

(19)



(11)

EP 2 432 365 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:

07.09.2016 Bulletin 2016/36

(21) Application number: **10719004.3**

(22) Date of filing: **14.05.2010**

(51) Int Cl.:

A47L 15/42 ^(2006.01)

(86) International application number:

PCT/EP2010/056638

(87) International publication number:

WO 2010/133514 (25.11.2010 Gazette 2010/47)

(54) **A DISHWASHER**

GESCHIRRSPÜLMASCHINE

LAVE VAISSELLE

(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 SE SI SK SM TR**

(30) Priority: **22.05.2009 TR 200903967**

(43) Date of publication of application:

28.03.2012 Bulletin 2012/13

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

(72) Inventors:

- **BASTUJI, Cem**
34950 Istanbul (TR)
- **ERCIN, Ferhan**
34950 Istanbul (TR)
- **NUMANOGLU, Guvenc**
34950 Istanbul (TR)

(56) References cited:

DE-A1- 3 229 331 DE-A1- 19 907 086
DE-A1- 19 933 700 US-A1- 2004 177 869

EP 2 432 365 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 front-loading dishwasher.

[0002] The washing tub located within the dishwasher is comprised of a base, wherein the baskets are disposed and one face of which is closed by a door, a ceiling, two side walls and a rear wall. Washing tubs are preferably produced from stainless materials (steel or metal sheet etc.) to ensure an appealing appearance and hygiene. Although due to cost advantages some manufacturers produce an entire washing tub or some parts thereof, which are invisible to the user, from plastic materials, today, both manufacturers and consumers prefer dishwashers having washing tubs produced from stainless materials.

[0003] Front-loading dishwashers comprise a door which is opened by rotating around a horizontal axis in order to cover the loading/unloading opening located in the washing tub and extends partially into the washing tub when positioned horizontally and a strip-shaped gasket between the door and the washing tub which extends along the full width of the door. The gasket is mounted onto the door in such a way as to move together with the door. In the section where the door is borne onto the body, the washing tub has a lip portion extending towards the loading/unloading port. A strip-shaped gasket is positioned between the inner wall of the door and the washing tub.

[0004] In washing tubs which produced from stainless material, the gasket, located between the door and the lip portion, is mounted onto the bottom part of the door. However, in order that the gasket is mounted onto the bottom part of the door, either the bottom part of the door needs to be given a shape or additional components are utilized in order to fix the gasket. In both embodiments, amount of stainless material used and labor increase, causing cost increase.

[0005] Furthermore the extension, which is located on both sides of the lip portion and which prevents the rising water, in case of water overflow, from overflowing out of the lip portion and allowing it to flow into the casing, is also produced from stainless material.

[0006] In the state of the art United States Patent No. US6435366, the washing tub is produced from plastic material but the portion facing the inner part of the washing tub is coated with stainless steel materials.

[0007] In the state of the art United States Patent No. US5115826, the washing tub is produced from plastic material.

[0008] Document US-A1 -2004/0177869 discloses a dishwasher comprising a washing tub made of injection moulded plastic, an opening which allows for the loading or unloading of the dishes into or out of the washing tub, a door which covers said opening and the bottom part of which, on the side facing the inner surface of the washing tub, ends on the washing tub, the dishwasher further comprises a lip portion, which is produced from plastic

material, forms an extension of the tub's base and extends towards the opening in the section wherein the door is borne.

[0009] The aim of the present invention is the realization of a dishwasher the lip portion of which is produced from plastic.

[0010] The dishwasher realized in order to attain the aim of the present invention, explicated in the in the first claim and the respective claims thereof, comprises a lip portion produced from plastic material and disposed on the portion of the washing tub's base remaining below the dishwasher's door.

[0011] Thus, the amount of stainless material used for the production of the washing tubs is considerably reduced and cost advantage is provided.

