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

Von oben befüllbare Waschmaschine mit schwenkbarem Deckel

Machine à laver à chargement par le haut comportant un couvercle pivotant

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

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(74) Representative: **Electrolux Group Patents**
AB Electrolux
Group Patents
105 45 Stockholm (SE)

(73) Proprietor: **Electrolux Home Products**
Corporation N.V.
1130 Brussels (BE)

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

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Description

[0001] The present invention relates to a top-loading washing machine comprising a pivoting lid at a top side of said 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] GB 2155473 discloses a lid with a see-through plate to open and close an opening portion of an apparatus, comprising: a lid body having an opening for visually checking the interior of the apparatus, a rings haped engaging groove formed along the periphery of the opening, and first engaging means provided in the engaging groove, the lid body opening and closing the opening portion of the apparatus; a see-through plate having an outer peripheral edge closely resembling the opening in shape and second engaging means engaging the first engaging means, and removably attached to the lid body to close the opening, so that the interior of the apparatus can be externally observed through the see-through plate; and holding means removably fitted in the engaging groove to hold the see-through plate as the first and second engaging means are engaged, and to cover the first and second engaging means.

[0007] FR 2624894 discloses a domestic appliance having a body and a cover; it comprises means which perform both a cover/body connection function, a hinge-pin function and a function of returning the cover to the open position.

[0008] US2006/090523 discloses a door on a washing machine, in which a seating position of a door glass is guided at the time of placing the door glass on a door frame, for securing the door glass at a right position. The door includes a transparent door window, and a door frame mounted on a top cover of the washing machine, the top cover having a cloth opening, and the door frame having an opening, and a guide for guiding positioning of the transparent door window to cover the opening.

[0009] US6766596 discloses a door/lid for an appliance, such as a washer or dryer, including a tempered glass panel upon an inner surface of which is applied one or two screen printed borders of fusible ceramic printing medium defining a substantially opaque peripheral border bounding a central viewing area through which clothing associated with a washer or dryer can be viewed when the door/lid is closed. An injection molded narrow encapsulation, border or rim surrounds an edge of the tempered glass panel and effects a water-tight seal therewith. Third ceramic printing means in the form of instructions or safety rules is applied to the first or second printing medium but is indiscernible from the outside when the door/lid is closed. When the door/lid is open, the instructions/safety rules are totally divisible, upright and readable.

[0010] DE4039508 discloses a housing lid hinged on its sides and for use in a top loading household laundry treatment machine or dishwasher.

[0011] DE8318793U1 discloses an upper cover plate or cover for washing machines, dishwashers, refrigerators and the like.

[0012] EP0180223 discloses a working table top for electric household appliances such as washing machines, refrigerators and the like, essentially composed of a one-piece frame preferably made of a plastics material by injection moulding, and a flexible panel to be inserted into the frame.

[0013] US4947516 discloses a lid retainer mechanism for an automatic washer.

[0014] CN101565891 discloses a cover structure of a washing machine.

[0015] EP1862579 discloses a top-loading washing machine.

[0016] US2011121694 discloses a washing machine comprising a cabinet, a top cover arranged at an upper surface of the cabinet and having a laundry entrance hole, wherein the upper surface of the cabinet opens, and a lid assembly arranged at the top cover and opens/closes the laundry entrance hole is provided.

[0017] KR2010095934 discloses a laundry handling device to enhance the safety by preventing the user hands from becoming injured through the control on a door when the door is closed.

[0018] 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.

[0019] The object of the present invention is achieved by the top-loading washing machine according to claim 1.

[0020] 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.

[0021] 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.

[0022] Preferably, the cover sheet is a metal sheet. The metal sheet has a good stability and allows a plurality of designs.

[0023] Preferably, the lid body is made by an injection mould. The injected lid body allows a production by low costs.

[0024] Further, the cover sheet is inserted or insertable from the rear side of the lid body. In this case, the cover sheet preferably comprises a rear lip.

[0025] 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.

[0026] 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.

[0027] For example, the branches and the protruding part extend within one plane in the relaxed state of the elastic element.

[0028] 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.

[0029] Further, the lid body and the hopper or the casing of the washing machine are interconnected by two or more, preferably a pair, of hinges.

[0030] Advantageously, the hinges may be inserted in or insertable into corresponding seats in the hopper or casing of the washing machine.

[0031] At the lid, the hinges may be supported by the elastic element.

[0032] 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.

[0033] 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.

[0034] At last, the present invention relates to a lid for a top-loading washing machine, wherein the lid is pro-

vided for a washing machine mentioned above.

[0035] The novel and inventive features believed to be the characteristic of the present invention are set forth in the appended claims.

5 **[0036]** 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, 10

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, 15

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, 20

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, 25

FIG 5 shows a schematic perspective view of the top-loading washing machine according to the preferred embodiment of the present invention, 30

FIG 6 shows a schematic sectional side view of the top-loading washing machine according to the preferred embodiment of the present invention, and 35

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. 40

[0037] 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. 45

[0038] 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. 50 55

[0039] 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.

[0040] 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 connection 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.

[0041] 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.

[0042] 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°.

[0043] 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.

[0044] 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.

[0045] 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.

[0046] 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.

[0047] 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.

