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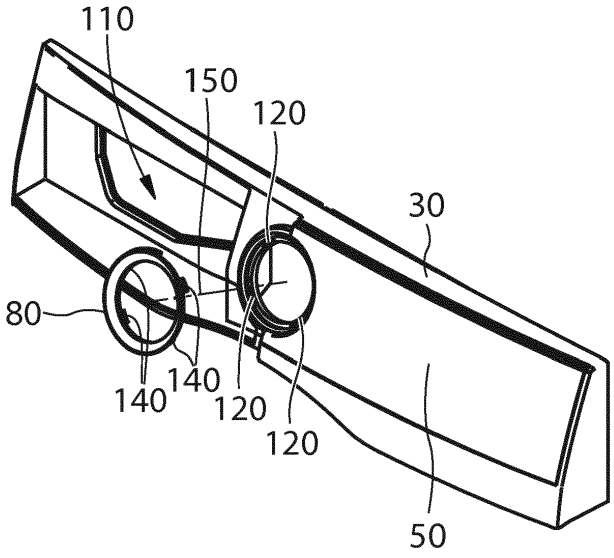
(54) LAUNDRY TREATMENT APPLIANCE

(57) Laundry treatment appliance (2), comprising a front panel (30) and an inlay (50), said front panel (30) comprising at least a frontal surface (36), and said inlay (50) being connectable /connected on said front panel (30) covering said frontal surface (36) at least partially on its mounting position, wherein said inlay (50) comprises at least one connection element (180) that is connectable / connected to an engagement structure (130) provided on said frontal surface (36) of said front panel (30), and in that at least one fixation element (80) is provided on said frontal surface (36), which restrains said inlay (50) with respect to said front panel (36).

FIG. 7



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Description

Field of the invention

[0001] The invention generally refers to a laundry treatment appliance, especially a front/top loading washing machine, dryer or combined washer and dryer, both for domestic and professional use. In particular it refers to a laundry treatment appliance comprising a front panel with a frontal surface and an inlay covering said frontal surface at least partially.

Background of the invention

[0002] Laundry machines such as washing machines, dryers, especially tumble dryers, and combined washers/drawers are known which comprise a front panel with a user interface. On the latter, typically a thin inlay is provided which is usually transparent and sometimes equipped with an intermediate decoration panel. The inlay is usually attached to the frontal surface of said front panel by a bi-adhesive tape. Furthermore, a connection to the frontal surface can be provided by peripheral teeth on one side of the inlay which are configured to be inserted in respective slots on the front panel. Additionally or alternatively, such inlay can be connected to the frontal surface through screw means.

[0003] Such configurations have several drawbacks. The bi-adhesive tape can fail to provide the connection, resulting in no exchangeability of the inlay or undue detachment of the latter. Due to the presence of the bi-adhesive tape or the presence of additional fixation means which are visible, the aesthetic appearance of such design can lead to a perception of a low-level quality of the product by the customer and can thus suggest a product of low-grade or minor value.

[0004] The European patent application EP 2 436 828 A1 discloses a thin inlay provided on the frontal surface of the front panel, having a hole for the knob insertion, wherein on this hole snap teeth are provided to allow a snap connection with the corresponding hole in the frontal surface. This technical solution requires manufacturing a rather complicated and expensive inlay. Moreover, due to the design of the fixation means, the aesthetic appearance around a knob hole, in which a control knob can be inserted, is negatively affected.

Description of the invention

[0005] The object of the invention is to provide a laundry machine with an inlay which can be fixed to the frontal surface of the front panel in a reliable manner and at the same time appearing aesthetically pleasing.

[0006] It is a further object of the present invention to provide a laundry appliance easier to assembly, using components manufactured through cheaper processes / molds.

[0007] It is still a further object of the present invention to provide a method for assembling a laundry treatment appliance with these components.

[0008] According to a first aspect, the invention relates to a laundry treatment appliance, comprising a front panel and an inlay, the front panel comprising at least a frontal surface, and the inlay being connectable / connected on the front panel covering the frontal surface at least partially on its mounting position, wherein the inlay comprises at least one connection element that is connectable / connected to an engagement structure provided on the frontal surface of the front panel, and in that at least one fixation element is provided on the frontal surface, which restrains the inlay with respect to the front panel.

[0009] Preferred embodiments of the invention are described in relation to the dependent claims and the description of the enclosed drawings.

[0010] The invention is based on the consideration that the front panel of laundry treatment appliance is an important component of the appliance since it provides the possibility for its user to operate the machine, for instance to select an overall laundry treatment program and/or to select parameters of a laundry treatment program and / or to visually check said programs / parameters. An aesthetically pleasing, reliable and robust front panel thus adds to the appreciation of the laundry treatment appliance and additionally saves repair costs. In addition, it would save further costs if the required components could be manufactured in processes or by machines and devices which are cheaper compared to present ones.

[0011] Applicant has found that these requirements can be met by providing two different means for fixation or connection of the inlay to the front panel, whereby one of them is a connection mechanism between inlay and front panel which fixes the inlay to the front panel in one spatial region, and whereby an additional fixation means provides further fixation. In this way, the inlay can be reliable fixed to the front panel and be restrained in its movement relative to the front panel, and no additional fixation means on said inlay and / or no additional components such as screws or bi-adhesive tapes which are prone to failure are needed.

[0012] The terms laundry treatment appliance or laundry machine or laundry treatment device includes washing machines as such but also combined washing/drying machines that can incorporate both functionalities. Also the terms laundry washing machine and washing machine are used interchangeably. The laundry machine can, for instance, be designed as a front-loading laundry washing machine.
Alternatively, the appliance can be a dryer.

[0013] The fixation element according to the invention is a separate component with respect to the inlay and with respect to the front panel. Its function is to restrains the inlay with respect to the front panel, which means that essentially no relative movement between these two components is possible in the spatial region where the fixation element is provided on the front panel.

[0014] The fixation element being a separate compo-

nent, its shape, and / or its connection means, and / or its dimensions can be configured to have a good appearance, and / or to assure a reliable connection with the front panel, and / or to constrain the inlay in a reliable manner, and / or to hide peripheral portions of the inlay that can affect the aesthetic view of the frontal machine look.

[0015] Preferably the connection element is laterally positioned on one side of the inlay, and whereby in a mounted position, the fixation element is positioned on another side of the In this configuration, the inlay is fixated or fixed to the front panel on two sides of the inlay which leads to an especially robust fixation since it cannot loosen itself laterally from the front panel. The mounted position corresponds preferably to the state of the laundry treatment appliance of normal usage.

[0016] Advantageously, the fixation element is positioned on the opposite side of the connection element on the inlay, which provides enhanced stability of the arrangement of these two parts with respect to each other.

[0017] The connection element comprises preferably at least a lateral edge portion of the inlay and / or at least a lip and said engagement structure comprises at least a recess in the frontal surface, whereby the at least a lateral edge portion and / or at least a lip is configured to be inserted in the at least a recess.

[0018] In a preferred embodiment the connection element comprises a step profile and the engagement structure comprises a recess, whereby the connection element is configured to be inserted into the recess so that, in the mounted position, at least a lateral edge of the step profile abuts against a corresponding edge defined by the recess.

[0019] Preferable, the inlay comprises on the opposite side with respect to the connection element a laterally projecting lip portion with at least one centering hole which in a mounted position of the inlay receives a pin protruding from the frontal surface of the front panel.

[0020] The fixation element is preferably connectable to the front panel by at least one connecting element which engages with a corresponding retainer structure provided on the frontal surface of the frontal panel or vice versa. Preferably, at least two, most preferably three of four connecting elements are provided.

[0021] This at least one connecting element comprises preferably a snap tooth, whereby the corresponding retainer structure or element comprises a slot. This design allows are very robust connection which can be engaged or released as desired. Advantageously the frontal surface comprises a hole for insertion of a user interface element, and whereby the fixation element is a ring configured to encircle said user interface element on its mounting position.

[0022] The user interface element is preferably a knob and / or a push button and / or a display. A knob, for instance, can be used to - by rotating it - select a laundry treatment program and/or a parameter of such a program. A push button can for instance be used by pushing to start and /or stop a program or operation of the laundry treatment appliance or to confirm choices made. A display can be used to display the chosen and/or available program or parameter and/or status updates and/or errors which occurred.

[0023] The inlay advantageously comprises a rounded portion at least partially encircling the hole of the frontal surface, whereby the ring, which is the fixation element, restrains said rounded portion on its mounting position. This design provides a large contact surface of fixation element - ring - and the rounded portion of the inlay, leading a to a stable a mechanically robust configuration.

[0024] The ring is preferably an aesthetic or decoration ring. The aesthetic ring is preferably made of plastic. It can have a smooth surface and / or it can contain labels and /or decorative symbols and will generally support an aesthetically pleasant appearance of the front panel.

[0025] Advantageously, the fixation element has an angular shape configured so that, on its mounting position, it flushes with at least a portion of a lateral edge of the front panel.

[0026] Preferably the inlay comprises an edge inclined along its thickness, which in the mounted position is constrained by an undercut provided on the fixation element / ring, which leads to an enhanced stability of the connection between these two parts.

[0027] The inlay advantageously comprises a front surface and a back surface, the at least one connection element extending from the back surface, facing in a mounted position of the inlay the frontal surface of the front panel, whereby the at least one engagement structure is provided on the frontal surface. In this way, the connection means are not visible to the user, yielding an aesthetically pleasing appearance of the front panel, assuring at the same time a reliable connection between the inlay and the frontal panel.

