



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
06.02.2013 Bulletin 2013/06

(51) Int Cl.:
D06F 23/04 (2006.01) D06F 39/14 (2006.01)

(21) Application number: **11176257.1**

(22) Date of filing: **02.08.2011**

(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
Designated Extension States:
BA ME

- **Duval, Philippe**
FR-08500 Revin (FR)
- **Paillat, Laurent**
FR-08500 Revin (FR)
- **Zownir, Stephane**
FR-08500 Revin (FR)

(71) Applicant: **Electrolux Home Products Corporation N.V.**
1130 Brussel (BE)

(74) Representative: **Nardoni, Andrea et al**
Electrolux Italia S.p.A.
Corso Lino Zanussi, 30
33080 Porcia (PN) (IT)

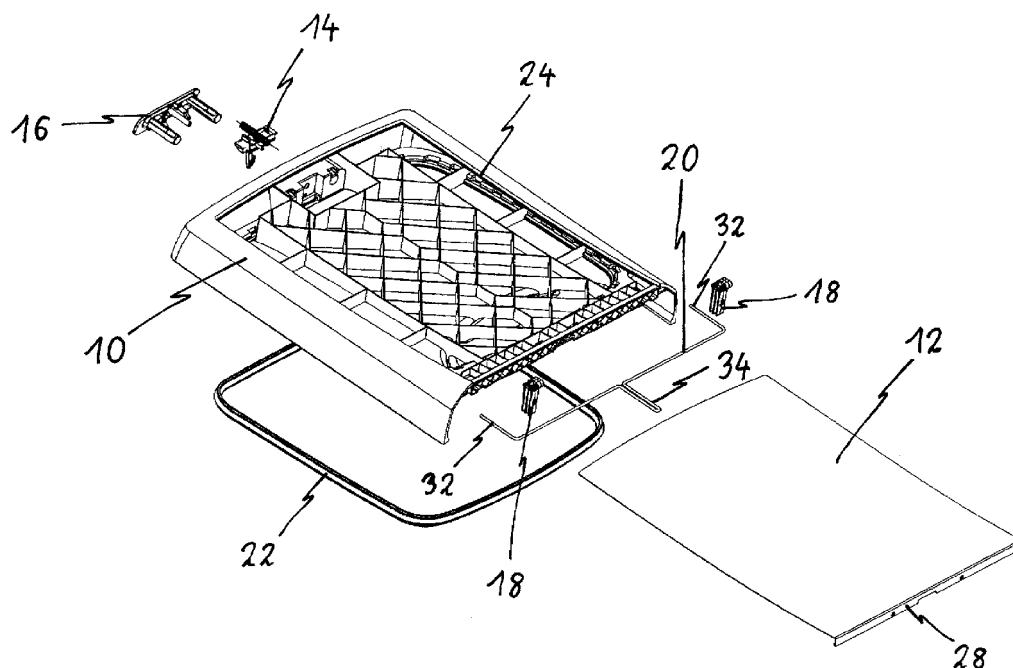
(72) Inventors:
• **Agnez, Yannick**
FR-08500 Revin (FR)

(54) **A top-loading washing machine comprising a pivoting lid**

(57) The present invention relates to a top-loading washing machine comprising a pivoting lid at a top side of said washing machine. The lid includes a lid body (10) and a cover sheet (12). The cover sheet (12) is inserted in or insertable into the lid body (10). The cover sheet

(12) forms the substantial upper surface of the lid. The lid body (10) comprises two lateral guides (24) for inserting the cover sheet (12). The lid body (10) is made of plastics. The lid body (10) forms a single-piece part. Further, the present invention relates to a lid for a top-loading washing machine.

FIG 1



Description

[0001] The present invention relates to a top-loading washing machine comprising a pivoting lid at a top side of said washing machine. Further, the present invention relates to a lid for a top-loading washing machine.

[0002] The lid of a usual top-loading washing machine includes a stamped steel lid and a counter-lid made of plastics, for example polypropylene. The counter-lid is formed as a frame with fins inside said frame. The stamped steel lid is arranged and fixed upon the counter-lid. The stamped steel lid covers the topside of the counter-lid and encloses the sidewalls of said counter-lid.

[0003] However, it is difficult to assemble the counter-lid and the stamped steel lid. The outer dimensions of the counter-lid must be exactly adapted to the inner dimensions of the stamped steel lid. The shape of the lid is limited. In particular, the production of the stamped steel lid having a predetermined shape is very complex.

[0004] DE 40 39 508 C2 discloses a lid for a domestic appliance. The lid comprises an L-shaped frame enclosing a system of several panels. The panels are connected to the L-shaped frame by a plastic composition.

[0005] EP 1 640 494 B1 discloses a lid of a top-loading washing machine. The lid extends over the whole top surface of the washing machine. The lid has a plane upper surface. The lid is adapted to the upper surface of the hopper of the washing machine.

[0006] It is an object of the present invention to provide a top-loading washing machine including a lid, wherein the lid is produced by low complexity.

[0007] The object of the present invention is achieved by the top-loading washing machine according to claim 1.

[0008] The present invention relates to the top-loading washing machine comprising a pivoting lid at a top side of said washing machine, wherein

- the lid includes a lid body and a cover sheet,
- the cover sheet is inserted in or insertable into the lid body,
- the cover sheet forms the substantial upper surface of the lid,
- the lid body comprises two lateral guides for inserting the cover sheet,
- the lid body is made of plastics, and
- the lid body forms a single-piece part.

[0009] The core of the present invention is that the lid body forms the substantial part of the lid and the cover sheet has a simple structure, wherein said cover sheet forms the substantial part of the upper surface. Thus, the design of the lid is determined by the shape of the lid body and the colour of the cover sheet. The simple structure of the cover sheet allows an easy assembling of the lid by inserting the cover sheet into the lid body.

[0010] Preferably, the cover sheet is a metal sheet. The metal sheet has a good stability and allows a plurality of designs.

[0011] Preferably, the lid body is made by an injection mould. The injected lid body allows a production by low costs.

