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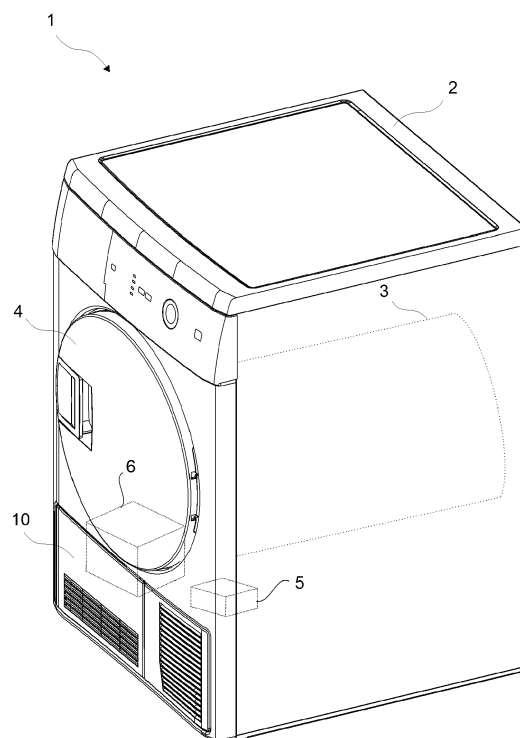
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(54) **A LAUNDRY DRYER**

(57) The present invention relates to a laundry dryer (1) comprising a body (2); a drum (3) wherein the drying process is performed and that is disposed in the body (2); a door (4) that is disposed in the front wall of the body (2) and that provides access to the drum (3); a filter (5) whereon the lint that come off from the laundry is accumulated; at least one heat exchanger (6) that is disposed in the body (2) and that dehumidifies and heats up the drying air; a receptacle (7) wherein the water containing lint draining from the filter (5) and/or the heat exchanger (6) is transferred; a pump (8) that enables the water accumulated in the receptacle (7) to be discharged; a base unit (9) that is disposed under the drum (3) and that carries the heat exchanger (6) and the elements such as the motor, fan, etc. that realize the drying air cycle, and a cover (10) that is disposed at the front portion of the body (2) and that provides access to the heat exchanger (6).

Figure 1



Description

[0001] The present invention relates to a laundry dryer wherein the lint filter is cleaned.

[0002] In laundry dryers, lint that come off the laundry are separated from the drying air by means of filter elements. Since lint accumulated on filter elements generate resistance to the drying air, filter elements are needed to be cleaned often. Dryers wherein filter elements are cleaned by spraying water are known in the state of the art. In these types of dryers, water containing lint that is generated by cleaning the filter elements is needed to be removed. One of the most common embodiments of removing water containing lint is the transfer of the water containing lint to a storage by means of a pump and the emptying of the storage by the user. In this embodiment, lint may clog the pump and fully discharging the water may not be possible. In this case, when the pump is clogged, the user needs to call the service personnel. Moreover, the water that cannot be discharged generates problems in terms of cleanliness and hygiene in the dryer. This situation adversely affects the user satisfaction.

[0003] In the state of the art European Patent Application No. EP0548386, a laundry dryer is disclosed, wherein the lint that are mixed with water are discharged by means of a pump.

[0004] In the state of the art European Patent Application No. EP2796614, a laundry dryer is disclosed, wherein the heat exchanger is cleaned by being washed.

[0005] In the state of the art Japanese Patent Application No. JP2007330439, a laundry dryer is disclosed, wherein the lint is separated from the water by means of a filter that is disposed in the chamber wherein the water containing lint is accumulated.

[0006] The aim of the present invention is the realization of a laundry dryer wherein the user can easily access the pump that enables the discharging of the water containing lint.

[0007] The laundry dryer realized in order to attain the aim of the present invention, explicated in the first claim and the respective claims thereof, comprises a pump and a receptacle wherein the water containing lint draining from the heat exchanger is accumulated, and that is disposed in a gap between the heat exchanger and the cover that is disposed in the front wall of the dryer and that provides access to the heat exchanger.

[0008] In the laundry dryer of the present invention, the process of the discharging of the water obtained by washing the filter and the heat exchanger in order to be cleansed of the lint is realized behind the front wall of the dryer by almost entirely changing the structural design of the dryer. To this end, the discharge pump and the receptacle wherein the water is accumulated are disposed at the front portion of the dryer. In order that the user can easily access the pump, a cover is positioned under the door in the front wall. In case of a problem, the user can access the pump by opening the cover.

