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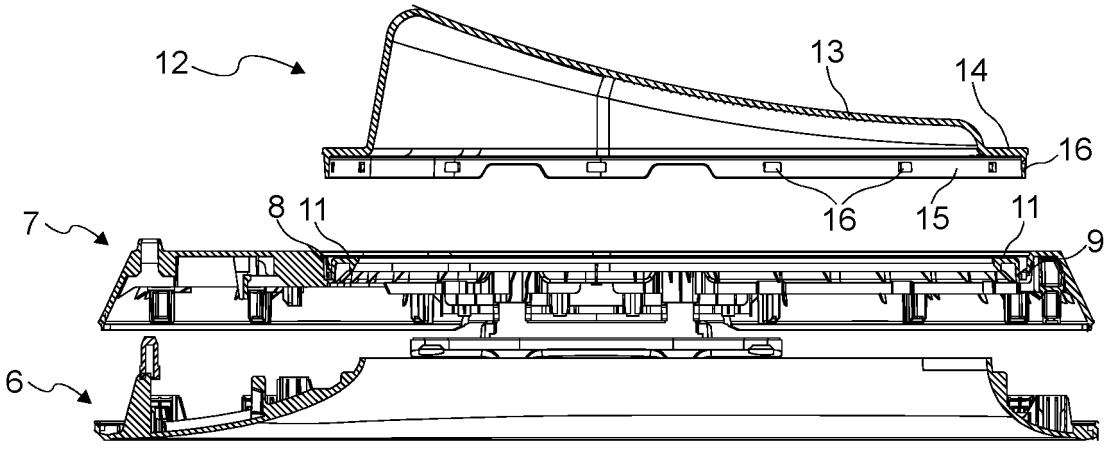
(54) A LAUNDRY WASHER AND/OR DRYER COMPRISING A DOOR

(57) The present invention relates to a laundry washer and/or dryer (1) comprising a body (2); a drum (3) which is disposed in the body (2) and wherein the laundry is loaded; an access opening (4) which is provided on the body (2) and which provides access into the drum (3); and a door (5) which is attached to the body (2) by means of a hinge, which can move between an open position wherein the door (5) provides access into the drum (3) through the access opening (4) and a closed position wherein the door (5) closes the access opening (4), which has an outer body (6) with a handle thereon that can be grasped by the user, an inner body (7) attached to the outer body (6), an inner door (12) fitted on the inner body (7) and a window section (13) on the inner door (12) that enables the inside of the drum (3) to be seen from the outside.

Figure 2



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Description

[0001] The present invention relates to a laundry washer/dryer comprising a door which can be easily mounted.

[0002] In the laundry washer and/or dryers, laundry is generally loaded in a drum rotated by an electric motor. The drum is accessed through an access opening which is closed by a door. In the state of the art, the door is basically composed of an inner body, an outer body and a transparent door sandwiched between the inner body and the outer body. A door sealing gasket is provided on the body, and said gasket presses on the inner door and provides sealing between the door and the body. An extra gasket is used between the transparent door and the inner door to provide sealing. If not mounted correctly, the extra gasket reduces the visual quality perception of the users. Moreover, the use of gaskets in such structures creates extra costs and causes operators to spend extra effort during the assembly steps. Due to the difficulty of assembly, labor and production costs also increase.

[0003] In the state of the art European Patent No. EP2929077B1, a laundry dryer having a door is disclosed.

[0004] In the state of the art European Patent No. EP3339499B1, a laundry dryer having a door is disclosed.

[0005] The aim of the present invention is the realization of a laundry washer and/or dryer comprising a door which can be mounted in an easy, quick and safe manner.

[0006] Another aim of the present invention is the realization of a laundry washer and/or dryer comprising a door with high visual quality.

[0007] The laundry washer and/or dryer realized in order to attain the aim of the present invention, explicated in the first claim and the respective claims thereof, comprises a body; a drum which is disposed in the body and wherein the laundry is loaded; an access opening which is provided on the body and which provides access into the drum; a door which is attached to the body by means of a hinge, which can move between an open position wherein the door provides access into the drum through the access opening and a closed position wherein the door closes the access opening, which has an outer body with a handle thereon that can be grasped by the user, an inner body attached to the outer body, an inner door fitted on the inner body and a window section on the inner door that enables the inside of the drum to be seen from the outside; a housing in the form of a recess which is provided on the inner body; a flange section which is provided on the inner door and which bears against the inner body all around; a skirt section which extends perpendicular to the flange section and which is fitted into the housing; and a plurality of mounting openings and a plurality of locking members, one of which is provided in the skirt section and the other in the housing, which engage with each other when the skirt section is fitted in the housing so as to enable the inner door to be fixed to the inner body. Thus, the outer body, the inner body and the inner door that form the door can be assembled easily and quickly with engaging structures. Moreover, the door design is simplified, the use of extra gaskets is eliminated, product costs and weight are decreased, and production and assembly processes are facilitated.