[0012] Further, the cover sheet may be inserted or insertable from the rear side of the lid body. In this case, the cover sheet preferably comprises a rear lip.

[0013] Advantageously, at least one elastic element interacts between the lid and a hopper or a casing of the washing machine, wherein the elastic element is in a relaxed state when the lid is open, and in a pre-stressed state when the lid is closed.

[0014] Advantageously, the elastic element is made of a wire with branches at its end portions and at least one protruding part at its central portion. This contributes to an easy production.

[0015] For example, the branches and the protruding part extend within one plane in the relaxed state of the elastic element.

[0016] Preferably, the branches are inserted in or insertable into the lid body and the protruding part is inserted in or insertable into the hopper or the casing of the washing machine.

[0017] Further, the lid body and the hopper or the casing of the washing machine may be interconnected by two or more, preferably a pair, of hinges.

[0018] Advantageously, the hinges may be inserted in or insertable into corresponding seats in the hopper or casing of the washing machine.

[0019] At the lid, the hinges may be supported by the elastic element.

[0020] Further, a control panel supported by a body may be arranged on the top side of the washing machine and behind the lid, wherein the designs of the cover sheet and the control panel are adapted to each other, and wherein the shapes of the body of the control panel and the lid body are advantageously adapted to each other.

[0021] Moreover, the cover sheet may advantageously comprise a curved surface or may be curved after inserting into the lid body. This increases the number of the possible designs.

[0022] At last, the present invention relates to a lid for a top-loading washing machine, wherein the lid is provided for a washing machine mentioned above.

[0023] The novel and inventive features believed to be the characteristic of the present invention are set forth in the appended claims.

[0024] The invention will be described in further detail with reference to the drawings, in which

FIG 1 shows a schematic exploded perspective view of a lid for a top-loading washing machine according to a preferred embodiment of the present invention,

FIG 2 shows a schematic perspective view of the lid for the top-loading washing machine according to the preferred embodiment of the present invention,

- FIG 3 shows a schematic perspective view of the lid for the top-loading washing machine in a reversed position according to the preferred embodiment of the present invention,
- FIG 4 shows a schematic perspective view of a hopper of the top-loading washing machine according to the preferred embodiment of the present invention,
- FIG 5 shows a schematic perspective view of the top-loading washing machine according to the preferred embodiment of the present invention,
- FIG 6 shows a schematic sectional side view of the top-loading washing machine according to the preferred embodiment of the present invention, and
- FIG 7 shows a schematic sectional side view of an upper part of the top-loading washing machine in an open state according to the preferred embodiment of the present invention.

[0025] FIG 1 shows a schematic exploded perspective view of a lid for a top-loading washing machine according to a preferred embodiment of the present invention. The lid advantageously comprises a lid body 10, a cover sheet 12, preferably, but not necessarily made of metal (but it may be made also of wood, or plastics, or other material, for example a composite material), a latch element 14, a push button 16, a pair of hinges 18, an elastic element 20 and a gasket 22.

[0026] The lid body 10 is made of plastics. Preferably, the lid body 10 is made of an injected plastic material. The cover sheet 12 is provided for decorative and protective purposes, and may have any colour or external finishing. The cover sheet 12 is insertable into the lid body 10. For this purpose, the lid body 10 advantageously comprises guides 24 in its upper portion. The cover sheet 12 is fixable at the lid body 10 preferably by screws.

[0027] The lid according to the present invention has the advantage that the cover sheet 12 is substantially formed as preferably flat sheet only. The cover sheet 12 has no complex shape. For example, the cover sheet 12 does not need any side walls. In this example, the cover sheet 12 comprises a rear lip 28. For assembling the lid, the cover sheet 12 only has to be moved between the guides 24 of the lid body 10. Since the guides 24 cover the borders of the cover sheet 12, the dimensions of the lid body 10 and the cover sheet 12 do not require a very high accuracy.

[0028] The latch element 14 and the push button 16 are advantageously provided in the front portion of the lid. The latch element 14 allows a locking of the lid with a hopper 26 of the top-loading washing machine. The user can release the latch element 14 by pressing the push button 16. The hinges 18 allow a pivoting connec-

tion to the hopper 26 of the top-loading washing machine. The hinges 18 are preferably supported at the lid by the elastic element 20. Further, the hinges 18 are advantageously fixed in corresponding seats 38 of the hopper 26, preferably by snap-fittings.

[0029] The elastic element 20 allows an automatic opening of the lid, after the user has released the latch element 14 by pressing the push button 16. The elastic element 20 has preferably two branches 32 which are positioned in corresponding seats in the lid body 10. A rear part 34 of the elastic element 20 extends from a central portion of said elastic element 20 in a direction opposite to the branches 32. The elastic element 20 is preferably fastened to the lid body 10 by the rear lip 28 of the cover sheet 12.

[0030] In a relaxed state of the elastic element 20 the lid is open (FIG. 7). In said relaxed state the branches 32 and the rear part 34 of the elastic element 20 are advantageously in the same plane. When the lid is closed (FIG. 6), then the elastic element 20 is deformed, so that the plane of the branches 32 and the plane of the rear part 34 form an angle preferably of about 90°.

[0031] The gasket 22 is preferably arranged at the bottom side of the lid body 10. The gasket 22 is clamped between the body 10 and the hopper 26 in the closed state of the lip.

[0032] FIG 2 shows a schematic perspective view of the lid for the top-loading washing machine according to the preferred embodiment of the present invention. In FIG 2 the lid is in an assembled state.

[0033] The cover sheet 12 is inserted in the lid body 10, so that the lid appears compactly. The rear part 34 of the elastic element 20 extends rearwards in a horizontal plane. This is the relaxed state of the elastic element 20.

[0034] FIG 3 shows a schematic perspective view of the lid for the top-loading washing machine in a reversed position according to the preferred embodiment of the present invention. FIG 3 clarifies the arrangements of the latch element 14, the push button 16, the pair of hinges 18, the rear part 34 of the elastic element 20 and the gasket 22.

