



(51) International Patent Classification:
D06F 39/14 (2006.01)

(21) International Application Number:
PCT/IB2012/054757

(22) International Filing Date:
13 September 2012 (13.09.2012)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
P201131520 21 September 2011 (21.09.2011) ES

(71) Applicant (for all designated States except US): **BSH BOSCH UND SIEMENS HAUSGERÄTE GMBH** [DE/DE]; Carl-Wery-Str. 34, 81739 München (DE).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **GRACIA BOBED, Ismael** [ES/ES]; La Alberca, 3, Casa 1, E-50194 Zaragoza (ES). **GRACIA CANO, Eduardo** [ES/ES]; Plaza San Antón nº 5 - 2ºB, E-50003 Zaragoza (ES). **RECIO FERRER, Eduardo** [ES/ES]; Bubierca, 6-5ºDcha., E-50013 Zaragoza (ES).

(74) Common Representative: **BSH BOSCH UND SIEMENS HAUSGERÄTE GMBH**; Postfach 83 01 01, 81701 München (DE).

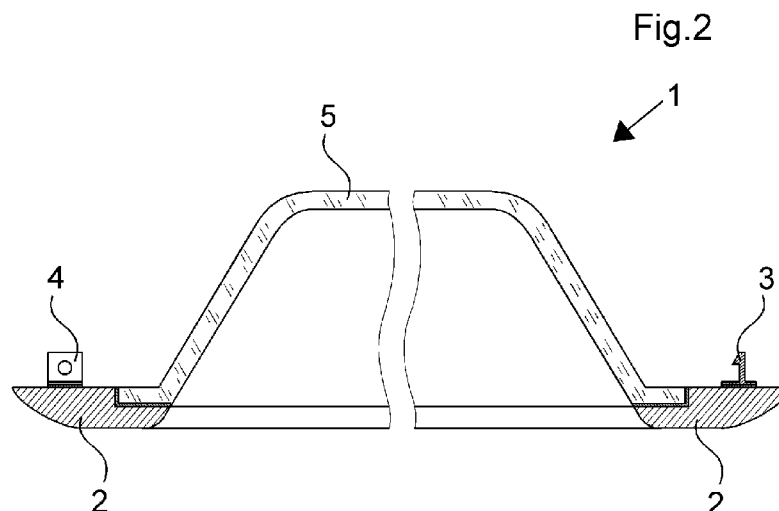
(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

(54) Title: CLOTHES WASHER AND/OR DRYER DOOR



(57) Abstract: The present invention relates to a door (1) of a washing machine and/or dryer (6), characterized in that it comprises: a joining frame (2), at least a holding element (3) with the washing machine and/or dryer, at least a hinge-function element (4), and a glazed closing element (5), wherein the joining frame (2) is made in one piece and acts as a joint among the at least one holding element (3) with the washing machine and/or dryer, the at least one hinge-function element (4) and the glazed closing element (5). Likewise the invention relates to a washing machine and/or dryer 6 provided with such door (1).

CLOTHES WASHER AND/OR DRYER DOOR

The present invention relates to a door for an electrical household appliance, such as for example a clothes washer and/or dryer, that is simpler to manufacture, with a joining frame, a catch, an element functioning as a hinge, and a glazed closure element, wherein the joining frame is made as a single component and serves as a common inter-
5 connecting component for the other elements.

In prior art, various doors are known for electrical household appliances, such as for example for a clothes washer and/or dryer. Most doors of this type consist of: a concave piece of glass and two plastic rings, wherein one of these rings is a strong frame onto
10 which a hinge and latch are mounted and the other ring is decorative. These two rings are joined together leaving the piece of glass held tightly between them.

Other examples of washing machine doors, such as disclosed in ES 1 032 372 U, corresponding to DE 295 167 15 U1, provide for the hinge and catch elements to adhere directly onto the piece of glass, which makes the door more fragile, since the glazed ele-
15 ment is more easily broken than pre-existing rings.

