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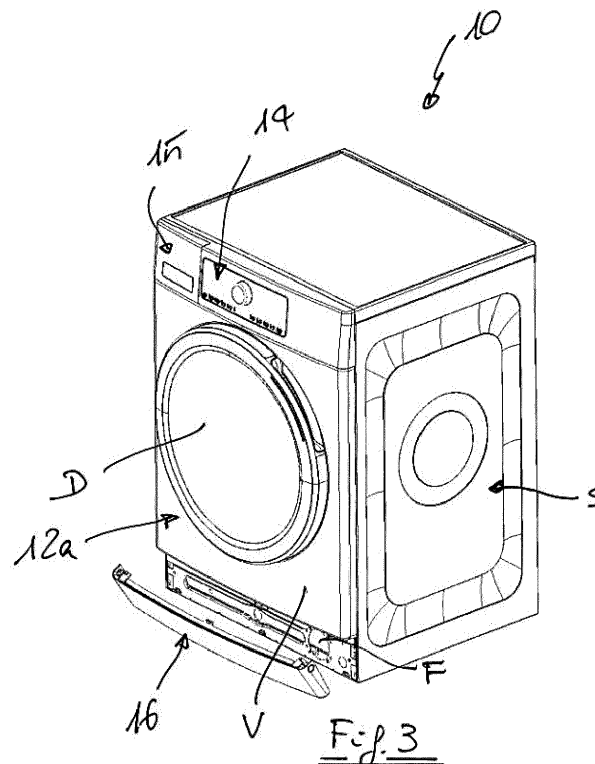
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(54) **Washing machine or dryer with a front bottom panel**

(57) A washing machine, dryer or washer dryer (10) comprises an housing (12, P) with a front face (12a) having a front plastic panel (16) which can be detached from said front face (12a) and covers technical component of the appliance, as a filter or the like. The removable panel (16) comprises a latching mechanism including a first

element (22) which is configured to be elastically actuated by the user and a second element (24) which cooperates elastically with the first element (22) and presents a catch (28) configured to cooperate with a corresponding portion (30) of the housing (12), said first and second element being integral with the panel.



Description

[0001] The present invention relates to a laundry treatment appliance comprising a housing with a front face having a panel which can be detached from the front face of the appliance.

[0002] With the term "laundry treatment appliance" we mean any appliance which can wash or dry clothes, or can perform washing and drying altogether.

[0003] In such kind of appliances it is well known the use of a removable front panel, usually made of polymeric material, which can be detached from the front face and which hides technical components of the appliance, for instance a removable filter, which would interfere with the overall appearance of the appliance. The present systems for fixing such panel to the appliance do exploit generally the intrinsic flexibility of the plastic component, but usually it is not clear to the user where the panel should be preferably grasped for an easy detachment. Moreover, depending on the usual tolerances in the process of injection molding used for producing the panel, it may happen that the force needed to remove the panel is higher than expected, creating therefore problems to the user who may need to consult the user's manual for understanding how to remove the panel.

[0004] It is therefore an object of the present invention to provide an appliance of the above type which does not present the above problem and in which the front panel can be easily and reliably removed from the front face of the appliance.

[0005] According to the invention, such object is reached thanks to the features listed in the appended claims.

[0006] According to the invention, a push button and a related latching mechanism is integral with the panel so that the user can easily unclip the panel from the housing. On the other hand, the solution according to the invention gives the advantages and feeling of a dedicated button without the mechanical complication of a mechanical latching system having several pieces.

[0007] According to a preferred feature of the present invention, two push-buttons and related latching mechanisms are associated with respective side walls of the panel which are usually flush with the side walls of the appliance.

[0008] Further features and advantages of an appliance according to the present invention will become clear from the following detailed description, with reference to the attached drawings in which:

- Figure 1 is a perspective view of a washing machine according to the invention;
- Figures 2-3 are perspective views similar to figure 1 which show a configuration in which the panel is rotated and detached from the housing respectively;
- Figures 1A, 2A and 3A are enlarged views of details of figures 1, 2 and 3;
- Figure 4 is a perspective view of a portion of the

panel used in the washing machine of figure 1;

- Figure 5 is a rear view of the same portion of the panel of figure 4; and
- Figure 6 is a perspective cross sectioned view along line VI-VI of the portion of the washing machine shown in figure 1A.