[0035] FIG 4 shows a schematic perspective view of the hopper 26 of the top-loading washing machine according to the preferred embodiment of the present invention. The hopper 26 forms an upper part of a casing 30 of the top-loading washing machine.

[0036] The hopper 26 includes a front opening 36 for receiving the latch element 14 of the lid body 12. Further, the hopper 26 includes the seats 38 for receiving the hinges 18 of the lid body 12. Moreover, the hopper 26 includes a rear opening 40 for receiving the rear part 34 of the elastic element 20. In this example, the rear opening 40 advantageously includes two holes with a common vertical axis.

[0037] FIG 5 shows a schematic perspective view of the top-loading washing machine according to the preferred embodiment of the present invention. The lid is

arranged on the top of the casing 30. The shape of the lid body 10 is adapted to the shape of the casing 30.

[0038] A control panel 42 is preferably arranged on the top of the casing 30 and behind the lid. The control panel 42 advantageously includes switch elements and displays. The control panel 42 is supported by a body 44. The shape of the body 44 of the control panel 42 is adapted to the shape of the lid body 10. The design of the cover sheet 12 can be adapted to the design of the control panel 42 or vice versa.

[0039] FIG 6 shows a schematic sectional side view of the top-loading washing machine according to the preferred embodiment of the present invention. FIG 6 clarifies the shapes of the lid body 10 and the body 44 of the control panel 42. The top wall of the washing machine preferably forms a substantially continuous upper surface of the lid and the control panel 42. Further, the structure of the lid allows a curved upper surface by low complexity.

[0040] FIG 7 shows a schematic sectional side view of an upper part of the top-loading washing machine in an open state according to the preferred embodiment of the present invention. FIG 6 and FIG 7 clarify the position of the rear part 34 of the elastic element 20.

[0041] Although an illustrative embodiment of the present invention has been described herein with reference to the accompanying drawings, it is to be understood that the present invention is not limited to that precise embodiment, and that various other changes and modifications may be affected therein by one skilled in the art without departing from the scope or spirit of the invention. All such changes and modifications are intended to be included within the scope of the invention as defined by the appended claims.

List of reference numerals

[0042]

10 lid body
12 cover sheet
14 latch element
16 push button
18 hinge
20 elastic element
22 gasket
24 guide
26 hopper
28 rear lip

30 casing
32 branch
5 34 rear part
36 front opening
38 seat
10 40 rear opening
42 control panel
15 44 body of the control panel

Claims

- 20 1. A top-loading washing machine comprising a pivoting lid at a top side of said washing machine, wherein
 - the lid includes a lid body (10) and a cover sheet (12),
 - the cover sheet (12) is inserted in or insertable into the lid body (10),
 - the cover sheet (12) forms the substantial upper surface of the lid,
 - the lid body (10) comprises two lateral guides (24) for inserting the cover sheet (12),
 - the lid body (10) is made of plastics, and
 - the lid body (10) forms a single-piece part.
- 35 2. The washing machine according to claim 1, **characterized in that** the cover sheet is a metal sheet (12).
- 40 3. The washing machine according to claim 1 or 2, **characterized in that** the lid body (10) is made by an injection mould.
- 45 4. The washing machine according to any one of the preceding claims, **characterized in that** the cover sheet (12) is inserted or insertable from the rear side of the lid body (10).
- 50 5. The washing machine according to claim 4, **characterized in that** the cover sheet (12) comprises a rear lip (28).
- 55 6. The washing machine according to any one of the preceding claims, **characterized in that** at least one elastic element (20) interacts between the lid and a hopper (26) or a casing (30) of the washing machine, wherein the elastic element (20) is in a relaxed state, when the lid is open, and in a pre-

stressed state, when the lid is closed.

the lid is provided for a washing machine according to any one of the claims 1 to 14.

7. The washing machine according to claim 6,
characterized in that
the elastic element (20) is made of a wire with branches (32) at its end portions and at least one protruding part (34) at its central portion. 5
8. The washing machine according to claim 7,
characterized in that
the branches (32) and the protruding part (34) extend within one plane in the relaxed state of the elastic element (20). 10
9. The washing machine according to claim 7 or 8,
characterized in that
the branches (32) are inserted in or insertable into the lid body (10) and the protruding part (34) is inserted in or insertable into the hopper (26) or the casing (30) of the washing machine. 15 20
10. The washing machine according to any one of the preceding claims,
characterized in that
the lid body (10) and the hopper (26) or the casing (30) of the washing machine are interconnected by two or more hinges (18). 25
11. The washing machine according to claim 10,
characterized in that
the hinges (18) are inserted in or insertable into corresponding seats (30) in the hopper (26) or casing (30) of the washing machine. 30
12. The washing machine according to claim 10 or 11,
characterized in that
the hinges (18) are supported by the elastic element (20). 35
13. The washing machine according to any one of the preceding claims,
characterized in that
a control panel (42) supported by a body (44) is arranged on the top side of the washing machine and behind the lid, wherein the designs of the cover sheet (12) and the control panel (42) are adapted to each other, and wherein the shapes of the body (44) of the control panel (42) and the lid body (10) are adapted to each other. 40 45 50
14. The washing machine according to any one of the preceding claims,
characterized in that
the cover sheet (12) comprises a curved surface or is curved after inserting into the lid body (10). 55
15. A lid for a top-loading washing machine,
characterized in that