[0048] 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.

[0049] 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.

[0050] 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.

[0051] 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.

[0052] 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.

List of reference numerals

[0053]

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

- 34 rear part
- 36 front opening
- 38 seat
- 40 rear opening
- 42 control panel
- 44 body of the control panel

Claims

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,
 - the lid body (10) and a hopper (26) or a casing (30) of the washing machine are interconnected by two or more hinges (18).

characterized in that
the cover sheet (12) is inserted or insertable from the rear side of the lid body (10).
2. The washing machine according to claim 1, **characterized in that**
the cover sheet is a metal sheet (12).
3. The washing machine according to claim 1 or 2, **characterized in that**
the lid body (10) is made by an injection mould.
4. The washing machine according to claim 1, **characterized in that**
the cover sheet (12) comprises a rear lip (28).
5. 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 the hopper (26) or the 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.
6. The washing machine according to claim 5, **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.
7. The washing machine according to claim 6,

characterized in that

the branches (32) and the protruding part (34) extend within one plane in the relaxed state of the elastic element (20).

8. The washing machine according to claim 6 or 7, **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.
9. The washing machine according to claim 1, **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.
10. The washing machine according to any one of the preceding claims, **characterized in that**
the hinges (18) are supported by the elastic element (20).
11. 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.
12. 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).

Patentansprüche

1. Toplader-Waschmaschine, umfassend einen Schwenkdeckel an einer oberen Seite der Waschmaschine, wobei
 - der Deckel einen Deckelkörper (10) und eine Abdeckplatte (12) aufweist,
 - die Abdeckplatte (12) in den Deckelkörper (10) eingeführt oder einführbar ist,
 - die Abdeckplatte (12) die wesentliche obere Fläche des Deckels bildet,
 - der Deckelkörper (10) zwei seitliche Führungen (24) zum Einführen der Abdeckplatte (12) umfasst,
 - der Deckelkörper (10) aus Kunststoff herge-

- stellt ist und
 - der Deckelkörper (10) ein einteiliges Teil bildet,
 - der Deckelkörper (10) und ein Aufgabetrichter (26) oder ein Gehäuse (30) der Waschmaschine durch zwei oder mehr Scharniere (18) miteinander verbunden sind,
dadurch gekennzeichnet, dass
 die Abdeckplatte (12) von der hinteren Seite des Deckelkörpers (10) eingeführt oder einführbar ist.
2. Waschmaschine nach Anspruch 1,
dadurch gekennzeichnet, dass
 die Abdeckplatte eine Metallplatte (12) ist.
3. Waschmaschine nach Anspruch 1 oder 2,
dadurch gekennzeichnet, dass
 der Deckelkörper (10) mittels eines Spritzgusswerkzeugs hergestellt ist.
4. Waschmaschine nach Anspruch 1,
dadurch gekennzeichnet, dass
 die Abdeckplatte (12) eine hintere Lippe (28) umfasst.
5. Waschmaschine nach einem der vorhergehenden Ansprüche,
dadurch gekennzeichnet, dass
 mindestens ein elastisches Element (20) zwischen dem Deckel und dem Aufgabetrichter (26) oder dem Gehäuse (30) der Waschmaschine wirkt, wobei das elastische Element (20) in einem entspannten Zustand ist, wenn der Deckel offen ist, und in einem vorgespannten Zustand ist, wenn der Deckel geschlossen ist.
6. Waschmaschine nach Anspruch 5,
dadurch gekennzeichnet, dass
 das elastische Element (20) aus einem Draht mit Ästen (32) an seinen Endabschnitten und mindestens einem vorragenden Teil (34) an seinem mittleren Abschnitt hergestellt ist.
7. Waschmaschine nach Anspruch 6,
dadurch gekennzeichnet, dass
 sich die Äste (32) und der vorragende Teil (34) in dem entspannten Zustand des elastischen Elements (20) in einer Ebene erstrecken.
8. Waschmaschine nach Anspruch 6 oder 7,
dadurch gekennzeichnet, dass
 die Äste (32) in den Deckelkörper (10) eingeführt oder einführbar sind und der vorragende Teil (34) in den Aufgabetrichter (26) oder das Gehäuse (30) der Waschmaschine eingeführt oder einführbar ist.
9. Waschmaschine nach Anspruch 1,
dadurch gekennzeichnet, dass
 die Scharniere (18) in entsprechende Sitze (30) in dem Aufgabetrichter (26) oder dem Gehäuse (30) der Waschmaschine eingeführt oder einführbar sind.
10. Waschmaschine nach einem der vorhergehenden Ansprüche,
dadurch gekennzeichnet, dass
 die Scharniere (18) durch das elastische Element (20) gestützt sind.
11. Waschmaschine nach einem der vorhergehenden Ansprüche,
dadurch gekennzeichnet, dass
 ein von einem Körper (44) gestütztes Bedienfeld (42) an der oberen Seite der Waschmaschine und hinter dem Deckel angeordnet ist, wobei die Auslegungen der Abdeckplatte (12) und des Bedienfelds (42) aneinander angepasst sind und wobei die Formen des Körpers (44) des Bedienfelds (42) und des Deckelkörpers (10) aneinander angepasst sind.
12. Waschmaschine nach einem der vorhergehenden Ansprüche,
dadurch gekennzeichnet, dass
 die Abdeckplatte (12) eine gekrümmte Fläche umfasst oder nach dem Einführen in den Deckelkörper (10) gekrümmt ist.
- Revendications**
1. Machine à laver à chargement par le haut, comprenant un couvercle pivotant au niveau d'un côté supérieur de ladite machine à laver,
- le couvercle comportant un corps de couvercle (10) et une feuille de recouvrement (12),
 - la feuille de recouvrement (12) étant ou pouvant être insérée dans le corps de couvercle (10),
 - la feuille de recouvrement (12) formant la majeure partie de la surface supérieure du couvercle,
 - le corps de couvercle (10) comprenant deux guides latéraux (24) pour l'insertion de la feuille de recouvrement (12),
 - le corps de couvercle (10) étant fabriqué en plastique, et
 - le corps de couvercle (10) formant une partie d'une seule pièce,
 - le corps de couvercle (10) et une trémie (26) ou un boîtier (30) de la machine à laver étant interconnectés par deux ou plus de deux charnières (18),
- caractérisée en ce que**
 la feuille de recouvrement (12) est ou peut être insérée depuis le côté arrière du corps de couvercle (10).