[0028] A bi-adhesive tape is preferably connected on its front side to a back surface of the inlay and on its back side to a frontal surface of the front panel. The use of a bi-adhesive tape provides additional fixing of the inlay to the front panel and it's not, as in known solutions, the sole connection or fixation means. Hence, even if the bi-adhesive tape ceases to function properly, the inlay remains connected and fixed o the frontal or front panel.

[0029] According to a second aspect, the invention relates to a method for assembling a laundry treatment appliance, the appliance comprising a front panel and an inlay, the front panel comprising at least a frontal surface and the inlay being connectable on the front panel covering the frontal surface at least partially, the inlay comprising at least one connection element that is connectable to an engagement structure of the frontal surface, whereby a fixation element is provided, configured to restrain the inlay with respect to the front panel, the method comprising the steps of

- attaching the inlay to the frontal surface connecting the connection element with the engagement struc-

ture;

- fixing the inlay on the front panel through the assembly of the fixation element with the frontal surface .

[0030] These two steps can also, preferably depending on the concrete design of connection element and fixation element, be performed in a different order or essentially simultaneously.

[0031] The laundry treatment machine is preferably a front-loading washing machine, a dryer or a front-loading combined washer/dryer.

[0032] The advantages of the invention are especially as follows. By providing the connection element and the fixation element, a connection between inlay and front panel is achieved which employs components/parts which are cheap to build and at the same time yields an aesthetically pleasing and mechanically robust and reliable front panel design.

Brief description of the drawings

[0033] Further features and advantages of the present invention shall become clearer from the following detailed description of some of its preferred embodiments, made with reference to the attached schematic drawings and given as an indication and not for limiting purposes.

[0034] In particular, the attached drawings are included to provide a further understanding of the invention and are incorporated in and constitute a part of this specification. The drawings together with the description explain the principles of the invention. In the drawings, corresponding characteristics and/or components are identified by the same reference numbers. In these drawings:

FIG. 1 shows a front-loading washing machine in a preferred embodiment in an assembled state with a front panel, an inlay and a fixation element in a perspective view;

FIG. 2 shows the washing machine of FIG. 1 in another perspective view with the fixation element and the inlay shown in an exploded view;

FIG. 3 shows the washing machine of FIG. 1 in a perspective view with the fixation element and the inlay shown in an exploded view;

FIG. 4 shows the front panel and the inlay in a perspective view;

FIG. 5 shows the front panel and the inlay in a perspective view with the inlay in a fully mounted position;

FIG. 6 shows a detail of a cut through inlay and front panel;

FIG. 7 shows the front panel, the inlay and a fixation element in a perspective view in an exploded manner;

FIG. 8 shows front panel, inlay and fixation element in an assembled state;

FIG. 9 shows a cut through front panel, inlay and fixation element;

FIG. 10 shows a partial detailed view of the cut of FIG. 9;

FIG. 11 shows a back view of front panel, inlay and fixation element in a mounted position;

FIG. 12 shows a detailed view of front panel, inlay and fixation element.

FIG. 13 shows a front panel, an inlay and a fixation element of laundry treatment appliance in another preferred embodiment in an exploded view;

FIG. 14 shows the inlay arranged on the front panel;

FIG. 15 shows the fixation element mounted on the inlay and front panel;

FIG. 16 shows a cut through inlay and front panel on;

FIG. 17 shows a different cut through inlay and front panel;

FIG. 18 shows the cut according to FIG. 17 in an enlarged view;

Detailed Description of the Invention

[0035] In FIG. 1, a laundry treatment appliance 2 is shown which is built as a front-loading washing machine and comprises a housing or casing 6 with a preferable parallelepiped shape, the casing 6 comprising a front wall 10, two side walls 14, and a cover plate 20. Front wall 10 and side walls 14 are preferably part of a cabinet. A front door 24 is provided which can be opened for loading or unloading laundry through an opening 28 into a washing drum.

[0036] Advantageously a washing tub is contained within casing 6, whereby a rotatable and perforated drum is contained by said washing tub. Both washing tub and drum have a substantially cylindrical shape. Advantageously the tub is suspended in a floating manner inside casing 6 by means of a number of coil springs and shock absorbers. The drum is rotated by an electric motor (not shown), which transmits the rotating motion of a motor shaft to the drum by a belt/pulley system. In a different embodiment of the invention, the motor can be directly associated with the shaft of the drum. The tub is preferable connected to casing 6 by means of an elastic bellows

or gasket. Alternatively, said laundry appliance can be a dryer (in which case the tub is not provided) or a combined washer and dryer.

[0037] The preferred washing machine shown in FIG. 1 comprises a front panel 30 with a frontal surface 36 which comprises a hole 42 (see FIGs. 2 and 3) for insertion of a user interface element or control element which is preferably designed as a combined knob/push button 48 which can be used to control laundry treatment appliance 2 by selecting a washing program and/or a parameter thereof. Knob/push button 48 can thereby allow by rotation to select different parameters and/or washing programs; if it is further or alternatively provided with a push function, it is allowing additional program selection and / or a switching-on function of the appliance / programs. Moreover, the user interface element 48 can further or alternatively comprise a display for showing, for example, the chosen and / or available program or parameter and / or status updates thereof and / or errors which occurred; additionally or alternatively, the display can be of the touch-type, allowing the change of programs or display modes through the user touch of the display.

[0038] An inlay 50 is provided on the frontal surface 36 of the front panel 30 which functions essentially as a cover sheet. Preferable, the inlay 50 can provide general information to the user about available washing programs, either printed directly on inlay 50 and/or by providing display elements display information on a currently selected program; preferable, the inlay is transparent, whereas the general information to the user and / or the display are provided below said In the preferred embodiment shown, inlay 50 covers essentially half of frontal surface 36.

[0039] As shown in FIGs. 2 and 3 in an exploded view, inlay 50 comprises a front side or surface 56 and a back side or surface 62. According to the preferred embodiment, the inlay 50 is essentially shaped as a rectangle with a rounded portion 68 on a lateral side 74. Rounded portion 68 is basically formed as a cut with a shape of a segment of a circle. Rounded portion 68 is shaped such that on the mounting position of the inlay it at least partially encircles hole 42 of frontal surface 36. In this mounted position, back side 62 is placed at or in close adjacency to frontal surface 36.

[0040] The washing machine shown in FIGs 1 to 3 preferably comprises a display 96, which in the embodiment shown is provided on frontal surface 36 of front panel 30. Alternatively or in combination thereto, it can be provided on user interface element 48, preferably if user interface 48 is built as a knob with an integrated display. Depending on the appliance model, display 96 can be provided on other preferred positions, preferably in such a way that it is easily readable and accessible by the user of this appliance.

[0041] The FIGs. 4 to 9 show the preferred assembly sequence of the inlay 50 on the frontal surface 36 of the front panel 30.

[0042] Firstly, a lateral lip 180, preferable laterally positioned on a side of the inlay 50, is inserted in the recess 130 provided on the frontal surface 36 of the front panel 30; according to a preferred embodiment, the lateral lip 180 extends from the back surface 62 of the inlay 50, facing in a mounted position of the inlay 50 the frontal surface 36 of the front panel 30.

[0043] Preferable, lateral lip 180, acting as connection element, exhibits a step-like shape, preferable comprising a first portion adjacent on the external edge of inlay 50, this portion being thinner than a further thicker portion of the inlay, wherein between the thinner and the thicker portions a surface 181 is provided (see FIG. 6), transversal and / or inclined with respect to the inlay thickness; the thinner portion, the transversal and / or inclined surface 181 and the thicker portion (that can preferable be the overall thickness of the inlay) form the step-like shape of the connection element.

[0044] The described connection element having a step-like shape is configured so that once it is inserted in the recess 130 of the frontal surface 36, the transversal and / or inclined surface 181 abuts against the edge 131 formed by the recess 130; as shown on the preferred embodiment in FIG. 6, the recess 130 comprises a frontal extension 132 merging from the frontal surface 36, an a lateral extension 133 merging from the frontal extension 132 and ending with the edge 131, with a resulting recess 130 from the frontal surface 36 and the lateral extension 133.

[0045] On the preferable shown embodiment, the lateral lip 180 has a length from the transversal and / or inclined surface 181 that is smaller than the recess length defined by the recess distance between the lateral extension 133 and the edge 131 along the frontal surface 36; in this way, once the lip 180 is completely inserted on the recess 130, only the longitudinal surface 181 abuts against the edge 131. Alternatively, the length of the lateral lip 180 can be greater than the recess length; in this way, once the lip 180 is completely inserted in the recess 130, the extremity surface of the lip abuts against the recess internal edge defined by the frontal extension 132 along the frontal surface 36. Alternatively, the length of the lateral lip 180 can be equal that the recess length, allowing the abutment of several or all frontal surfaces of the step-like shape against the corresponding edges defined by the recess.

[0046] According to an alternative embodiment, the connection element can correspond, at least partially, to the lateral edge of the inlay 50, i.e. without a step-like shape, configured to be inserted in the recess 130 provided on the frontal panel, this recess being preferable configured as those above described and shown on FIG. 6; in this alternative embodiment, the extremity side of the inlay panel inserted on the recess can preferable abut against the internal edge of the recess defined by the frontal extension 132.

[0047] The above described embodiments can be replaced by alternative equivalent embodiments having the

same purpose, namely the abutment of at least two surfaces and /or edges and / or shaped profiles in order to give to the user the feeling that the inlay 50 has reached its fully inserted position on the recess 130.

[0048] In FIG. 4 there is shown the first mounting step, where the lip 180 is inserted on the recess 130; preferably, the inlay 50 is subsequently pushed against the frontal surface 36 of the front panel 30, until the back side or surface 62 of the inlay 50 is placed at or in close adjacency and / or in contact with the frontal surface 36 and preferable, having the round portion 68 concentric with the hole 42 provided on the front panel 30.