FIG 1

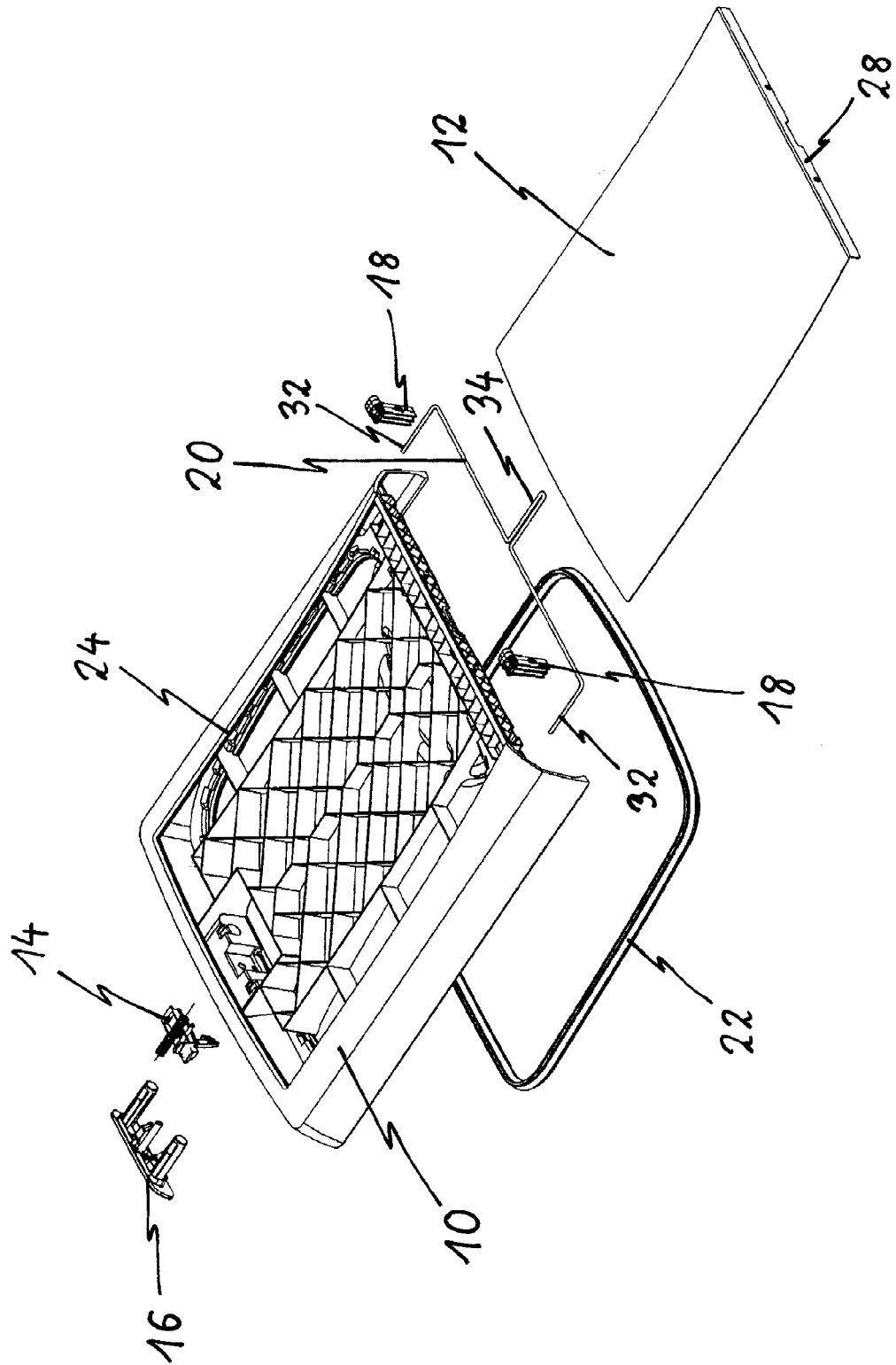


FIG 2

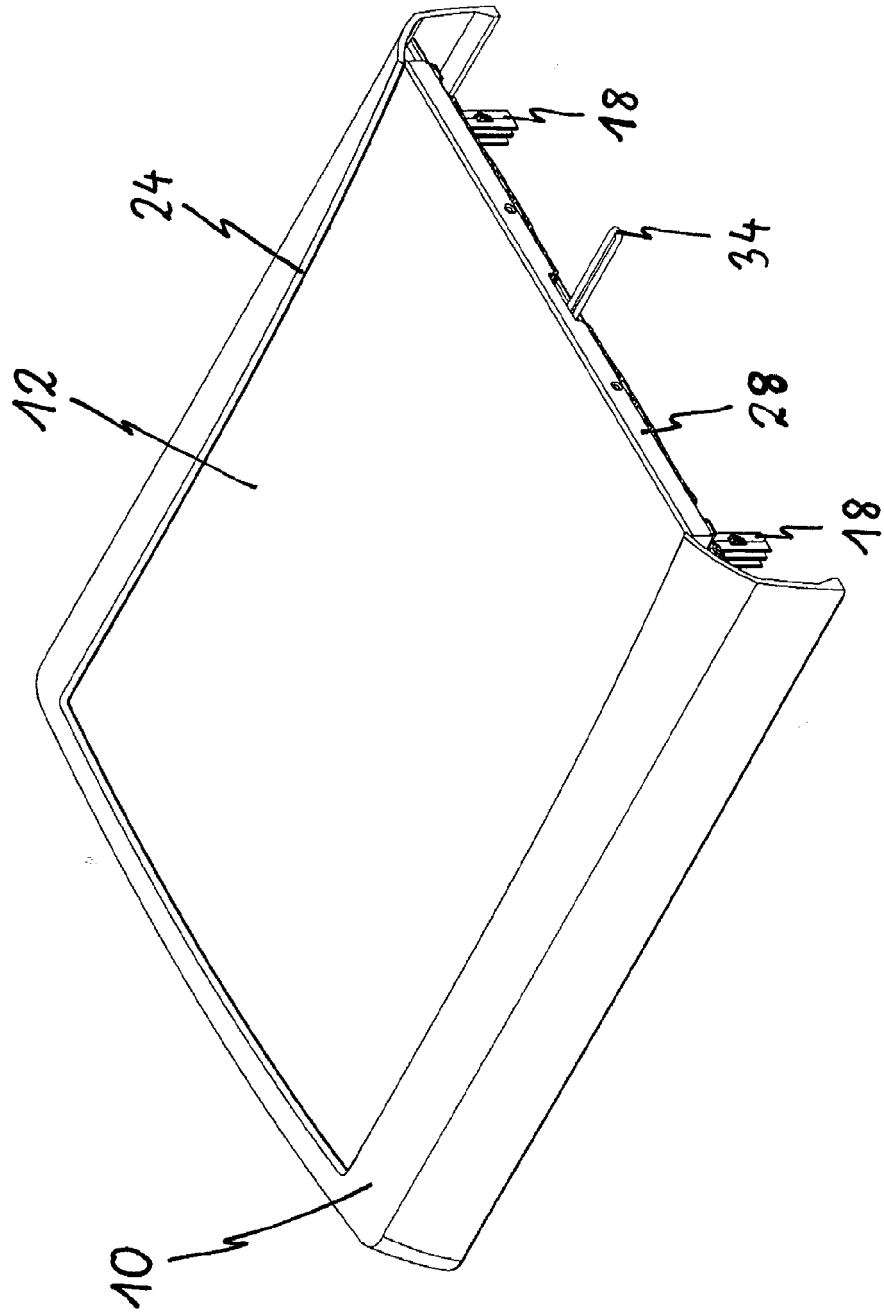


