



(11) **EP 1 956 960 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:  
**18.01.2012 Bulletin 2012/03**

(21) Application number: **06830305.6**

(22) Date of filing: **04.12.2006**

(51) Int Cl.:  
**A47L 15/42<sup>(2006.01)</sup>**

(86) International application number:  
**PCT/EP2006/069239**

(87) International publication number:  
**WO 2007/065865 (14.06.2007 Gazette 2007/24)**

(54) **A DISHWASHER**  
**GESCHIRRSPÜLMASCHINE**  
**LAVE-VAISSELLE**

(84) Designated Contracting States:  
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR**

(30) Priority: **06.12.2005 TR 200504876**

(43) Date of publication of application:  
**20.08.2008 Bulletin 2008/34**

(73) Proprietor: **Arçelik Anonim Sirketi**  
**34950 Istanbul (TR)**

(72) Inventors:  
• **DEMIRCIOGLU, Ismail**  
**34950 Istanbul (TR)**  
• **KIBAR, Tansel**  
**34950 Istanbul (TR)**

(56) References cited:  
**EP-A- 0 541 849 EP-A1- 0 452 287**  
**US-A1- 2005 017 609**

**EP 1 956 960 B1**

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

## Description

**[0001]** The present invention relates to a dishwasher comprising a washing tank composed by bringing together a plastic base and a metal body, (see for example EP-A-0541849).

**[0002]** The washing tanks of dishwashers are usually produced as a single piece from metal or plastic material.

**[0003]** In state of the art, there are also dishwashers comprising washing tanks composed of a plastic or plastic derivative base which can be processed easily and is cheaper, and a body produced of metal that are joined together. Producing the base of plastics leads to easier shaping of the base. Producing the body of metal is preferred in view of giving the user an impression of hygiene.

**[0004]** The washing tank being composed of two separate parts, being plastic and metal, creates various problems in joining these two parts.

**[0005]** In the state-of-the-art European Patent no. EP0452287, a dishwasher comprising a washing tank composed of two parts is described. The plastic base and the metal body forming the washing tank are joined by screw joints.

**[0006]** In the state-of-the-art United States Patent Application no. US2005/0017609, the washing tank of a dishwasher is composed of two pieces, a base and a body. In the said application, the use of a plastic material, having an adhesive feature in joining these two pieces is explained.

**[0007]** The object of the present invention is the realization of a dishwasher comprising a washing tank produced such that the plastic base and the metal body are joined in a non-detachable and leak-proof manner.

**[0008]** The dishwasher realized in order to fulfill the objectives of the present invention, explicated in the first and the dependent claims, comprises a washing tank composed of a plastic base and a metal body, wherein the side walls of the base are inserted into a housing formed on the metal body such that the side walls are completely or partially surrounded and fixed together therein. Accordingly, the user viewing the washing tank will see a metal surface since the plastic side walls of the base are covered by the metal sides of the body.

**[0009]** As a result of the base side wall being inserted into the housing formed on the metal body, a probable water leakage out of the washing tank is prevented since the place where the body is joined with the base is above the highest point the water collected in the base can reach. In another embodiment of the present invention, a water leakage out of the washing tank is prevented by means of a gasket emplaced thereto.

**[0010]** The dishwashers realized in order to fulfill the objectives of the present invention is illustrated in attached figures, where:

**[0011]** Figure 1 - is the schematic view of a dishwasher.

**[0012]** Figure 2 - is the partial sectional view of the side wall of a base.

**[0013]** Figure 3 - is the partial sectional view of the side

of a body.

**[0014]** Figure 4 - is the partial perspective view of the side wall of a base.

**[0015]** Figure 5 - is the partial perspective view of the side of a body.

**[0016]** Figure 6 - is the partial sectional view of the base and the body clamped to each other.

**[0017]** The elements shown in figures are numbered as follows:

1. Dishwasher
2. Washing tank
3. Body
4. Base
5. Housing
6. Recess
7. Sealing element
8. Channel
9. Side wall
10. Guide
11. Projection
12. Ledge

**[0018]** The dishwasher (1) of the present invention comprises washing tank (2) having a body (3), produced of metal, shaped like a box, with the front and the bottom open, and having a base (4) produced of polymer, preferably plastic material, joined together with the body (3) by emplacing under the body (3) (Figure 1).