[0012] In another embodiment of the present invention, the gasket is produced as a single piece together with the lip portion. Thus, the gasket is produced together with the lip portion without the need of giving the door a specific shape or utilizing additional components. Accordingly, the labor required for mounting the gasket to the door is minimized.

[0013] In another embodiment of the present invention, the extension is either produced from plastic and mounted to the lip portion, or produced together with the lip portion as a single piece.

[0014] By means of the present invention, the lip portion is produced from plastic material, and thus cost advantage is provided. Furthermore, the gasket produced from plastic material can be mounted to the lip portion, which is also produced from plastic material, without the need of a specific shape or utilizing additional components. Moreover, the extension is also produced from plastic. The amount of used stainless material is considerably reduced, thus cost and labor advantage is provided.

[0015] A dishwasher realized in order to attain the aim of the present invention is illustrated in the attached figures, where:

Figure 1 - is the perspective view of a dishwasher.

Figure 2 - is the perspective view of a washing tub base and the lip portion.

Figure 3 - is the perspective view of the lip portion, the gasket and the extension.

Figure 4 - is the sideways view of the lip portion mounted onto the washing tub base.

Figure 5 - is the perspective view of the washing tub and the frame.

[0016] The elements illustrated in the figures are numbered as follows:

1. Dishwasher
2. Washing tub
3. Opening
4. Door
5. Lip portion

- 6. Gasket
- 7. Extension
- 8. Frame

[0017] The dishwasher (1) comprises a washing tub (2) produced from stainless material wherein dishes are loaded, an opening (3) which allows for the loading or unloading of the dishes into or out of the washing tub (2), a door (4) which covers the opening (3) and the bottom part (E) of which on the side facing the inner surface of the washing tub (2) ends on the washing tub (2) (Figure 1) and a lip portion (5), which extends towards the opening (3) in the section wherein the door (4) is borne.

[0018] In the dishwasher (1) of the present invention, the lip portion (5) is produced from plastic material and mounted onto the washing tub (2) base (T) in such a way that it forms an extension of the base (T) produced from stainless material.

[0019] The dishwasher (1) furthermore comprises a gasket (6) situated between the bottom part (E) and the lip portion (5). The lip portion (5) is located above the base (T) in order to prevent the water in the washing tub (2) from overflowing, and furthermore, in this embodiment the gasket (6) is mounted to the lip portion (5) (Figure 2, Figure 3 and Figure 4).

[0020] Thus, the amount of stainless material used for the production of one part of the washing tub (2), which is invisible to the user, is considerably reduced and cost advantage is provided. Furthermore, since the lip portion (5) and the gasket (6) which are both produced from same kind of plastic material are mounted together, savings of labor and time are provided.

[0021] While the door (4) is produced, the bottom part (E) is bent towards the lip portion (5). When closed, the door (4) completely covers the opening (3) and extends towards the lip portion (5) on which the gasket (6) is situated. In this case, the gasket (6) remains between the bottom part (E) of the door (4) and the lip portion (5) and prevents the water from overflowing out of the washing tub (2) while the dishwasher (1) operates by contacting the bottom part (E) of the door (4).

[0022] In another embodiment of the present invention, the gasket (6) is produced as a single piece together with the lip portion (5). Thus, the lip portion (5) can be produced as a single piece together with the gasket (6) by utilizing a single mould. This process allows the leak-proofness between the lip portion (5) and the gasket (6) to be more effective.

[0023] In another embodiment of the present invention, the frame (8) is produced from plastic material and mounted onto the side of the washing tub (2) produced from stainless material which surrounds the opening (3) (Figure 5). In this embodiment of the present invention, the gasket (6) against which the door (4) bears is mounted to the frame (8).

[0024] In another embodiment of the present invention, the frame (8) is produced as a single piece together with the lip portion (5).

