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(54) LAUNDRY PROCESSOR BY USE OF CIRCULATING WATER

WÄSCHE-PROZESSOR DURCH VERWENDUNG VON ZIRKULIERENDEN WASSER
PROCESSEUR DE LAVANDERIE PAR L'UTILISATION DE L'EAU EN CIRCULATION

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Description

[0001] The present invention relates to a structure of a circulating water storage device in a laundry processor, and in particular, to the design of a water outlet of a water storage device.

[0002] A washing machine using recycled water is available in the prior art. Generally, a circulating water storage device is disposed in the washing machine. An upstream of the water storage device is connected to a laundry processing barrel of the washing machine through a water pump, and a downstream is connected to a water device such as a laundry processing barrel or a condenser, thereby utilizing water used in the previous operation of the washing machine for a second time or for several times, and achieving the goal of saving water resources.

[0003] Because a water outlet of the water storage device is generally located at the bottom, water flow is greatly affected by the water level in the water storage device. When the water level is high, the water pressure near the water outlet is high and the water flow is great. As water flows out, the water level declines, the water pressure near the water outlet is reduced, and the water flow becomes smaller.

[0004] The unstable flow is adverse to reasonable utilization of water in some cases. For example, it is common to use secondary water for condensation in the drying process; in this case, the water outlet of the water storage device is connected to a condensation passage to cool drying air passing through the condensation passage, so that water vapor carried in the drying air is cooled and condensed and separated from the air. The excessive supply of the secondary water for condensation causes an unnecessary waste, and the insufficient supply fails to produce an expected drying effect. When the water storage device in the prior art is used to provide cooling water to the condensation passage, the cooling water flow inevitably becomes smaller, thereby failing to achieve an ideal utilization effect.

[0005] A laundry processor with the features of the preamble of claim 1 is known from US-A-5 031 487.

[0006] An objective of the present invention is to stabilize the flow at a water outlet of a circulating water storage device.

[0007] Accordingly, the present invention provides a solution as defined in the independent claim attached. Preferred embodiments of the invention are subjects of dependent claims, the subsequent disclosure and the drawing attached.

[0008] Therefore the invention adopts the following technical solution: A laundry processor by use of circulating water is provided with a water storage device for containing the circulating water. The water storage device has a water outlet located at the bottom of the water storage device. The water outlet includes a movable wall, and the movable wall is disposed into a drainage passage tending to compress the water outlet under the effect of

water pressure.

[0009] Preferably, the movable wall is made of an elastic material. The elastic material may be rubber.

[0010] Preferably, the laundry processor further includes a condensation passage. The water outlet of the water storage device is connected to the condensation passage, to supply cooling water to the condensation passage.

[0011] Preferably, the laundry processor further includes a laundry processing barrel. An upstream of the water storage device is connected to the laundry processing barrel through a water pump.

[0012] Compared with the prior art, the present invention has the following the advantages: when more water is stored in the water storage device, a greater water pressure acting force is applied on the movable wall. Thus the drainage passage of the water outlet becomes narrower. When the water level in the water storage device declines gradually, the water pressure acting force on the movable wall decreases gradually, and the drainage passage of the water outlet becomes wider gradually. It can be seen that, when the water pressure near the water outlet is great, the drainage passage is narrow, and when the water pressure is small, the drainage passage is wide. Therefore, the water flow of the drainage passage can maintain a stable state, thereby overcoming the deficiency mentioned in background of the invention.

[0013] The following disclosure uses a washing and drying machine as an example for further describe preferred embodiments of the present invention with reference to the accompanying drawing. In the drawing,

FIG. 1 is a composition block diagram of a washing and drying machine;

FIG. 2 is a cross-section diagram of a first embodiment of a water outlet of a water storage device;

FIG. 3A is a front view of a second embodiment of a water outlet of a water storage device; and

FIG. 3B is a cross-section diagram along A-A of second embodiment of a water outlet of a water storage device.