**[0019]** The base (4) comprises a side wall (9) on which the body (3) is seated.

**[0020]** The body (3) comprises a housing (5) into which the side wall (9) is emplaced. The side wall (9) bears on the base of the housing (5) and the housing (5) completely or partially surrounds the two sides of the side wall (9). By seating the side wall (9) in the housing (5), the base (4) is provided to clamp with the body (3) in a leak-proof manner. The housing (5) can be formed by shaping in various methods or by fixing an auxiliary piece on the body (3) through various methods (welding, tox, riveting, screw joint etc.)

**[0021]** The side wall (9) is fixed in the housing (5) by using various fixing methods.

**[0022]** As the body (3) and the base (4) are being joined, the side wall (9) is inserted into the housing (5) situated on the body (3). Accordingly the apex of the side wall (9) bears on the base of the housing (5). The body (3) and the base (4) are clamped together by the fixing process done on the contact points of the side walls (9) with the housing (5). The place where the apex of the side wall (9) bears on the base of the housing (5) is higher than the maximum level of water that can collect in the washing tank (2). So even if the water flows between the side wall (9) and the housing (5) for any reason, water is contained in here and is prevented from flowing further reaching outside of the washing tank (2). Furthermore, by way of the plastic base (4) being inserted in the housing (5) formed on the metal body (3), the plastic side walls

(9) that surround the base (4) are being enclosed by metal, and only the base (4) is seen as plastic.

**[0023]** In another embodiment of the present invention, the dishwasher (1) comprises one or more projections (11), formed by bending at least one side of the housing (5) - in preferably a "U" shape - and one or more recesses (6) formed on the side wall (9), into which the projection (11) is inserted, preventing the detachment of the side wall (9) from the housing (5). The projection (11) and the recess (6) provide the base (4) and the body (3) to be clamped to each other.

**[0024]** In another embodiment of the present invention, the base (4) comprises a guide (10), situated between the recess (6) and the apex of the side wall (9), facilitating the insertion of the side wall (9) into the housing (5) by contacting the projection (11) as the side wall (9) is inserted into the housing (5) and providing the projection (11) to be fitted entirely in the recess (6). The guide (10) has a sloping configuration wherein the width of the side wall (9) increases towards the recess (6) from the apex of the side wall (9) (Figure 2, Figure 3, Figure 4 and Figure 5).

**[0025]** In this embodiment of the present invention, when the side wall (9) is fitted in the housing (5) formed on the body (3), the projection (11) proceeds along the guide (10). As the side wall (9) enters the housing (5), the projection (11), by contacting the guide (10), moves along the guide (10) that slides on the side wall (9), stretches sideways due to the sloping configuration of the guide (10), and when the side wall (9) is entirely fitted in the housing (5), it gets free of the guide (10) and completely fits in the recess (6). Consequently, the projection (11) is prevented from being detached from the recess (6) unless force is exerted on it, providing the body (3) and the base (4) to be clamped to each other.

**[0026]** In another embodiment of the present invention, the dishwasher (1) comprises one or more sealing elements (7), preferably situated along the line wherein the apex of the side wall (9) is seated on the base of the housing (5). Accordingly, even if water seeps in between the side wall (9) and the housing (5) for any reason, water is contained here by means of the sealing element (7) situated between the base of the housing (5) and the apex of the side wall (9) preferably being at a higher level than the maximum level of water that can collect in the washing tank (2), and is prevented from flowing further, reaching outside of the washing tank (2) (Figure 6).

**[0027]** In another embodiment of the present invention, the dishwasher (1) comprises a channel (8) situated on the base (4) or the body (3), into which the sealing element (7) is emplaced.

**[0028]** In another embodiment of the present invention, the base (4) comprises a ledge (12), preferably on its side facing the washing tank (2), wide enough for one side of the housing (5) to be seated on. Accordingly, any recess - protrusion on which dirt can accumulate is not formed on the interior surface of the washing tank (2) that is configured by joining together the base (4) and the

body (3).

**[0029]** In another embodiment of the present invention, the projection (11) is situated on the side wall (9) and the recess (6) on the body (3).

**[0030]** In another embodiment of the present invention, the dishwasher (1) comprises a housing (5) on the body (3) wide enough for the side wall (9) to be inserted in, formed by fixing an auxiliary piece on the side of the body (3).