[0009] With reference to the drawings, a washing machine 10 comprises a housing 12 having a front face 12a. The front face 12a, which can be integral with the housing or can be mounted on the housing as a component, has a central opening for a door D which allows loading/unloading of laundry in a drum (not shown). In an upper zone the front face 12a presents a control panel 14 and a drawer 15 for detergents and other washing additives. In the lower zone of the front face 12a, the washing machine 10 presents a removable plastic panel 16 which covers a base or plinth P of the machine and which has two side walls 16a flush with side walls S of the washing machine 10 and a front wall 16b flush with the visible portion V of the front face 12a, in order to create a shape continuity therewith.

[0010] According to the invention, each side wall 16a of the panel 16 is provided with an opening 18 in which a push-button 20 is operatively placed. Such push-button 20 is part of an elongated integral cantilevered piece 22 of the panel which branches out in 22a from said side wall 16a and which presents an operating end 22b whose function will be clear from the following description. By pressing the push-button 20 (horizontal arrow shown in figure 1A, 4, 5 and 6) the elongated piece 22 substantially rotates, thanks to intrinsic flexibility of the plastic material, around an horizontal axis X-X.

[0011] In a similar manner, the front wall 16b of the panel, on its rear side, is provided with two integral cantilevered pieces 24 where each presents a tab portion 24a and an end shaped portion 24b which defines an inclined surface 26 and a V-shaped catch 28 adapted to cooperate with a corresponding opening 30 of the housing 12. The operating end 22b of the piece 22, in the idle configuration of the latching mechanism shown in the drawings, is very close to the inclined surface 26 of the related piece 24.

[0012] By pressing the push-button 20, the operating end 22b of the piece 22 acts by friction on the inclined surface 26 of the piece 24, therefore substantially prompting a rotation of the piece 24 around an horizontal axis Y-Y substantially perpendicular to the axis X-X of the first piece 22, therefore removing the catch 28 from the opening 30 and allowing a removal of the panel 16 from the appliance. The rotation of the piece 24 around axis Y-Y is allowed by the intrinsic flexibility of the plastic material of the panel 16. Once the action by the user on the push buttons 20 (one for each side) is terminated, the same elasticity of the material allows the latching mechanism to assume again the idle position shown in the drawings. The detaching phase is shown particularly in figures 2 and 3. The initial rotation shown in figures 2

and 2a is allowed by the presence of integral tabs (not shown) which cooperate with openings 32 in the housing 12 and which helps in positioning correctly the panel 16 on the plinth. After such initial rotation, the panel 16 is completely detached from the housing 12 (figures 3 and 3A) allowing the user to reach components of the appliance, for instance the removable filter F shown in figure 3A for cleaning purposes.

