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(54) **Mounting mechanism of a balance weight for dishwashers**

(57) This invention relates to a mounting mechanism for a balance weight (1) developed for securing a concrete weight, which is used in dishwashers and which prevents the machine from falling over ensuring that the

machine stands in balance when the door and the racks are in extended position and, to a crossbar (14) provided on upper part of the basin (9) without using any connection apparatus and only by utilizing the structural properties of basin (9) and crossbar (14).

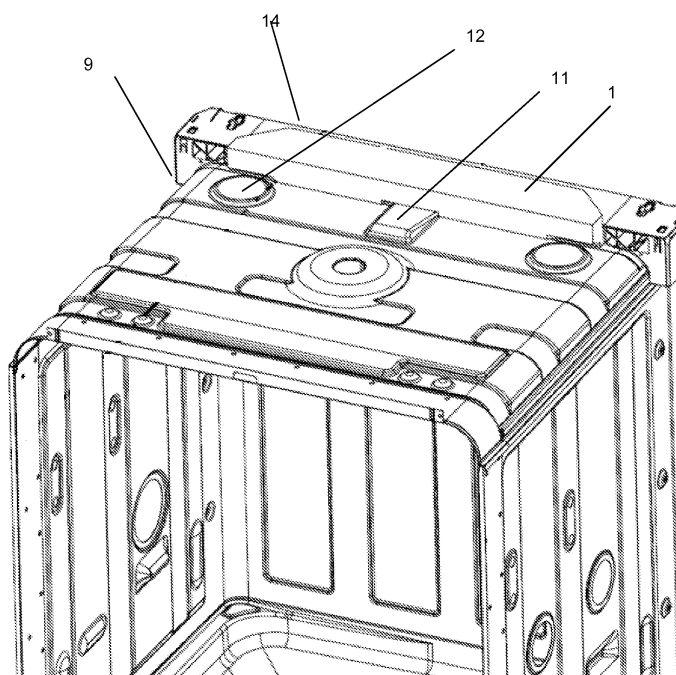


Figure 1

Description

Technical Field

[0001] This invention relates to a mounting mechanism of a balance weight developed for securing a concrete weight, which is used in dishwashers and which prevents the machine from falling over ensuring that the machine stands in balance when the door and the racks are in extended position, to a crossbar provided on upper part of the basin without using any connection apparatus/elements.

Prior Art

[0002] Today's commonly used dishwashers are front loading ones which have hinged door systems. The front door of the machine is manufactured in such a size to fully open the front of the washing chamber for allowing easy loading to these machines in which the kitchenware to be washed are placed on lower and upper racks in the machine. In order to balance the dishwasher machine when the door is open and the racks are in extended position especially when they are loaded, a "concrete weight" is employed as a balancing device. The concrete weight is usually placed rear bottom part of the machine, however it may also be placed on the upper part of basin due to lack of space at rear bottom part.

[0003] The patent document No US 5980006 A of the prior art discloses a tension spring developed for balancing the weight of a front door of a washing machine.

[0004] The patent document No EP 1402809 is another prior art document. The balancing device disclosed in this document is connected to the door of a dishwasher and comprises a spring system.

[0005] The utility model document No CN 2866558 (Y) and the patent document No CN 1888244 disclose balancing devices developed for washing machines.

Brief Description of the Invention

[0006] This invention ensures that the concrete weight, which prevents the machine from falling over ensuring that the machine stands in balance when the door and the racks are in extended position, is engaged to the plastic crossbar provided on the upper part of the basin by utilizing the structural properties of basin and crossbar. Thanks to this engagement method, concrete weight is secured without using any apparatus or connection member (nuts, bolts etc.).

[0007] The protrusions and recessions on the basin are overlapped with the protrusions and recessions on the balance weight and they are fitted into each other; the slot on the balance weight is engaged to the tab on the basin in order to secure the balance weight on the basin. The tabs staying on the long sides of the concrete balance weight are engaged to the tie pieces of the crossbar associated with the basin so that the concrete bal-

ance weight is secured to the crossbar.

