

(19)



(11)

EP 3 165 663 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:
15.08.2018 Bulletin 2018/33

(51) Int Cl.:
D06F 25/00 (2006.01) **D06F 39/02** (2006.01)
D06F 37/26 (2006.01) **D06F 39/08** (2006.01)

(21) Application number: **16196593.4**

(22) Date of filing: **31.10.2016**

(54) **A WASHER/DRYER WHERE STEAM LEAKAGE IS PREVENTED**

WASCHMASCHINE/TROCKNER MIT DAMPFLECKAGENVERHINDERUNG

LAVE-LINGE/SÈCHE-LINGE AVEC PRÉVENTION DES FUITES DE VAPEUR

(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: **09.11.2015 TR 201514006**

(43) Date of publication of application:
10.05.2017 Bulletin 2017/19

(73) Proprietor: **Arçelik Anonim Şirketi
34950 İstanbul (TR)**

(72) Inventors:
• **CATALTEPE, SERVET
34950 ISTANBUL (TR)**
• **CELIK, IRFAN
34950 ISTANBUL (TR)**
• **METIN, ERGIN
34950 ISTANBUL (TR)**
• **AYAS, RECEP
34950 ISTANBUL (TR)**
• **CORAK, SELAHATTIN
34950 ISTANBUL (TR)**

(56) References cited:
DE-A1-102011 089 390 KR-A- 20070 015 288

EP 3 165 663 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 washer/dryer where the steam forming during the washing and drying of the laundry is prevented from reaching the detergent dispenser.

[0002] In washer/dryers a hose is provided, in the form of a "U", so-called 'goose neck', between the detergent dispenser and the tub, which provides the transfer of the cleaning agents such as detergent, softener, etc. in the detergent dispenser to the tub. By means of this "U" form, water is enabled to remain within the hose and the steam forming within the tub during the washing, particularly the drying process is prevented from reaching the detergent dispenser through the hose.

[0003] The said hose is worn out by rubbing against the tub and the body over the time. Moreover, the bent section of the hose must be deeper in order to prevent the steam from reaching the detergent dispenser. This causes the hose to occupy a larger space within the body.

[0004] In the state of the art International Patent Application No. WO2005106101, a lid in the section of the hose opening to the detergent dispenser is disclosed, that allows the transfer of the water and the cleaning agents from the detergent dispenser to the tub but that prevents the passage of the steam emanating from the tub to the detergent dispenser.

[0005] German Patent Application DE 10 2011 089390 A1 discloses a household device in which a detergent dispenser is connected via a bent hose to a tub. Korean Patent Application KR 2007 0015288 A discloses a control method for preventing steam reverse flow in a washing machine by supplying water to a steam reverse-flow preventing device.

[0006] The aim of the present invention is the realization of a washer/dryer wherein the steam emanating from the tub is prevented from reaching the detergent dispenser.

[0007] The washer/dryer realized in order to attain the aim of the present invention, explicated in the first claim and the respective claims thereof, comprises a chamber that is disposed between the detergent dispenser and the tub and wherein one end of the hose, the other end of which is connected to the detergent dispenser, opens and wherein the steam emanating from the tub enters first before the hose.

[0008] The chamber is preferably in the form of a triangle, the base of which has the same form with the tub. The outlet of the chamber is a protrusion in the form of a slit, disposed in the section where the base intersects with the ceiling.

[0009] The washer/dryer comprises a pipe that completely surrounds the inlet of the chamber and that extends almost up to half the length of the chamber. Thus, the hose connected to the inlet is enabled to extend into the chamber. In order to prevent the steam entering the chamber from passing through the pipe and reaching the hose and the detergent dispenser, a wall is provided, that

covers the top of the opening from which the pipe opens into the chamber. Thus, the steam filling into the tub is enabled to hit the wall and the pipe and condense before reaching the hose, and thus is prevented from reaching the hose.