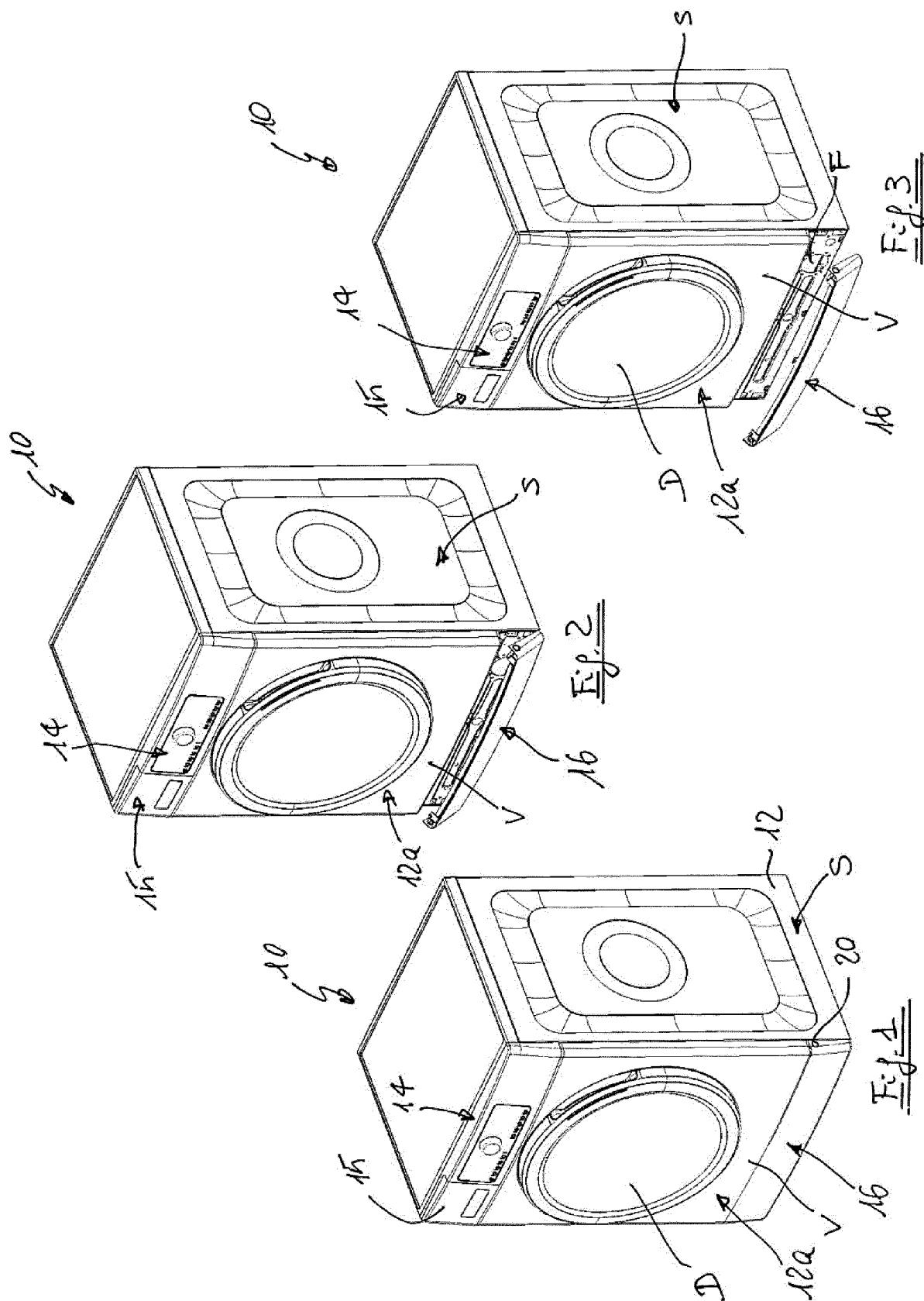
[0013] From the above description the advantages of a solution according to the present invention are clear, i. e. to provide performances of more expensive and complex latching system with simple parts integral with the panel, which are obtained directly in the injection molding process.

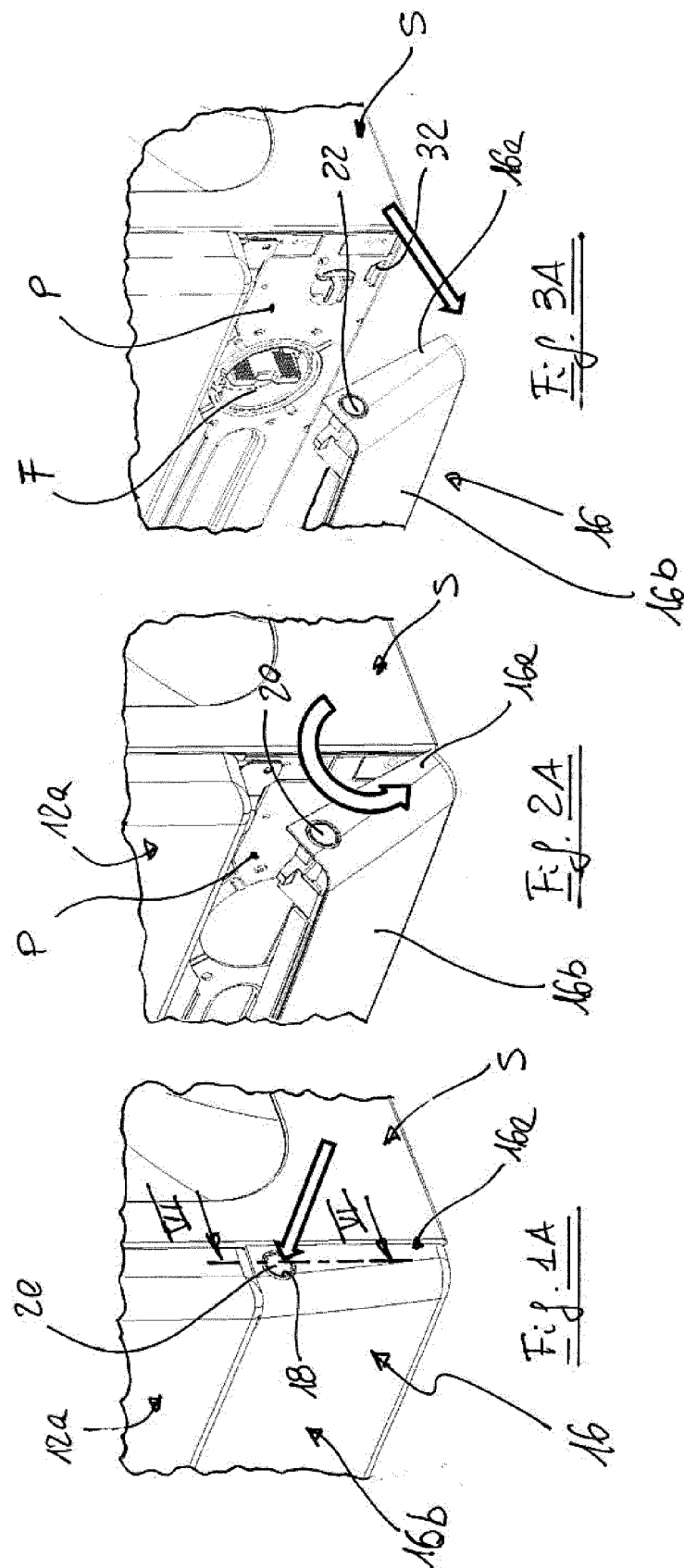
inclined surface (26).