The Aim of the Invention

[0008] The aim of this invention is to develop mounting mechanism for a balance weight wherein the mounting of the weight onto the machine as well as mounting stability are ensured utilizing the structures on the machine and without using any other mounting apparatus.

[0009] Another aim of the invention is to develop a mounting mechanism wherein an easy and practical engagement is acquired for positioning the weight, which is used as balancing element, onto the upper part of the machine.

Description of the Drawings

[0010] A dishwasher of the invention and an example of a balance weight related thereto are illustrated in the annexed drawings wherein;

Figure 1 is the perspective view of the mounted state of the basin, the crossbar and the balance weight.

Figure 2 is the perspective view of upper part of the balance weight.

Figure 3 is the perspective view of lower part of the balance weight.

Figure 4 is the perspective view of the basin.

Figure 5 is the perspective view of the basin prior to mounting.

Figure 6 is the detailed view of the part at which the balance weight is connected to the crossbar.

Figure 7 is the perspective view of the inner part of the crossbar.

Figure 8 is the detailed view of the part at which the crossbar is connected to the balance weight.

[0011] The parts in the figures are individually enumerated and the corresponding references are given below:

- Balance weight (1)
- Fixing slot (2)
- Mounting slot (3)
- Leaning surface (4)
- Rear surface of the weight (5)
- Bottom surface of the weight (6)
- Back protrusion (7)
- Tab (8)
- Basin (9)
- Protrusion (10)
- Lug (11)
- Additional protrusion (12)
- Top surface of the basin (13)
- Crossbar (14)
- Space (15)
- Side tie pieces (16)
- Central tie pieces (17)

Description of the Invention

[0012] Figure 1 illustrates the balance weight (1) mounted to basin (9) and crossbar (14). After being seated on the basin (9), the said balance weight (1) is pushed towards the crossbar (14) and secured.

[0013] Figure 2 and 3 shows views of upper and lower parts of the balance weight (1). The lower part of the balance weight comprises at least one mounting slot (3), fixing slot (2), leaning surface (4) and tab (8).

[0014] Figure 4 and 5 shows the top view of dishwasher basin (9) to which the balance weight (1) is to be mounted. The basin (9) has protrusions and recessions that are in a key-lock relationship with the protrusions and recessions provided on the balance weight (1) for mounting. Specifically; at least one lug (11) onto which the mounting slot (3) provided on the balance weight (1) will seat, at least one protrusion (10) onto which the fixing slot (2) will seat, at least one additional protrusion (12) onto which the leaning surface (4) rests are provided on the basin (9).

[0015] The crossbar (14) illustrated in Figure 7 has central and side tie pieces (17, 16) and the spaces (15) between these tie pieces.

[0016] After the balance weight is closed on the basin (9) such that the bottom surface of the weight (6) faces the top surface of the basin (13), the balance weight is pushed towards the crossbar (14) connected to the basin (9). The protrusion (10) on the basin (9) enters into the fixing slot (2) on the weight apparatus (1); furthermore, the leaning surfaces (4) on the sides of the balance weight (1) rest on the additional protrusions (12). Therefore, the rear surface of the weight (5) where the tabs (8) of the balance weight (1) stay rests on the tie piece (17, 16) surface of the crossbar (14).

[0017] It is ensured that horizontal and vertical movement of the component is limited as the back protrusion (7) rests on the space (15) provided within the crossbar (15) and the said tabs (8) takes in the side tie pieces (16). Thus, the balance weight (1) is secured to the basin (9) and the crossbar (14) without needing any mounting apparatus.

[0018] The fixing slot (2) which corresponds to the protrusion (10) that is provided on the balance weight (1) and that stays on the basin (9) prevents the balance weight (1) from being dislocated. In addition, demounting movement of the balance weight (1) in its mounted state is prevented.

[0019] As illustrated in the Figures that are given as examples of the present invention; one mounting slot (3), two fixing slots (2); a leaning surface (4) and tabs (8) are provided on the weight. One lug (11) onto which the mounting slot (3) will seat, two protrusions (10) onto which the fixing slots (2) will seat, two additional protrusions (12) onto which the leaning surface (4) rests are provided on the basin (9) which the balance weight apparatus (1) is engaged to.