[0014] As shown in FIG. 1, a laundry processor 1 as embodied in a washing and drying machine 1 includes a laundry processing barrel or tub 2, and the bottom of the laundry processing barrel 2 is connected to a water inlet 5 of a water storage device 4 through a water pump 3. Water outlets 6 and 8 located at the bottom of the water storage device 4 are connected to a condensation passage 7, to supply cooling water to the condensation passage 7, so as to cool drying air passing through the condensation passage 7. The condensation passage 7 is connected to the laundry processing barrel 2. In the laundry drying process in the laundry processing barrel 2, hot and damp drying air carrying moisture enters from the

bottom of the condensation passage 7, and after cooled by the cooling water, the moisture in the drying air is condensed and separated. The rest of relatively dry air re-enters the laundry processing barrel 2 from the top of the condensation passage 7, and enters next circulation.

[0015] As shown in FIG. 2, a first embodiment of the water outlet 6 of the water storage device 4 includes a drainage passage 61. The drainage passage 61 is provided with a fixed wall 62 made of a hard material and an elastic wall 63 made of an elastic material. The elastic wall 63 tends to compress the drainage passage 61 under the effect of water pressure in the water storage device 4, and the compressed degree of the drainage passage 61 increases and decreases as the water pressure increases and decreases. Therefore, when more water is stored in the water storage device 4, a greater water pressure acting force is applied on the elastic wall 63, and the drainage passage 61 becomes narrower; as the water level in the water storage device 4 declines gradually, the water pressure acting force on the elastic wall 63 decreases gradually, and the drainage passage 61 becomes wider gradually.

[0016] As shown in FIG. 3A and FIG. 3B, a first embodiment of a water outlet 8 of a water storage device 4 includes a drainage passage 81. A wall of the drainage passage 81 includes several elastic strips 82 concentrated inwardly to form a taper. The top of the taper is oriented toward the inside of the water storage device 4. Therefore, under the effect of the pressure of water 83, the elastic strips 82 are concentrated inwardly, and compress the drainage passage 81. Compression of the drainage passage 81 increases and decreases as the water pressure increases or decreases. When more water is stored in the water storage device 4, a greater water pressure acting force is applied on the elastic strips 82; accordingly the elastic strips 82 are more concentrated inwardly, and the drainage passage 81 is narrower; as the water level of the water storage device 4 declines gradually, the water pressure acting force on the elastic strips 82 decreases gradually, and the drainage passage 81 becomes wider gradually.

Claims

1. A laundry processor (1) by use of circulating water, provided with a water storage device (4) for containing the circulating water, wherein the water storage device (4) has a water outlet (6) located at a bottom of the water storage device (4), **characterized in that** the water outlet (6) comprises a movable wall (63, 82), and the movable wall (63, 82) is disposed in a drainage passage (61, 81) tending to compress the water outlet (6) under the effect of water pressure.
2. The laundry processor (1) according to claim 1, **characterized in that** the movable wall (63, 82) is made

of an elastic material.

3. The laundry processor (1) according to claim 2, **characterized in that** the elastic material is rubber.
4. The laundry processor (1) according to any preceding claim, **characterized by** comprising a condensation passage (7), wherein the water outlet (6) of the water storage device (4) is connected to the condensation passage (7), to supply cooling water to the condensation passage (7).
5. The laundry processor (1) according to claim 1, **characterized by** comprising a laundry processing barrel (2), wherein an upstream of the water storage device (4) is connected to the laundry processing barrel (2) through a water pump (3).