2. Machine à laver selon la revendication 1,
caractérisée en ce que
la feuille de recouvrement est une tôle métallique (12) . 5
3. Machine à laver selon la revendication 1 ou 2,
caractérisée en ce que
le corps de couvercle (10) est fabriqué par moulage par injection. 10
4. Machine à laver selon la revendication 1,
caractérisée en ce que
la feuille de recouvrement (12) comprend une lèvre arrière (28). 15
5. Machine à laver selon l'une quelconque des revendications précédentes,
caractérisée en ce
qu'au moins un élément élastique (20) interagit entre le couvercle et la trémie (26) ou le boîtier (30) de la machine à laver, l'élément élastique (20) étant dans un état relâché lorsque le couvercle est ouvert, et dans un état précontraint lorsque le couvercle est fermé. 20 25
6. Machine à laver selon la revendication 5,
caractérisée en ce que
l'élément élastique (20) est fabriqué en fil métallique avec des branches (32) au niveau de ses portions d'extrémité et au moins une partie saillante (34) au niveau de sa portion centrale. 30
7. Machine à laver selon la revendication 6,
caractérisée en ce que
les branches (32) et la partie saillante (34) s'étendent à l'intérieur d'un plan dans l'état relâché de l'élément élastique (20). 35
8. Machine à laver selon la revendication 6 ou 7,
caractérisée en ce que
les branches (32) sont ou peuvent être insérées dans le corps de couvercle (10) et la partie saillante (34) est ou peut être insérée dans la trémie (26) ou le boîtier (30) de la machine à laver. 40 45
9. Machine à laver selon la revendication 1,
caractérisée en ce que
les charnières (18) sont ou peuvent être insérées dans des sièges correspondants (30) dans la trémie (26) ou le boîtier (30) de la machine à laver. 50
10. Machine à laver selon l'une quelconque des revendications précédentes,
caractérisée en ce que
les charnières (18) sont supportés par l'élément élastique (20) . 55
11. Machine à laver selon l'une quelconque des revendications précédentes,
caractérisée en ce
qu'un panneau de commande (42) supporté par un corps (44) est disposé sur le côté supérieur de la machine à laver et derrière le couvercle, les conceptions de la feuille de recouvrement (12) et du panneau de commande (42) étant adaptées l'une à l'autre et les formes du corps (44) du panneau de commande (42) et du corps de couvercle (10) étant adaptées l'une à l'autre.
12. Machine à laver selon l'une quelconque des revendications précédentes,
caractérisée en ce que
la feuille de recouvrement (12) comprend une surface courbe ou est incurvée après son insertion dans le corps de couvercle (10).