Claims

1. A mounting mechanism for a balance weight (1) wherein the balance weight, which is used in dishwashers and which prevents the machine from falling over ensuring that the machine stands in balance when the door and the racks are in extended position, is mounted to the basin (9) and the crossbar (14) in the dishwasher without using any connection apparatus **characterized in that** it comprises
 - A balance weight comprising at least one mounting slot (3), at least one fixing slot (2), at least one leaning surface (4) and at least one tab (8),
 - A basin (9) comprising at least one lug (11), at least one protrusion (10), at least one additional protrusion (12),
 - A crossbar (14) comprising central and side tie pieces (17, 16) and spaces (15) between these tie pieces (17, 16).
2. A mounting mechanism for a balance weight (1) as claimed in Claim 1 **characterized in that** it comprises the balance weight (1) secured to the crossbar (14) by being pushed after it is seated onto the said basin (9).
3. A mounting mechanism for a balance weight (1) as claimed in Claim 1 and 2 **characterized in that** it comprises a lug (11) on the basin (9) and a mounting slot (3) on the balance weight (1).
4. A mounting mechanism for a balance weight (1) as claimed in Claim 1, 2 and 3 **characterized in that** the said mounting slot (3) seats onto the said lug (11).
5. A mounting mechanism for a balance weight (1) as claimed in Claim 1 and 2 **characterized in that** it comprises a protrusion (10) on the basin (9) and a fixing slot (2) on the balance weight (1), which are in a key-lock relationship with each other.
6. A mounting mechanism for a balance weight (1) as claimed in Claim 1, 2 and 5 **characterized in that** the said fixing slot (2) seats onto the said protrusion (10).
7. A mounting mechanism for a balance weight (1) as claimed in Claim 1 and 2 **characterized in that** it comprises an additional protrusion (12) on the basin (9) and a leaning surface (4) on the balance weight (1), which are in a key-lock relationship with each other.
8. A mounting mechanism for a balance weight (1) as claimed in Claim 1, 2 and 7 **characterized in that** the said leaning surface (4) rests on the said addi-

tional protrusion (12).

9. A mounting mechanism for a balance weight (1) as claimed in Claim 1 and 2 **characterized in that** it comprises on the balance weight (1) a back protrusion (7) which rests on the space (15) within the crossbar (14). 5
10. A mounting mechanism for a balance weight (1) as claimed in Claim 1, 2 and 9 **characterized in that** it comprises tabs (8) on the balance weight (1) which are secured to the side tie pieces (16) on the crossbar (14). 10
11. A mounting mechanism for a balance weight (1) as claimed in any one of the foregoing claims **characterized in that** one mounting slot (3), two fixing slots (2), two leaning surfaces (4) and two tabs (8) are provided on the balance weight. 15
12. A mounting mechanism for a balance weight (1) as claimed in any one of the foregoing claims **characterized in that** one lug (11) onto which the mounting slot (3) will seat, two protrusions (10) onto which the fixing slots (2) will seat, two additional protrusions (12) onto which the leaning surface (4) rests are provided on the basin (9) which the balance weight apparatus (1) is engaged to. 20 25