FIG 3

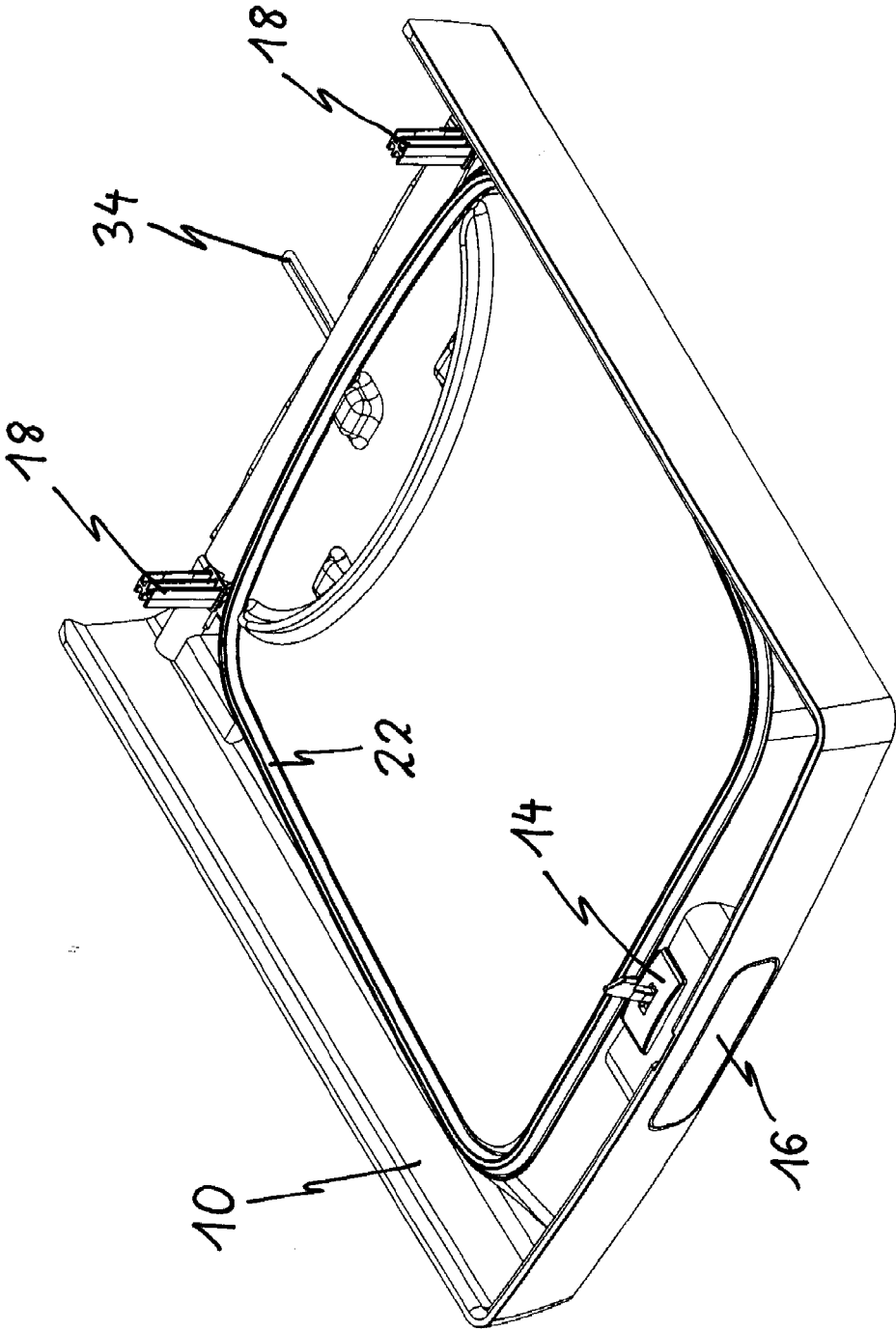


FIG 4