FIG 1

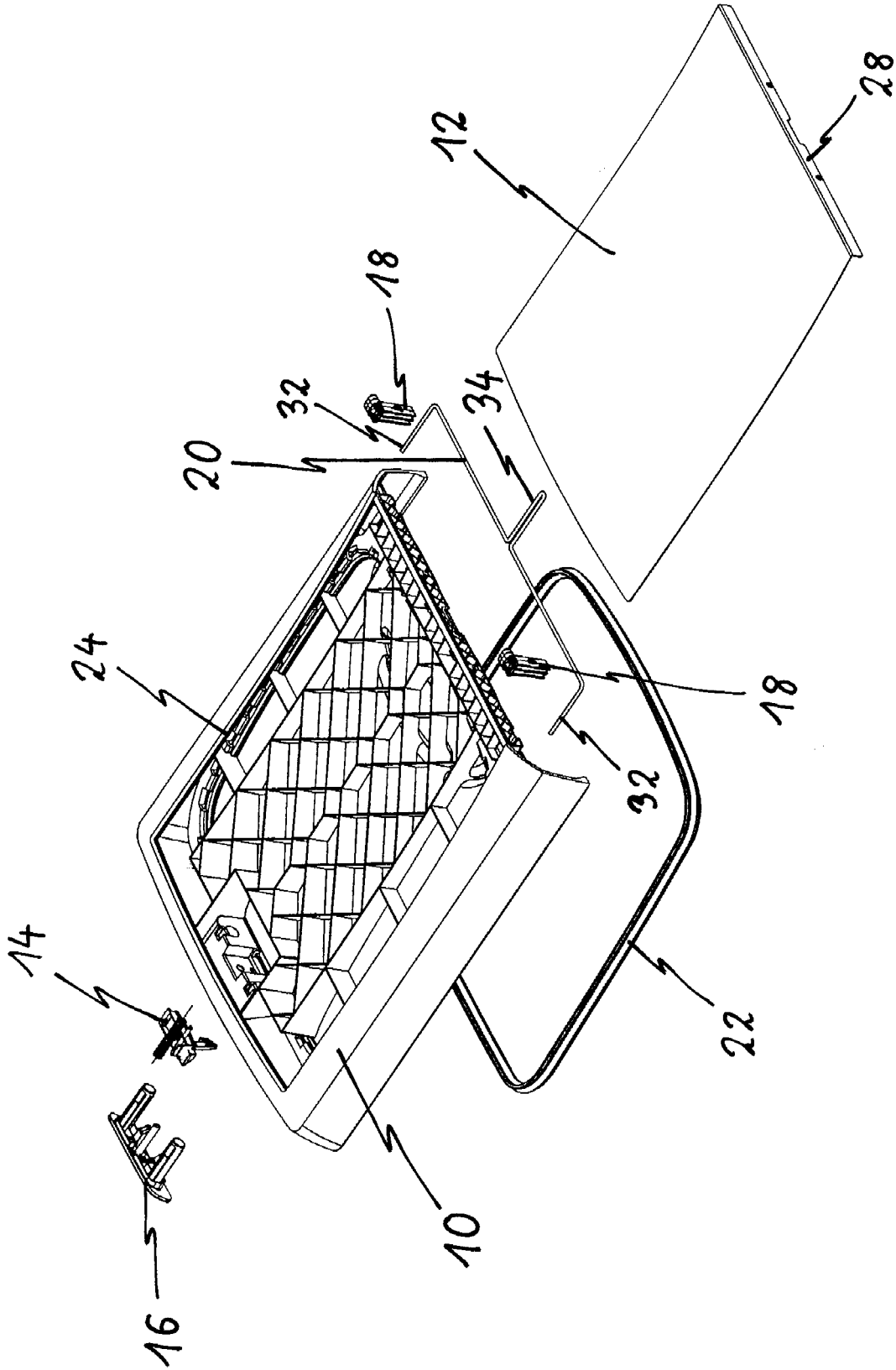


FIG 2

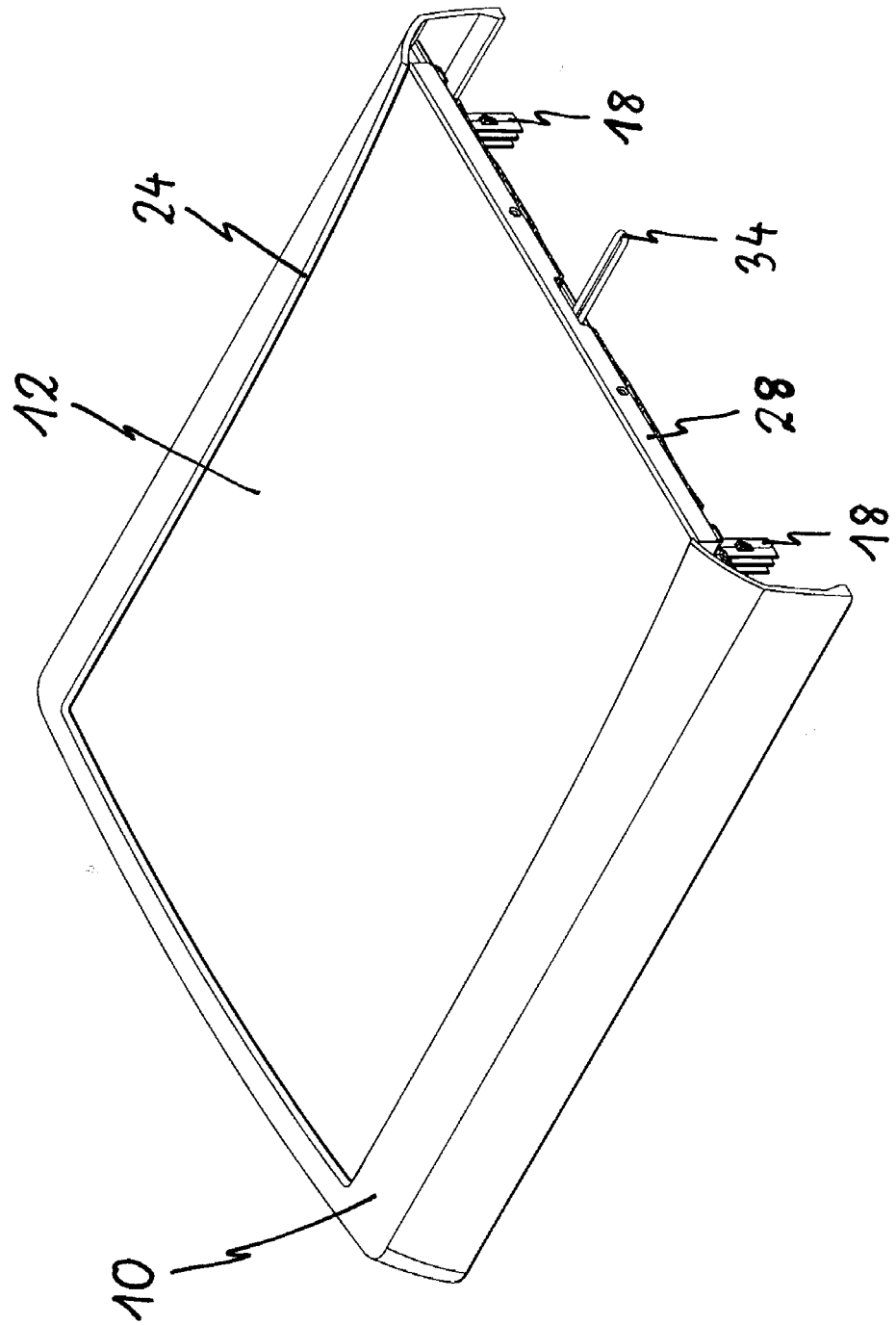