[0049] In this position the fixation element 80, preferable comprising four hooks 140, can be assembled on the frontal surface 36 of the front panel 30 as shown in FIGs 7 and 8; preferable, the fixation element 80 has an undercut edge 196 (see FIG. 12) that on the ring mounting position constrains a preferable inclined edge 190 provided on a side of the inlay 50; preferable, the fixation element 80 is a ring and on its mounting position preferable constrains / abuts the lateral rounded portion 68 of inlay 50; further preferable, the ring is an aesthetic ring configured to follow the external shaper of said user interface 48.

[0050] The inclined edge 190 of the inlay 50 can be configured in alternative ways; on the inlay 50 shown in FIG. 12 the inclined edge comprises a inclined lip 190 merging from the extremity of the inlay; alternatively, said inclined edge can be obtained by an inclined side with respect to the inlay; according to said alternative embodiment, the fixation element can be preferable configured to flush, on its mounting position, with the external surface of the

[0051] As shown in FIG. 10, each hook 140 of the ring comprises a tooth 142, respectively, configured to be engaged on a corresponding slot 120 in a snap manner; the ring preferable comprises an edge 166 inclined and extending from the external surface toward the internal surface of the front panel 30 and toward the hole 42; preferable, the internal diameter of the ring substantially corresponds to the diameter of the hole 42 provided on the front panel 30. Although in the FIGs the ring comprises four hooks and the frontal surface comprises four corresponding slots, different number of hooks / slots and / or different kind of retainer elements can be provided, in order to connect in a removable or in a non-removable manner the ring 80 with the frontal surface 36. According to the preferred embodiment shown in the FIGs, the fixation element 80 is designed as an aesthetic ring, preferable encircling the hole 42 (and so encircling the user interface element 48) provided on the frontal panel; said aesthetic ring is preferably made of plastic, it can have a smooth surface and / or it can contain labels and /or decorative symbols and it can generally support an aesthetically pleasant appearance of the front panel; alternatively, the fixation element can be any additional component configured to restrain said inlay with respect of said front panel on its mounting position.

[0052] The fixation element 80 / ring can be preferable positioned on a lateral side of the inlay 50 on its mounting position, preferable on a different side with respect to the side where the connection element is provided, preferable on the opposite side with respect of the latter; the different /opposite sides of the fixation element with respect to the connection element / engagement structure allow the constrain of the inlay in two sides, improving the connection reliability thereof.

[0053] The inlay 50 can be additionally attached to front panel 30 by means of a bi-adhesive tape 126 which is arranged planar with one adhesive side to back side 62 of inlay 50 and with the other adhesive side planar to front side 36 of front panel 30, respectively, see FIG, 6 for a detailed view of this connection.

[0054] The FIGs. 13 to 15 show the steps of mounting an inlay 50 to a front panel 30 in another preferred embodiment. Inlay 50 is first connected to front panel 30 by engaging a step-like or lip-like connection element 180 located on a side 202 of inlay 50, which in a mounted position is preferable adjacent to interface element 48, with an engagement structure 130 which comprises a recess in which connection element 180 is received (see FIG. 16). On its opposite side 205, inlay 50 preferable comprises a lip-like extension or lip portion 208 with a reduced thickness compared to the adjacent part of the inlay 50. Lip portion 208 comprises three holes 210, 212, 214 which in the mounted position are arranged in a vertical row, preferably equally distanced. On frontal surface 36 of front panel 30, a pin 218 is protruding essentially perpendicularly from frontal surface 36. During the mounting procedure, which is indicated by arrows 220, pin 218 is received by hole 212 of inlay 50. In this way, lip portion 208 is centered during its mounting and it is assured that is not coming to rest on front panel 30 in an angled orientation with respect to front panel 30.

[0055] Arranged vertically adjacent to pin 218 on front panel 30 are two holes 224, 226 which are congruent / associable with holes 210, 214 of lip portion 208; that is, their centers lie essentially on a common axis 230, 232, respectively. Axes 230, 232 are parallel oriented to an axis 234 which is aligned with the centers of hole 212 and pin 218.

[0056] During the mounting procedure, inlay 50 is moved in the direction of arrows 220 until its rear surface becomes in contact with the frontal surface 36 and, according to the preferred embodiment, its frontal surface 260 is flush with a frontal surface 262 of an adjacent portion of said frontal panel 30.

[0057] A fixation element 80 is used to restrain the inlay 50 to front panel 30 and is preferable mounted on lip portion 208 of inlay 50. Preferable said fixation element 80 has a substantial angular shape, comprising a frontal lip 238, a lateral lip 239 and an upper lip 231; the length of the lateral lip 239 and of the upper lip 231 is such that the frontal lip 238 flushes with a frontal surface 240 of inlay 50 on the fixation element mounting position; preferable, the shape and the dimensions of the angular fix-

ation element 80, depending of the shape and of the dimensions of the frontal lip 238, the lateral lip 239 and the upper lip 231, are configured so that, on the fixation element mounting position, it flushes with the lateral edge of the front panel 30, improving the aesthetical appearance due to the shape continuity between the fixation element and the front panel. According to the preferred embodiment shown in Figs. 13-18, a connecting element 140 merges from the upper lip 231, which is received in a retainer structure 120 of front panel 30. The connecting element 140 comprises a protrusion on an upper end of fixation element 80 essentially protruding perpendicular to a main body 264 of fixation element 80, yielding an L-like shape of fixation element 80.

[0058] FIG. 14 displays inlay 50 in its fully mounted position on front panel 30 in which pin 218 has been received by hole 212. The next mounting step is to attach fixation element 80 to front panel 30 and thereby to constrain inlay 50 in its relative movement with respect to front panel 30. In FIG. 15, front panel 30, inlay 50 and fixation element 80 are displayed in a fully mounted position.

[0059] The cuts shown in FIG. 16 show engagement structure 180 and engaged connection element 130 on side 200 as well as retainer structure 120 on side 204. As can be inferred from FIG. 17, which shows a different cut on side 204, fixation element 80 preferable comprises a pin 248 which is received by hole 210 of lip portion 208 and by hole 224 of front panel 30. During the mounting procedure, afterward the engagement of the connecting element 140 with the retainer structure 120, the pin 248 is warmed by a hot tool at a predetermined temperature in which it becomes temporarily deformable, so that it can be pushed towards the front panel rear side, allowing the enlargement of the pin extremity around the surface encircling the hole 210; once the temperature of the pin decreases, the enlarged deformed extremity, due to its shape, prevents the detachment of the fixation element 80 from the front panel 30 and from the inlay lip portion 208. Fixation element 80 preferable comprises a further pin (not visible) which is received by holes 214, 226 during the mounting procedure, said pin being deformed on its free extremity such as for pin 248.

[0060] As can be seen in FIG. 18, connecting element 140 preferable comprises a snap tooth 250 and engagement structure 120 preferable comprises a protrusion 254 which is designed to engage in a snap-connection with snap tooth 250. When inlay 50 is mounted to front panel 30 the connecting element 140 engages the engagement structure 120, and at the same time the pin 248 and the second pin (not shown) are inserted in the respective holes located in lip portion 208 of inlay 50 and in front panel 30. Due to the subsequent deformation of the pin extremities (see above), the fixation element 80, and consequently the inlay 50, are irremovable assembled with the front panel 30. The early snap connection of the fixation element 80 results in a first firm and stable connection of inlay 50 on front panel 30, allowing a precise and reliable subsequent deformation of the pins; the configuration of the fixation element 80 through the connecting / engagement structure and through the heat deformation of the pins on the rear side of the front panel 30, leads to an aesthetically pleasing overall design of the front side of laundry treatment appliance 2.

[0061] Alternatively, the fixation element 80 can be removable / irremovable connected to said inlay / front panel through snap connections only or through deformable pins only, or through screw means and / or any equivalent connection means.

[0062] The invention thus conceived can be subjected to numerous modifications and variants all falling within the scope of the inventive concept.

[0063] For example, the above described preferred embodiments concerning the connection means between front panel 30 and the fixation element 80 and/or between front panel 30 and inlay 50 can be combined by a skilled person depending of the dimension / mechanic / shape constrains of each single appliance.

[0064] Moreover, although on the disclosed embodiments the connecting elements / hooks 140 have been provided on fixation element 80 and retainer structures /slots 120 have been provided front panel 30, said connection means can be at least partially reversed, i.e. providing the connecting elements / hooks on front panel 30 and providing retainer structures /slots 120 on fixation element 80.

[0065] Additionally, although on the shown embodiments the fixation element is provided on the opposite side with respect to the inlay connection element, a skilled person would provide alternative positions of said fixation element, for example on a inlay side adjacent said connection element.

[0066] In addition, all details can be replaced by other technically equivalent elements. In practice, all the materials used, as well as the shapes and contingent dimensions, may vary depending on the requirements without departing from the scope of protection of the following claims.

Claims

1. Laundry treatment appliance (2), comprising a front panel (30) and an inlay (50), said front panel (30) comprising at least a frontal surface (36), and said inlay (50) being connectable /connected on said front panel (30) covering said frontal surface (36) at least partially on its mounting position,
   characterized in that
   said inlay (50) comprises at least one connection element (180) that is connectable / connected to an engagement structure (130) provided on said frontal surface (36) of said front panel (30), and **in that** at least one fixation element (80) is provided on said frontal surface (36), which restrains said inlay (50) with respect to said front panel (36).

2. Laundry treatment appliance (2) according to claim 1, whereby said connection element (180) is laterally positioned on one side (90) of said inlay (50), and whereby in a mounted position, said fixation element (80) is positioned on another side (64) of said inlay (50).