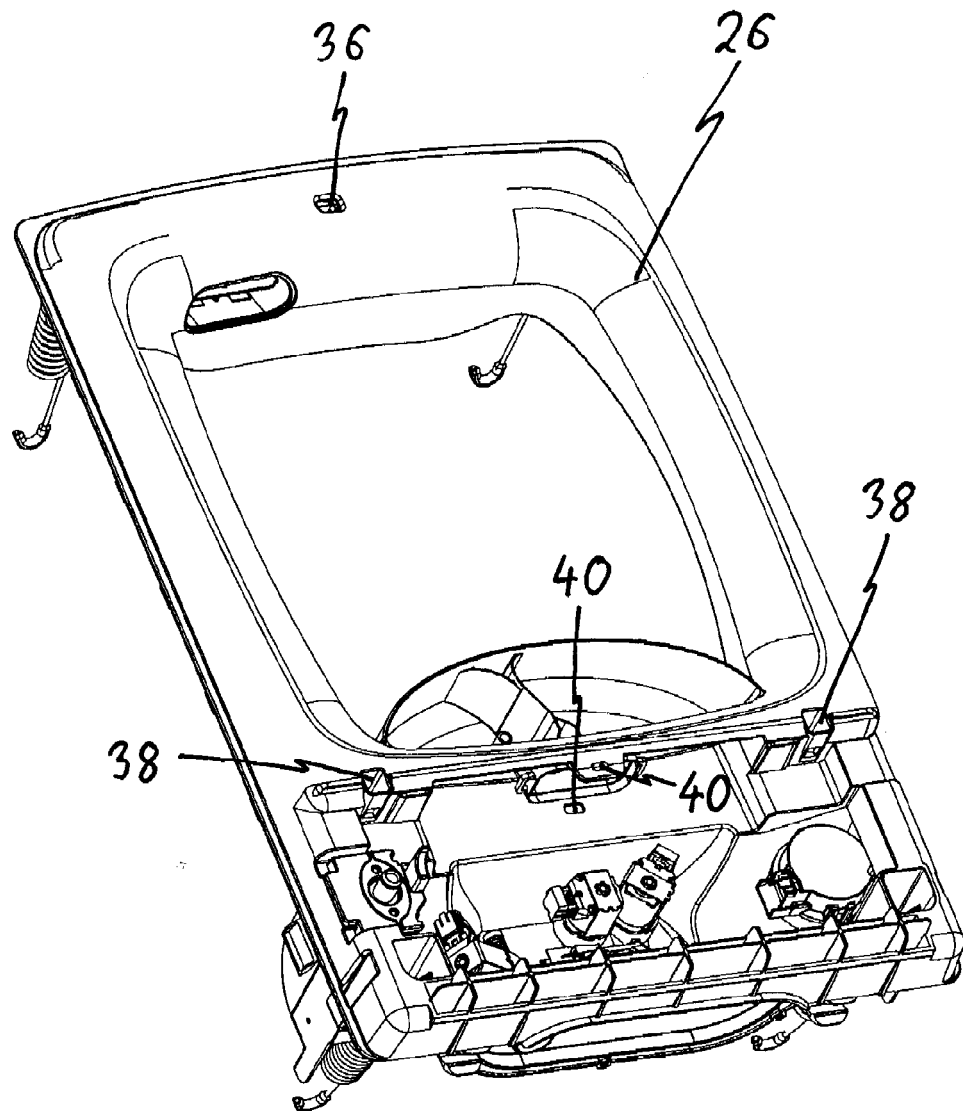


FIG 5

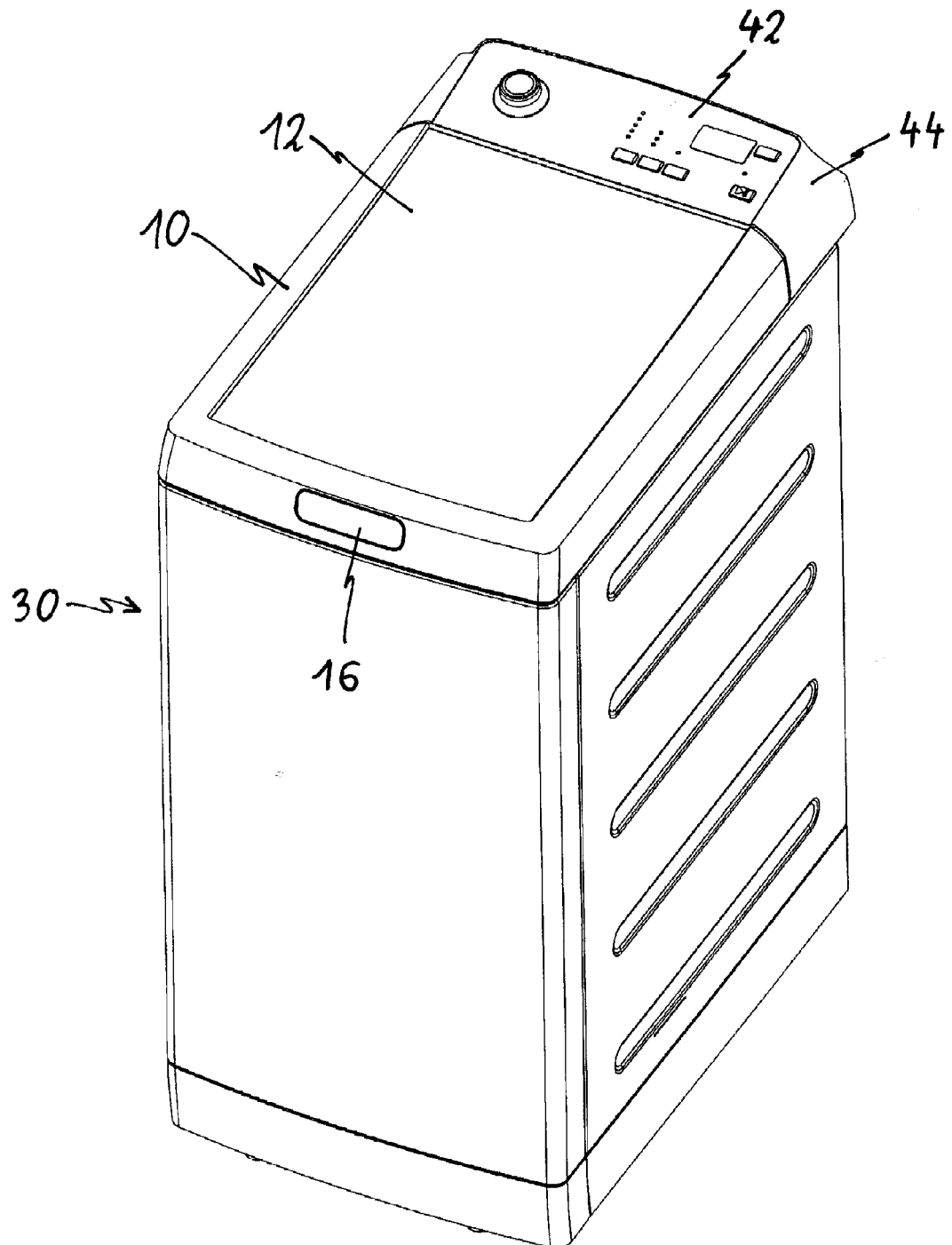


FIG 6

