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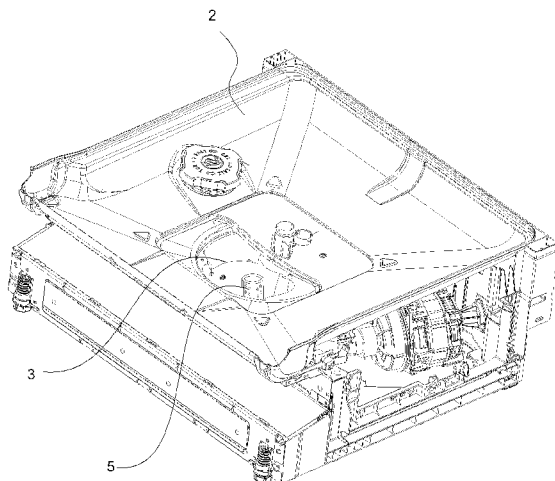
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(54) Title: A DISHWASHER COMPRISING MICROFILTER

Figure 4



(57) Abstract: The dishwasher (1) of the invention comprises a washing tub (2) in which items to be washed are placed, a chamber (3) provided in the lower portion of the washing tub (2), in which water in the washing tub (2) is collected during washing, a conduit (4) connected on the chamber (3), enabling conveyance of water to the chamber (3) and a hollow cylindrical shaped microfilter (5) provided in the middle of the chamber (3), retaining dirt carried by the water passing from the chamber (3) to the water circulation or discharge line.



Description**A DISHWASHER COMPRISING MICROFILTER**

- [0001] The present invention relates to a dishwasher comprising microfilter.
- [0002] In dishwashers, a washing chamber is provided in the lower portion of the washing tub, in which the water used in the washing tub is collected during washing. The water used in the washing tub during washing, is collected in the washing chamber after completion of washing. A microfilter is placed in the center of the washing chamber. The microfilter enables filtering dirty water taken from the washing tub to the washing chamber. The microfilter becomes dirty in time due to dirt colliding and adhering on the microfilter during filtering. The dirty microfilter is periodically removed and cleaned by the user. However, washing performance decreases as a result of not cleaning the microfilter in due time, or incorrect placement. Hence, automatic microfilter cleaning systems are present in the art. The automatic microfilter cleaning systems operate automatically in certain periods, enabling removing the dirt from the microfilter. Water spraying systems are generally used to remove dirt. The automatic microfilter cleaning systems utilized raise additional cost and lead to manufacturing difficulties.
- [0003] State of the art European patent application no. EP1256307 discloses a dishwasher comprising an automatic microfilter cleaning system.
- [0004] The aim of the present invention is to realize a dishwasher having a microfilter cleaning system providing ease of production and use.
- [0005] The dishwasher realized to achieve the aim of the present invention and disclosed in the first claim and the dependent claims comprises a washing tub and a chamber provided below the washing tub. The kitchenware to be washed are placed in the washing tub. Water used in the washing tub during washing is conveyed to the chamber by means of a conduit. The water becoming dirty during washing is conveyed to the circulation or the discharge line by being filtered by means of a microfilter provided in the chamber. Thus, dirty water is not discharged out of the dishwasher.
- [0006] The dishwasher of the invention comprises a filtering member provided on the path through which the water is conveyed to the chamber, enabling

filtering the water conveyed to the chamber. By this, the filtering member enables filtering of dirty water. Thus, a lesser amount of dirt is conveyed to the microfilter. The filtering member enables increasing the pressure of the water while being conveyed through the conduit to the chamber. By this, the water collides more rapidly on the microfilter due to its pressure being increased while passing through the filtering member. Thus, the microfilter is also flushed with high-pressure water.

- [0007] In an embodiment of the invention, the dishwasher comprises a filtering member on which a plurality of openings are provided so as to block solid particles from passing through. By this, dirt particles of larger sizes cannot pass on to the microfilter. Thus, the microfilter is prevented from being clogged, thereby avoiding a decrease in the washing performance.
- [0008] In an embodiment of the invention, the dishwasher comprises a filtering member removably attachable. The filtering member is removably attachable on the chamber or the conduit. By this, the filtering member becoming dirty can be easily cleaned.
- [0009] In an embodiment of the invention, the dishwasher comprises a pump provided on the filtering member. By this, water is conveyed from the conduit to the chamber with high pressures. The microfilter is flushed by means of the high-pressure water conveyed to the chamber.
- [0010] In an embodiment of the invention, the dishwasher comprises a one-way flap provided on the filtering member. The dirt filtered by the filtering member is prevented from returning back to the conduit by means of the one-way flap.
- [0011] In an embodiment of the invention, the dishwasher comprises a salt container enabling decalcifying the tap water. One end of the conduit is arranged on the salt container and the other end is arranged on the chamber.
- [0012] The dishwasher realized to achieve the aim of the present invention is illustrated in the accompanying drawings, wherein:
- [0013] Figure 1 is a perspective view of the dishwasher.
- [0014] Figure 2 is a sectional view of the chamber.
- [0015] Figure 3 is a frontal view of the filtering member.