FIG 3

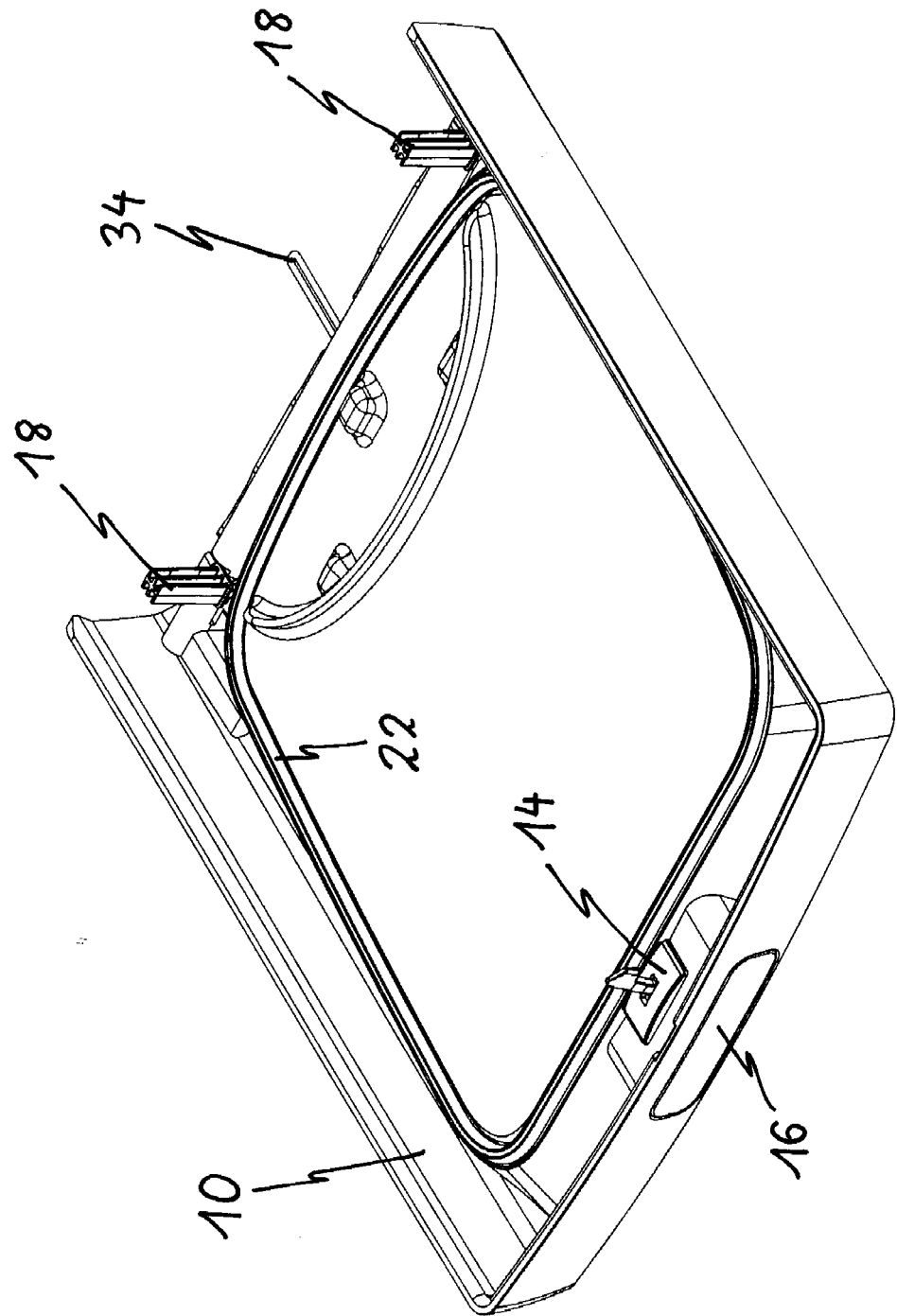


FIG 4