[0010] By means of the wall, the water remaining inside the chamber is enabled to close the opening of the pipe and the steam filling into the chamber is prevented from moving through the pipe and reaching the hose.

[0011] By means of the present invention, the steam emanating from the tub is prevented from reaching the hose and hence the detergent dispenser.

[0012] Moreover, by means of the present invention, instead of a hose with a complex structure, a simpler hose which is directly connected to the tub is used, thus providing cost reduction. Furthermore, the need for designing and using a new hose for each model is eliminated. The possibility of the steam reaching the detergent dispenser is minimized. The wearing problem in the hose is eliminated.

[0013] The washer/dryer 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 tub, a detergent dispenser, a hose and a chamber.

Figure 2 - is the perspective view of the chamber and the pipe opening into the chamber.

Figure 3 - is the bottom cross-sectional perspective view of the chamber, the pipe and the wall.

[0014] The elements illustrated in the figures are numbered as follows:

1. Washer/dryer
2. Tub
3. Detergent dispenser
4. Hose
5. Chamber
6. Inlet
7. Outlet
8. Pipe
9. Wall
10. Opening

[0015] The washer/dryer (1) comprises a tub (2); a detergent dispenser (3) that has one or more than one compartment wherein different types of cleaning agents (detergent, softener, etc.) are placed; a hose (4) that is disposed between the detergent dispenser (3) and the tub (2), and a chamber (5)

- wherein one end of the hose (4), the other end of which opens to the detergent dispenser (3), opens,
- That is disposed between the hose (4) and the tub (2), and
- wherein the steam emanating from the tub (2) enters before the hose (4)

(Figure 1).

[0016] In the washer/dryer (1), the hot air is blown into the tub (2) in the drying process. The said hot air evaporates the moisture on the laundry. The steam inside the tub (2) tends to leave the tub (2) due to the pressure. After leaving the tub (2), the said steam enters the chamber (5), which is colder than the tub (2) due to being located outside the tub (2), and condenses inside the chamber (5) before reaching the hose (4) and remains there.

[0017] The washer/dryer (1) comprises an inlet (6) by means of which the hose (4) is connected to the chamber (5), and an outlet (7) that enables the water, which is transferred together with the cleaning agents such as detergent, softener, etc. taken from the detergent dispenser (3) by means of the hose (4), to pass through the chamber (5) and to be delivered to the tub (2).

[0018] The washer/dryer (1) comprises a pipe (8) that is disposed on the periphery of the inlet (6) and that extends into the chamber (5); an opening (10) that enables the pipe (8) to open into the chamber (5), and a wall (9) that closes the opening (10). In an embodiment of the present invention, the wall (9) is in the form of a quarter sphere and is disposed on the opening (10) and covers the lower half of the pipe (8). In the preferred embodiment of the present invention, the pipe (8) extends almost up to half the length of the chamber (5). By means of the wall (9), the steam entering from the tub (2) into the chamber (5) is prevented from directly reaching the hose (4) and the steam moving inside the chamber (5) toward the hose (4) first hits the wall (9) and condenses there, thus prevented from entering the hose (4) (Figure 2).

[0019] In another embodiment of the present invention, the chamber (5) comprises a base in the same form with the periphery of the tub (2) and a ceiling that joins two ends of the said base. The outlet (7) is in the form of a slit in the section where the base joins the ceiling (Figure 3).

[0020] In another embodiment of the present invention, the opening (10) faces downward, toward the base of the chamber (5).