The present invention solves these problems, such as the need to make a door that is more rigid, and is simpler to manufacture by employing a clothes washer and/or dryer door, and by employing a clothes washer and/or dryer according to the respective independent claim attached. Preferred embodiments of the invention are defined in the
20 dependent claims, the subsequent disclosure and the attached drawing.

Accordingly, the present invention proposes a novel door for a clothes washer and/or dryer that includes:

- *a joining frame*
- *at least one catch element engaging with the clothes washer and/or dryer*
- *at least one element functioning as a hinge, and*
- *a glazed closure element, wherein*
- *the joining frame is made in one piece and acts as a joint among the at least one holding element with the washing machine and/or dryer, the at least one hinge-function element and the glazed closing element. .*

The joining frame is not eliminated in the preferred embodiment of the present invention, since it gives the clothes washer door greater rigidity and stability. The catch element engaging with the clothes washer and/or dryer enables the clothes washer and dryer door to be opened and closed. The element functioning as a hinge ensures that the door will open in the manner indicated. The glazed closure element along with the frame ensures a good seal on the inside of the clothes washer and/or dryer.

The joining frame is made as a single component and serves as a common inter-connecting component between at least one catch element engaging with the washer and/or dryer, at least one element functioning as a hinge, and the glazed closure element.

The joining frame is made as a single component, enabling easier manufacture and greater door toughness. This element serves as a common interconnecting component between all the other elements of the door of the clothes washer and/or dryer, and at the same time ensures that the inside of the clothes washer and/or dryer has a good seal.

The primary additional advantages that this invention provides include:

- simplicity of manufacture,
- option to personalize the frame of the door of the clothes washer and/or dryer,
- option of integration with the clothes washer and/or dryer control panel,
- reduced depth, front- to-back, enabling easier installation in a built-in configuration.

These and other characteristics and advantages of the invention will become more clearly apparent from the following detailed description of preferred embodiments, given solely as illustrative and non-limiting examples, with reference to the Figures of the accompanying drawing. In the drawing, there are shown:

Figure 1 In this figure, a perspective view is shown of the door of the clothes washer and/or dryer installed in the clothes washer and/or dryer cabinet.

Figure 2 In this figure, a top view is shown of an embodiment of the clothes washer and/or dryer door in which the constituent elements and the way they are connected can be seen.

Figure 3 In this figure, a top view is shown of another embodiment of the clothes washer and/or dryer door in which the constituent elements and the way they are connected can be seen.

Figure 4 In this figure, a top view is shown of a third embodiment of the clothes washer and/or dryer door in which the constituent elements and the way they are connected can be seen.

5 Figure 5 In this figure, another embodiment of the invention is shown in which the lenticular element is fastened between the joining frame and the glazed closure element.

Referring to Figure 1, door 1 of the clothes washer and/or dryer is shown to include joining frame 2, and catch element 3 engaging with the clothes washer and/or dryer. In the embodiments shown, catch element 3 engaging with the clothes washer and/or dryer is
10 projection 3 able to engage with a point on the cabinet of clothes washer and/or dryer 6. Door 1 also includes element 4 functioning as a hinge and glazed closure element 5, and in the invention embodiments it can be seen that glazed closure element 5 is a piece of glass that is concave towards the inside of the drum of clothes washer and/or dryer 6. As
15 can be seen in Figure 1, joining frame 2 is made as a single component and serves as a common interconnecting component between at least one catch elements 3 engaging with the clothes washer and/or dryer, at least one element 4 functioning as a hinge, and glazed closure element 5.

As can be seen in Figure 1, when in use:

- 20 • joining frame 2 is intended to remain on the outside of clothes washer and/or dryer 6, and
- at least one element 4 functioning as a hinge, and
- at least one catch element 3 engaging with the clothes washer and/or dryer are located between joining frame 2 and the cabinet of clothes washer and/or dryer 6, and
- 25 • glazed closure element 5 is located on the interior part of joining frame 2.