[0009] In an embodiment of the present invention, the

dryer comprises an auxiliary cover that enables the receptacle and the pump to be covered and that enables the receptacle to be separated from the gap. By means of the auxiliary cover, the drying air does not interact with the water accumulated in the receptacle during the drying. Thus, the water accumulated in the receptacle is prevented from moisturizing the drying air and the drying efficiency is prevented from decreasing.

[0010] In another embodiment of the present invention, a grill that enables the lint to be held is disposed at the suction port of the pump. Preferably the filter and the heat exchangers are washed in the dryer, and thus the user is not required to clean the lint filter. In this embodiment, the pump that is used in the cleaning of the filter and the heat exchanger, or that is used in the discharging of the water drained after being condensed on the heat exchanger and that contains lint is enabled to be cleansed of lint.

[0011] In another embodiment of the present invention, a stripper that enables the lint that stick to the grill to be cleaned is disposed on the grill. The stripper may be a mechanical arm that is set up at the beginning of the drying process, or a structure that is operated by means of a motor. With the stripper cleaning the grill, the pump can discharge the waste water without encountering any barriers. The lint separated from the grill accumulate in the receptacle wherein the waste water accumulates. In a version of this embodiment, the stripper cleans the surface of the grill by stripping the grill during the drying process at intervals that are predetermined by the producer. Thus, the flow of the water towards the pump is prevented from being interrupted and the cleaning of the grill is enabled, at the same time energy saving is provided by operating the stripper at intervals.

[0012] In the dryer of the present invention, thanks to the position of the pump, the user can easily intervene when the pump is clogged and clean the lint accumulated in the receptacle. Moreover, by preventing the lint from being mixed to the pump, the lifespan of the pump is increased and the user satisfaction is increased indirectly.

[0013] The 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 a dryer.

Figure 2 - is the schematic view of the receptacle and the pump related to an embodiment of the present invention.

Figure 3 - is the perspective view of the receptacle and the pump related to an embodiment of the present invention.

Figure 4 - is the perspective view of the receptacle, the pump and the grill related to another embodiment of the present invention.

Figure 5 - is the perspective view of the grill and the stripper related to another embodiment of the present invention.

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

1. Dryer
2. Body
3. Drum
4. Door
5. Filter
6. Heat exchanger
7. Receptacle
8. Pump
9. Base unit
10. Cover
11. Gap
12. Auxiliary cover
13. Grill
14. Stripper

[0015] The laundry dryer (1) of the present invention comprises a body (2); a drum (3) wherein the drying process is performed and that is disposed in the body (2); a door (4) that is disposed in the front wall of the body (2) and that provides access to the drum (3); a filter (5) whereon the lint that come off from the laundry is accumulated; at least one heat exchanger (6) that is disposed in the body (2) and that dehumidifies and heats up the drying air; a washing means (not shown in the figures) that enables preferably the filter (5) and/or the heat exchanger (6) to be cleaned by being washed; a receptacle (7) wherein the water containing lint draining from the filter (5) and/or the heat exchanger (6) is transferred; a pump (8) that enables the water accumulated in the receptacle (7) to be discharged; a base unit (9) that is disposed under the drum (3) and that carries the heat exchanger (6) and the elements such as the motor, fan, etc. that realize the drying air cycle, and a cover (10) that is disposed at the front portion of the body (2) and that provides access to the heat exchanger (6).

[0016] In the laundry dryer (1), the laundry is loaded in the drum (3) by opening the door (4), and the drying process is realized by closing the door (4). The lint that come off from the laundry during the drying process are held by the filter (5). The lint that the filter (5) cannot hold are directed to the heat exchanger (6) with the drying air. While the drying air is dehumidified on the heat exchanger (6), the lint stick on the heat exchanger (6). If present, the washing means enables the lint that accumulate on the filter (5) and the heat exchanger (6) to be cleaned by spraying water on the filter (5) and the heat exchanger (6). The lint and the water draining from above the filter (5) and the heat exchanger (6) by being condensed on the filter (5) and the heat exchanger (6) or by washing the filter (5) and the heat exchanger (6) flow towards the receptacle (7) and accumulate in the receptacle (7). The pump (8) enables the water located in the receptacle (7) to be discharged.