[0025] In another embodiment of the present invention, the dishwasher (1) comprises two extensions (7), which are produced from plastic material, located on both sides of the lip portion (5) and prevent the rising water in the washing tub (2), in case of water overflow, from overflowing out of the lip portion (5) and allowing it to flow into the casing of the dishwasher (1). The extension (7) is either mounted to the lip portion (5) or produced as a single piece together with the lip portion (5).

[0026] It is to be understood that the present invention is not limited to the embodiments disclosed above and a person skilled in the art can easily introduce different embodiments. These different embodiments should be considered within the scope of the claims of the present invention, too.

Claims

1. A dishwasher (1) **comprising** a washing tub (2) produced from stainless material wherein dishes are loaded, an opening (3) which allows for the loading or unloading of the dishes into or out of the washing tub (2), a door (4) which covers the opening (3) and the bottom part (E) of which, on the side facing the inner surface of the washing tub (2), ends on the washing tub (2), a lip portion (5), which is produced from plastic material and is mounted onto the washing tub base (T), which is produced from stainless material, in such a way that it forms an extension of the base (T) and extends towards the opening (3) in the section wherein the door (4) is borne, whereby the dishwasher (1) further comprises two extensions (7), which are located on both sides of the lip portion (5), are produced from plastic material, and prevent the rising water in the washing tub (2), in case of water overflow, from overflowing out of the lip portion (5) and allow it to flow into the casing.
2. A dishwasher (1) as in Claim 1, **characterized by** a gasket (6) which is mounted to the lip portion (5) and is situated between the bottom part (E) and the lip portion (5).
3. A dishwasher (1) as in Claim 2, **characterized in that** the gasket (6) is produced as a single piece together with the lip portion (5).
4. A dishwasher (1) as in Claim 1, **characterized in that** the extension (7) is mounted to the lip portion (5).
5. A dishwasher (1) as in Claim 1, **characterized in that** the extension (7) is produced as a single piece together with the lip portion (5).
6. A dishwasher (1) as in Claim 1, **characterized by** a frame (8) produced from plastic material, which is

mounted onto the side of the washing tub (2) and is produced from stainless material and which surrounds the opening (3).

7. A dishwasher (1) as in Claim 6, **characterized in that** the frame (8) is produced as a single piece together with the lip portion (5).
8. A dishwasher (1) as in Claim 6, **characterized in that** the gasket (6) is mounted to the frame (8).

Patentansprüche

1. Geschirrspüler (1), **umfassend** einen Spülbehälter (2), der aus Edelstahlmaterial hergestellt ist und in den Geschirr geladen wird, eine Öffnung (3), die das Beladen und Entladen des Geschirrs in den Spülbehälter (2) und daraus heraus ermöglicht, eine Tür (4), die die Öffnung (3) abdeckt und deren unterer Teil (E) auf der Seite, die der Innenfläche des Spülbehälter (2) zugewandt ist, am Spülbehälter (2) endet, einen Lippenabschnitt (5), der aus Kunststoffmaterial hergestellt ist und an der Spülbehälterbasis (T) angebracht ist, die aus Edelstahlmaterial hergestellt ist, derart, dass er eine Verlängerung der Basis (T) bildet und sich in dem Abschnitt, in dem die Tür (4) getragen wird, zur Öffnung (3) hin erstreckt, wobei der Geschirrspüler (1) ferner zwei Verlängerungen (7) umfasst, die auf beiden Seiten des Lippenabschnitts (5) angeordnet sind, aus Kunststoffmaterial hergestellt sind und verhindern, dass das ansteigend Wasser im Spülbehälter (2) im Falle eines Überlaufens des Wassers aus dem Lippenabschnitt (5) fließt, und es in das Gehäuse fließen lassen.
2. Geschirrspüler (1) nach Anspruch 1, **gekennzeichnet durch** eine Dichtung (6), die am Lippenabschnitt (5) angebracht ist und zwischen dem unteren Teil (E) und dem Lippenabschnitt (5) angeordnet ist.
3. Geschirrspüler (1) nach Anspruch 2, **dadurch gekennzeichnet, dass** die Dichtung (6) einstückig mit dem Lippenabschnitt (5) hergestellt ist.
4. Geschirrspüler (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** die Verlängerung (7) am Lippenabschnitt (5) angebracht ist.
5. Geschirrspüler (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** die Dichtung (7) einstückig mit dem Lippenabschnitt (5) hergestellt ist.
6. Geschirrspüler (1) nach Anspruch 1, **gekennzeichnet durch** einen Rahmen (8), der aus Kunststoffmaterial hergestellt ist und an der Seite des Spülbehälters (2) angebracht ist, der aus Edelstahlmaterial hergestellt ist, das die Öffnung (3) umgibt.