In different embodiments, joining frame 2 optionally can be made of rigid materials, which has the advantage of making the invention more rigid. In these embodiments, joining frame 2 is made of stainless steel, as shown in Figure 3, where joining frame 2 can be
30 seen to be thinner than in the other figures due to the characteristics of this material, and to make frame 2 more lightweight, or joining frame 2 is made of glass, which could be machined glass, as shown in Figure 4, or of Corian®, which also would be illustrated as in Figure 4.

In other embodiments, joining frame 2 is optionally made of a material that is less rigid allowing it to absorb the vibrations of clothes washer 6 when operating, for example during the spin cycle. In these embodiments, joining frame 2 is made of plastic, as shown in Figure 2, or of wood, which would be illustrated in the same way as in Figure 2 or 4.

5 In the different embodiments described the different connections between:

- joining frame 2 and at least one catch element 3 engaging with the clothes washer and/or dryer,
- joining frame 2 with at least one element 4 functioning as a hinge, and/or
- joining frame 2 with glazed closure element 5,

10 is achieved by means of an adhesive, as is seen in Figures 2 to 4, or by screwing. In any of these cases it is particularly important that a tight seal be achieved by the connection to avoid water leaks through door 1 of the clothes washer and/or dryer.

When in use, at least one element 4 functioning as a hinge is located on one side or on the lower part of frame 2, and at least one catch element engaging
15 with the clothes washer and/or dryer is located on the upper part of the frame or the side of the frame opposite the element functioning as a hinge. These configurations allow the door to open laterally, as is known in current art, or vertically, with element 4 functioning as a hinge always being located at a position opposite or, as can be seen in Figure 1, an angular distance of 180° from catch element 3 engaging with
20 the clothes washer and/or dryer, when proceeding around a circle formed by joining frame 2 .

In Figure 5, another embodiment of the invention is shown in which lenticular element 7 is fastened between joining frame 2 and glazed closure element 5. This lenticular element 7, among other things, protects glazed closure element 5 due to the high temperatures that
25 can develop on the inside of the drum of clothes washer and/or dryer 6. Said lenticular element 7 can be installed and uninstalled easily. In Figure 5 it is observed that the embodiment given in Figure 2 has been chosen, however, embodiment of this feature can be achieved in any of the examples previously presented, that is with lenticular element 7 fastened between glazed closure element 5 and joining frame 2, and this joining frame 2
30 can be manufactured from, among other materials, stainless steel, glass, Corian®, plastic or wood, by adding lenticular element 7 to Figures 2 to 4.

CLAIMS

- 5 1. Door (1) of a washing machine and/or dryer, characterized in that it comprises:
a joining frame (2),
at least a holding element (3) with the washing machine and/or dryer,
at least a hinge-function element (4), and
a glazed closing element (5),
10 wherein the joining frame (2) is made in one piece and acts as a joint among
the at least one holding element (3) with the washing machine and/or dryer, the
at least one hinge-function element (4) and the glazed closing element (5).
- 15 2. Door (1) of a washing machine and/or dryer according to claim 1, characterized
in that in a situation of use:
- the joining frame (2) is destined to be placed on the external part of the
washing machine and/or dryer (6), and
 - the at least one holding element (3) with the washing machine and/or dryer
and the at least one hinge-function element (4) are placed between the
20 joining frame (2) and the washing machine and/or dryer (6) body, and
 - the glazed closing element (5) is placed on the internal part of the joining
frame (2).
- 25 3. Door (1) of a washing machine and/or dryer according to any of claims 1 or 2,
characterized in that the joining frame (2) is of stainless steel, glass or
Corian®.
- 30 4. Door (1) of a washing machine and/or dryer according to any of claims 1 or 2,
characterized in that the joining frame (2) is of plastic or wood.