[0008] In an embodiment of the present invention, the locking member has a flexible arm and a claw which is provided on the arm and which extends almost perpendicular to the arm so as to be fitted into the mounting opening. Thus, the arm compresses the inner door all around, and thanks to the flexibility thereof, enables the inner door to be centered, providing mounting tolerance.

[0009] In another embodiment of the present invention, the mounting opening has the form of a truncated quadrangular pyramid with the base thereof facing the locking member. With this embodiment, as a result of the removal of the gasket, the light coming from outside is prevented from reaching the mounting opening and refracting and thus from making the mounting opening visible and causing discontinuity in the external appearance. The light reflected on the mounting opening spreads more homogeneously thanks to the quadrangular pyramid form, and when the claw is fitted into the mounting opening, no color transition occurs due to light reflection. Thus, when the user looks at the inner door from the outside, he/she sees the mounting opening and the claw structure as a whole. Ultimately, the visual quality of the door is improved.

[0010] In another embodiment of the present invention, the cross-section of the skirt section gradually narrows down towards the inside of the housing. Thus, the inner door can be borne on the inner body more easily and the skirt section is mounted into the housing with a gradually-increasing tightness. Thus, the skirt section creates peripheral pressure within the housing and reinforces the sealing between the inner door and the inner body.

[0011] In another embodiment of the present invention, a resting surface extending parallel to the flange section is provided on the inner body, and at least one protrusion is provided, extending circumferentially on the resting surface and bearing against the flange section when the skirt section is fitted in the housing. The protrusion enables the inner door to spring back after the inner door is mounted on the inner body such that the claws hold on to the mounting opening with constant tension. Thus, the inner door can be held more securely on the inner body.

[0012] By means of the present invention, the door of the laundry washer and/or dryer is enabled to be mounted in an easy, quick and safe manner.

[0013] The laundry washer and/or dryer realized in order to attain the aim of the present invention is illustrated in the attached figures, where:

Figure 1 - is the perspective view of the laundry washer and/or dryer related to an embodiment of the present invention.

Figure 2 - is the exploded perspective view of the

door of the laundry washer and/or dryer related to an embodiment of the present invention.

Figure 3 - is the partial cross-sectional view of the door of the laundry washer and/or dryer related to another embodiment of the present invention.

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

1. Laundry washer and/or dryer
2. Body
3. Drum
4. Access opening
5. Door
6. Outer body
7. Inner body
8. Housing
9. Locking member
10. Claw
11. Resting surface
12. Inner door
13. Window section
14. Flange section
15. Skirt section
16. Mounting opening
17. Protrusion
18. Handle

[0015] The laundry washer and/or dryer (1) comprises a body (2); a drum (3) which is disposed in the body (2) and wherein the laundry is loaded; an access opening (4) which is provided on the body (2) and which provides access into the drum (3); and a door (5) which is attached to the body (2) by means of a hinge, which can move between an open position wherein the door (5) provides access into the drum (3) through the access opening (4) and a closed position wherein the door (5) closes the access opening (4), which has an outer body (6) with a handle thereon that can be grasped by the user, an inner body (7) attached to the outer body (6), an inner door (12) fitted on the inner body (7) and a window section (13) on the inner door (12) that enables the inside of the drum (3) to be seen from the outside. The inner door (12) is preferably transparent and can be manufactured from glass or plastic material. The window section (13) located on the inner door (12) enables the inside of the drum (3) to be seen. The window section (13) can also be manufactured from glass or plastic material. The inner door (12) and the window section (13) can be manufactured as a single piece or as two separate parts and joined with each other.