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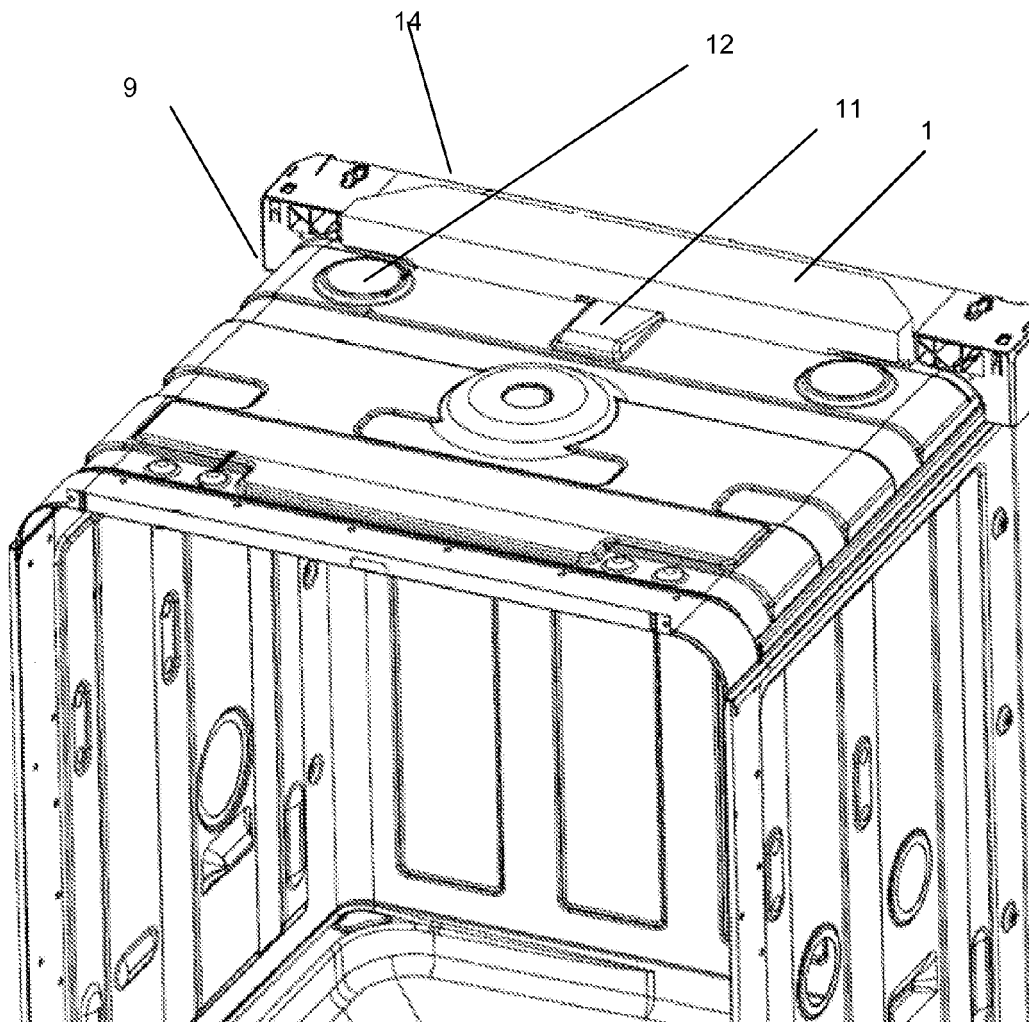