[0021] In another embodiment of the present invention, part of the wash water filling into the chamber (5) is transferred to the tub (2), while the other part thereof remains in the chamber (5). The steam entering from the tub (2) into the chamber (5) cannot enter the pipe (8) due to the water remaining in the chamber (5) and closing the opening (10), and is prevented from reaching the hose (4).

of cleaning agents (detergent, softener, etc.) are placed;

c) a hose (4) that is disposed between the detergent dispenser (3) and the tub (2),

d) a chamber (5) disposed between the hose (4) and the tub (2), wherein one end of the hose (4) is connected to the chamber (5) and the other end of the hose (4) is connected to the detergent dispenser (3), such that steam leaving the tub (2) enters said chamber (5) before entering the hose (4);

e) an inlet (6) by means of which the hose (4) is connected to the chamber (5),

f) an outlet (7) of the chamber (5) that enables the water, which is transferred together with the cleaning agents such as detergent, softener, etc. taken from the detergent dispenser (3) by means of the hose (4), to pass through the chamber (5) and to be delivered to the tub (2),

g) **characterized in that**, a pipe (8) is disposed on the periphery of the inlet (6) and extends into the chamber (5);

h) an opening (10) enables the pipe (8) to open into the chamber (5), and

i) a wall (9) covers the top of the opening (10).

2. A washer/dryer (1) as in Claim 1, **characterized in that** the chamber (5) is disposed outside the tub (2).

3. A washer/dryer (1) as in any of the above claims, **characterized in that** the wall (9) has a form of a quarter sphere.

4. A washer/dryer (1) as in any of the above claims, **characterized in that** the pipe (8) extends almost up to half the length of the chamber (5).

5. A washer/dryer (1) as in any one of the above claims, **characterized in that** the chamber (5) comprises a base in the same form with the periphery of the tub (2) and a ceiling which joins the two ends of the base.

6. A washer/dryer (1) as in Claim 5, **characterized in that** the outlet (7) is formed as a slit in the section where the base meets the ceiling.

7. A washer/dryer (1) as in Claim 5, **characterized in that** the opening (10) is facing downwards, towards the base of the chamber (5).

Claims

1. A washer/dryer (1) comprising

- a) a tub (2);
- b) a detergent dispenser (3) that has one or more than one compartment wherein different types

Patentansprüche

1. Wasch-/Trockenmaschine (1) umfassend

- a) eine Wanne (2)
- b) Waschmittelspender (3), der ein oder mehr als ein Fach aufweist, in dem verschiedene Ar-

- ten von Reinigungsmitteln (Reinigungsmittel, Weichspüler usw.) angeordnet sind;
- c) einen Schlauch (4) der, zwischen dem Waschmittelspender (3) und der Wanne (2) angeordnet ist,
- d) eine Kammer (5) die zwischen dem Schlauch (4) und der Wanne (2) angeordnet ist, wobei ein Ende des Schlauchs (4) mit der Kammer (5) und das andere Ende des Schlauchs (4) mit dem Waschmittelspender (3) derart verbunden ist, dass der die Wanne (2) verlassende Dampf in die Kammer (5) eintritt, bevor er in den Schlauch (4) eintritt;
- e) einen Einlass (6), mittels welchem der Schlauch (4) mit der Kammer (5) verbunden ist,
- f) einen Auslass (7) der Kammer (5), der das Wasser, das zusammen mit dem Reinigungsmittel, wie Waschmittel, Weichspüler etc., die aus dem Waschmittelspender (3) mittels eines Schlauchs (4) entnommen sind, um durch der Kammer (5) durchzulaufen und in die Wanne (2) zugeführt zu werden,
- g) **dadurch gekennzeichnet, dass** ein Rohr (8) am Umfang des Einlasses (6) angeordnet ist und sich in die Kammer (5) erstreckt;
- h) eine Öffnung (10), die es ermöglicht, dass das Rohr (8) sich in die Kammer (5) öffnet, und
- i) eine Wand (9), die die Oberseite der Öffnung (10) bedeckt.
2. Wasch-/Trockenmaschine (1) nach Anspruch 1 **dadurch gekennzeichnet, dass** die Kammer (5) außerhalb der Wanne (2) angeordnet ist.
3. Wasch-/Trockenmaschine (1) nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** die Wand (9) die Form einer Viertelkugel aufweist.
4. Wasch-/Trockenmaschine (1) nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** sich das Rohr (8) fast bis zur Hälfte der Länge der Kammer (5) erstreckt.
5. Wasch-/Trockenmaschine (1) nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** die Kammer (5) eine Basis in der gleichen Form wie der Umfang der Wanne (2) und eine Decke aufweist, die die beiden Enden der Basis verbindet.
6. Wasch-/Trockenmaschine (1) nach Anspruch 5, **dadurch gekennzeichnet, dass** der Auslass (7) als ein Schlitz in dem Abschnitt ausgebildet ist, wo der Boden die Decke trifft.
7. Wasch-/Trockenmaschine (1) nach Anspruch 5, **dadurch gekennzeichnet, dass** die Öffnung (10) nach unten, zu dem Basis der Kammer (5) zeigt.