5. Door (1) of a washing machine and/or dryer according to any of claims 1 to 4, characterized in that the holding element (3) with the washing machine and/or dryer is a projection (3) arranged to hook into a place in the washing machine and/or dryer (6) body.
- 5
6. Door (1) of a washing machine and/or dryer according to any of claims 1 to 5, characterized in that the joint between:
- the joining frame (2) to the at least one holding element (3) with the washing machine and/or dryer,
 - 10 • the joining frame (2) to the at least one hinge-function element (4), and/or
 - the joining frame (2) to the glazed closing element (5),
- is preferably by means of an adhesive or by means of a screwing.
7. Door (1) of a washing machine and/or dryer according to any of claims 1 to 6, characterized in that the glazed closing element (5) is a glass concave inwards of the washing machine and/or dryer (6) drum.
- 15
8. Door (1) of a washing machine and/or dryer according to any of claims 1 to 7, characterized in that, in a situation of use, the at least one hinge-function element (4) is placed at a lateral side or in the lower part of the frame (2), and the at least one holding element (3) with the washing machine and/or dryer is placed at the opposed lateral side or in the upper part, respectively, of the frame (2) with respect to the hinge-function element (4).
- 20
9. Door (1) of a washing machine and/or dryer according to any of claims 1 to 7, characterized in that a lenticular element (7) is fixed between the joining frame (2) and the glazed closing element (5).
- 25
10. Washing machine and/or dryer (6) provided with a door (1) of a washing machine and/or dryer according to any of claims 1 to 8.
- 30