[0016] Figure 4 is a partial view of the washing tub.

[0017] Figure 5 is a schematic view of the one-way flap.

[0018] Figure 6 is a schematic view of the pump.

[0019] Figure 7 is a schematic view of the salt container and the chamber.

[0020] The elements in the figures are numbered individually and the correspondence of these numbers are given hereinafter.

1. Dishwasher
2. Washing tub
3. Chamber
4. Conduit
5. Microfilter
6. Filtering member
7. Opening
8. Pump
9. One-way flap
10. Salt container

[0021] The dishwasher (1) comprises a washing tub (2) in which items to be washed are placed, a chamber (3) provided in the lower portion of the washing tub (2), in which water used in the washing tub (2) during washing is collected, a conduit (4) connected on the chamber (3), enabling conveyance of the tap water to the chamber (3) and a hollow cylindrical shaped microfilter (5) provided in the middle of the chamber (3), retaining dirt carried by the water passing from the chamber (3) to the water circulation or discharge line. The kitchenware to be washed are placed in the washing tub (2). The chamber (3) in which the water coming from the washing tub (2) is collected, is provided below the washing tub (2). The microfilter (5) enabling filtering the dirt in the water used in washing, is provided on the chamber (3). By this, dirty water is filtered before being discharged from the dishwasher (1).

[0022] The dishwasher (1) of the invention comprises a filtering member (6) provided on the chamber (3) at the portion where the conduit (4) is connected to the chamber (3), or on the conduit (4) so as to be aligned with the microfilter (5), enabling spraying water on the microfilter (5) and

cleaning the microfilter (5) by filtering and increasing the pressure of the water entering the chamber (3). The water is filtered before it reaches the chamber (3) and the microfilter (5) by means of the filtering member (6). Thus the microfilter (5) is maintained cleaner. The filtering member (6) can be provided on the conduit (4) through which the water is conveyed to the chamber (3), at the region of the conduit (4) connecting the chamber (3), or on the chamber (3). Pressurized water is conveyed to the chamber (3) and in turn to the microfilter (5). The microfilter (5) is thus flushed.

[0023] In an embodiment of the invention, the dishwasher (1) comprises a filtering member (6) provided with a plurality of openings (7) of sizes not allowing solid particles to pass through. By means of the openings (7), the larger dirt particles are removed from the water while it advances towards the chamber (3). Dirt is thus prevented from adhering on the microfilter (5). Washing performance is enhanced.

[0024] In an embodiment of the invention, the dishwasher (1) comprises a filtering member (6) removably attachable on the chamber (3) or the conduit (4). Filtering member (6) is removably attachable. By this, the filtering member (6) is enabled to be removed and cleaned.

[0025] In an embodiment of the invention, the dishwasher (1) comprises a conical shaped filtering member (6) having a diameter tapering from the conduit (4) to the chamber (3). The filtering member (6) has a diameter which tapers from the conduit (4) to the chamber (3). By this, the water is enabled to leave the narrowed down diameter with a higher pressure. The microfilter (5) is flushed with pressurized water.

[0026] In an embodiment of the invention, dishwasher (1) comprises a pump (8) provided on the filtering member (6), enabling increasing the pressure of the water conveyed through the conduit (4) to the chamber (3). The pump (8) is provided on the filtering member (6). The water coming from the conduit (4) is conveyed to the chamber (3) with high pressure.

[0027] In an embodiment of the invention, dishwasher (1) comprises a one-way flap (9) provided on the filtering member (6), blocking the particles filtered from the water from returning back to the conduit (4). A one-way flap (9) opening from the conduit (4) towards the chamber (3), is provided on the

filtering member (6). By this, the water filtered by means of the filtering member (6), is conveyed to the chamber (3) without melding again in the conduit (4).