7. Geschirrspüler (1) nach Anspruch 6, **dadurch gekennzeichnet, dass** die Dichtung (8) einstückig mit dem Lippenabschnitt (5) hergestellt ist.

8. Geschirrspüler (1) nach Anspruch 6, **dadurch gekennzeichnet, dass** die Verlängerung (6) am Lippenabschnitt (8) angebracht ist.

10 Revendications

1. Un lave-vaisselle (1) **comportant** une cuve de lavage (2) qui est produite en matériau inoxydable, dans laquelle la vaisselle est chargée, une ouverture (3) qui permet le chargement ou le déchargement de la vaisselle dans ou hors de la cuve de lavage (2), une porte (4) qui recouvre l'ouverture (3) et dont la partie inférieure (E) au côté faisant face à la surface intérieure de la cuve de lavage (2) se termine à la cuve de lavage (2), une partie de lèvre (5) qui est produite en matériau plastique et qui est montée sur la base (T) de la cuve de lavage qui est produite en matériau inoxydable de manière à former une extension de la base (T) et s'étendre vers l'ouverture (3) dans la section où la porte (4) est supportée, par lequel le lave-vaisselle (1) comprend en outre deux extensions (7) qui sont situées sur les deux côtés de la partie de lèvre (5), qui sont produites en matériau plastique, et qui empêchent l'eau montante dans la cuve de lavage (2), en cas de débordement de l'eau, de déborder de la partie de lèvre (5) et lui permettent d'écouler dans l'enveloppe.
2. Un lave-vaisselle (1) selon la Revendication 1, **caractérisé par** un joint d'étanchéité (6) qui est monté à la partie de lèvre (5) et qui est situé entre la partie inférieure (E) et la partie de lèvre (5).
3. Un lave-vaisselle (1) selon la Revendication 2, **caractérisé en ce que** le joint d'étanchéité (6) est produit en une seule pièce avec la partie de lèvre (5).
4. Un lave-vaisselle (1) selon la Revendication 1, **caractérisé en ce que** l'extension (7) est montée à la partie de lèvre (5).
5. Un lave-vaisselle (1) selon la Revendication 1, **caractérisé en ce que** l'extension (7) est produite en une seule pièce avec la partie de lèvre (5).
6. Un lave-vaisselle (1) selon la Revendication 1, **caractérisé par** un cadre (8) qui est produit en matériau plastique, qui est monté au côté de la cuve de lavage (2) produite en matériau inoxydable, qui entoure l'ouverture (3).
7. Un lave-vaisselle (1) selon la Revendication 6, **caractérisé en ce que** le cadre (8) est produit en une

seule pièce avec la partie de lèvre (5).

8. Un lave-vaisselle (1) selon la Revendication 6, **caractérisé en ce que** le joint d'étanchéité (6) est monté au cadre (8).