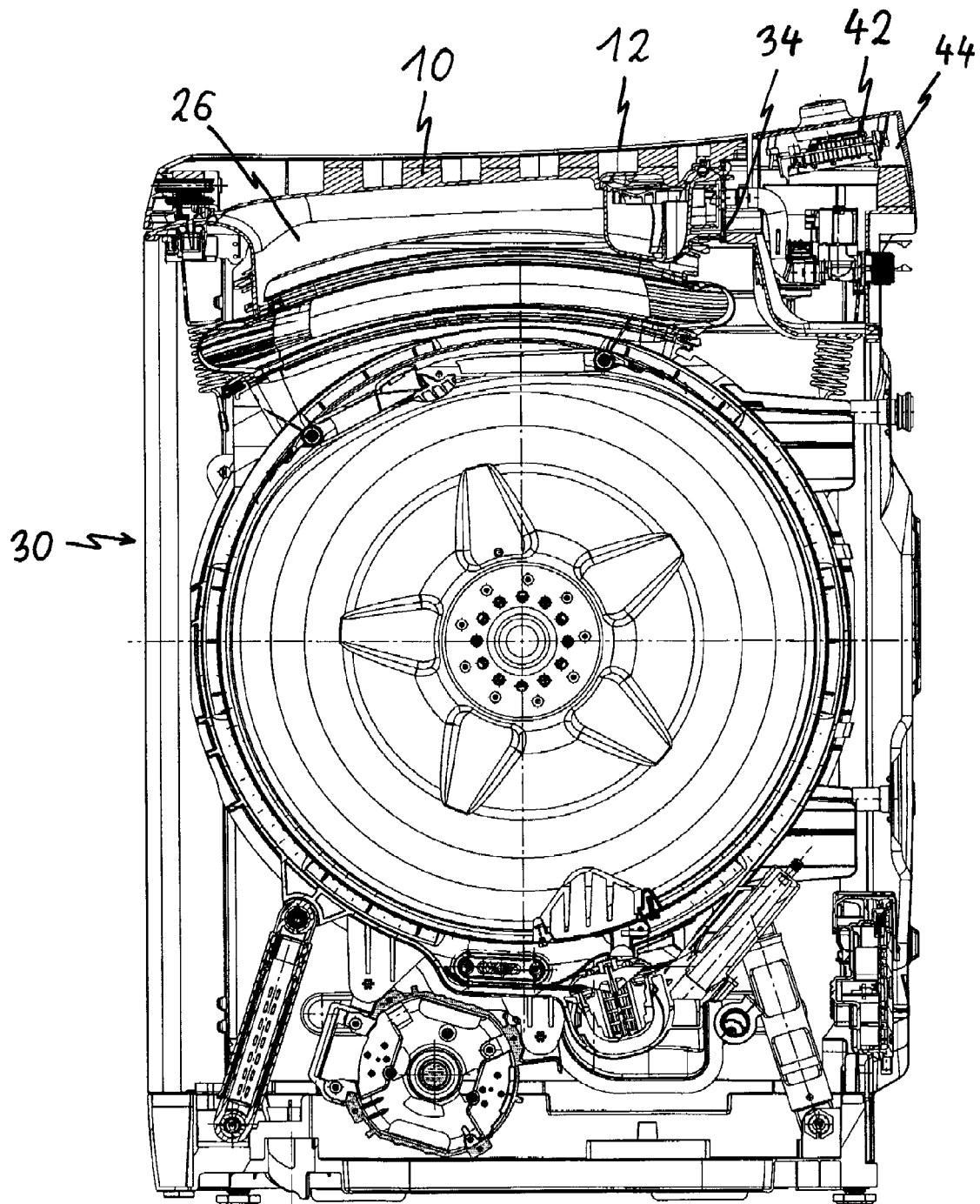
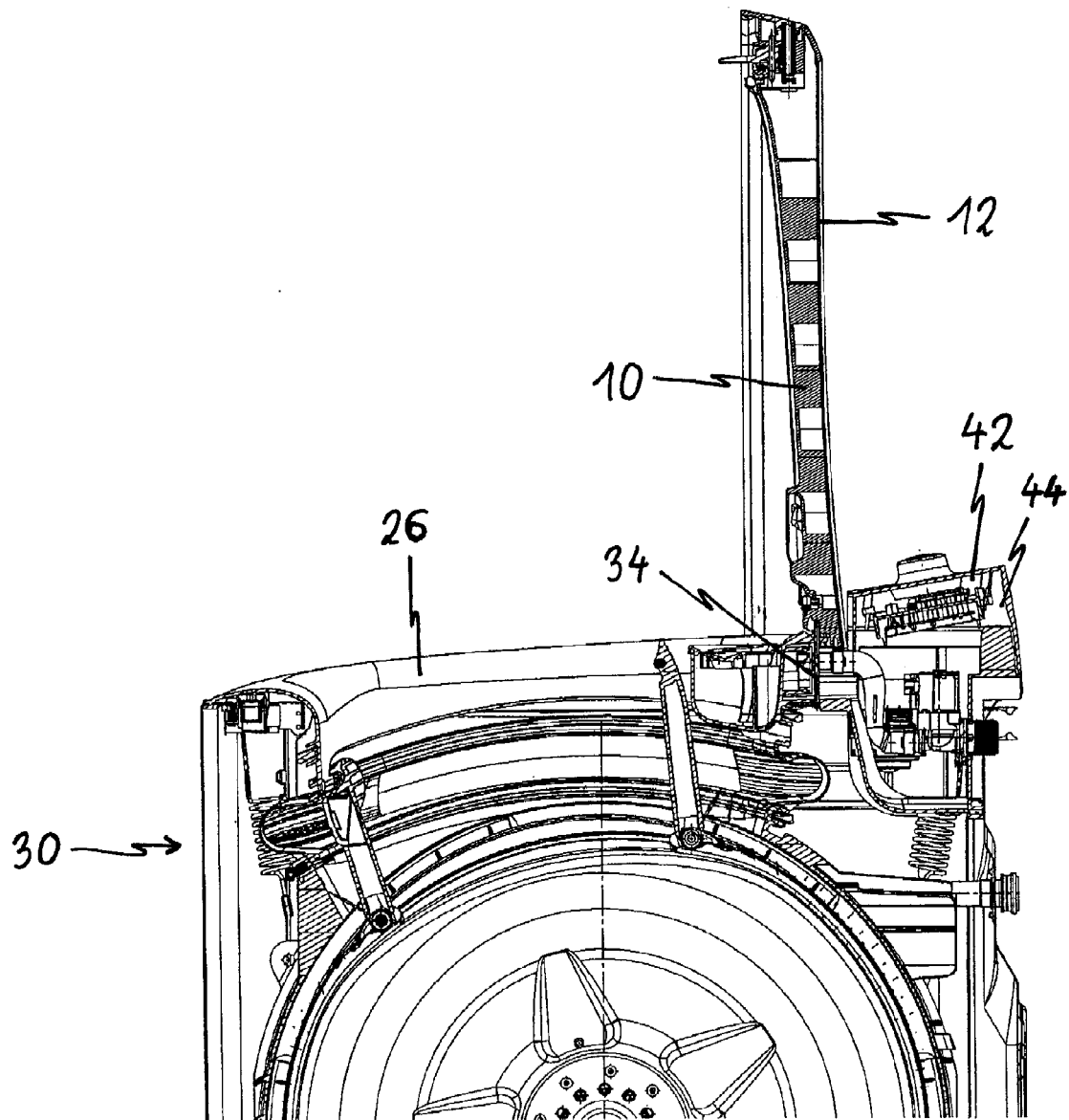