Patentansprüche

1. Wäschebearbeitungsgerät (1), das zirkulierendes Wasser benutzt und mit einer Wasserspeichervorrichtung (4) ausgestattet ist, die das zirkulierende Wasser aufnimmt, wobei die Wasserspeichervorrichtung (4) einen Wasserablass (6) aufweist, der sich an einem Boden der Wasserspeichervorrichtung (4) befindet, **dadurch gekennzeichnet, dass** der Wasserablass (6) eine bewegliche Wand (63, 82) umfasst und die bewegliche Wand (63, 82) in einem Abflusskanal (61, 81) angeordnet ist und dazu neigt, den Wasserablass (6) unter der Einwirkung von Wasserdruck zusammenzudrücken.
2. Wäschebearbeitungsgerät (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** die bewegliche Wand (63, 82) aus einem elastischen Material hergestellt ist.
3. Wäschebearbeitungsgerät (1) nach Anspruch 2, **dadurch gekennzeichnet, dass** es sich bei dem elastischen Material um Gummi handelt.
4. Wäschebearbeitungsgerät (1) nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** es einen Kondensationskanal (7) umfasst, wobei der Wasserablass (6) der Wasserspeichervorrichtung (4) zum Speisen des Kondensationskanals (7) mit Kühlwasser mit dem Kondensationskanal (7) verbunden ist.
5. Wäschebearbeitungsgerät (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** es eine Wäschebearbeitungstrommel (2) umfasst, wobei eine Stelle vor der Wasserspeichervorrichtung (4) über eine Wasserpumpe (3) mit der Wäschebearbeitungstrommel (2) verbunden ist.

Revendications

1. Dispositif de traitement de linge (1) par l'utilisation de l'eau en circulation, équipé d'un dispositif de stockage d'eau (4) destiné à contenir l'eau en circulation, dans lequel le dispositif de stockage d'eau (4) présente une sortie d'eau (6) située au niveau d'un fond du dispositif de stockage d'eau (4), **caractérisé en ce que** la sortie d'eau (6) comprend une paroi mobile (63, 82), et la paroi mobile (63, 82) est disposée dans un passage d'évacuation (61, 81) qui tend à comprimer la sortie d'eau (6) sous l'effet de la pression de l'eau. 5
2. Dispositif de traitement de linge (1) selon la revendication 1, **caractérisé en ce que** la paroi mobile (63, 82) est réalisée en un matériau élastique. 15
3. Dispositif de traitement de linge (1) selon la revendication 2, **caractérisé en ce que** le matériau élastique est du caoutchouc. 20
4. Dispositif de traitement de linge (1) selon une quelconque des revendications précédentes, **caractérisé en ce qu'il** comprend un passage de condensation (7), dans lequel la sortie d'eau (6) du dispositif de stockage d'eau (4) est reliée au passage de condensation (7), afin d'alimenter en eau de refroidissement le passage de condensation (7). 25
5. Dispositif de traitement de linge (1) selon la revendication 1, **caractérisé en ce qu'il** comprend une cuve de traitement de linge (2), dans lequel un amont du dispositif de stockage d'eau (4) est relié à la cuve de traitement de linge (2) par l'intermédiaire d'une pompe à eau (3). 35

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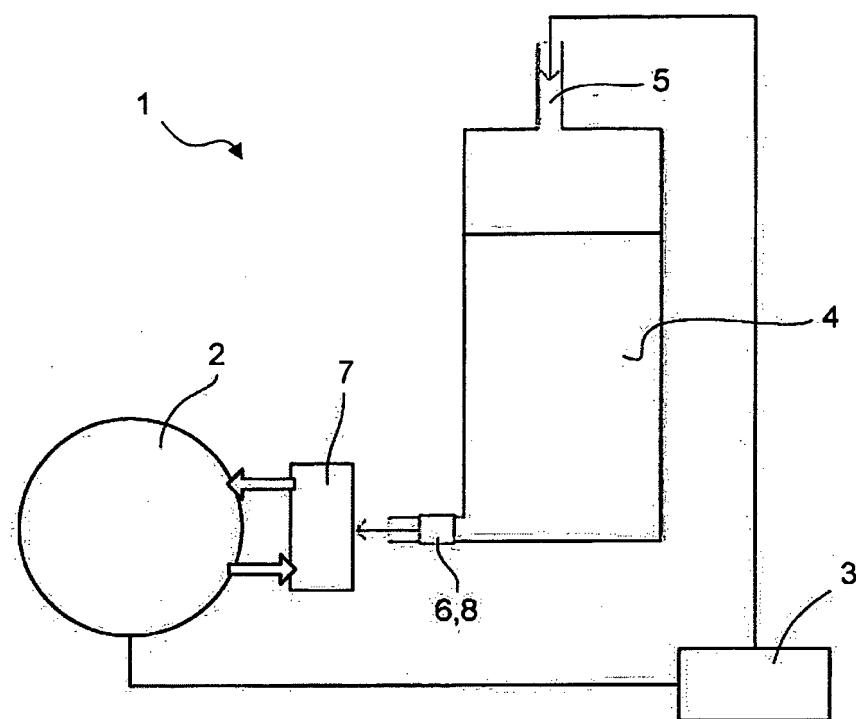