[0016] The laundry washer and/or dryer (1) comprises a housing (8) in the form of a recess which is provided on the inner body (7); a flange section (14) which is provided on the inner door (12) and which bears against the inner body (7) all around; a skirt section (15) which extends perpendicular to the flange section (14) and which is fitted into the housing (7); and a plurality of mounting openings (16) which are provided on the skirt section (15) and a plurality of locking members (9) which are provided on the inner body (7), which enables the inner door (12) to be fixed to the inner body (7), each fitted into a mounting opening (16) when the skirt section (15) is fitted in the housing (8). The housing (8) is almost in the form of a U and extends annularly on the inner body (7). The skirt section (15) provided on the inner door (12) is in the form of an extension so as to be fitted into the housing (8). A plurality of mounting openings (16) are provided on the skirt section (15). A plurality of locking members (9) extending into the housing (8) are provided on the inner body (7). When the inner door (12) is mounted on the inner body (7), the locking members (9) engage with the mounting openings (16) and enable the inner door (12) to be fixed to the inner body (7).

[0017] In an embodiment of the present invention, the locking member (9) has a flexible arm (18) and a claw (10) which is provided on the arm (18) and which extends almost perpendicular to the arm (18) so as to be fitted into the mounting opening (16). While the skirt section (15) is being fitted into the housing (8), the skirt section (15) contacts the arm (18) and moves forward by stretching the arm (18) towards the outside. When the claw (10) provided on the arm (18) is fitted into the mounting opening (16), the locking is completed. Thus, the inner door (12) can be attached to the inner body (7) more easily.

[0018] In an embodiment of the present invention, the mounting opening (16) is in the form of a truncated quadrangular pyramid and is formed so as to narrows down in width from the side where the claw (10) is fitted towards the inner side. When fitted into the mounting opening (16), the claw (10) does not completely fill the mounting opening (16), leaving a gap. Thus, the rays reflected from the outside onto the claw (10) can be distributed homogeneously thanks to the truncated quadrangular pyramid form, and the claw (10) is seen as a whole with the inner body (7). Consequently, the claw (10) and the mounting openings (16) are prevented from being visible to the user when viewed from the outside

and an unpleasant appearance is avoided.

[0019] In another embodiment of the present invention, the thickness of the skirt section (15) decreases from the flange section (14) towards the end portion. Thus, the skirt section (15) is mounted into the housing (8) by being squeezed more and more and applies pressure all around the housing (8), ensuring a tighter fit.

[0020] In another embodiment of the present invention, a resting surface (11) extending parallel to the flange section (14) is provided on the inner body (7), and at least one protrusion (17) is provided, extending circumferentially on the resting surface (11) and bearing against the flange section (14) when the skirt section (15) is fitted into the housing (8). When the skirt section (15) is fitted into the housing (8), the protrusion (17) applies pressure to the inner door (12) so as to enable the inner door (12) to be mounted more tightly to the inner body (7).

[0021] By means of the present invention, the door (5) of the laundry washer and/or dryer (1) is enabled to be mounted in an easy, quick and simple manner.

Claims

1. A laundry washer and/or dryer (1) **comprising** a body (2); a drum (3) which is disposed in the body (2) and wherein the laundry is loaded; an access opening (4) which is provided on the body (2) and which provides access into the drum (3); and a door (5) which is attached to the body (2) by means of a hinge, which can move between an open position wherein the door (5) provides access into the drum (3) through the access opening (4) and a closed position wherein the door (5) closes the access opening (4), which has an outer body (6) with a handle thereon that can be grasped by the user, an inner body (7) attached to the outer body (6), an inner door (12) fitted on the inner body (7) and a window section (13) on the inner door (12) that enables the inside of the drum (3) to be seen from the outside, **characterized by** a housing (8) in the form of a recess which is provided on the inner body (7); a flange section (14) which is provided on the inner door (12) and which bears against the inner body (7) all around; a skirt section (15) which extends perpendicular to the flange section (14) and which is fitted into the housing (7); and a plurality of mounting openings (16) which are provided on the skirt section (15) and a plurality of locking members (9) which are provided on the inner body (7), which enables the inner door (12) to be fixed to the inner body (7), each fitted into a mounting opening (16) when the skirt section (15) is fitted in the housing (8).

2. A laundry washer and/or dryer (1) as in Claim 1, **characterized by** the locking member (9) having a flexible arm (18) and a claw (10) which is provided on the arm (18) and which extends almost perpendicular to the arm (18) so as to be fitted into the mounting opening (16).

3. A laundry washer and/or dryer (1) as in Claim 2, **characterized by** the mounting opening (16) which is in the form of a truncated quadrangular pyramid and which is formed so as to narrows down in width from the side where the claw (10) is fitted towards the inner side.