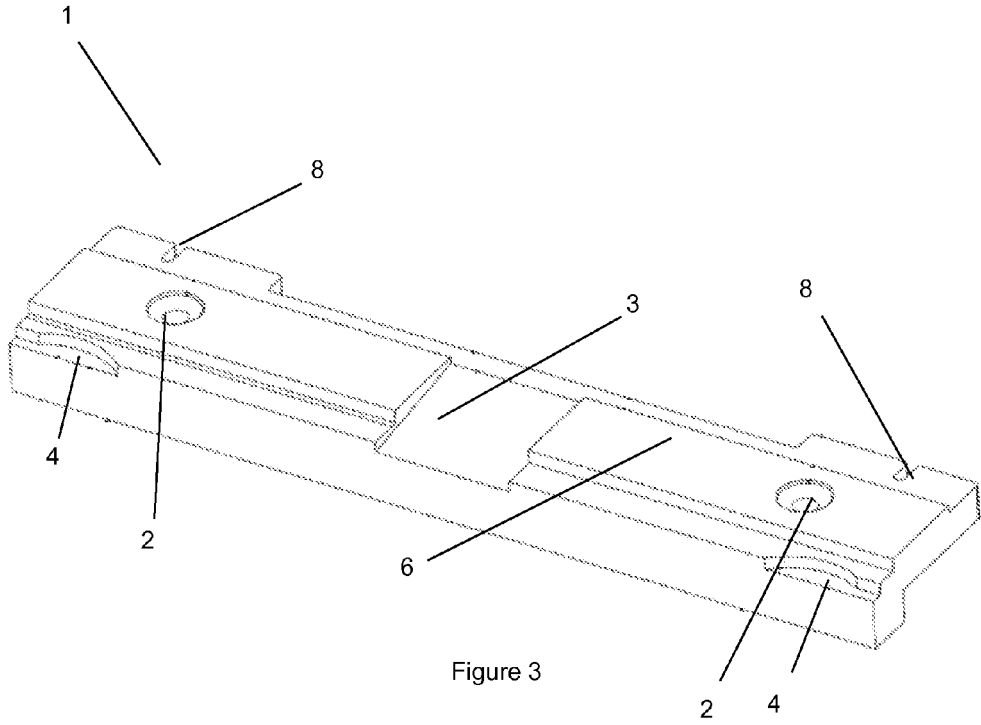
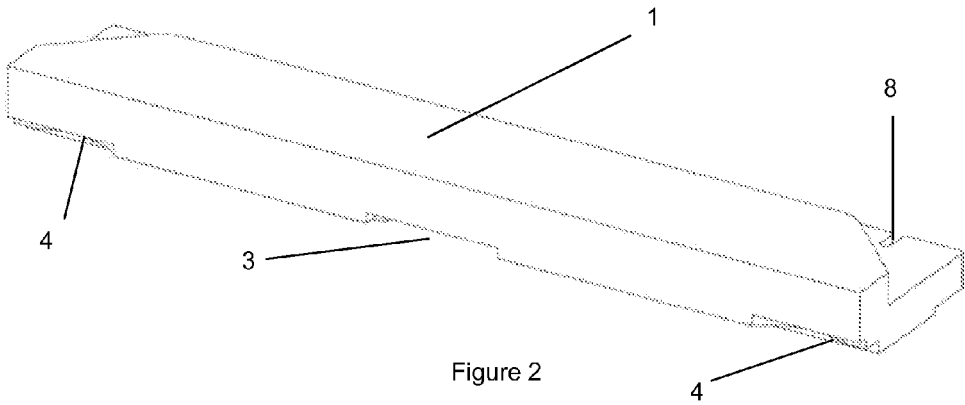