3. Laundry treatment appliance (2) according to claim 2, whereby said fixation element (80) is positioned on the opposite side of said connection element (180) on said inlay (50).

4. Laundry treatment appliance (2) according to one of claims 1 to 3, whereby said connection element (180) comprises at least a lateral edge portion of said inlay (50) and / or at least a lip and said engagement structure comprises at least a recess (130) in said frontal surface (36) and whereby said at least a lateral edge portion and / or at least a lip is configured to be inserted in said at least a recess.

5. Laundry treatment appliance (2) according to claims 4, whereby said connection element (180) comprises a step profile and said engagement structure (130) comprises a recess, and whereby said connection element (180) is configured to be inserted into said recess so that, in the mounted position, at least a lateral edge (181) of said step profile abuts against a corresponding edge (131) defined by said recess.

6. Laundry treatment appliance (2) according to claim 3, whereby said inlay (50) comprises on said opposite side (204) a laterally projecting lip portion (208) with at least one centering hole (212) which in a mounted position of said inlay (50) receives a pin (218) protruding from said frontal surface (36) of said front panel (30).

7. Laundry treatment appliance (2) according to one of claims 1 to 3, whereby said fixation element (80) is connectable to said front panel (30) by at least one connecting element (140) which engages with a corresponding retainer structure (120) provided on said frontal surface (36) of said frontal panel (30) or vice versa.

8. Laundry treatment appliance (2) according to claim 7, whereby said at least one connecting element comprises a snap tooth (142), and whereby said corresponding retainer structure comprises a slot (120).

9. Laundry treatment appliance (2) according to one of the preceding claims, whereby said frontal surface (36) comprises a hole (42) for insertion of a user interface element (48), and whereby said fixation element (80) is a ring configured to encircle said user interface element on its mounting position.

10. Laundry treatment appliance (2) according to claim 9, wherein the user interface element (48) is a knob and / or a push button and / or a display.

11. Laundry treatment appliance (2) according to claim 9 or 10, whereby said inlay (50) comprises a rounded portion (68) at least partially encircling said hole (42) of said frontal surface (36), whereby said ring restrains said rounded portion (68) on its mounting position.

12. Laundry treatment appliance (2) according to one of the claims 9 to 11, whereby said ring is an aesthetic ring.

13. Laundry treatment appliance (2) according to one of claims 1 to 8, whereby the fixation element (80) has an angular shape configured so that, on its mounting position, it flushes with at least a portion of a lateral edge of the front panel (30).

14. Laundry treatment appliance (2) according to one of claims 1 to 12, whereby said inlay (50) comprises an edge (190) inclined along its thickness, which in the mounted position is constrained by an undercut (196) provided on said fixation element (80) / ring.

15. Method for assembling a laundry treatment appliance (2), said appliance (2) comprising a front panel (30) and an inlay (50), said front panel (30) comprising at least a frontal surface (36) and said inlay (50) being connectable on said front panel (30) covering said frontal surface (36) at least partially, said inlay (50) comprising at least one connection element (180) that is connectable to an engagement structure (130) of said frontal surface (36), and whereby a fixation element (80) is provided, configured to restrain said inlay (50) with respect to said front panel (30), the method comprising the steps of

- attaching said inlay (50) to said frontal surface (36) connecting said connection element (180) with said engagement structure (130);
- fixing said inlay (50) on said front panel (30) through the assembly of said fixation element (80) with said frontal surface (36).