[0028] In an embodiment of the invention, dishwasher (1) comprises a salt container (10) enabling decalcifying the tap water and conveying it to the washing tub (2), and a conduit (4) whose one end is arranged on the salt container (10) and the other end is arranged on the chamber (3). Water passing through the salt container (10) is decalcified. The water passing to the conduit (4) is conveyed to the chamber (3).

[0029] A dishwasher (1) comprising an automatic microfilter (5) cleaning system is realized with the present invention. The water conveyed to the chamber (3) is freed from larger particles and is pressurized by being passed through the filtering member (6). By this, cleaner water with higher pressures is conveyed to the microfilter (5) provided in the center of the chamber (3). The microfilter (5) is flushed by means of sending high-pressure water on the microfilter (5). Washing performance is enhanced thanks to the microfilter (5) remaining clean at all times.

Claims

1. A dishwasher (1) **comprising** a washing tub (2) in which items to be washed are placed, a chamber (3) provided in the lower portion of the washing tub (2), in which water used during washing in the washing tub (2) is collected, a conduit (4) connected on the chamber (3), enabling conveyance of the tap water to the chamber (3) and a hollow cylindrical shaped microfilter (5) provided in the middle of the chamber (3), retaining dirt carried by the water passing from the chamber (3) to the water circulation or discharge line, **characterized by** a filtering member (6) provided on the chamber (3) at the portion where the conduit (4) is connected to the chamber (3), or on the conduit (4) so as to be aligned with the microfilter (5), enabling spraying water on the microfilter (5) and cleaning the microfilter (5) by filtering and increasing the pressure of the water entering the chamber (3).
2. A dishwasher (1) according to claim 1, **characterized by** the filtering member (6) provided with a plurality of openings (7) of sizes not allowing solid particles to pass through.
3. A dishwasher (1) according to claim 1 or 2, **characterized by** the filtering member (6) removably attachable on the chamber (3) or the conduit (4).
4. A dishwasher (1) according to any one of the preceding claims, **characterized by** the conical shaped filtering member (6) having a diameter tapering from the conduit (4) to the chamber (3).
5. A dishwasher (1) according to any one of the preceding claims, **characterized by** a pump (8) provided on the filtering member (6), enabling increasing the pressure of the water conveyed through the conduit (4) to the chamber (3).
6. A dishwasher (1) according to any one of the preceding claims, **characterized by** a one-way flap (9) provided on the filtering member (6), blocking the particles filtered from the water from returning back to the conduit (4).
7. A dishwasher (1) according to any one of the preceding claims, **characterized by** a salt container (10) enabling decalcifying the tap water and conveying it to the washing tub (2), **and by** a conduit (4) whose one end is arranged on the salt container (10) and the other end is arranged on the chamber (3).