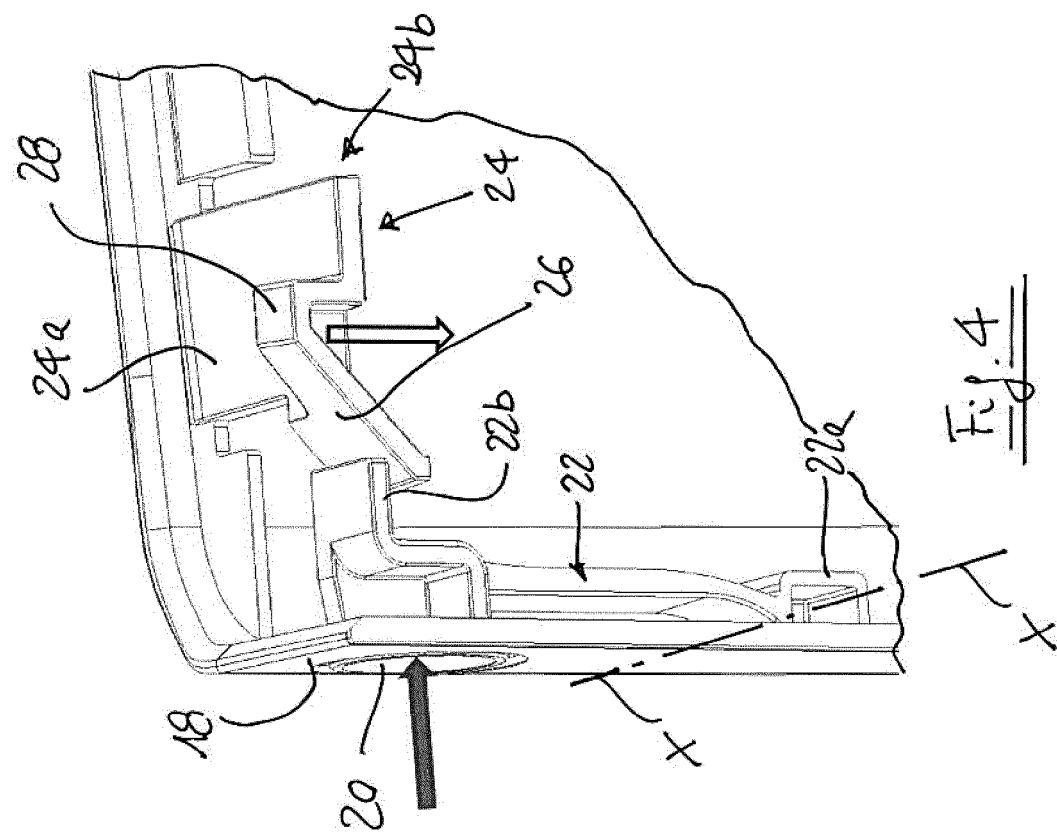
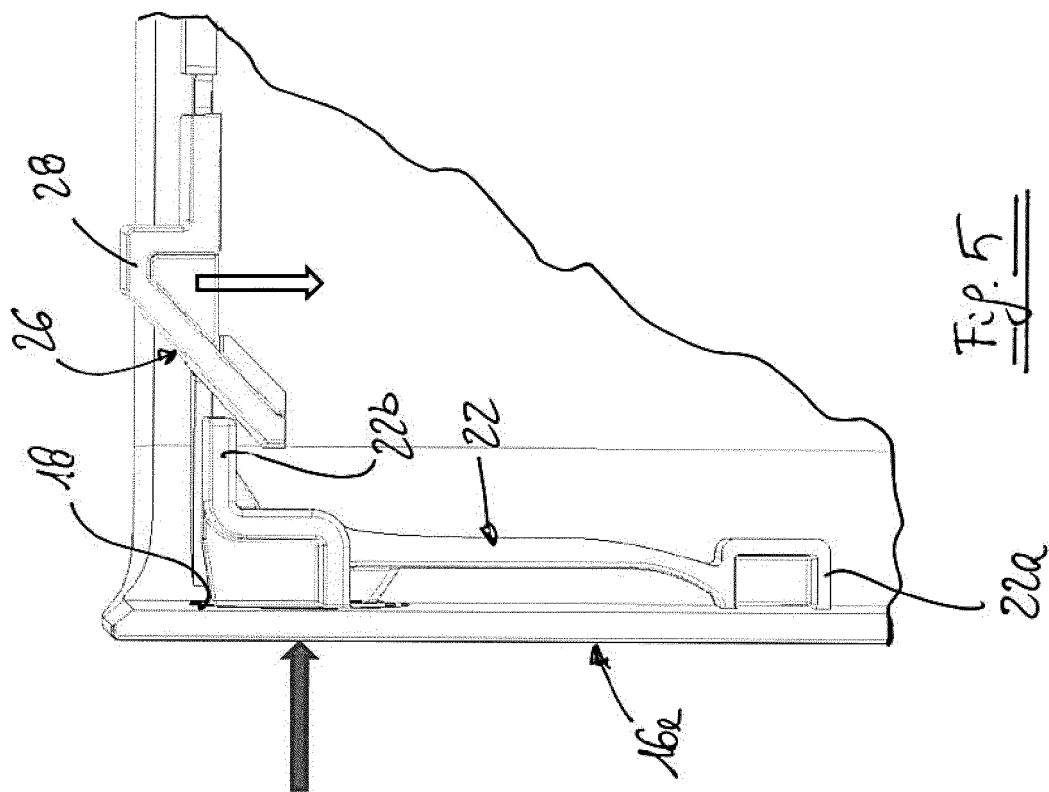
7. Appliance according to any of the preceding claims, wherein the first element (22) is configured to substantially rotate around a first horizontal axis (X-X) and the second element (24) is configured to substantially rotate around a second horizontal axis (Y-Y) which is substantially perpendicular to the first axis (X-X).
8. Appliance according to any of the preceding claims, wherein said panel (16) is made of polymeric material.