FIG. 1

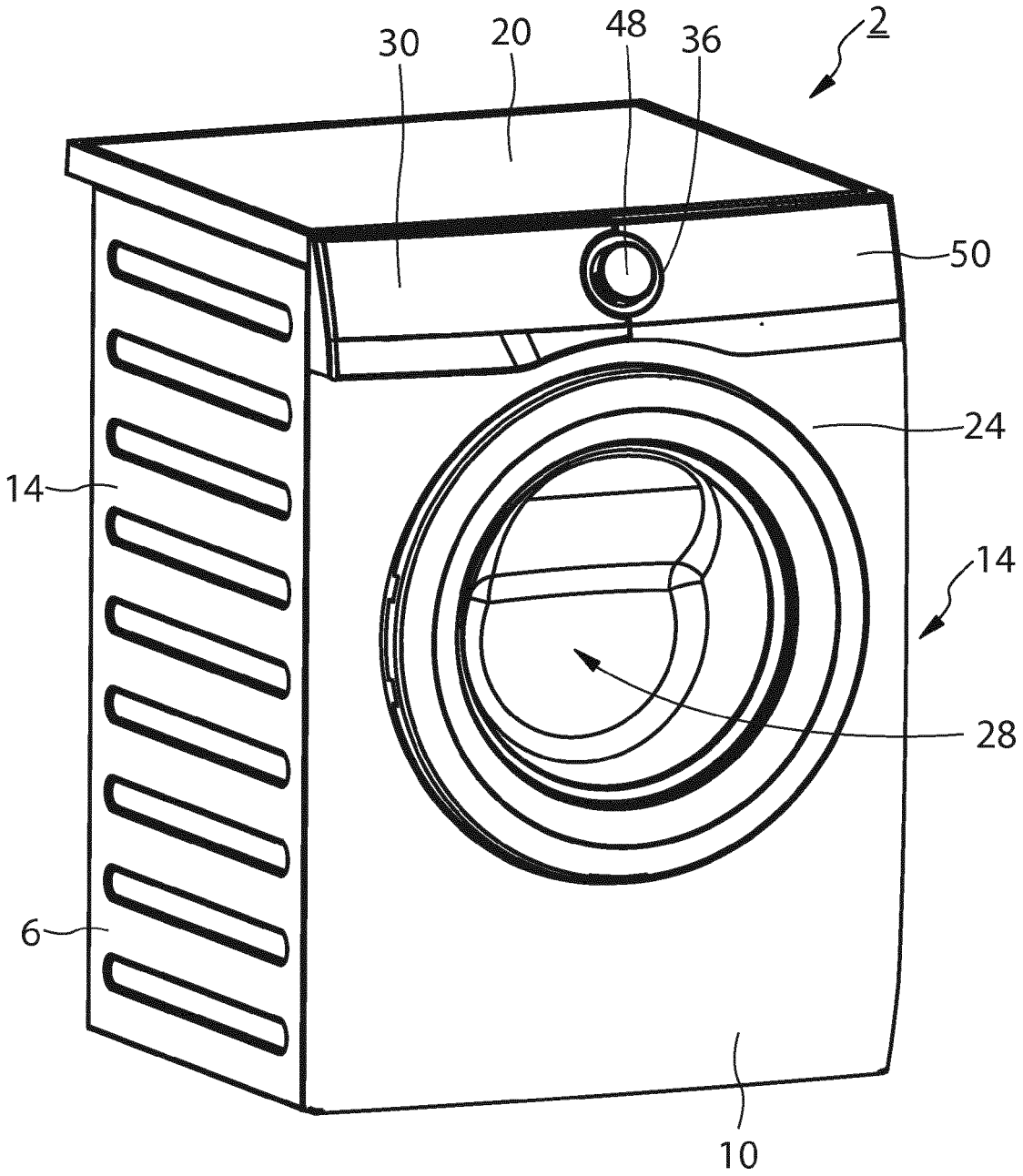


FIG. 2

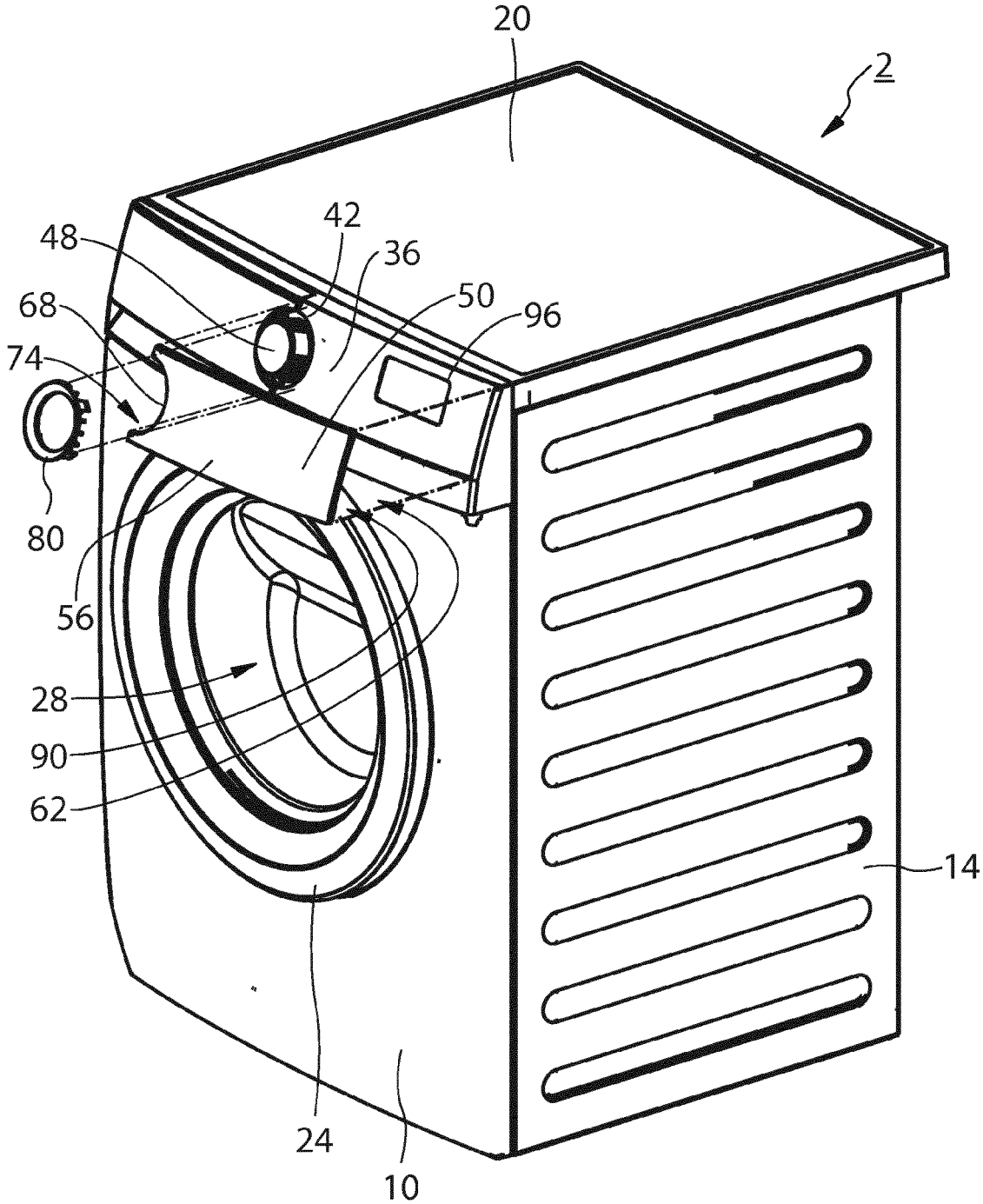


FIG. 3

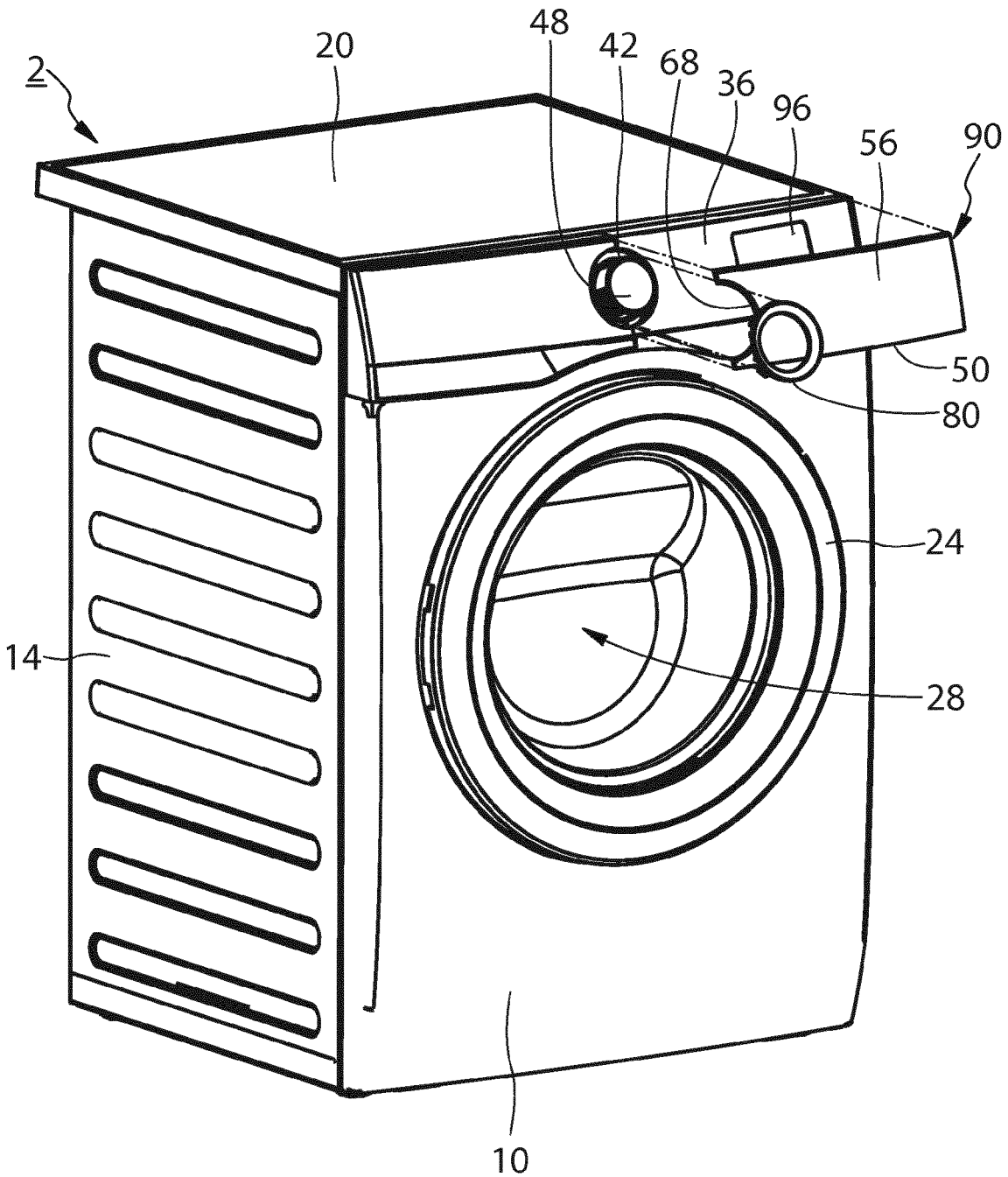
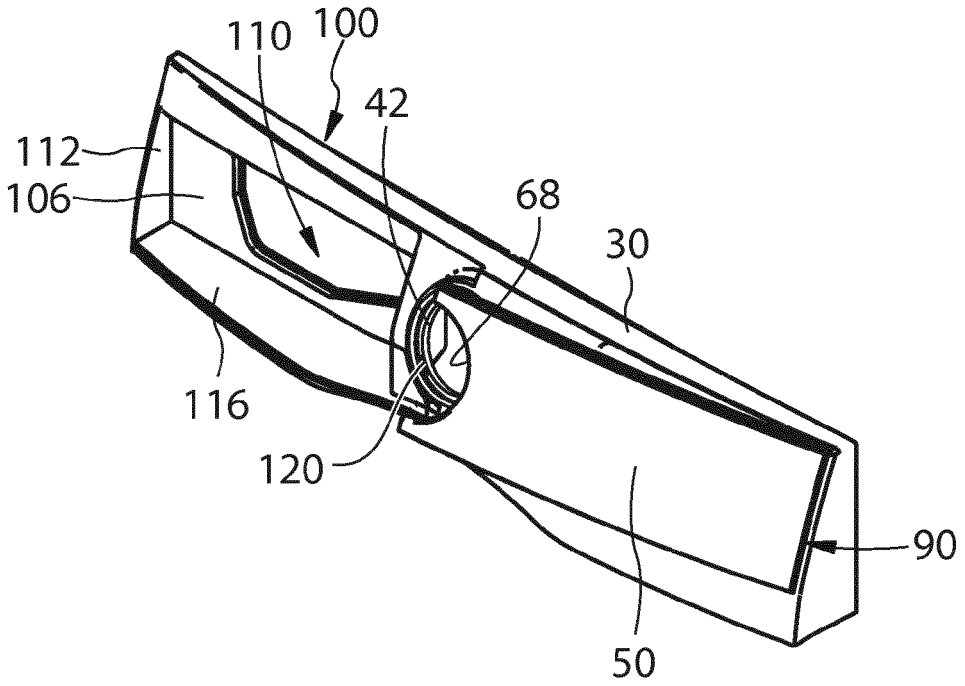


FIG. 4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42
112
106
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30
116
120
90
50

FIG. 5

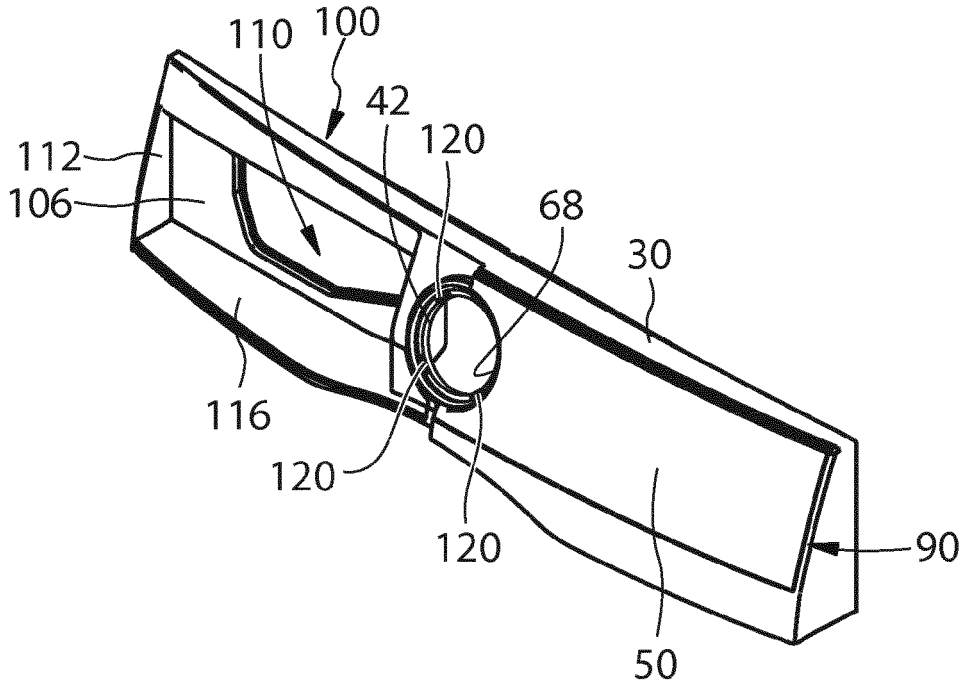
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FIG. 6