**[0031]** By means of the present invention, the washing tank (2) is formed by clamping together the plastic base (4) and the metal body (3) such that sealing is provided. Water leakage out of the washing tank (2) is prevented since the place where the side wall (9) apex bears on the base of the housing (5) is at a higher level than the maximum level of water that can be collected in the washing tank (2). Consequently, the base and the body (4 and 3) can be clamped together in a leak-proof manner.

## Claims

1. A dishwasher (1) comprising washing tank (2) having a body (3), produced of metal, shaped like a box, with the front and the bottom open, and a base (4) produced of polymer material, having a side wall (9) on which the body (3) bears on, joined together with the body (3) by emplacing under the body (3), and **characterized by** a body (3) having a housing (5), into which the side wall (9) is inserted, surrounding completely or partially the two sides of the side wall (9), providing the base (4) to be clamped to the body (3) in a leak-proof manner.
2. A dishwasher (1) as in Claim 1, **characterized by** one or more projections (11) formed by bending at least one of its sides and one or more recesses (6) formed on the side wall (9), into which the projection (11) is inserted, preventing the detachment of the side wall (9) from the housing (5), providing the base (4) and the body (3) to clamp to one another.
3. A dishwasher (1) as in Claim 2, **characterized by** a base (4) having a guide (10), situated between the recess (6) and the apex of the side wall (9), facilitating the insertion of the side wall (9) into the housing (5) by contacting the projection (11) as the side wall (9) is being inserted into the housing (5) and providing the projection (11) to be entirely fitted in the recess (6).
4. A dishwasher (1) as in Claim 3, **characterized by** a base (4) comprising a guide (10), having a sloping configuration wherein the width of the side wall (9) increases towards the recess (6) from the apex of the side wall (9).
5. A dishwasher (1) as in any one of the above claims,

**characterized by** one or more sealing elements (7), situated along the line wherein the apex of the side wall (9) is seated on the base of the housing (5).

6. A dishwasher (1) as in Claim 5, **characterized by** a channel (8) situated on the base (4) or the body (3), into which the sealing element (7) is emplaced.
7. A dishwasher (1) as in any one of the above claims, **characterized by** a base (4) comprising a ledge (12), wide enough for one side of the housing (5) to be seated on.

#### Patentansprüche

1. Geschirrspülmaschine (1), umfassend einen Spültank (2) mit einem Gehäusekörper (3), der aus Metall hergestellt ist und kastenförmig ist, wobei die Vorderseite und die Unterseite offen sind, und einer Basis (4), die aus Polymermaterial hergestellt ist und eine Seitenwand (9) aufweist, auf der der Gehäusekörper (3) aufliegt, und die mit dem Gehäusekörper (3) verbunden ist, indem sie unter dem Gehäusekörper (3) angeordnet ist, und **gekennzeichnet durch** einen Gehäusekörper (3), der ein Gehäuse (5) aufweist, in das die Seitenwand (9) eingeführt ist, und der die zwei Seiten der Seitenwand (9) vollständig oder teilweise umgibt und dafür sorgt, dass die Basis (4) auf lecksichere Weise an den Gehäusekörper (3) geklemmt ist.
2. Geschirrspülmaschine (1) nach Anspruch 1, **gekennzeichnet durch** einen oder mehrere Vorsprünge (11), die **durch** Biegen von mindestens einer ihrer Seiten ausgebildet sind, und eine oder mehrere Vertiefungen (6), die an der Seitenwand (9) ausgebildet sind und in die der Vorsprung (11) eingeführt ist, was das Lösen der Seitenwand (9) vom Gehäuse (5) verhindert und dafür sorgt, dass die Basis (4) und der Gehäusekörper (3) aneinander geklemmt werden.
3. Geschirrspülmaschine (1) nach Anspruch 2, **gekennzeichnet durch** eine Basis (4) mit einer Führung (10), die zwischen der Vertiefung (6) und dem Scheitel der Seitenwand (9) angeordnet ist und das Einführen der Seitenwand (9) in das Gehäuse (5) erleichtert, indem sie in Kontakt mit dem Vorsprung (11) tritt, wenn die Seitenwand (9) in das Gehäuse (5) eingeführt wird, und dafür sorgt, dass der Vorsprung (11) vollständig in die Vertiefung (6) montiert wird.
4. Geschirrspülmaschine (1) nach Anspruch 3, **gekennzeichnet durch** eine Basis (4), die eine Führung (10) mit einer geneigten Konfiguration umfasst, wobei die Breite der Seitenwand (9) vom Scheitel der Seitenwand (9) zur Vertiefung (6) hin zunimmt.