[0017] The dryer (1) of the present invention comprises a gap (11) arranged between the heat exchanger (6) and

the cover (10); and the receptacle (7) and the pump (8) that are disposed on the base unit (9) under the gap (11). By being disposed between the heat exchanger (6) and the cover (10) at the front portion of the body (2), the receptacle (7) and the pump (8) become accessible through the gap (11) when the cover (10) is opened. Thus, the user can easily access the receptacle (7) and the pump (8) through the gap (11) by opening the door (10). At the same time, the user can easily clean the lint accumulated in the receptacle (7) by opening the door (10) (Figure 2, 3, 4, 5).

[0018] In an embodiment of the present invention, the dryer (1) comprises an auxiliary cover (12) that is disposed between the cover (10) and the heat exchanger (6) and that isolates the receptacle (7) by separating the receptacle (7) from the gap (11). The auxiliary cover (12) prevents the water from reaching the heat exchanger (6) through the gap (11) by vaporizing/splattering and prevents the drying performance from being adversely affected. In this embodiment, the user can easily access the receptacle (7) and the pump (8) by opening the cover (10) and the auxiliary cover (12) (Figure 2).

[0019] In another embodiment of the present invention, the dryer (1) comprises a grill (13) that is mounted at the suction port of the pump (8). By means of the grill (13), the lint accumulated in the receptacle (7) are held before reaching the pump (8). Thus, the pump (8) is prevented from being clogged. The user can clean the grill (13) by opening the door (10) and detaching the grill (13) (Figure 4).

[0020] In another embodiment of the present invention, the grill (13) is seated tightly at the suction port of the pump (8). The grill (13) is mounted to the pump (8) by being tightly seated and thus the small sized lint are prevented from entering the pump (8). Thus, the pump (8) is prevented from clogging in any way.

[0021] In another embodiment of the present invention, the grill (13) has a truncated cone shape so that the side that faces the receptacle (7) is wider. By means of the truncated cone shape of the grill (13), the water flow towards the pump (8) from the receptacle (7) is prevented from being affected much from the lint. While the lint are held by means of the grill (13) being wide in the inbound direction of the lint, the lint held by the grill (13) are prevented from hindering the water flow by increasing the water flow speed.

[0022] In another embodiment of the present invention, the dryer (1) comprises a stripper (14) that is disposed on the grill (13) and that enables the lint accumulated on the grill (13) to be stripped. The stripper (14) strips the surface of the grill (13) that holds the lint at certain intervals or continuously during the drying process. Thus, the discharging of the water in the receptacle (7) is realized without being interrupted. At the same time, the grill (13) is cleaned by means of the stripper (14) and the need for the user to clean the grill (13) is eliminated (Figure 5).

[0023] In a derivative of the above-explained embodiment, the stripper (14) is operated at intervals predeter-

mined by the producer, and thus energy saving is provided. Moreover, by operating the stripper (14) at intervals, the total sound level the dryer (1) generates during the drying process is prevented from being increased.

[0024] In another embodiment of the present invention, the laundry dryer (1) has the function of washing laundry.

[0025] In the laundry dryer (1) of the present invention, the pump (8) and the receptacle (7) are disposed at the front portion of the dryer (1) so as to be easily accessed by the user. The cover (10) is positioned under the door (4) wherein the laundry to be dried is loaded with the purpose of access. Thus, the user can easily access the pump (8). The lint accumulated in the receptacle (7) can be easily cleaned by opening the cover (10). By means of the grill (13), the lint cannot reach the pump (8) and the pump (8) is prevented from being clogged.

Claims

1. A laundry dryer (1) comprising a body (2); a drum (3) wherein the drying process is performed and that is disposed in the body (2); a door (4) that is disposed in the front wall of the body (2) and that provides access to the drum (3); a filter (5) whereon the lint that come off from the laundry is accumulated; at least one heat exchanger (6) that is disposed in the body (2) and that dehumidifies and heats up the drying air; a receptacle (7) wherein the water containing lint draining from the filter (5) and/or the heat exchanger (6) is transferred; a pump (8) that enables the water accumulated in the receptacle (7) to be discharged; a base unit (9) that is disposed under the drum (3) and that carries the heat exchanger (6) and the elements such as the motor, fan, etc. that realize the drying air cycle, and a cover (10) that is disposed at the front portion of the body (2) and that provides access to the heat exchanger (6), **characterized by** a gap (11) arranged between the heat exchanger (6) and the cover (10); and the receptacle (7) and the pump (8) disposed on the base unit (9) under the gap (11).
2. A dryer (1) as in Claim 1, **characterized by** an auxiliary cover (12) that is disposed between the cover (10) and the heat exchanger (6) and that isolates the receptacle (7) by separating receptacle (7) from the gap (11).
3. A dryer (1) as in Claim 1 or 2, **characterized by** a grill (13) that is mounted at the suction port of the pump (8).
4. A dryer (1) as in Claim 3, **characterized by** a stripper (14) that is disposed on the grill (13) and that enables the lint accumulated on the grill (13) to be stripped.