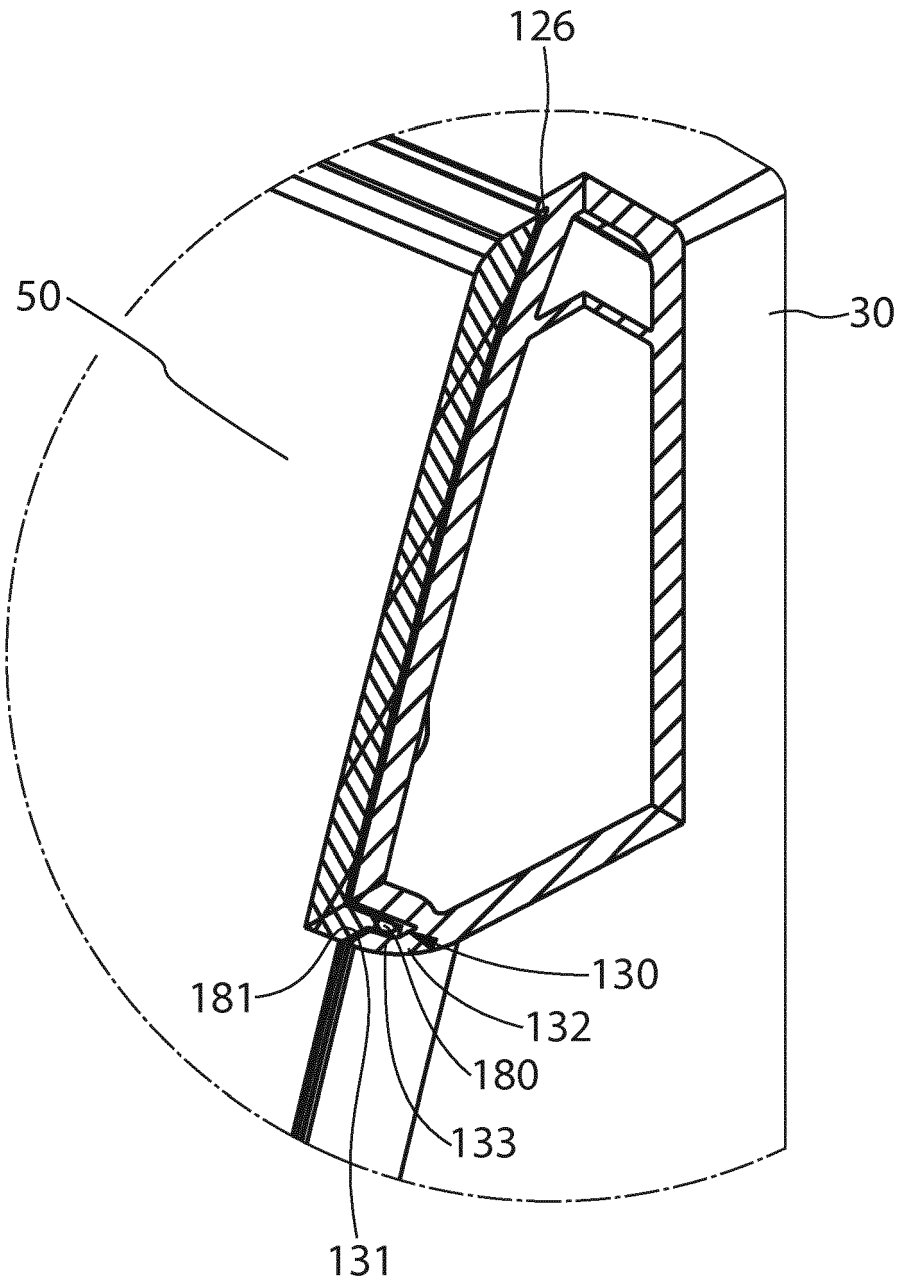


FIG. 7

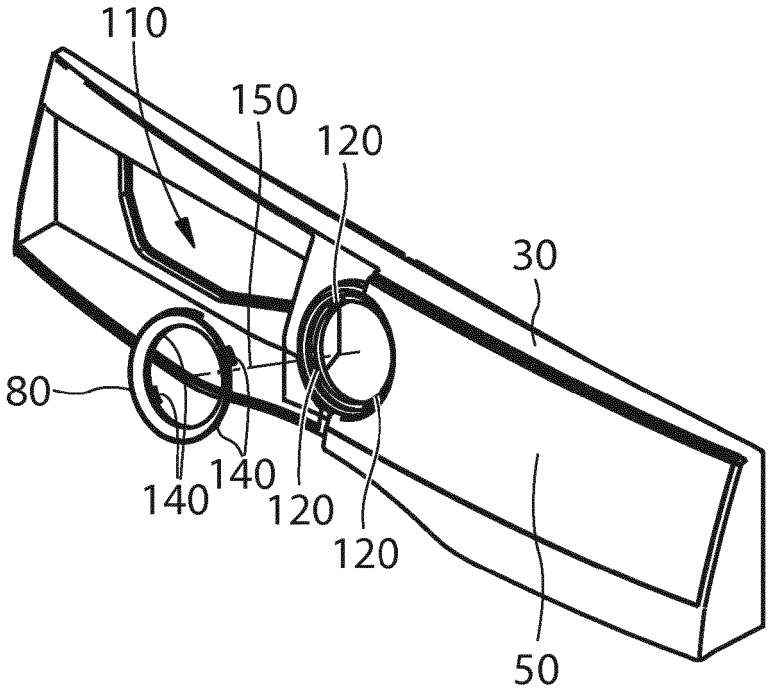


FIG. 8

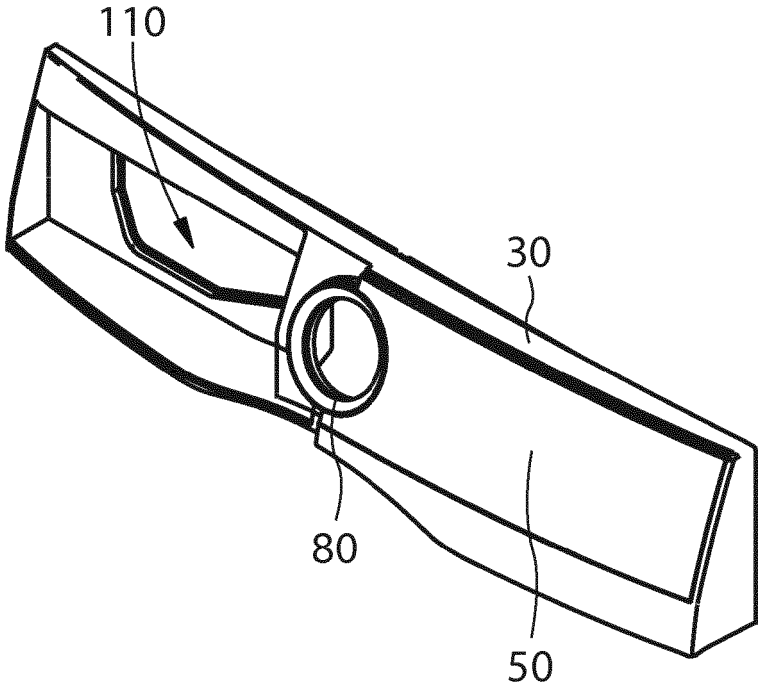


FIG. 9

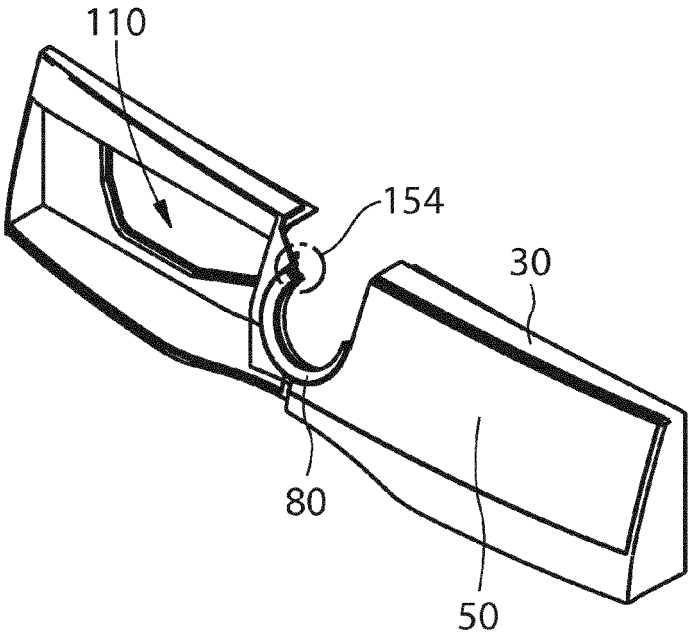


FIG. 10

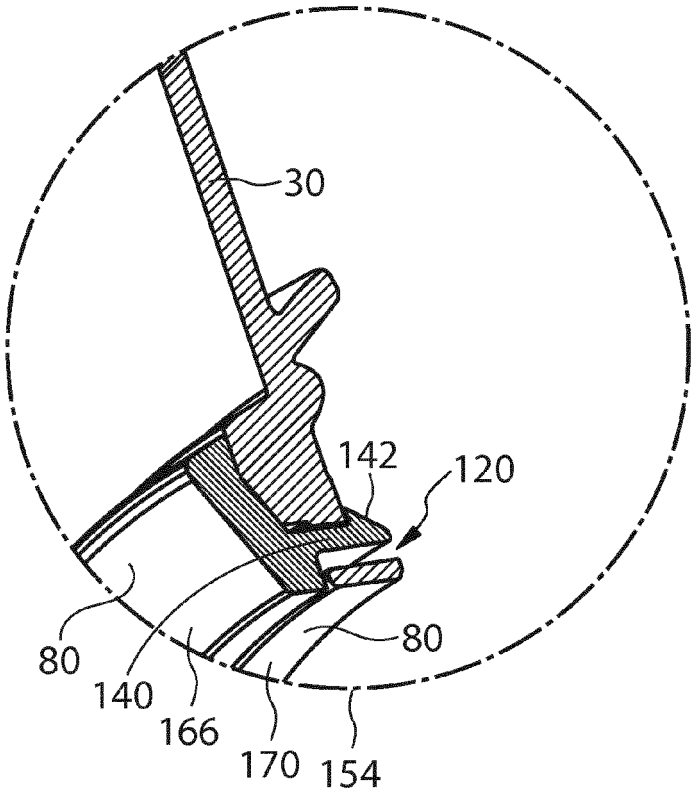


FIG. 11

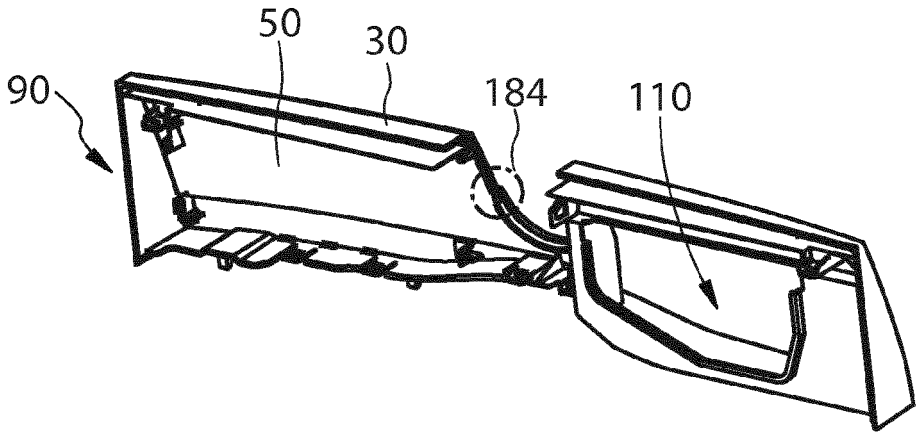


FIG. 12

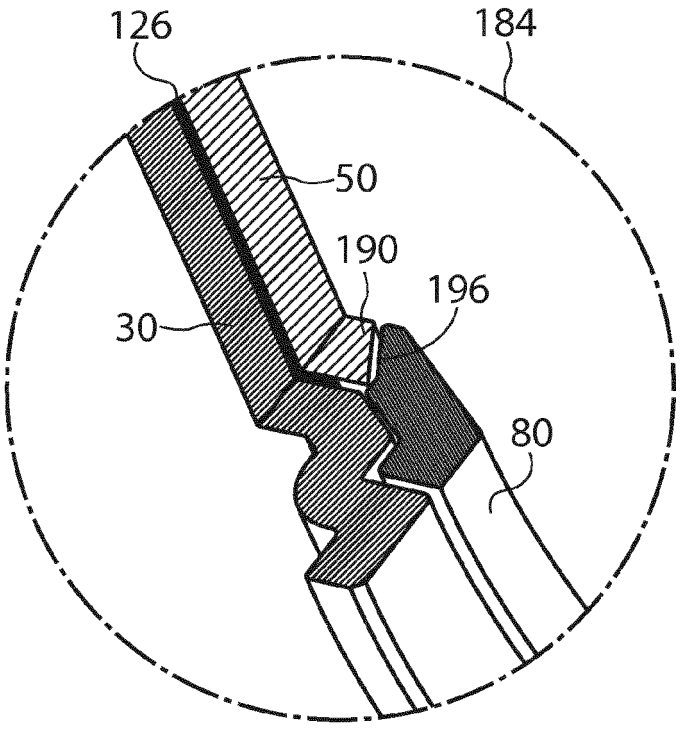


FIG. 13

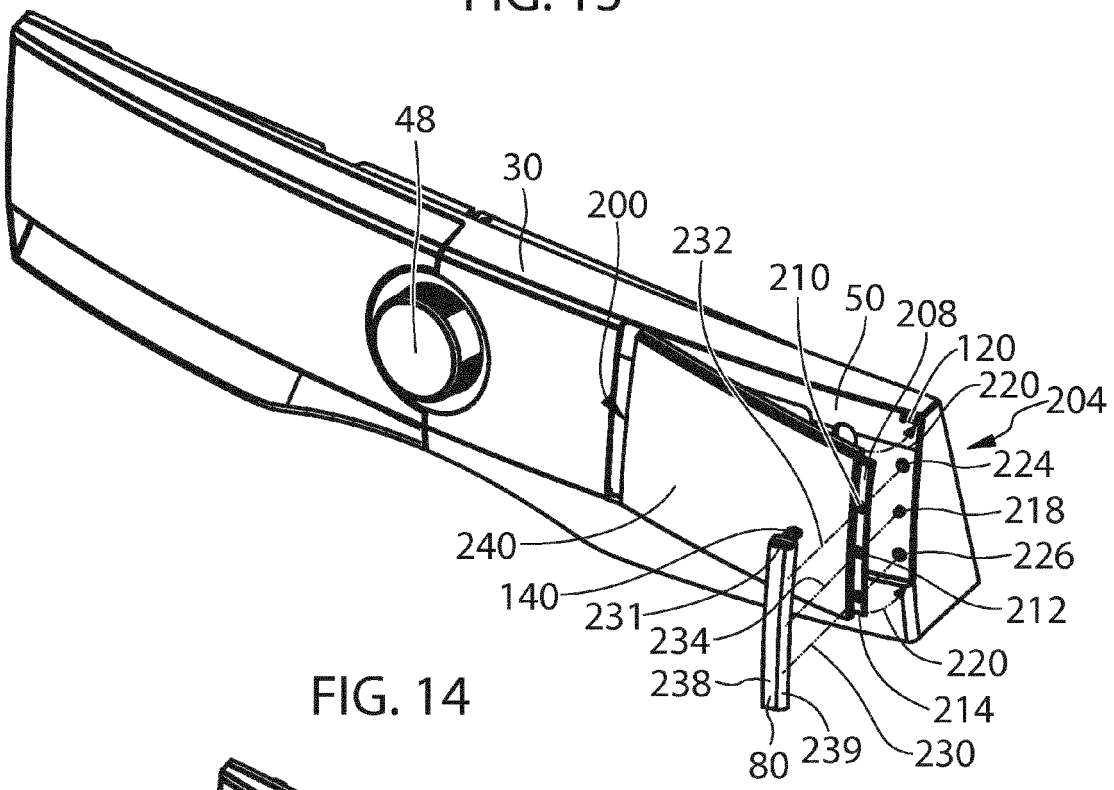


FIG. 14

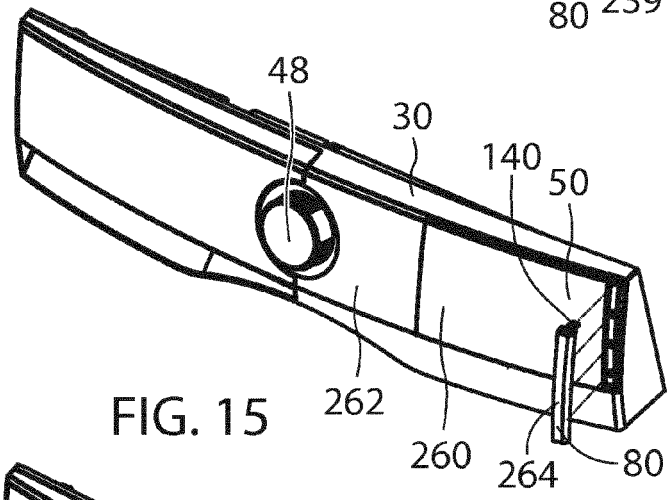


FIG. 15