5

10

15

20

25

30

35

40

45

50

55

Figure 1

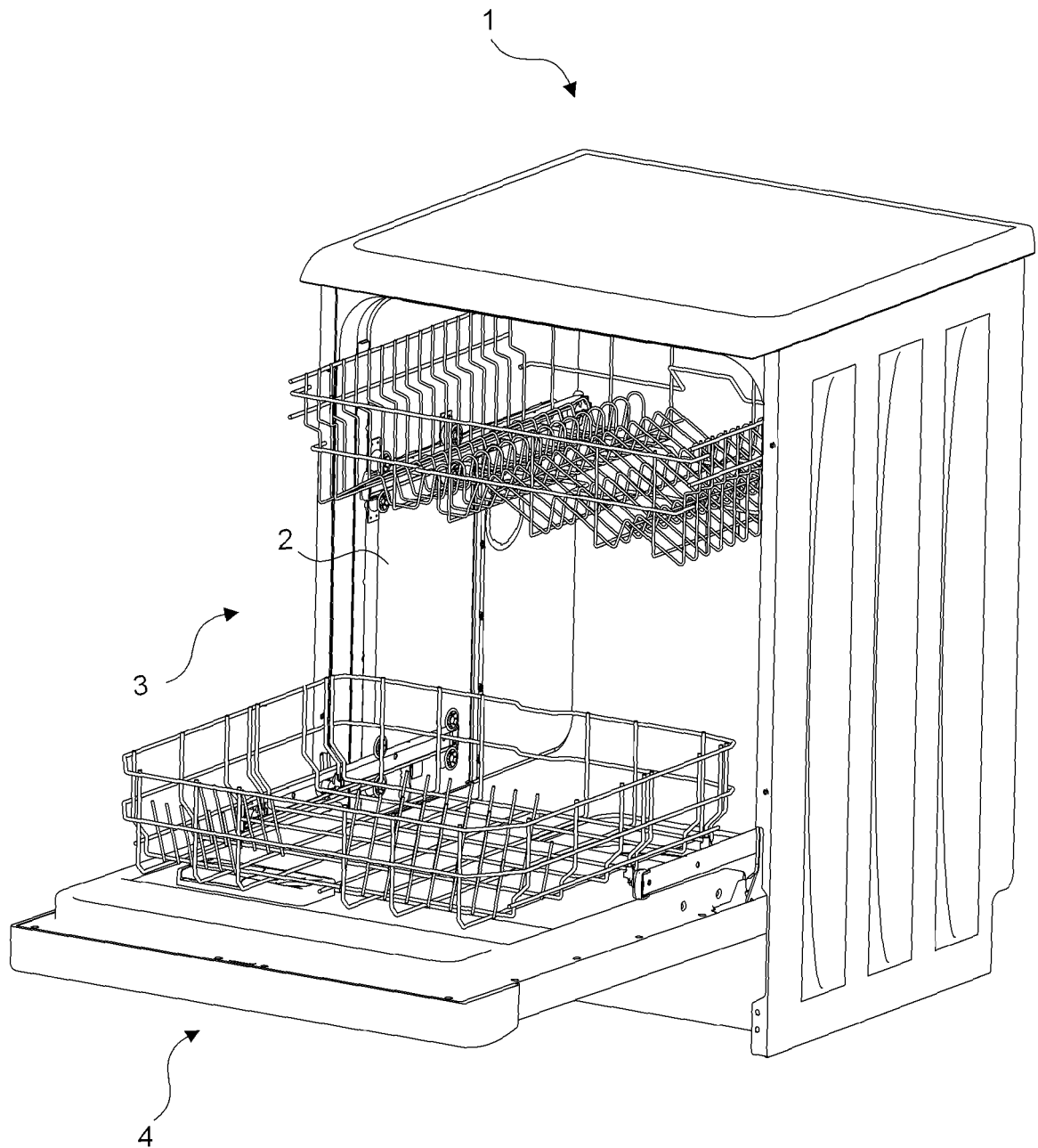


Figure 2