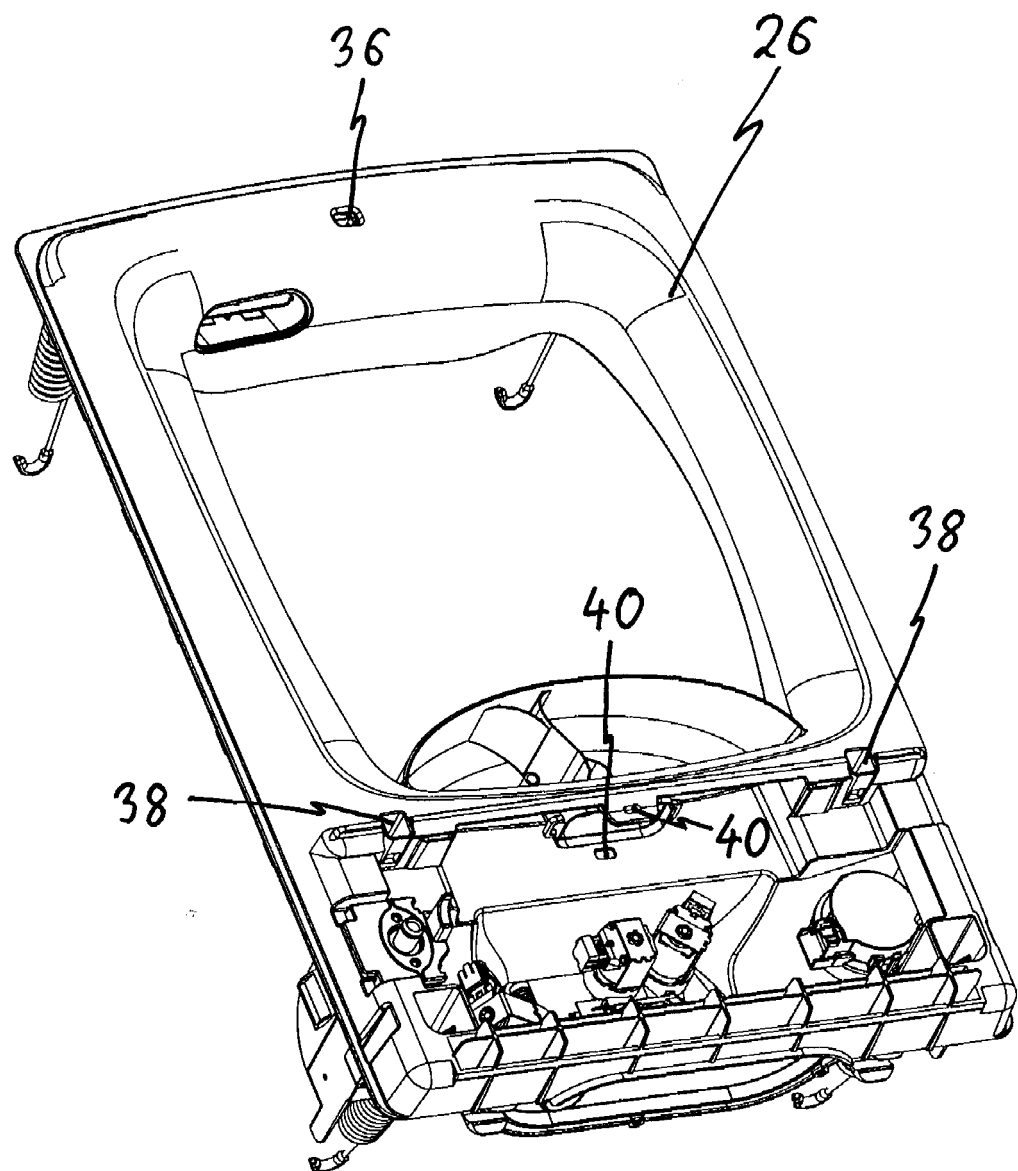


FIG 5

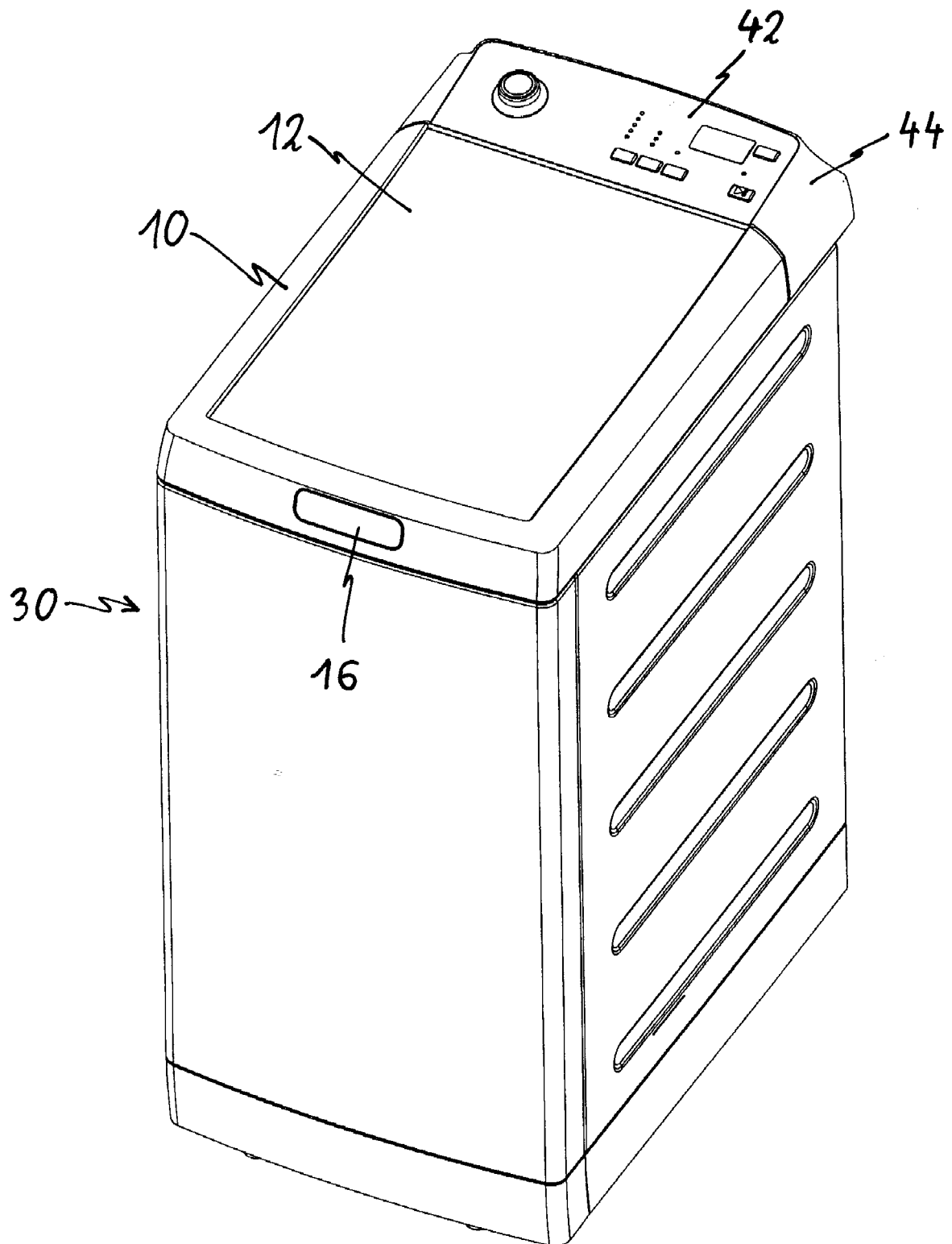


FIG 6