Figure 1

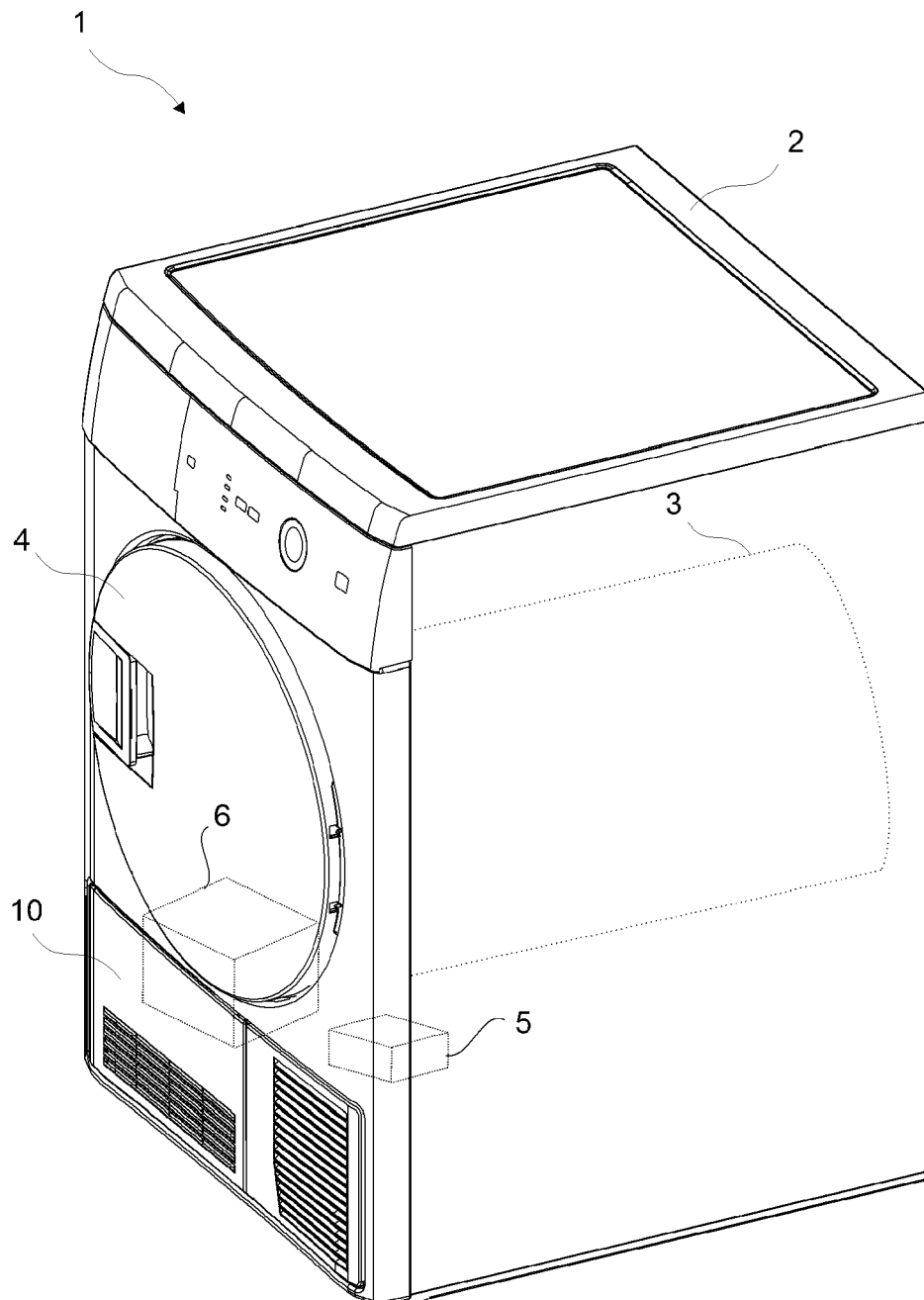


Figure 2

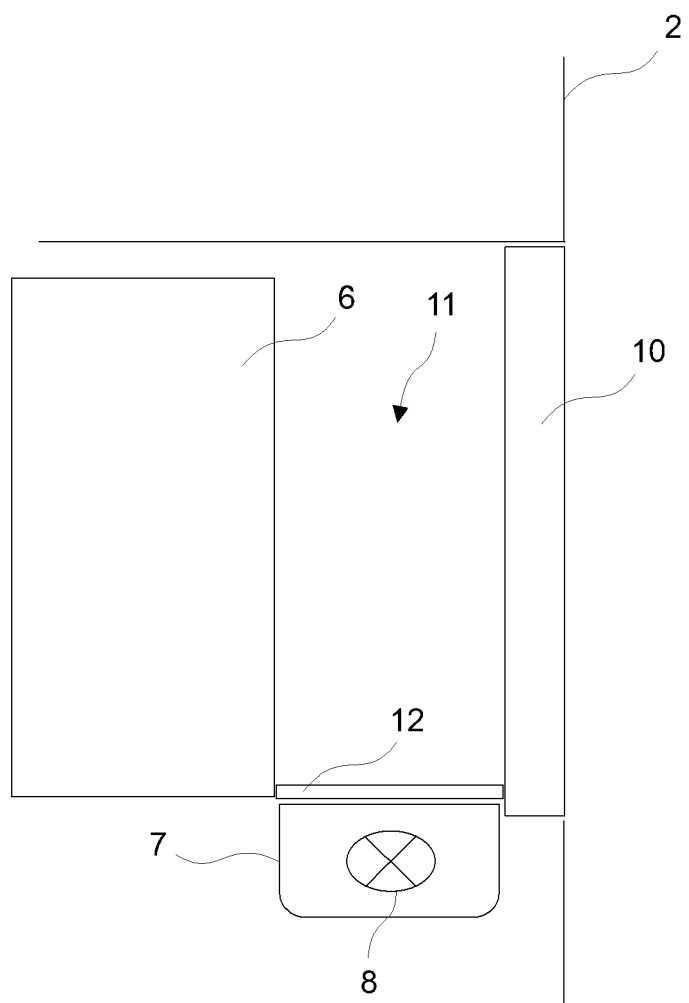


Figure 3

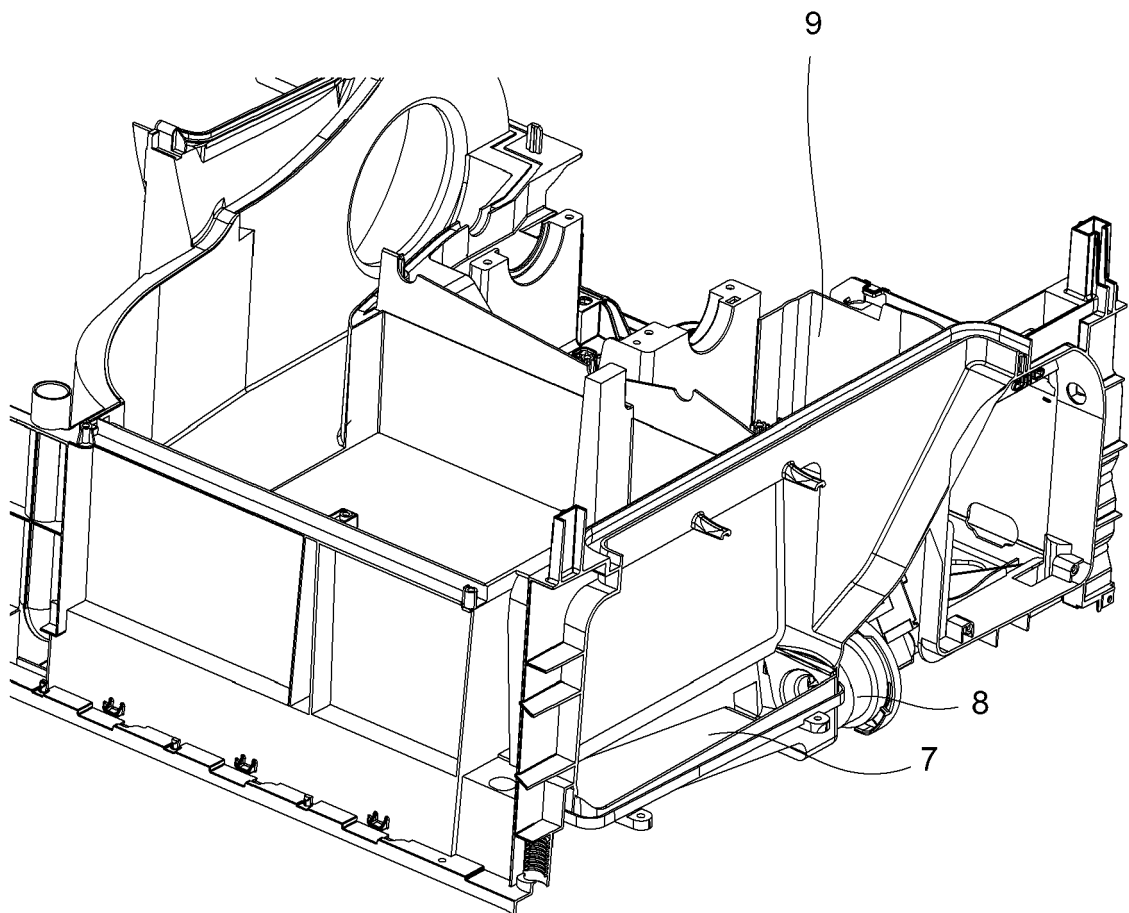