Claims

1. Laundry treatment appliance (10), comprising a housing (12, P) with a front face (12a) having a front panel (16) which can be detached from said front face (12a), **characterized in that** said panel (16) comprises at least one latching mechanism including a first element (22) which is configured to be actuated by the user and a second element (24) which cooperates with the first element (22) and presents a catch (28) configured to cooperate with a corresponding portion (30) of the housing (12).
2. Appliance according to claim 1, wherein said first and second element (22, 24) are integral with the panel (16) and are elastically driven towards an idle position.
3. Appliance according to claim 1 or 2, wherein the panel (16) presents two side walls (16a) and a front wall (16b), two latching mechanisms (22, 24, 28) being provided on or adjacent said side walls (16a).
4. Appliance according to claim 3, wherein each first element (22) is cantilevered and presents an elongated shape with a button portion (20) placed in a corresponding opening (18) of the side wall (16a) of the panel (16) and configured to move toward the inner side of the panel (16) under the press action of an user, such first element (22) presenting a portion (22b) configured to cooperate with a surface (26) of the second element (24) which is configured to move in a substantially vertical direction in order to cooperate with said portion (30) of the housing (12).
5. Appliance according to claim 4, wherein said portion of the housing is an opening (30) in which a catch portion (28) of the second element (24) can enter.
6. Appliance according to claim 4 or claim 5, wherein the surface (26) of the second element (24) configured to cooperate with the first element (22) is an