Figure 1



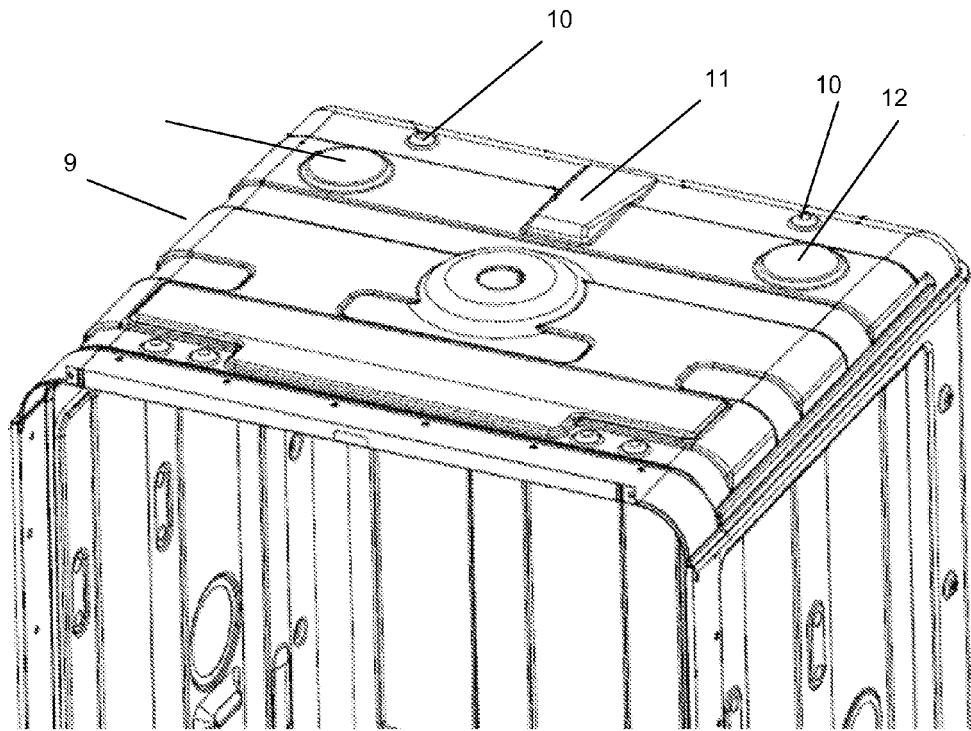


Figure 4

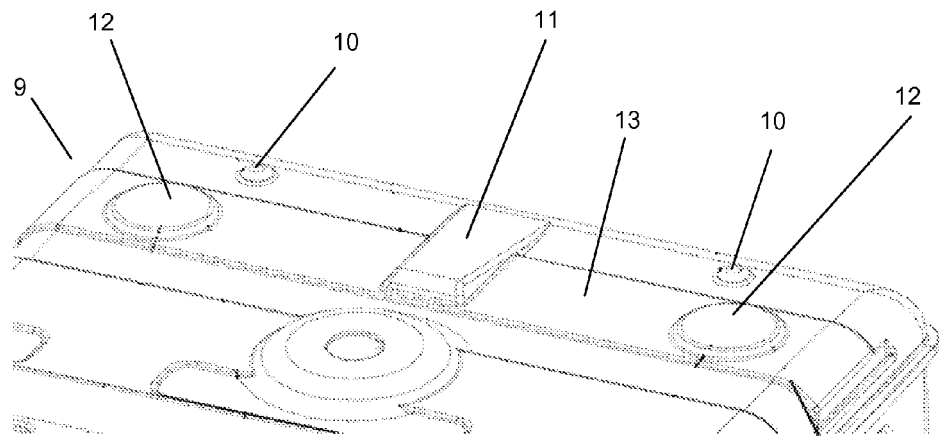


Figure 5

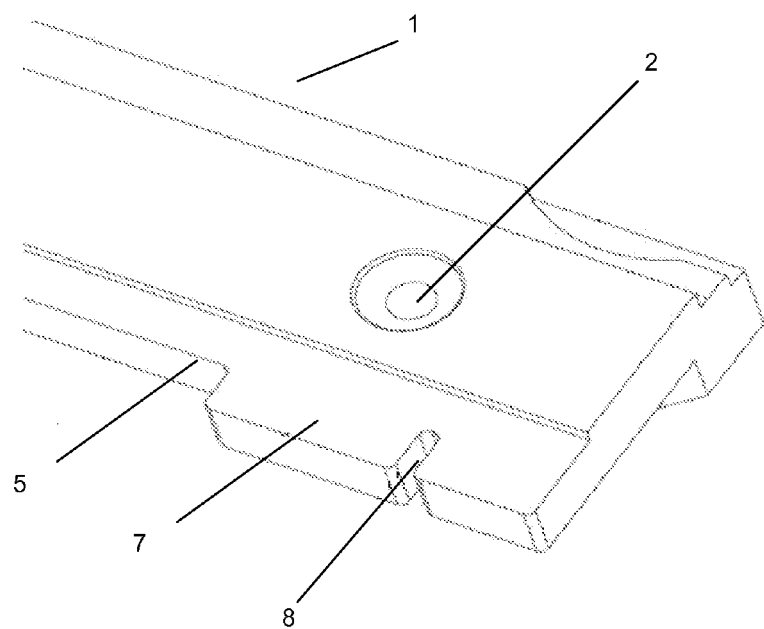


Figure 6

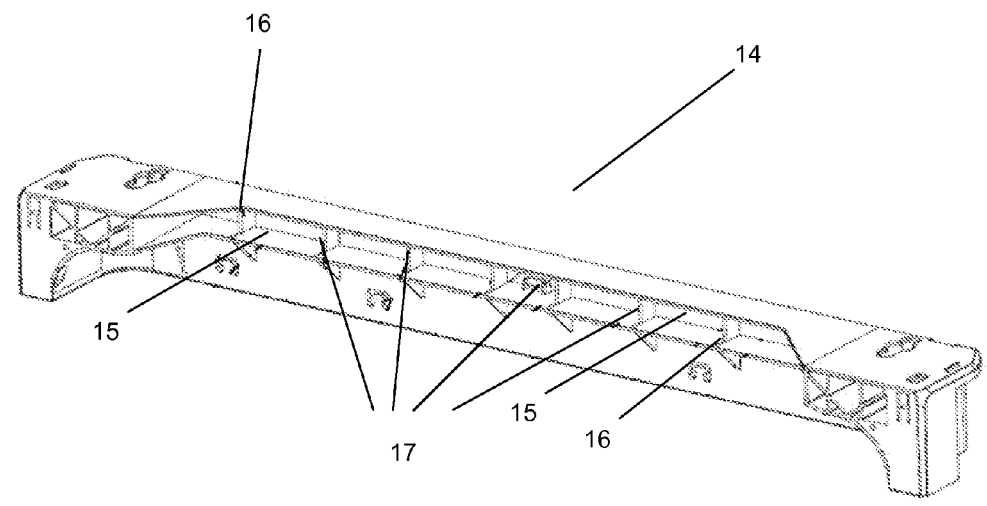


Figure 7

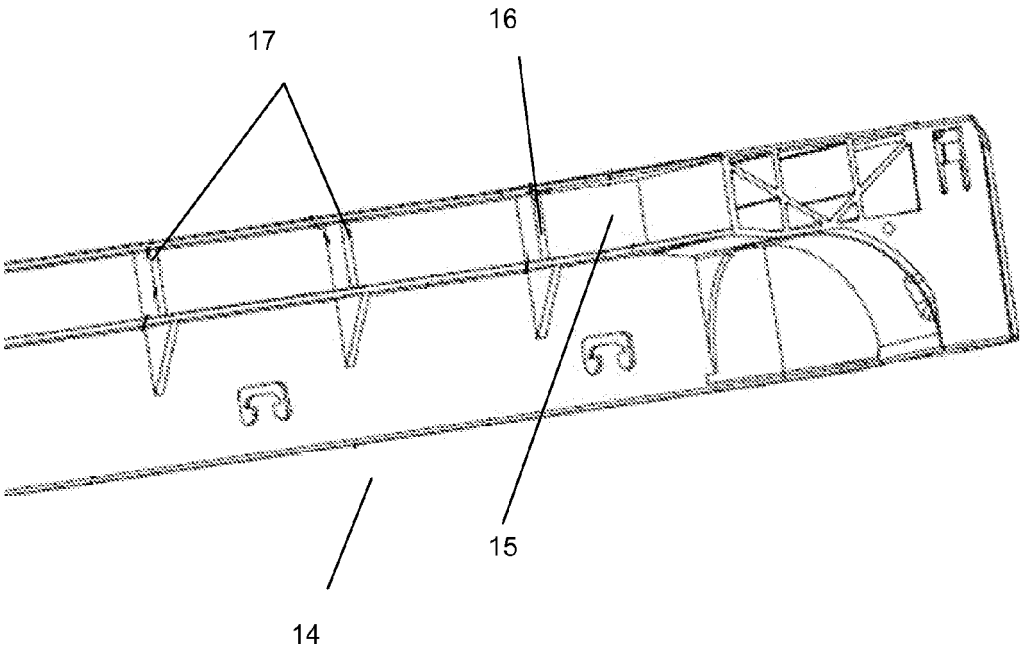


Figure 8



EUROPEAN SEARCH REPORT

Application Number
EP 10 17 0729

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	DE 297 04 969 U1 (WILHELM SEDLMAYR GMBH [DE]) 15 May 1997 (1997-05-15) * page 9, line 11 - page 14, line 19; claims; figures *	1-12	INV. A47L15/42
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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
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2	Place of search Munich	Date of completion of the search 3 January 2011	Examiner Clivio, Eugenio
CATEGORY OF CITED DOCUMENTS 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 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			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 10 17 0729

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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