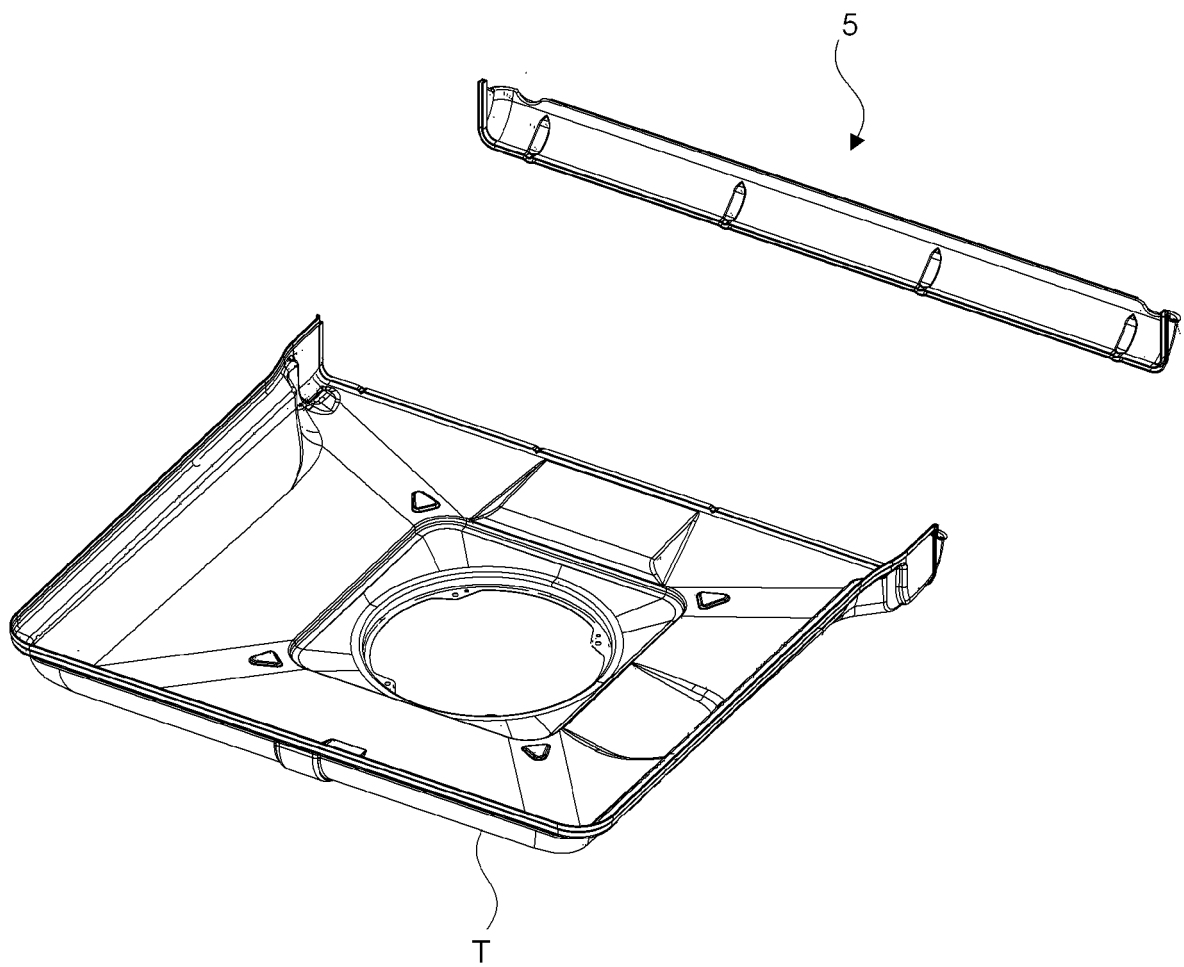


Figure 3

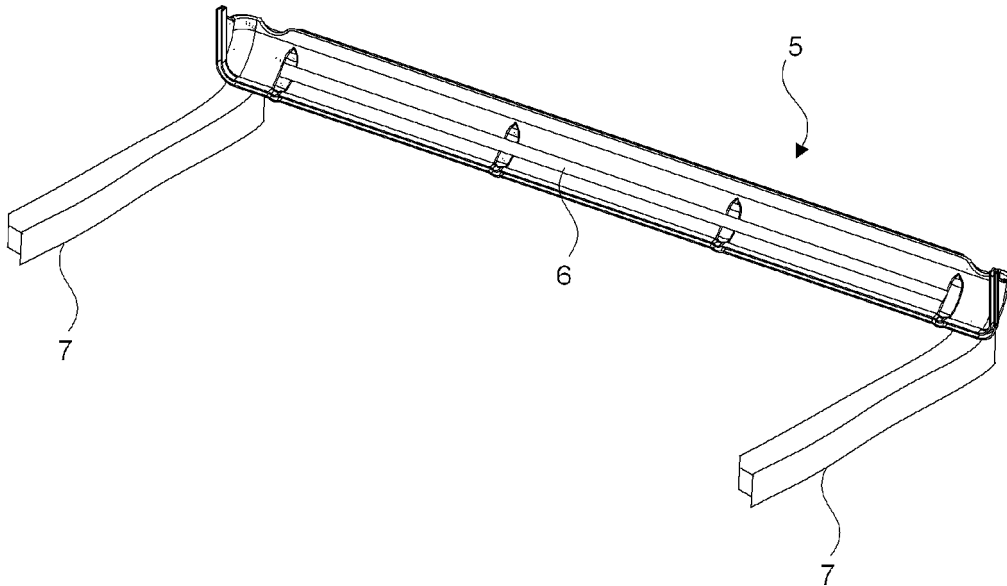


Figure 4