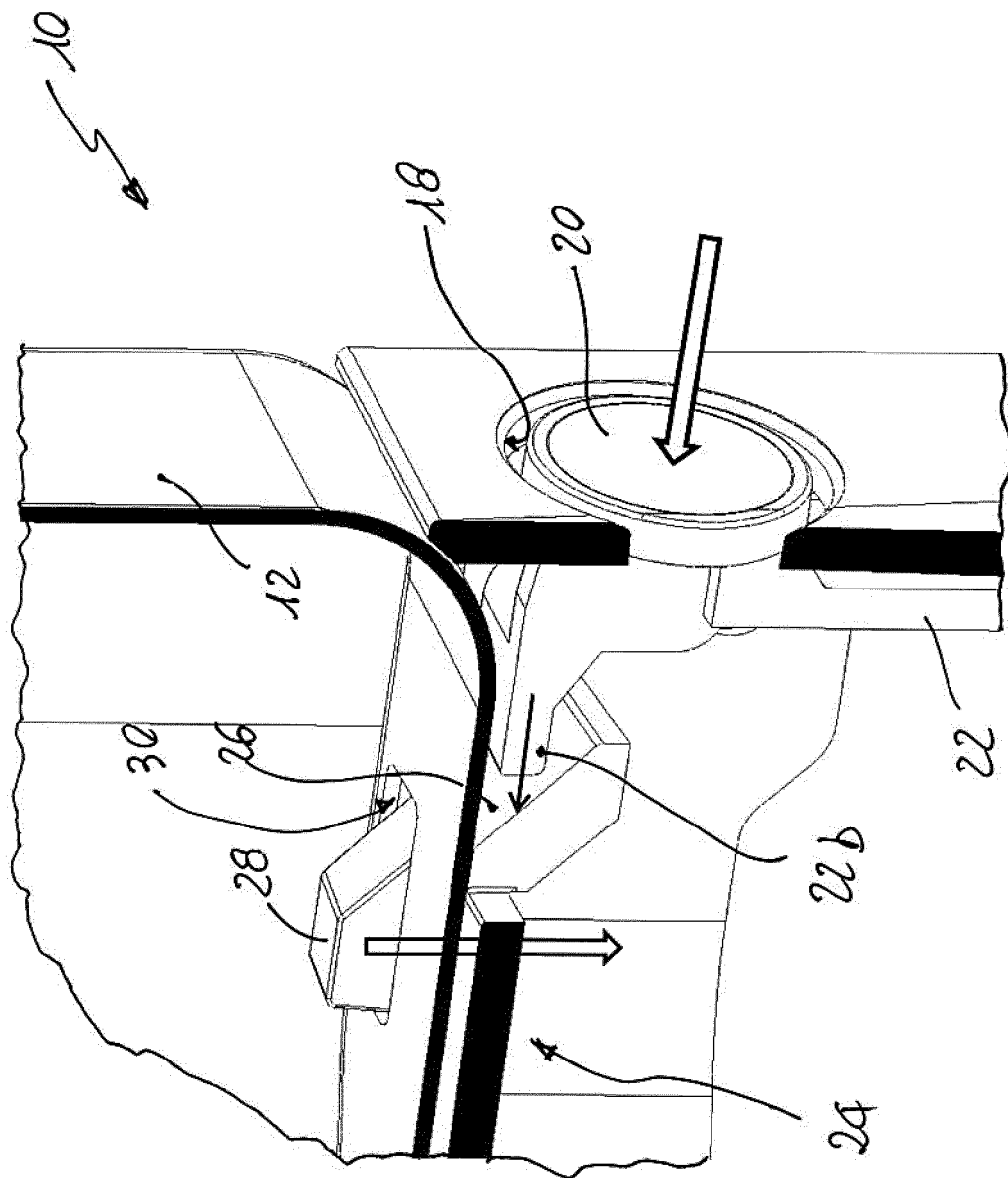


Fig. 6



EUROPEAN SEARCH REPORT

Application Number
EP 14 17 7912

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			TECHNICAL FIELDS SEARCHED (IPC)
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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 12 September 2014	Examiner Jezierski, Krzysztof
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			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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