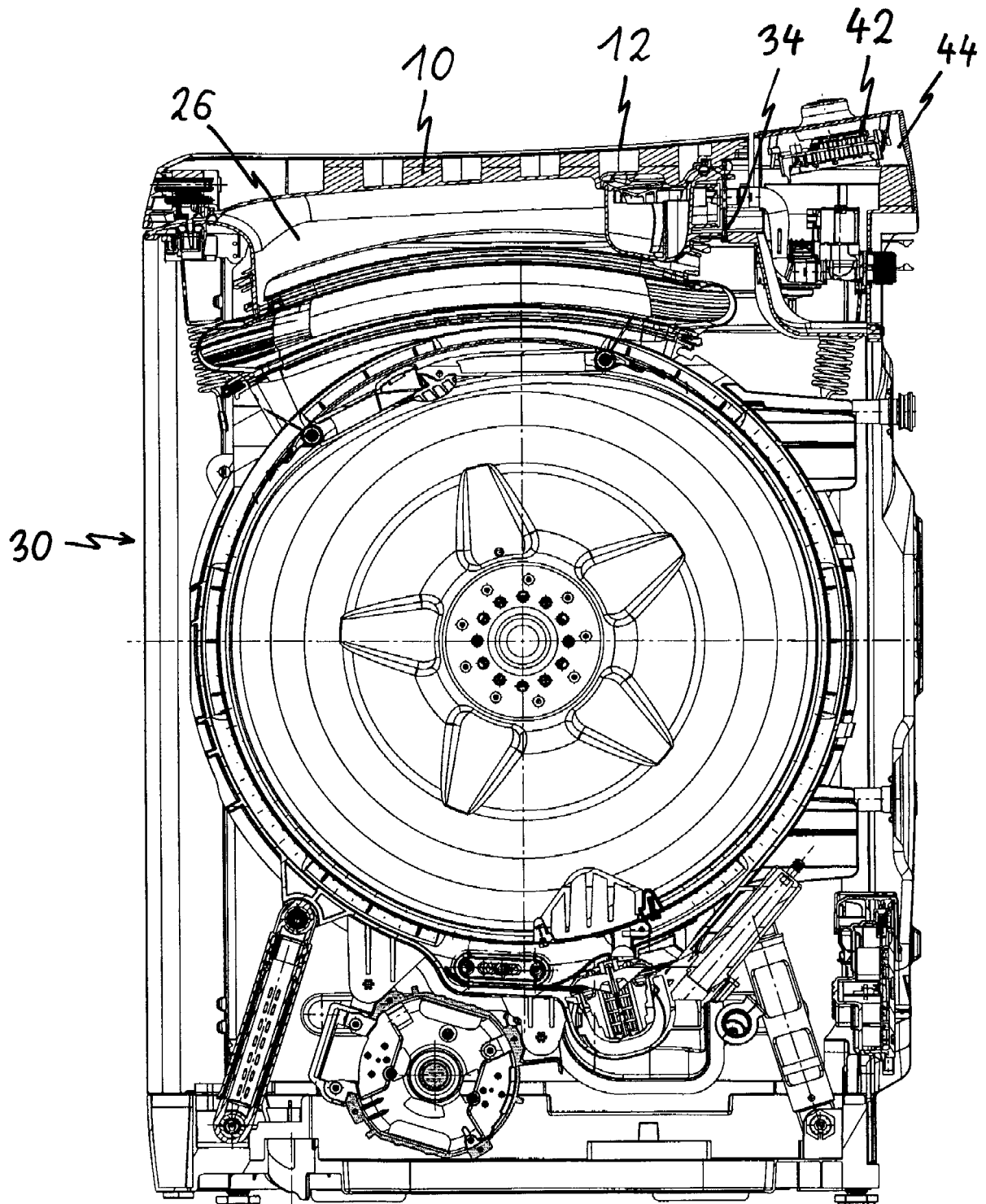
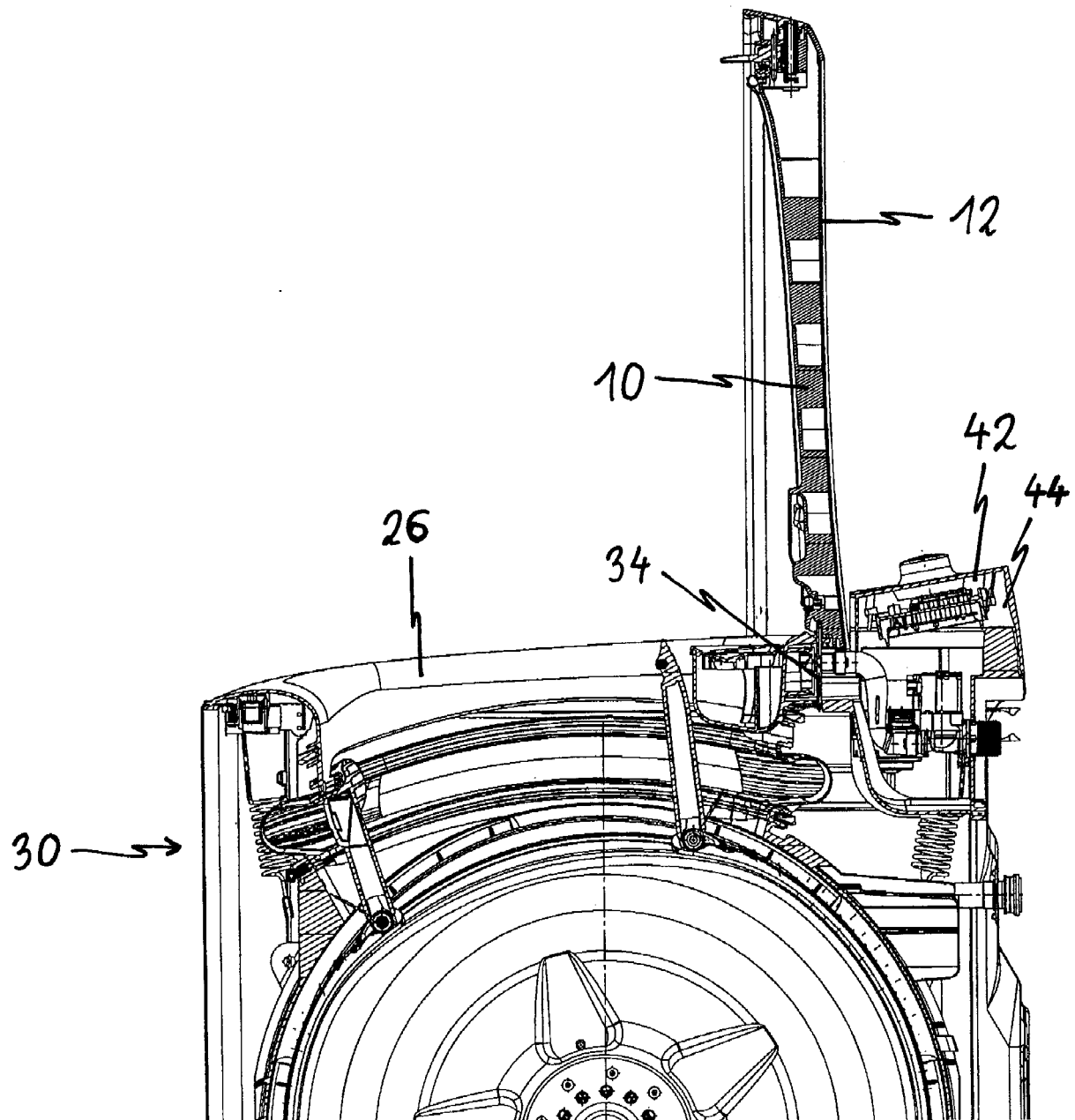


FIG 7



REFERENCES CITED IN THE DESCRIPTION

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