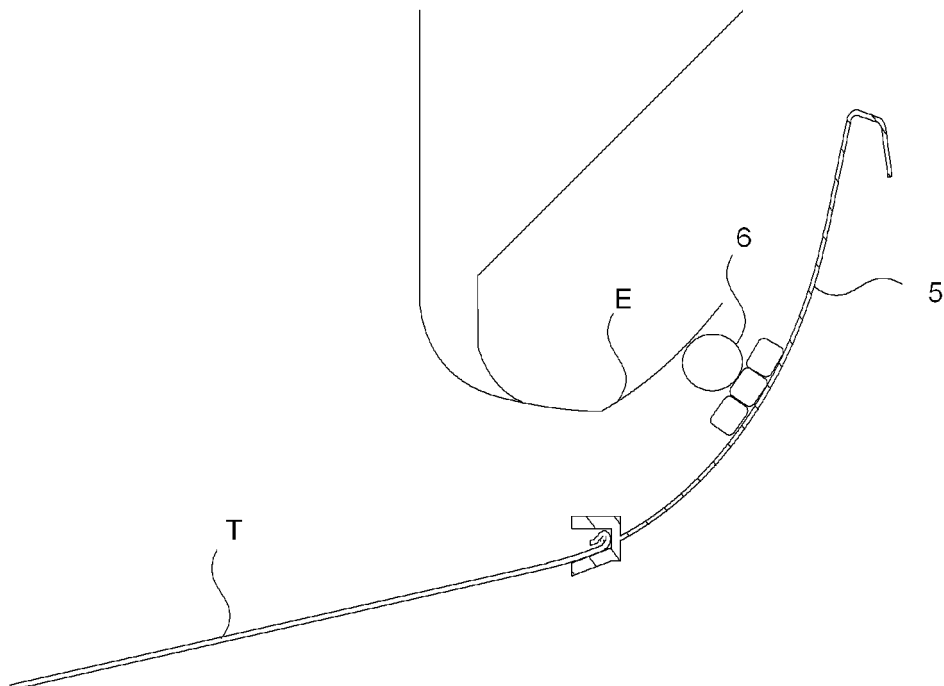
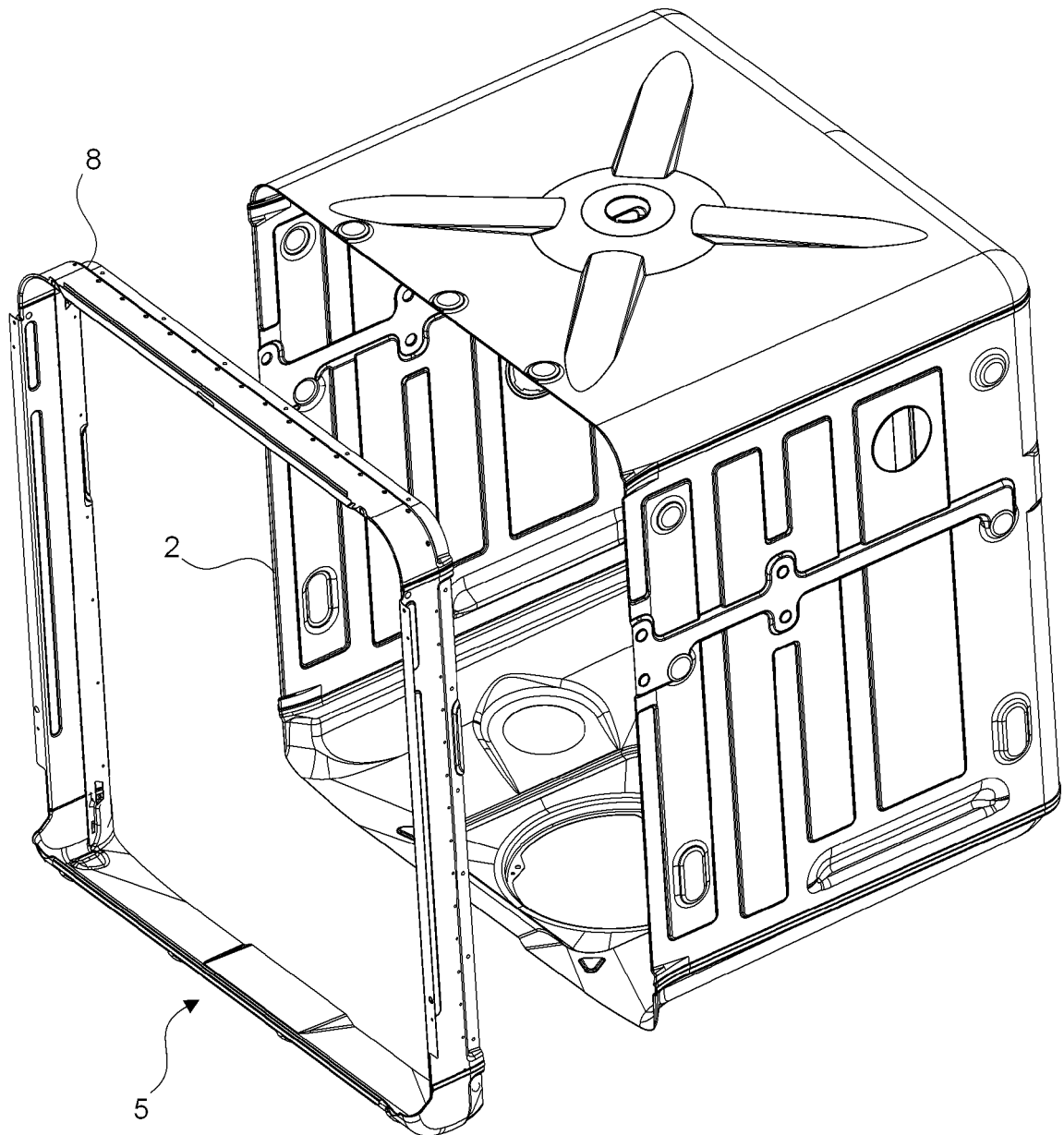


Figure 5



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

- US 6435366 B [0006]
- US 5115826 A [0007]
- US 20040177869 A1 [0008]