FIG. 1

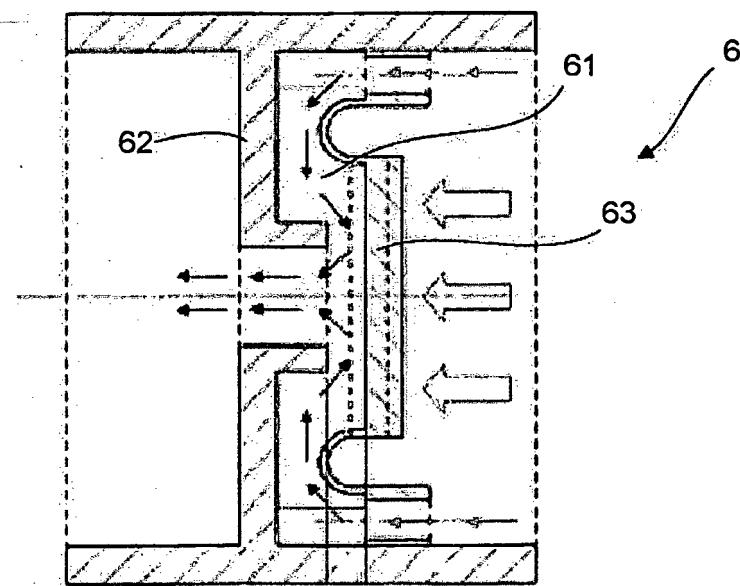


FIG. 2

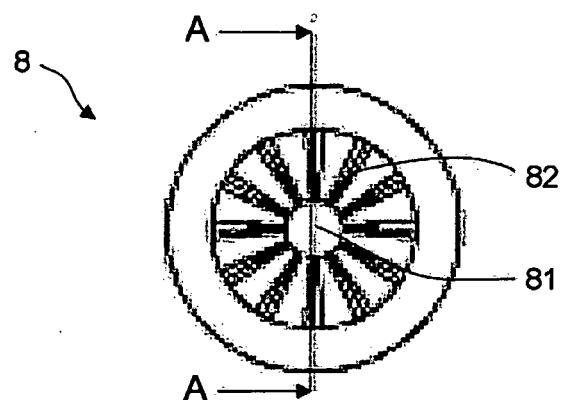


FIG. 3A

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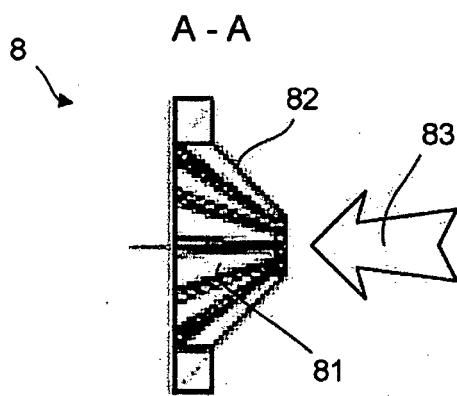


FIG. 3B

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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