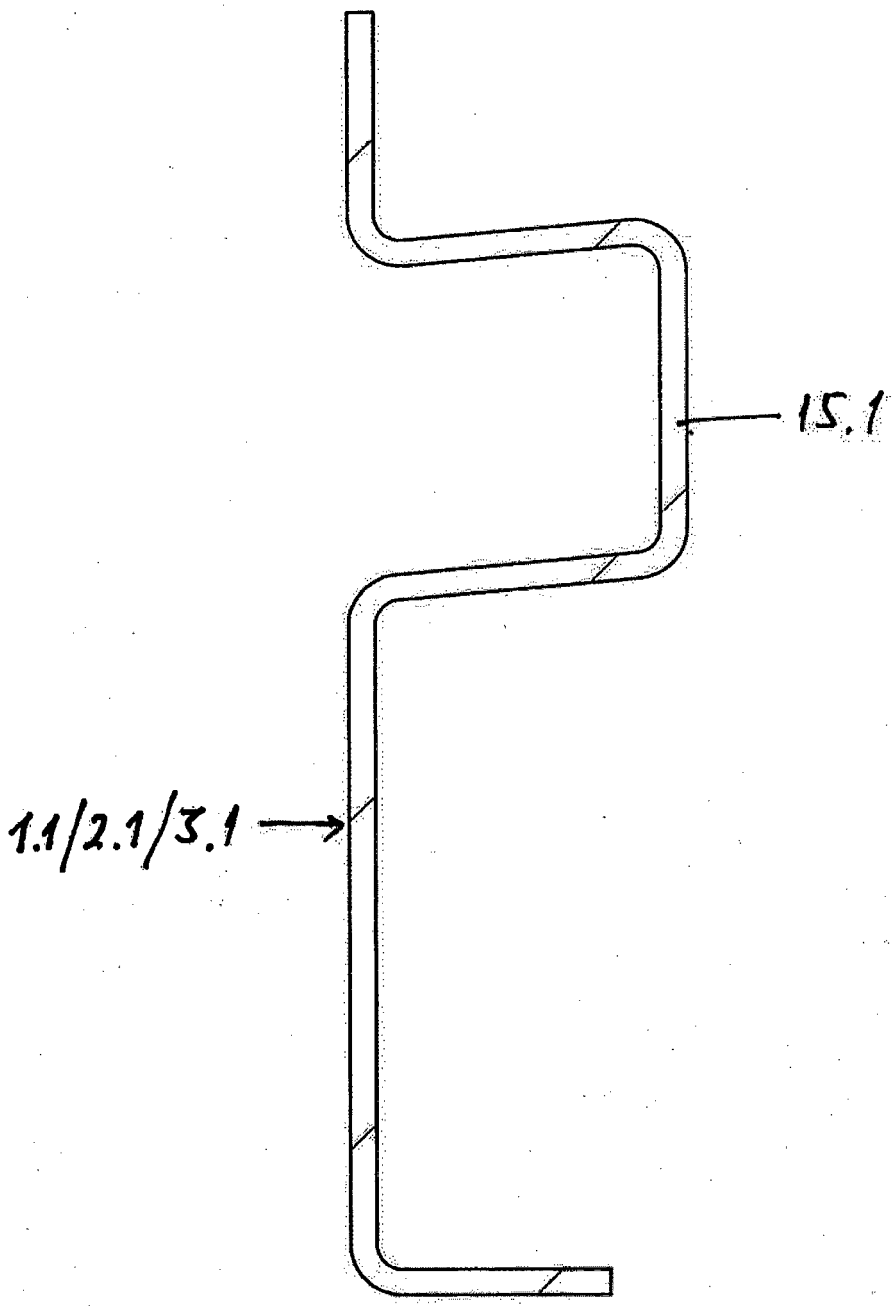

Fig. 6

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- DE 29920081 **[0003]**
- EP 2261430 A **[0004]**
- DE 29920081 U1 **[0005]**