FIG 7





EUROPEAN SEARCH REPORT

Application Number
EP 11 17 6257

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	GB 2 115 473 A (TOKYO SHIBAURA ELECTRIC CO) 7 September 1983 (1983-09-07)	1,3-5, 10,11, 13-15	INV. D06F23/04 D06F39/14
Y	* the whole document *	6-9,12	
Y	FR 2 624 894 A1 (ESSWEIN SA [FR]) 23 June 1989 (1989-06-23) * the whole document *	6-9,12	
X	US 2006/090523 A1 (LYU JAE C [KR]) 4 May 2006 (2006-05-04) * the whole document *	1,3,6, 10-15	
X	US 6 766 596 B1 (BIENICK CRAIG [US] ET AL) 27 July 2004 (2004-07-27) * abstract * * column 1, lines 5-9 * * column 5, lines 13-43 * * column 6, lines 31-46; figures *	1,3,6, 10-15	
A,D	DE 40 39 508 A1 (BOSCH SIEMENS HAUSGERAETE [DE]) 13 June 1991 (1991-06-13) * the whole document *	1-15	TECHNICAL FIELDS SEARCHED (IPC) D06F
X	DE 83 18 793 U1 (FAINA S.P.A.) 20 October 1983 (1983-10-20) * the whole document *	1-4,10, 11,15	
A	EP 0 180 223 A2 (ZANUSSI COMPONENTI PLASTICA [IT]) 7 May 1986 (1986-05-07) * the whole document *	1-5,15	
-/--			
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 9 February 2012	Examiner Prosig, Christina
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			

 1
EPO FORM 1503 03.82 (P04C01)



EUROPEAN SEARCH REPORT

Application Number
EP 11 17 6257

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	US 4 947 516 A (KRETCHMAN GERALD L [US] ET AL) 14 August 1990 (1990-08-14) * abstract * * column 1, lines 6-25 * * column 3, line 26 - column 4, line 29; figures *	1,2,6, 10-12, 14,15	
A	----- CN 101 565 891 A (GUANGDONG GALANZ GROUP CO LTD [CN] GUANGDONG GALANZ GROUP CO LTD) 28 October 2009 (2009-10-28) * figures *	1,6-15	
A	----- EP 1 862 579 A1 (ELECTROLUX HOME PROD CORP [BE]) 5 December 2007 (2007-12-05) * abstract * * paragraphs [0024], [0025]; figures *	1,6-15	
			TECHNICAL FIELDS SEARCHED (IPC)
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 9 February 2012	Examiner Prosig, Christina
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			

1
EPO FORM 1503 03/82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 11 17 6257

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
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

09-02-2012

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 2115473 A	07-09-1983	AU 534429 B2	26-01-1984
		AU 9186482 A	01-09-1983
		GB 2115473 A	07-09-1983
		JP 58136391 A	13-08-1983
		US 4522311 A	11-06-1985
		ZA 8209548 A	26-10-1983
FR 2624894 A1	23-06-1989	NONE	
US 2006090523 A1	04-05-2006	KR 20060039185 A	08-05-2006
		US 2006090523 A1	04-05-2006
US 6766596 B1	27-07-2004	AT 420990 T	15-01-2009
		CA 2473769 A1	14-01-2005
		CN 1594712 A	16-03-2005
		EP 1498538 A1	19-01-2005
		ES 2320990 T3	01-06-2009
		JP 4719433 B2	06-07-2011
		JP 2005058753 A	10-03-2005
		KR 20050008497 A	21-01-2005
		US 6766596 B1	27-07-2004
DE 4039508 A1	13-06-1991	DE 4039508 A1	13-06-1991
		ES 2027151 A6	16-05-1992
		FR 2655666 A1	14-06-1991
		IT 1246499 B	19-11-1994
DE 8318793 U1	20-10-1983	NONE	
EP 0180223 A2	07-05-1986	EP 0180223 A2	07-05-1986
		ES 289987 U	01-03-1986
US 4947516 A	14-08-1990	NONE	
CN 101565891 A	28-10-2009	NONE	
EP 1862579 A1	05-12-2007	AT 476541 T	15-08-2010
		EP 1862579 A1	05-12-2007
		ES 2351384 T3	03-02-2011
		IT PN20060021 U1	01-12-2007

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

- DE 4039508 C2 [0004]
- EP 1640494 B1 [0005]