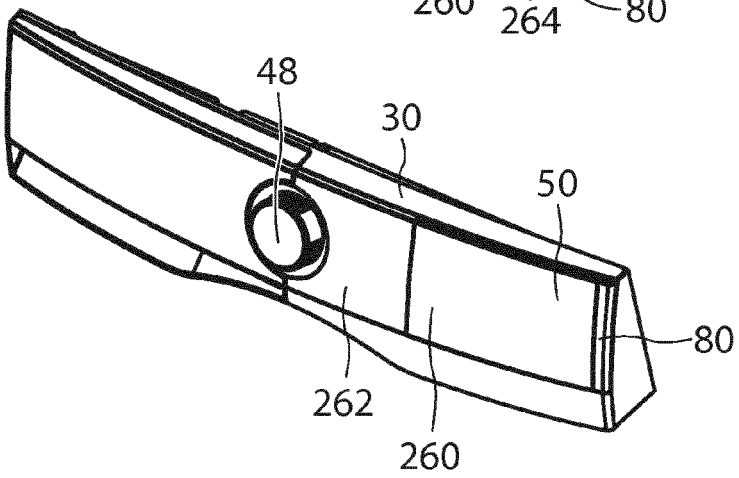


FIG. 16

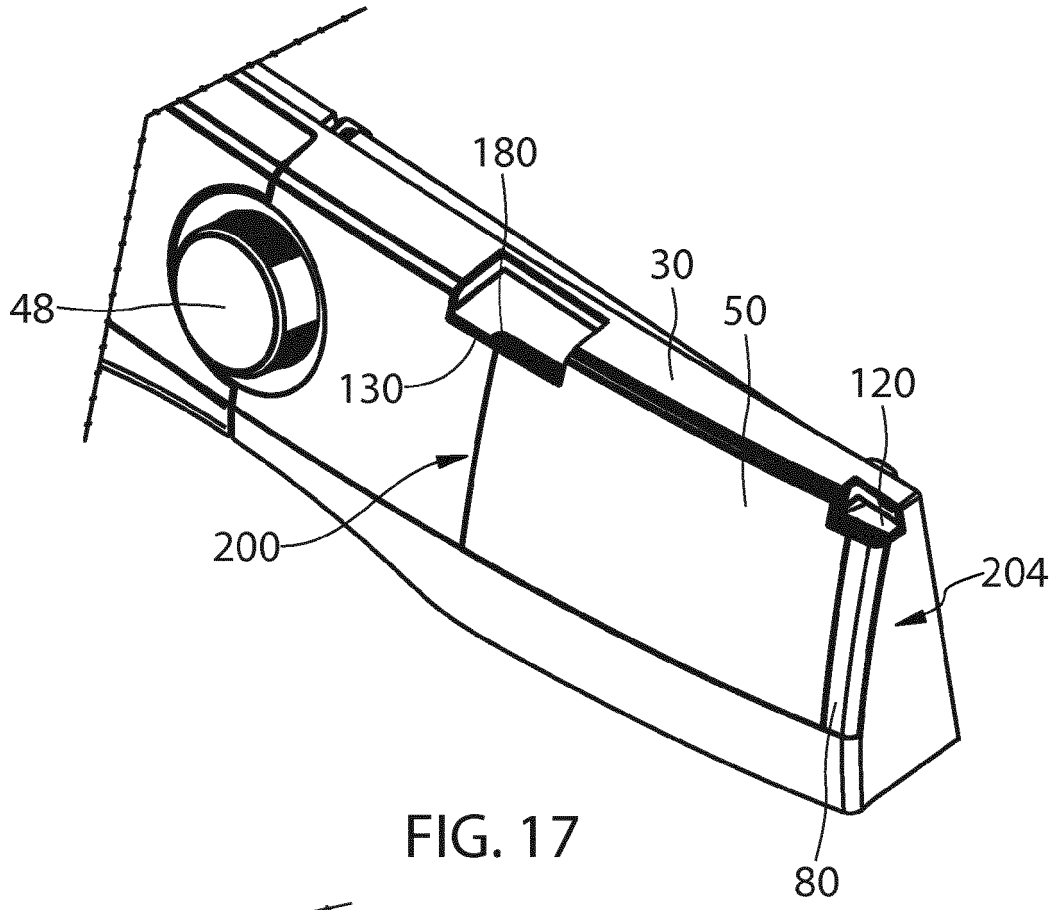


FIG. 17

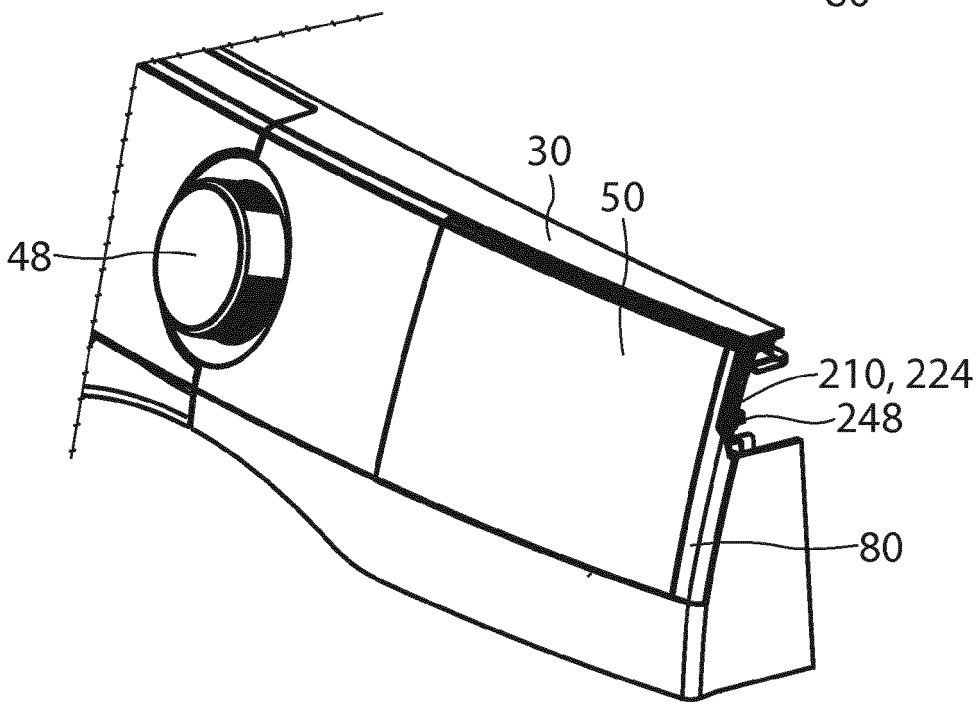
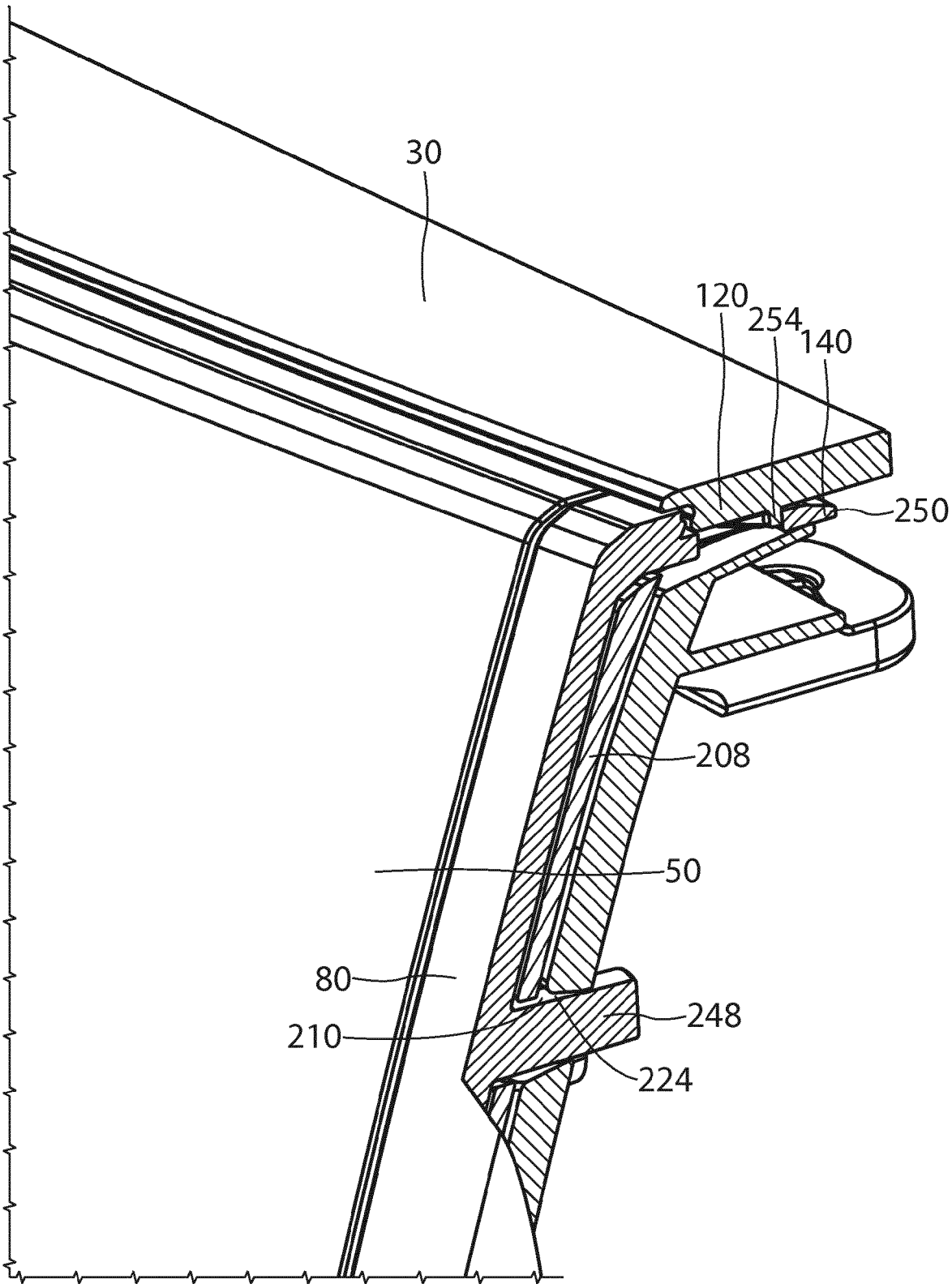


FIG. 18



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EUROPEAN SEARCH REPORT

Application Number
EP 15 15 7210

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2005/183471 A1 (KANG DONG W [KR] ET AL) 25 August 2005 (2005-08-25) * paragraph [0031] - paragraph [0042]; figures *	1,4,7, 9-12,15	INV. D06F39/00 A47L15/42 D06F39/12 F24C7/08
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A		2-14	
X,D	EP 2 436 828 A1 (ELECTROLUX HOME PROD CORP [BE]) 4 April 2012 (2012-04-04) * claim 1; figures *	1,15	

TECHNICAL FIELDS SEARCHED (IPC)

D06F
A47L
F24C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	2 July 2015	Diaz y Diaz-Caneja

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02-07-2015

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