5. Geschirrspülmaschine (1) nach einem der vorangehenden Ansprüche, **gekennzeichnet durch** ein oder mehrere Dichtungselemente (7), die entlang der Linie angeordnet sind, an der der Scheitel der Seitenwand (9) auf der Basis des Gehäuses (5) sitzt.

6. Geschirrspülmaschine (1) nach Anspruch 5, **gekennzeichnet durch** einen Kanal (8), der an der Basis (4) oder dem Gehäusekörper (3) angeordnet ist, und in dem das Dichtungselement (7) angeordnet ist.

7. Geschirrspülmaschine (1) nach einem der vorangehenden Ansprüche, **gekennzeichnet durch** eine Basis (4), die einen Absatz (12) umfasst, der so breit ist, dass eine Seite des Gehäuses (5) darauf gesetzt werden kann.

#### Revendications

1. Un lave-vaisselle (1) comprenant la cuve de lavage (2) ayant un corps (3), produit du métal, en forme de boîte, dont le devant et le fond sont ouverts, et une base (4) produit en matériau polymère, ayant une paroi latérale (9) sur laquelle le corps (3) s'appuie, réunie avec le corps (3) en étant placée sous le corps (3), et **caractérisé par** un corps (3) ayant un logement (5), dans lequel la paroi latérale (9) est insérée, entourant complètement ou partiellement les deux côtés de la paroi latérale (9), permettant à la base (4) d'être attachée au corps (3) de manière étanche.
2. Un lave-vaisselle (1) selon la Revendication 1, **caractérisé par** un ou plusieurs protubérances (11) formées en pliant au moins un de ses côtés et un ou plusieurs évidements (6) formés sur la paroi latérale (9), dans lequel la protubérance (11) est insérée, empêchant la paroi latérale (9) de détacher du logement (5), permettant à la base (4) et au corps (3) d'attacher un à l'autre.
3. Un lave-vaisselle (1) selon la Revendication 2, **caractérisé par** une base (4) ayant un guide (10), situé entre l'évidement (6) et le sommet de la paroi latérale (9), facilitant l'insertion de la paroi latérale (9) dans le logement (5) en contactant la protubérance (11) lorsque la paroi latérale (9) est insérée dans le logement (5) et permettant à la protubérance (11) d'être placée entièrement dans l'évidement (6).
4. Un lave-vaisselle (1) selon la Revendication 3, **caractérisé par** une base (4) comprenant un guide (10), ayant une configuration en pente où la largeur de la paroi latérale (9) augmente vers l'évidement (6) du sommet de la paroi latérale (9).
5. Un lave-vaisselle (1) selon l'une quelconque des re-

ventions précédentes, **caractérisé par** un ou plusieurs éléments d'étanchéité (7), situés le long de la ligne où le sommet de la paroi latérale (9) est placé sur la base du logement (5).

5

6. Un lave-vaisselle (1) selon la Revendication 5, **caractérisé par** un canal (8) situé sur la base (4) ou le corps (3), dans lequel l'élément d'étanchéité (7) est placé.

10

7. Un lave-vaisselle (1) selon l'une quelconque des revendications précédentes, **caractérisé par** une base (4) comprenant un rebord (12), assez large pour un côté du logement (5) d'être placé sur celui-ci.