Fig.1

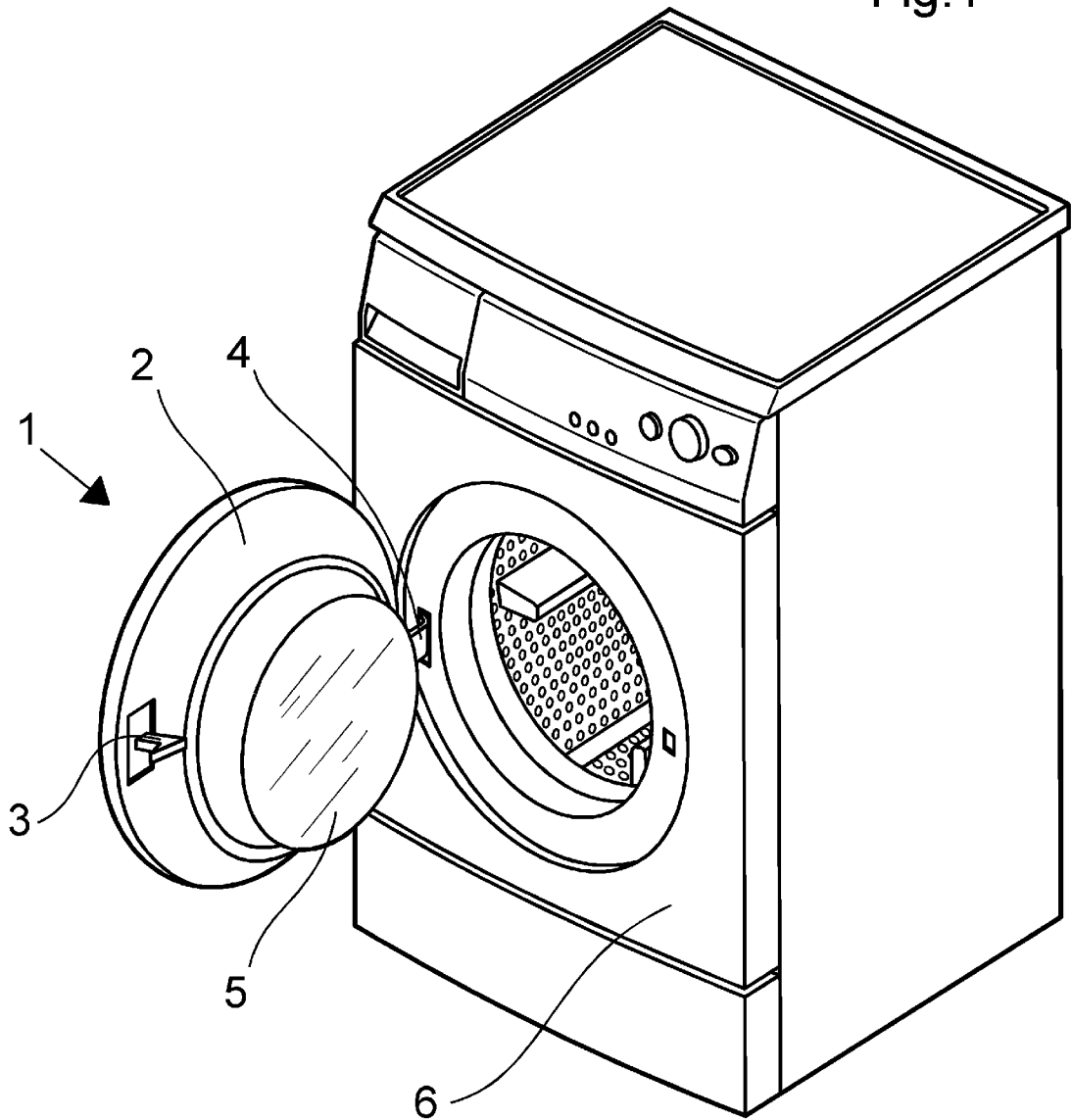


Fig.2

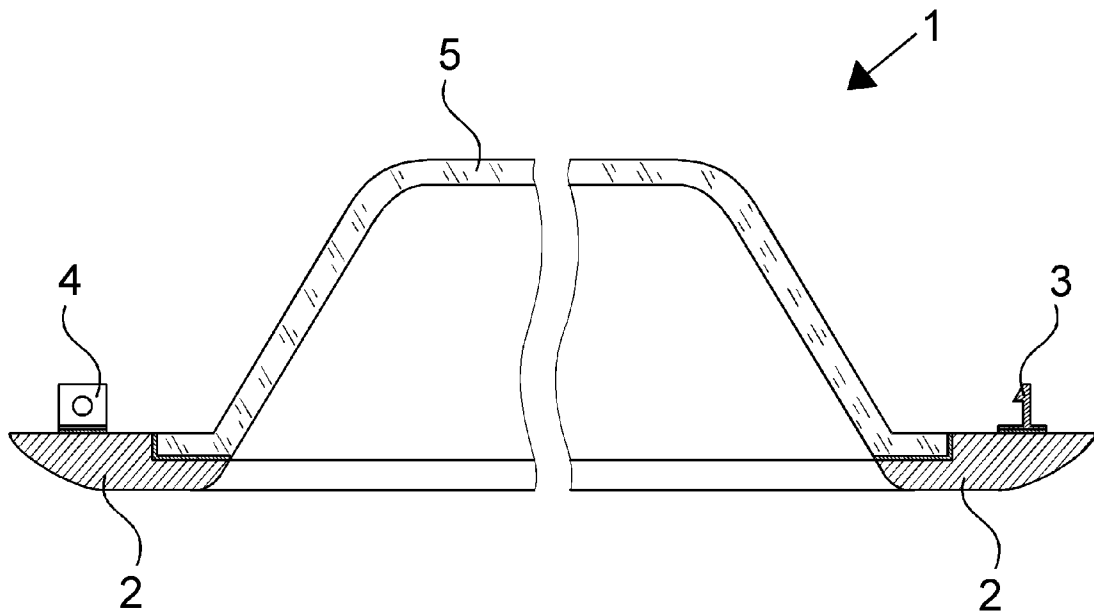


Fig.3

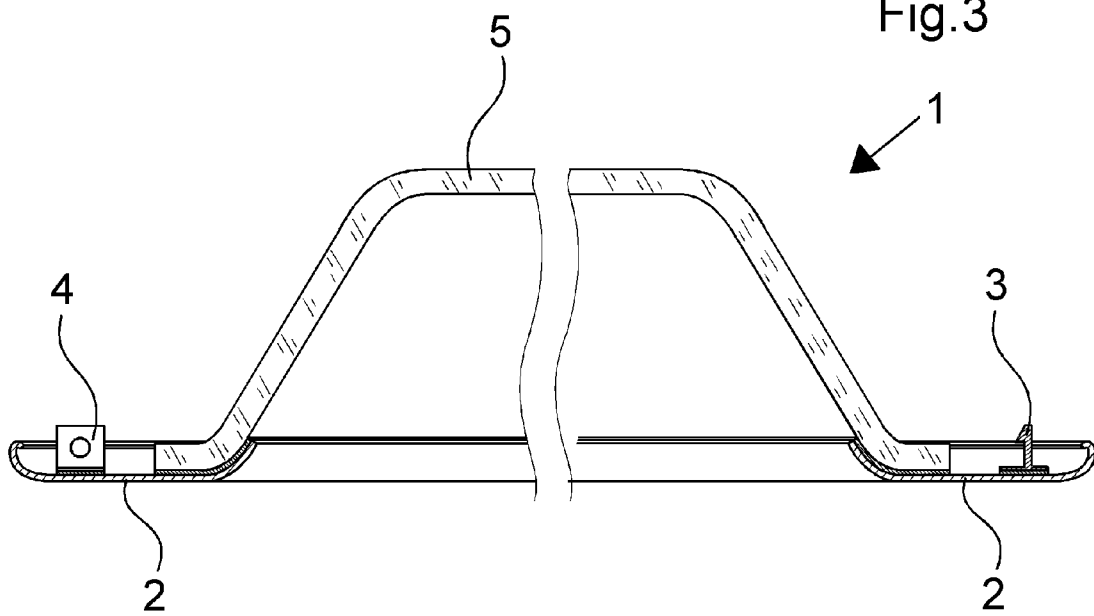


Fig.4

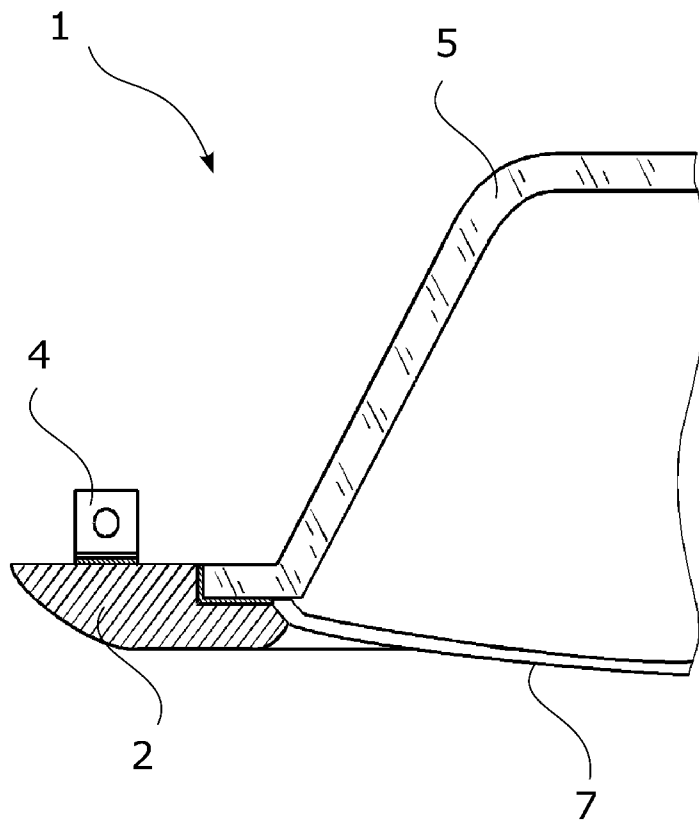
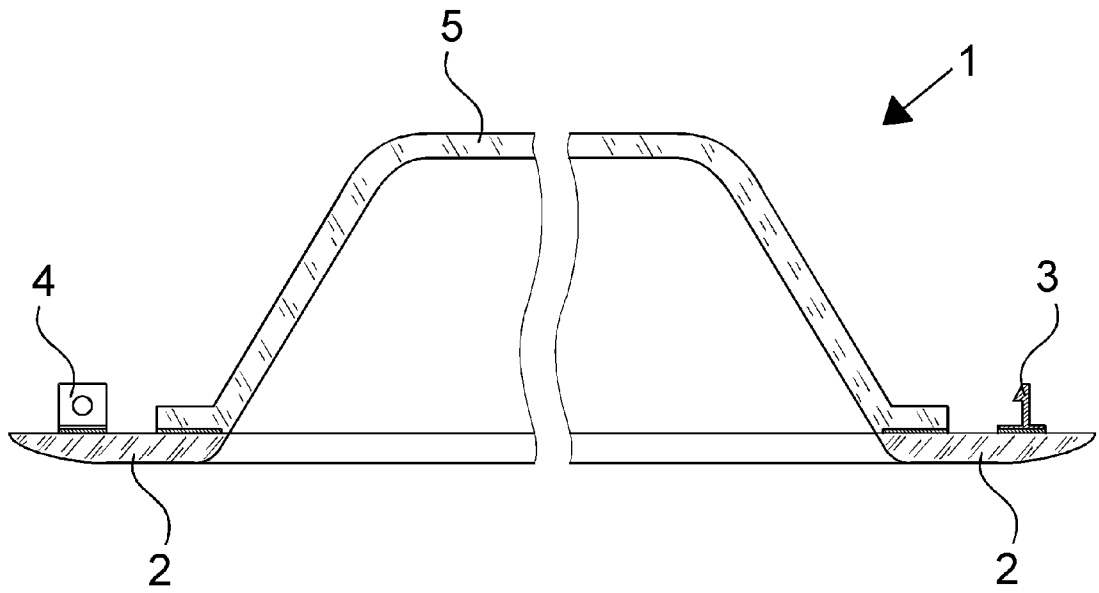


FIG. 5

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2012/054757

A. CLASSIFICATION OF SUBJECT MATTER
INV. D06F39/14
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
D06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 2 302 127 A1 (BSH BOSCH SIEMENS HAUSGERAETE [DE]) 30 March 2011 (2011-03-30) paragraphs [0034], [0036]; figure 3 -----	1,2,4,5, 7,10
X	DE 10 2009 046682 A1 (BSH BOSCH SIEMENS HAUSGERAETE [DE]) 19 May 2011 (2011-05-19) paragraphs [0034], [0038], [0041]; figure 1 -----	1,2,4,5, 8,10
X	EP 2 098 627 A1 (MIELE & CIE [DE]) 9 September 2009 (2009-09-09) abstract; figures 1, 2 -----	1,2,4-8, 10



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

7 February 2013

Date of mailing of the international search report

15/02/2013

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Westermayer, Wilhelm

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2012/054757

Patent document cited in search report	Publication date	Patent family member(s)	Publication date	
EP 2302127	A1	30-03-2011	CN 102031680 A	27-04-2011
			EP 2302127 A1	30-03-2011
			EP 2302128 A1	30-03-2011

DE 102009046682	A1	19-05-2011	DE 102009046682 A1	19-05-2011
			WO 2011057965 A1	19-05-2011

EP 2098627	A1	09-09-2009	AT 481520 T	15-10-2010
			DE 102008012192 A1	10-09-2009
			EP 2098627 A1	09-09-2009
			ES 2351106 T3	31-01-2011