Figure 1

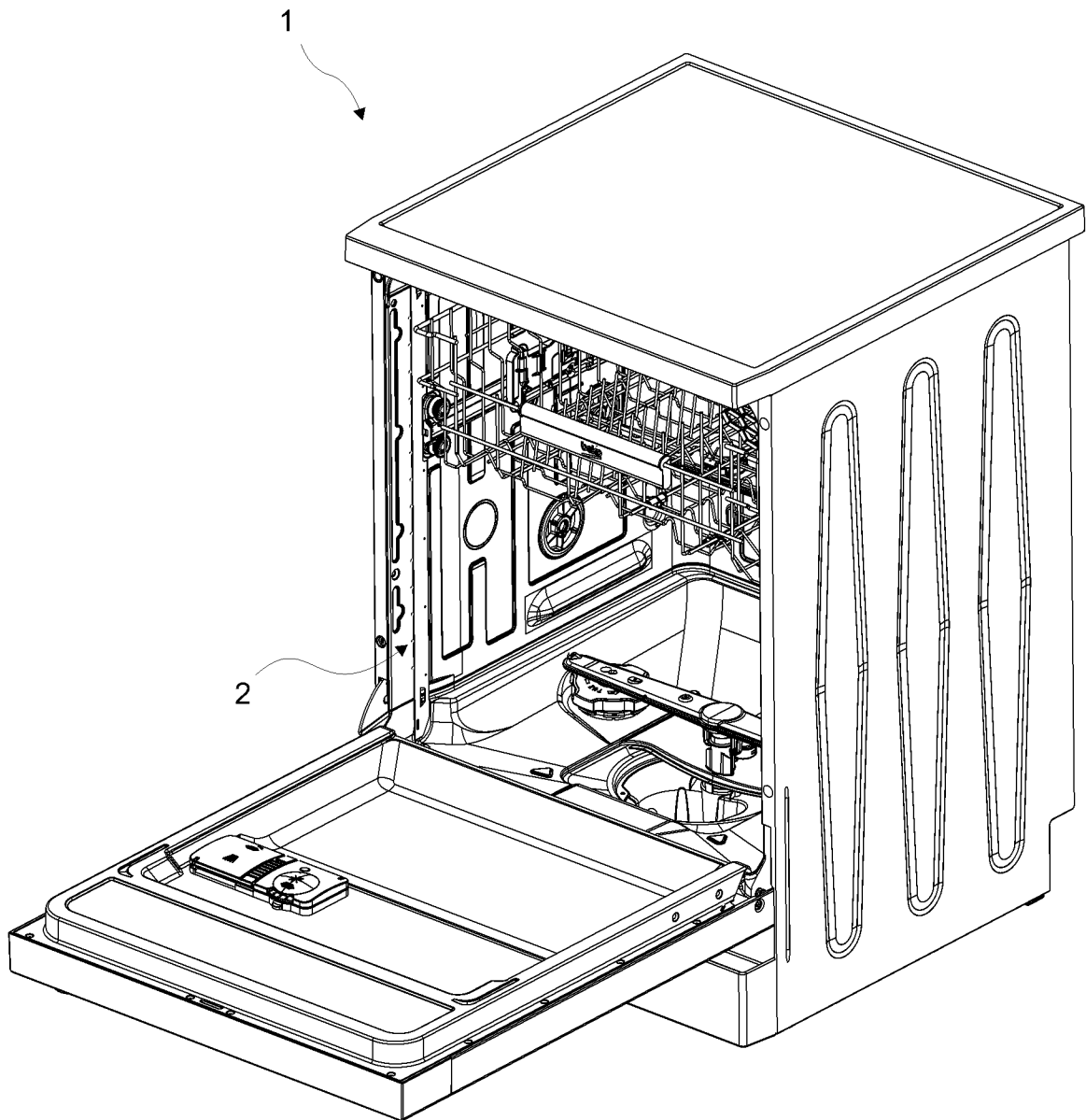


Figure 2

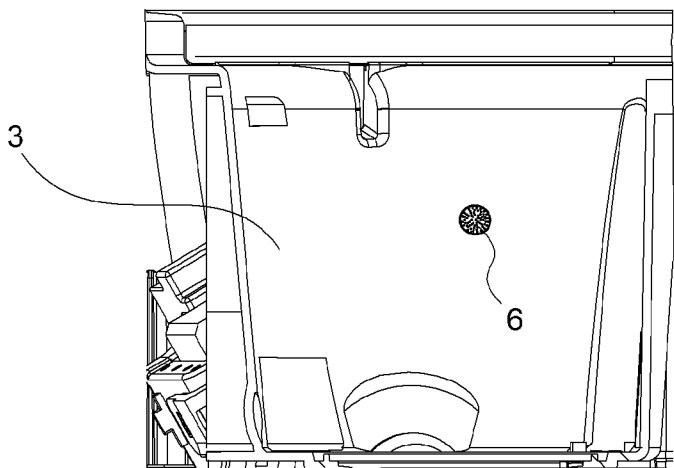


Figure 3

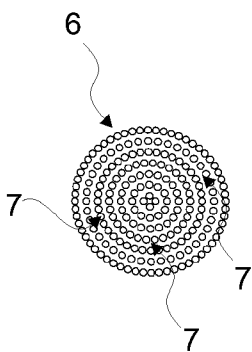


Figure 4

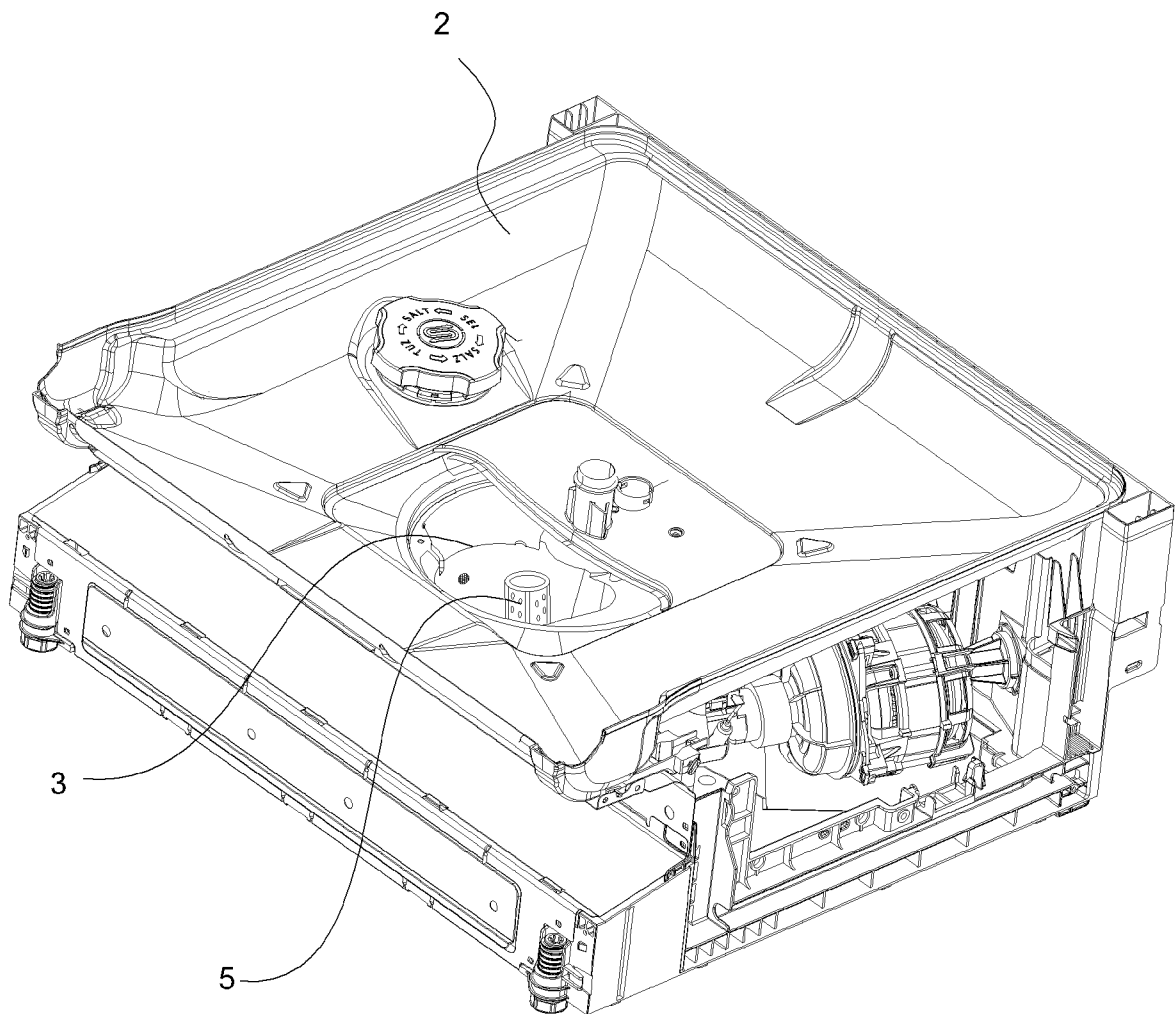


Figure 5

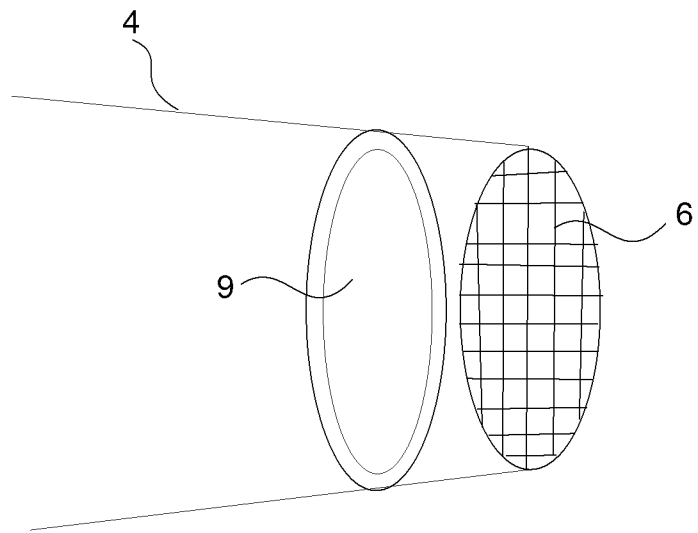


Figure 6

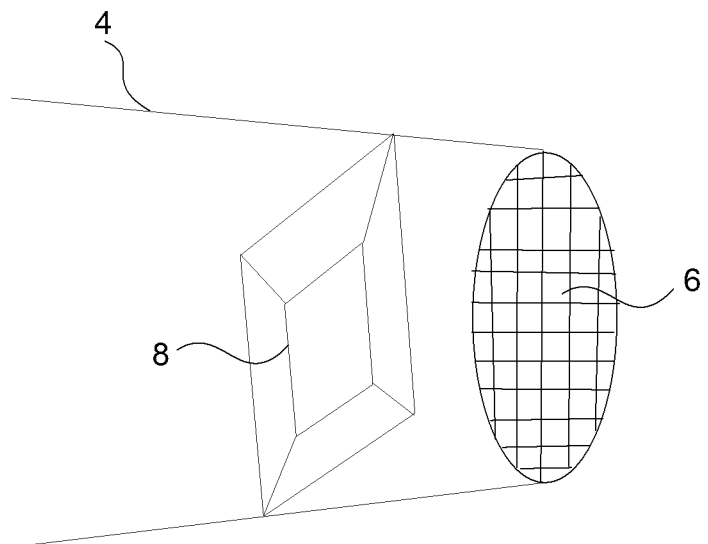
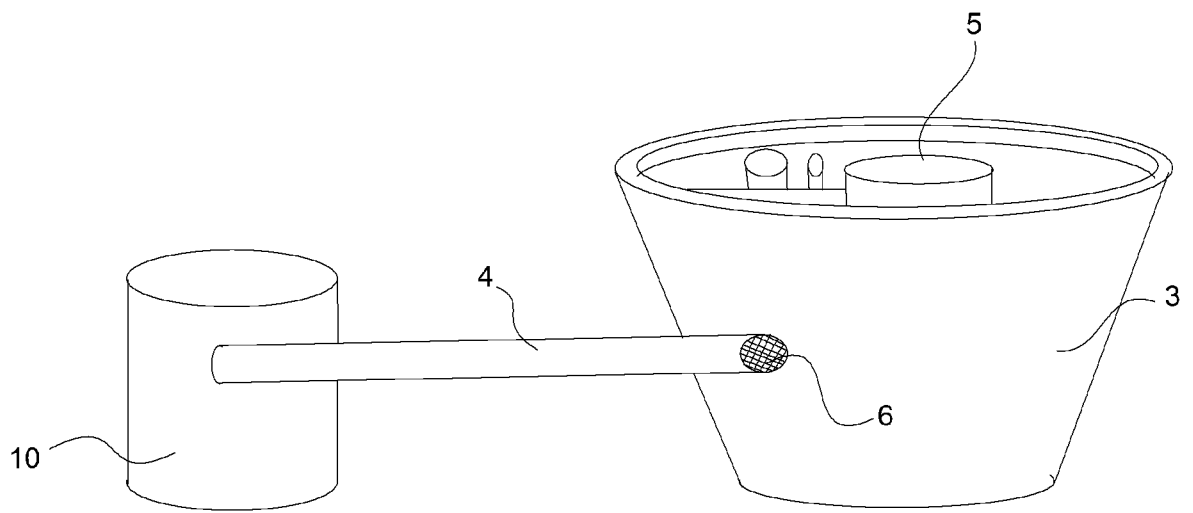


Figure 7



INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2017/080092

A. CLASSIFICATION OF SUBJECT MATTER

INV. A47L15/42

ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A47L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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X	WO 2012/084492 A1 (ARCELIK AS [TR]; ARAS NASIR EFE [TR]; ATABEY ORHAN [TR]) 28 June 2012 (2012-06-28)	1-3,5
Y	paragraph [0030] - paragraph [0031]; figure 1	4,6
X	----- EP 0 378 980 A2 (ELECTROLUX AB [SE]) 25 July 1990 (1990-07-25) column 2, line 24 - column 3, line 45; figure 2	1,2,5
X	----- US 2004/163690 A1 (KIM YONG HEE [KR]) 26 August 2004 (2004-08-26) paragraph [0021] - paragraph [0026]; figures 2,3	1,2,5
	----- -/-	



Further documents are listed in the continuation of Box C.



See patent family annex.

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Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2017/080092

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Information on patent family members

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