4. A laundry washer and/or dryer (1) as in any one of Claims 1 to 3, **characterized by** the skirt section (15) of which the thickness decreases from the flange section (14) towards the end portion.

5. A laundry washer and/or dryer (1) as in any one of the above claims, **characterized by** a resting surface (11) which is provided on the inner body (7) and which extends parallel to the flange section (14), and at least one protrusion (17) which extends circumferentially on the resting surface (11) and which bears against the flange section (14) when the skirt section (15) is fitted into the housing (8).

Figure 1

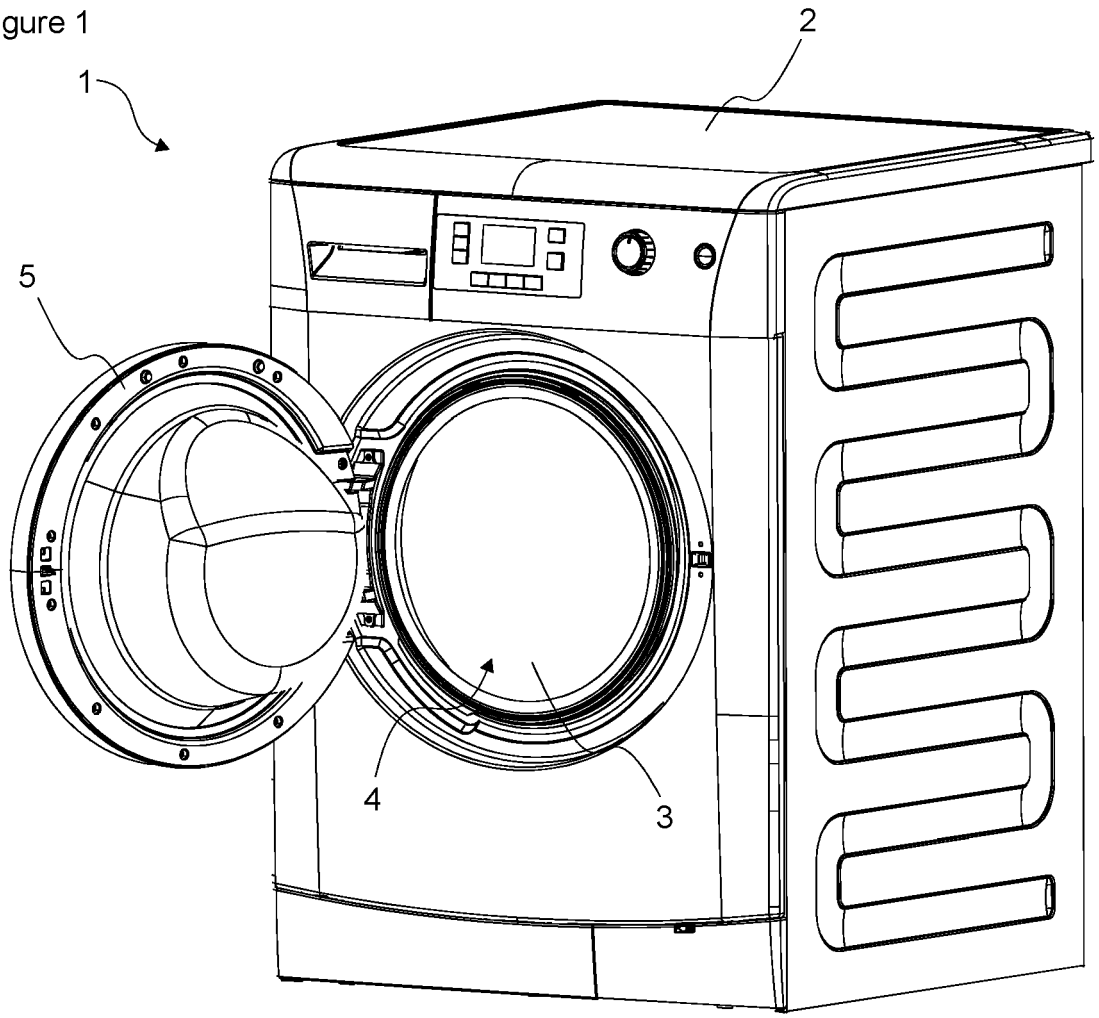


Figure 2

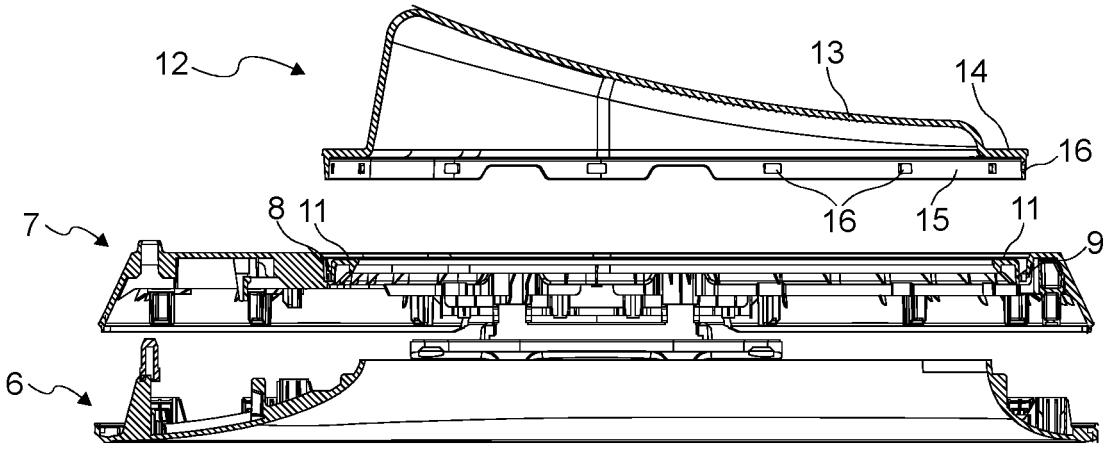
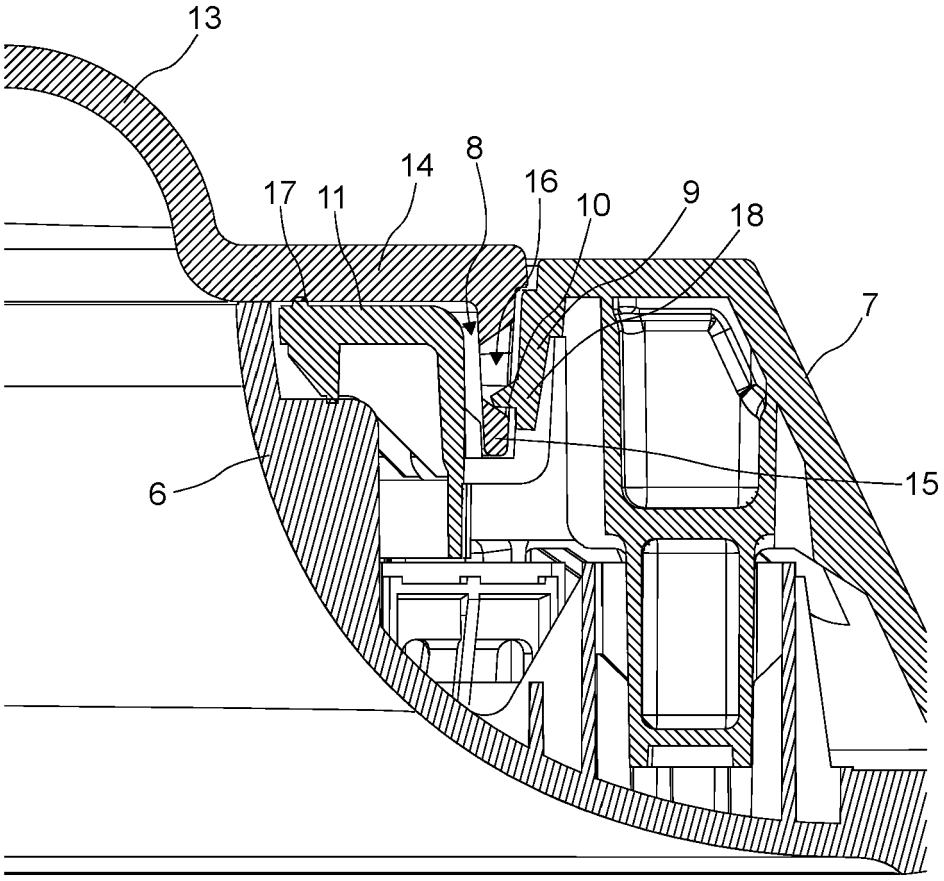


Figure 3



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EUROPEAN SEARCH REPORT

Application Number
EP 24 16 4766

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	11 September 2024	Sabatucci, Arianna

CATEGORY OF CITED DOCUMENTS

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