15

20

25

30

35

40

45

50

55

Figure 1

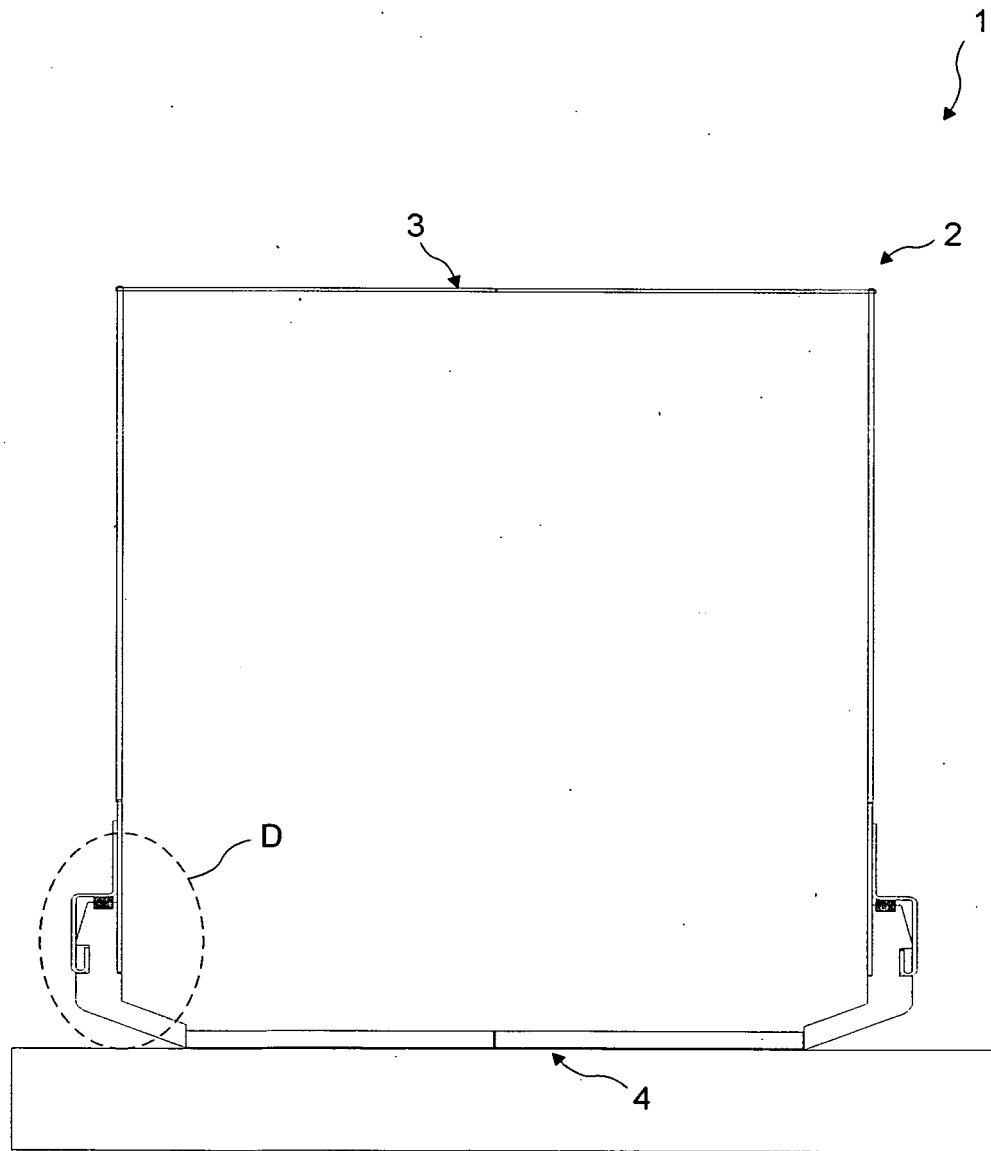


Figure 2

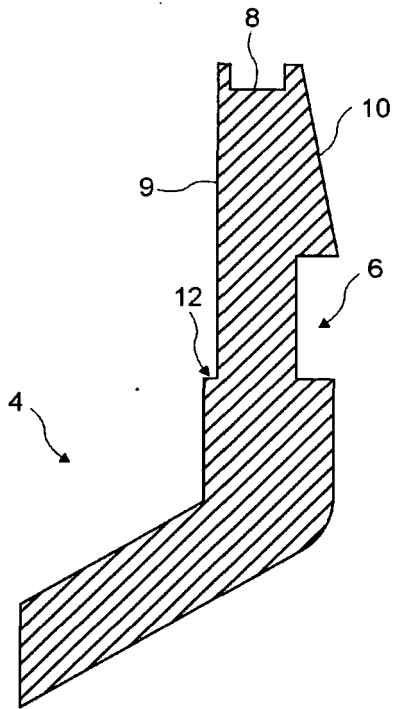


Figure 3

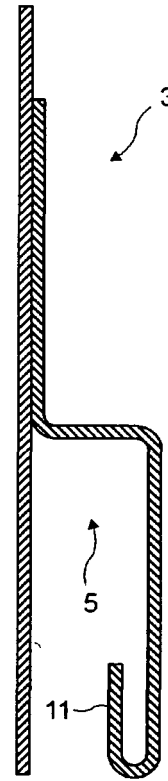


Figure 4

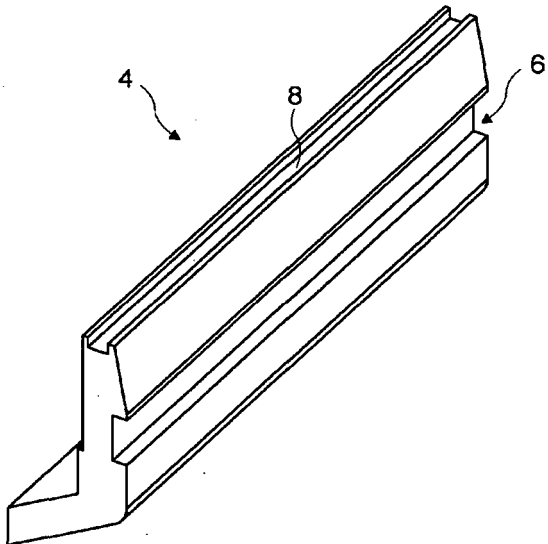