Revendications

1. Lave-linge/sèche-linge (1) comprenant

- a) une cuve (2);
- b) un distributeur de détergent (3) qui comporte un ou plusieurs compartiments dans lesquels sont placés différents types d'agents de nettoyage (détergent, adoucissant, etc.);
- c) un tuyau (4) qui est disposé entre le distributeur de détergent (3) et la cuve (2),
- d) une chambre (5) disposé entre le tuyau (4) et la cuve (2), dans lequel une extrémité du tuyau (4) est reliée à la chambre (5) et l'autre extrémité du tuyau (4) est reliée au distributeur de détergent (3), de sorte que la vapeur quittant la cuve (2) pénètre dans ladite chambre (5) avant d'entrer dans le tuyau (4);
- e) une entrée (6) au moyen de laquelle le tuyau (4) est relié à la chambre (5),
- f) une sortie (7) de la chambre (5) qui permet à l'eau, qui est transférée avec les agents de nettoyage tels que détergent, assouplissant, etc., pris dans le distributeur de détergent (3) au moyen du tuyau (4), traverser la chambre (5) et être acheminée vers la cuve (2),
- g) **caractérisé en ce qu'**un tuyau (8) est disposé sur la périphérie de l'entrée (6) et s'étend dans la chambre (5);
- h) une ouverture (10) permet l'ouverture du tuyau (8) dans la chambre (5), et
- i) une paroi (9) recouvre le haut de l'ouverture (10).

2. Lave-linge/sèche-linge (1) selon la revendication 1, **caractérisée en ce que** la chambre (5) est disposée à l'extérieur de la cuve (2).
3. Lave-linge/sèche-linge (1) selon l'une quelconque des revendications précédentes, **caractérisée en ce que** la paroi (9) a la forme d'un quart de sphère.
4. Lave-linge/sèche-linge (1) selon l'une quelconque des revendications précédentes, **caractérisée en ce que** le tuyau (8) s'étend presque jusqu'à la moitié de la longueur de la chambre (5).
5. Lave-linge/sèche-linge (1) selon l'une quelconque des revendications précédentes, **caractérisée en ce que** la chambre (5) comprend une base de la même forme avec la périphérie de la cuve (2) et un plafond qui joint les deux extrémités de la base.
6. Lave-linge/sèche-linge (1) selon la revendication 5, **caractérisée en ce que** la sortie (7) est réalisée sous la forme d'une fente dans la section où la base rencontre le plafond.

7. Lave-linge/sèche-linge (1) selon la revendication 5, **caractérisée en ce que** l'ouverture (10) est tournée vers le bas, vers la base de la chambre (5).