Figure 4

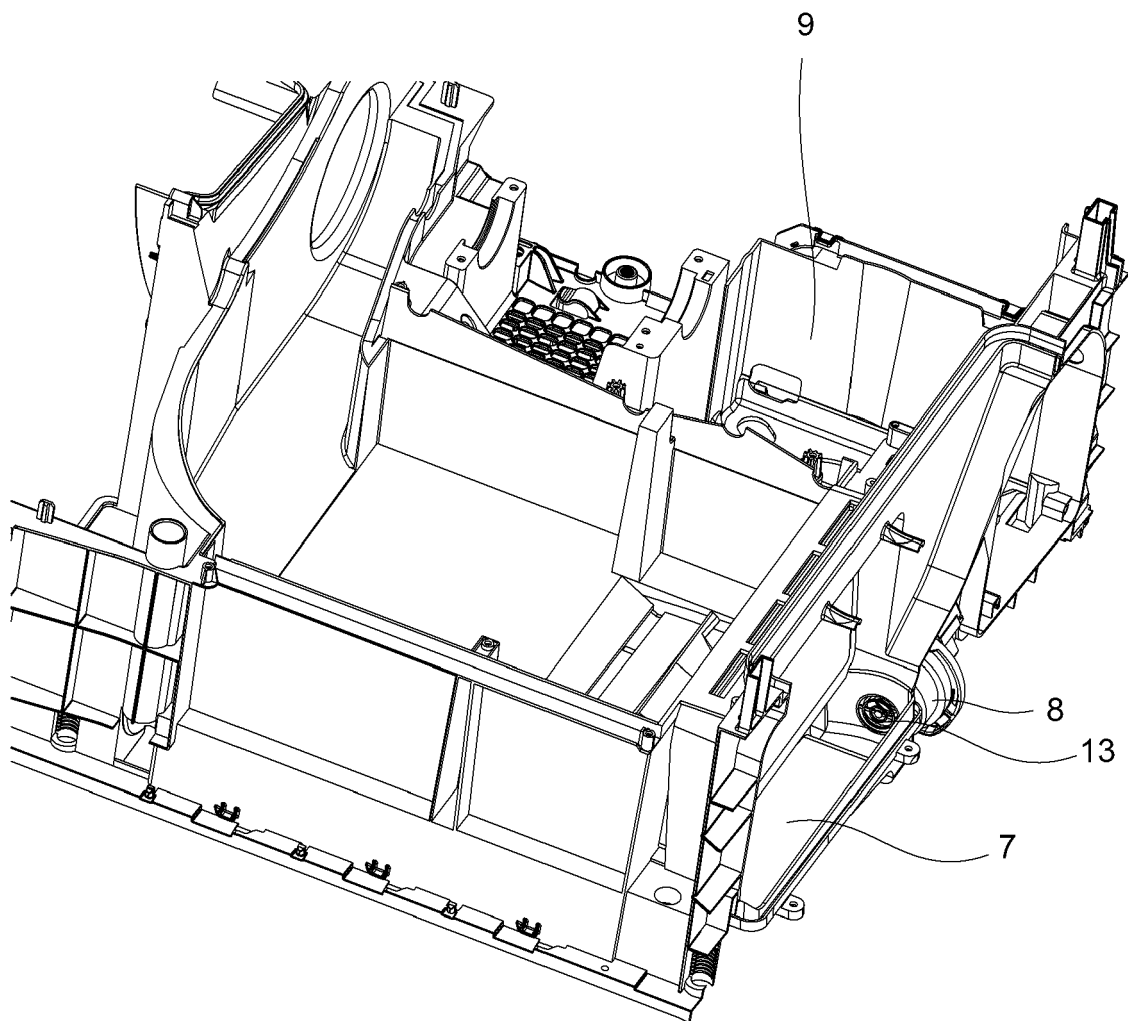
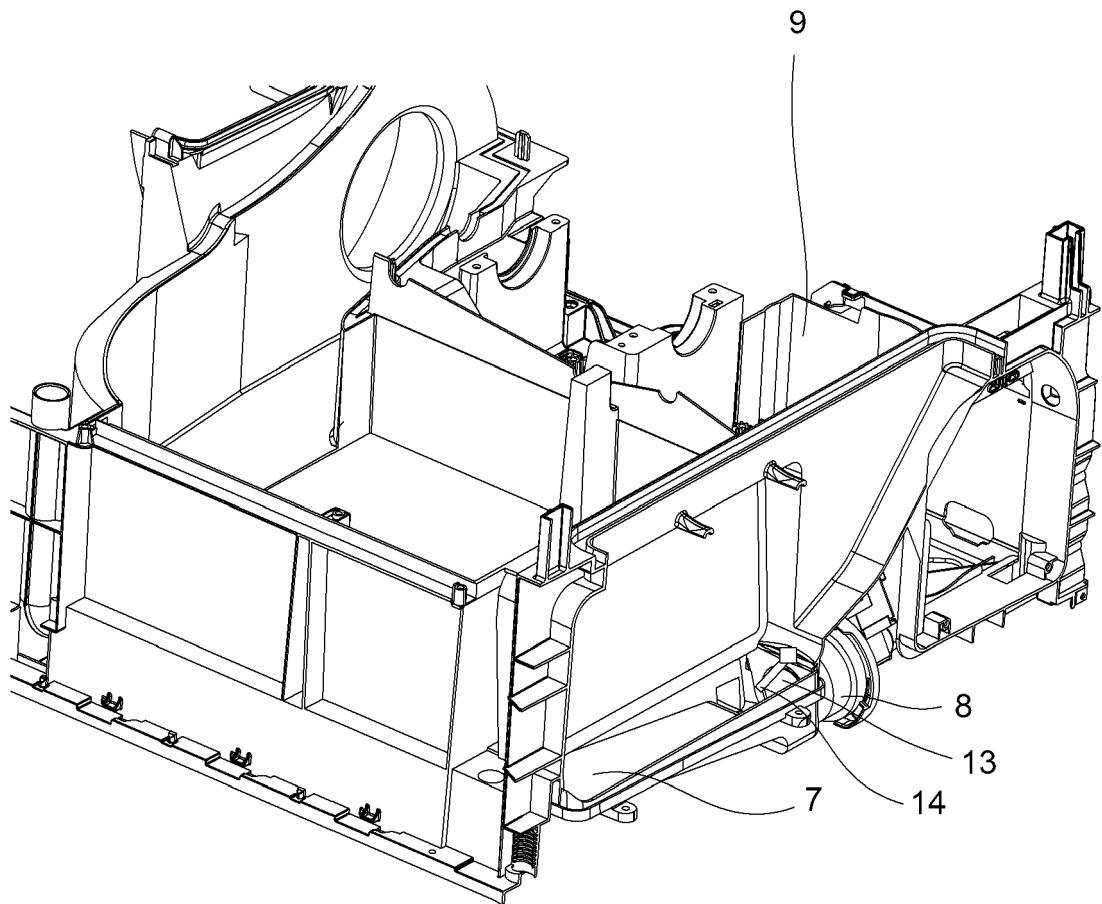


Figure 5





EUROPEAN SEARCH REPORT

Application Number
EP 16 18 5867

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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 2 November 2016	Examiner Kirner, Katharina
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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