Figure 5

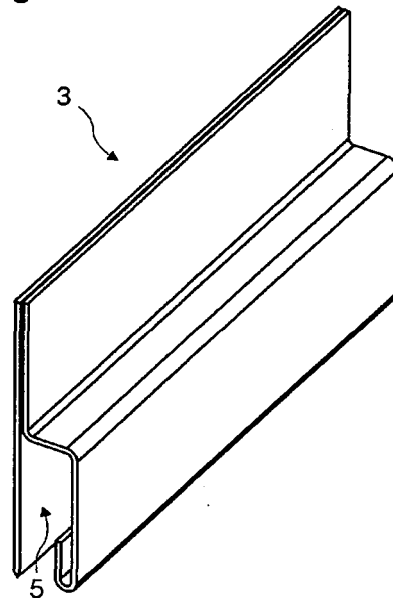
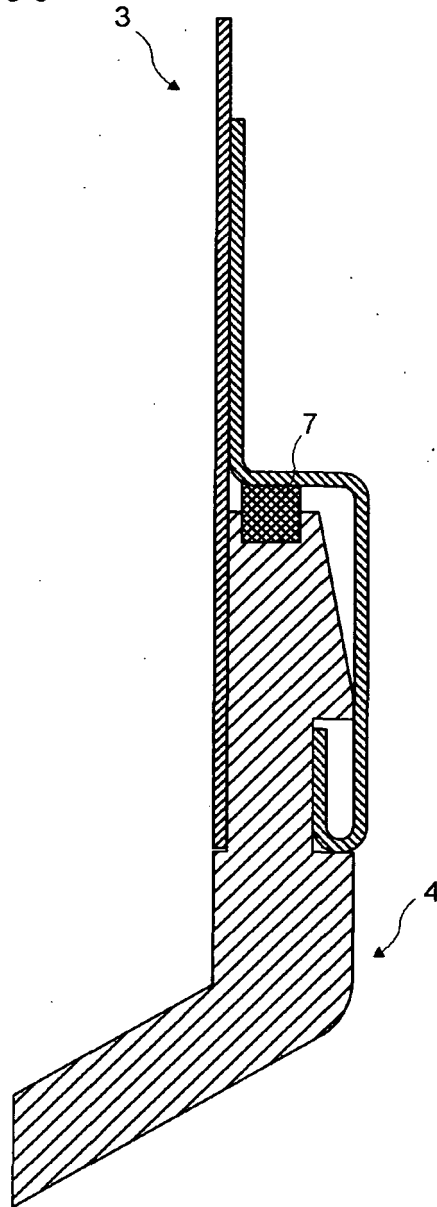


Figure 6





**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**

- EP 0541849 A [0001]
- EP 0452287 A [0005]
- US 20050017609 A [0006]