5

10

15

20

25

30

35

40

45

50

55

Figure 1

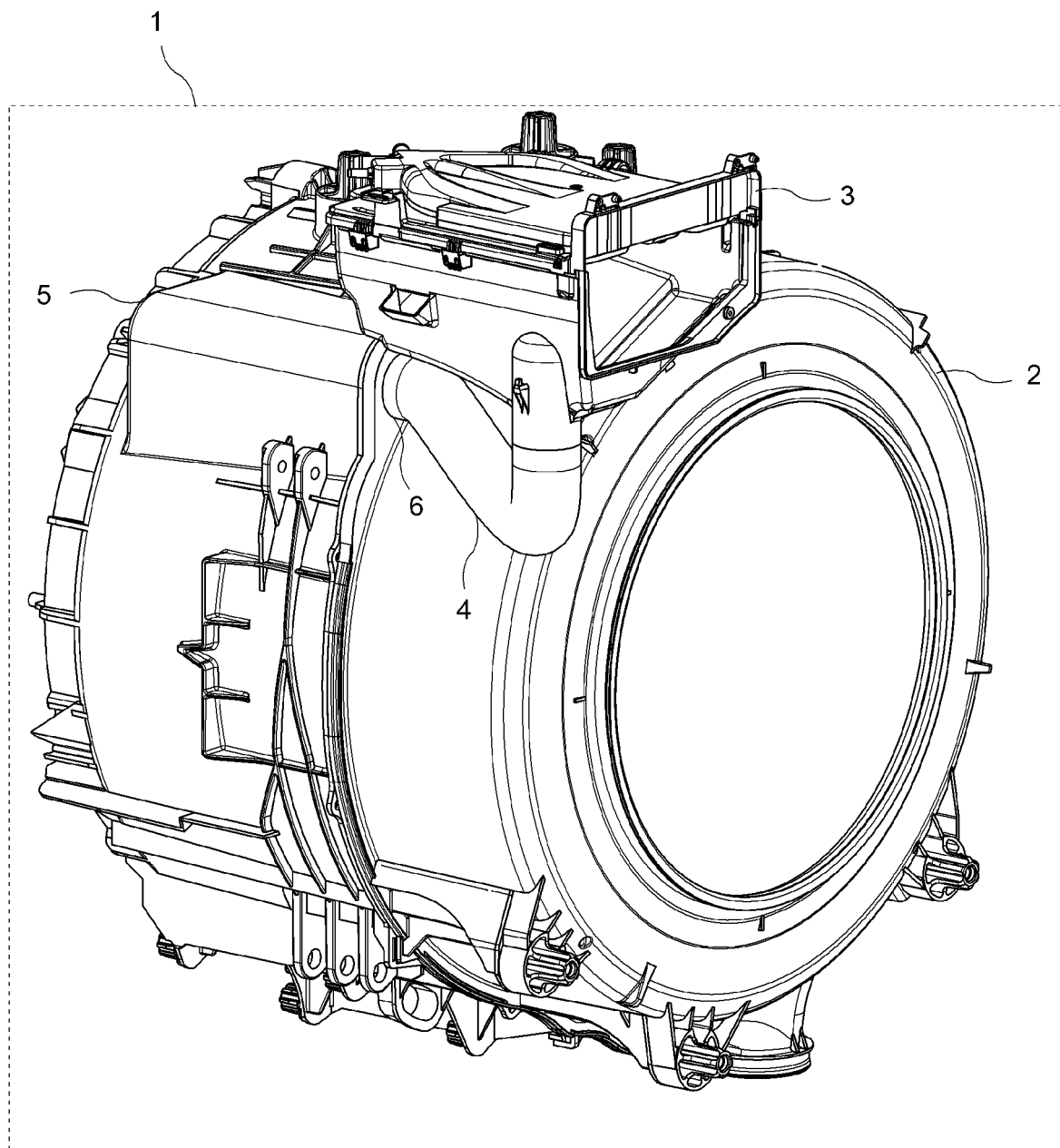


Figure 2

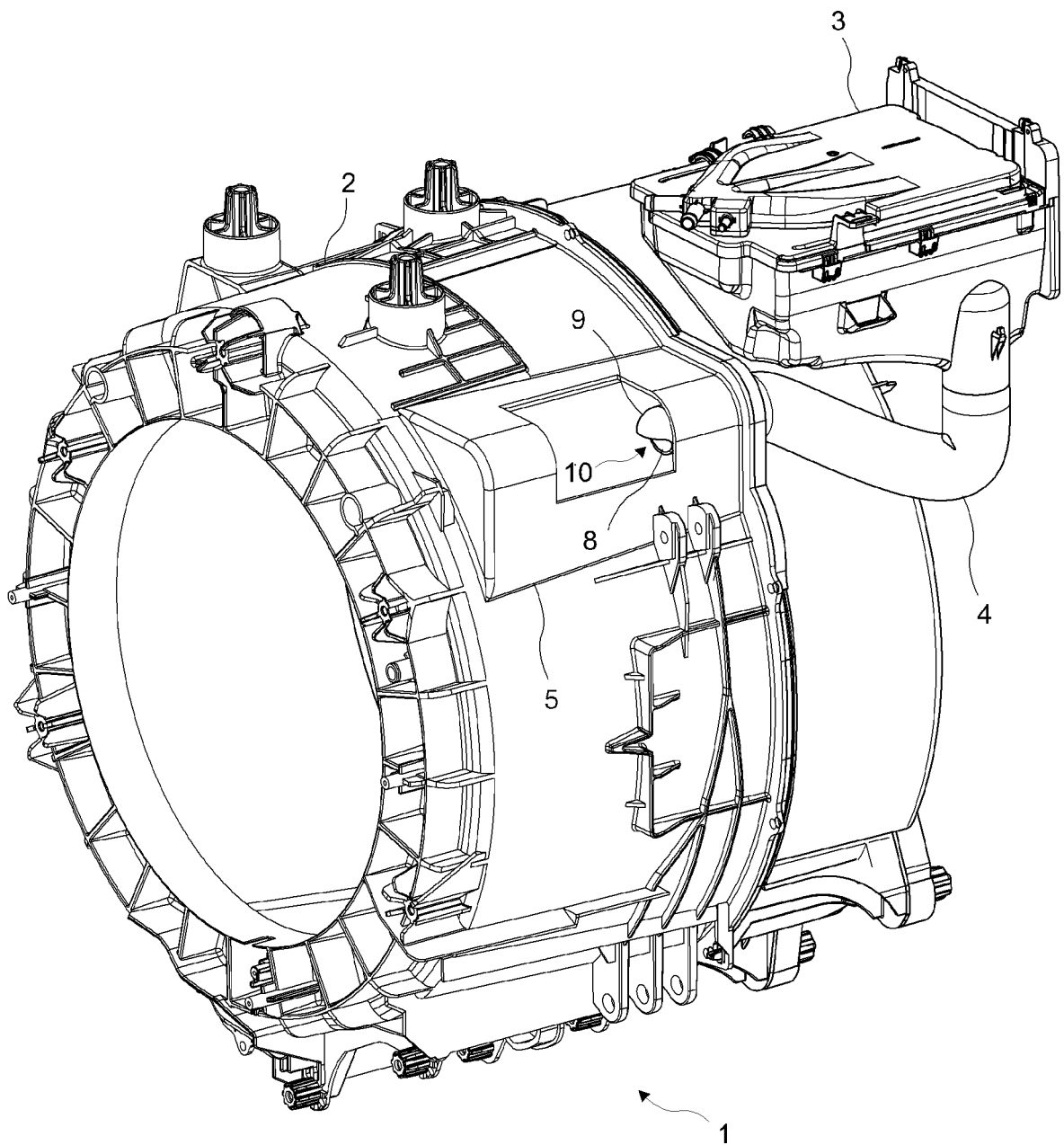
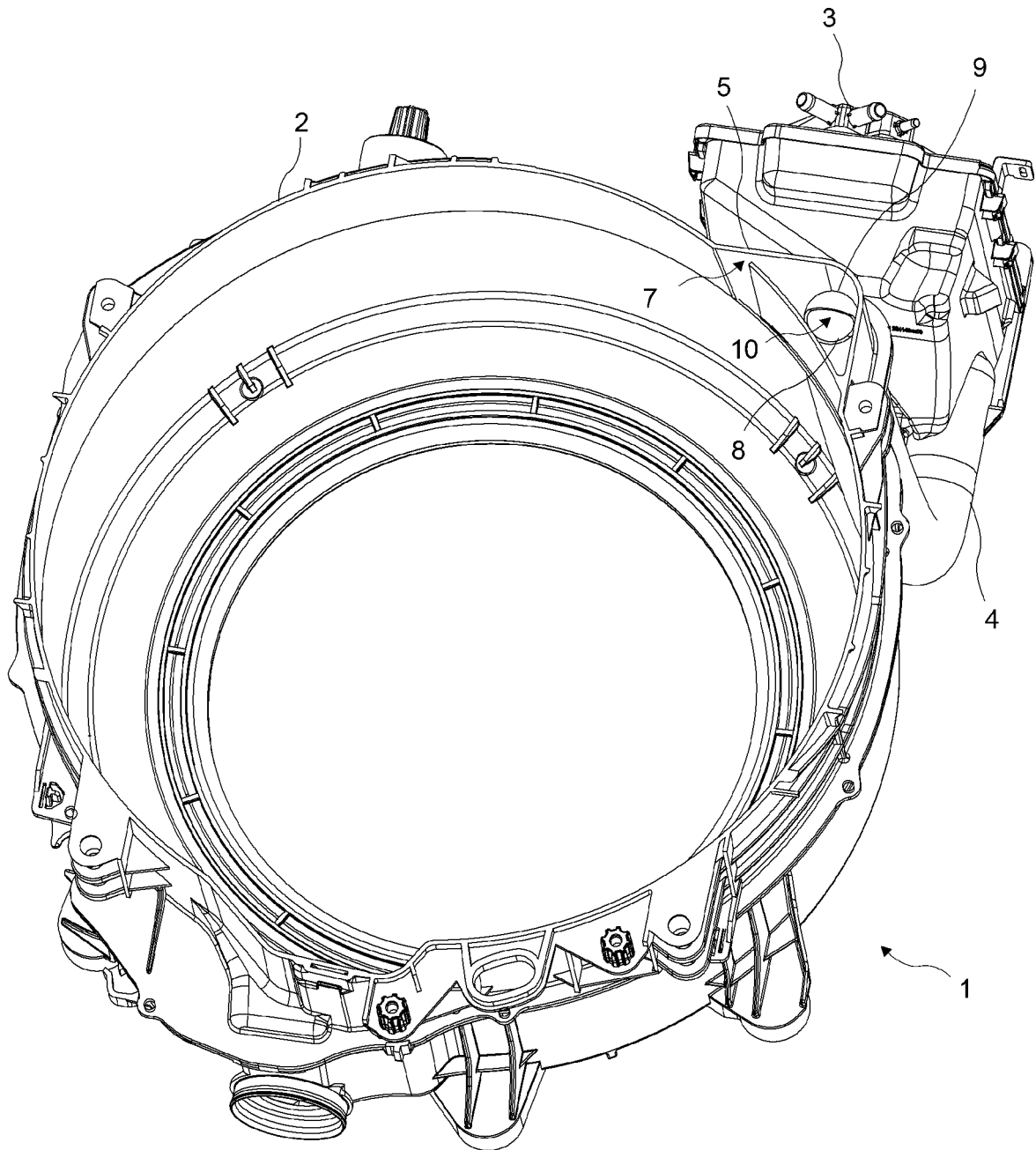


Figure 3



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

- WO 2005106101 A [0004]
- DE 102011089390 A1 [0005]
- KR 20070015288 A [0005]