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(54) **DOOR SEALING RING AND WASHING AND DRYING MACHINE HAVING SAME**

TÜRDICHTUNGSRING UND WASCHTROCKER MIT DIESEM RING

ANNEAU D'ÉTANCHÉITÉ DE PORTE ET LAVE-LINGE SÉCHANT LE COMPORTANT

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(56) References cited:

EP-A1- 3 095 910 WO-A1-2019/100860
US-A1- 2005 178 170 US-A1- 2020 216 999

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Description

[0001] The present invention relates to a washing and drying machine and a door sealing ring thereof, and belongs to the technical field of household appliances.

[0002] A washing and drying machine, especially a washing and drying machine with a tub arranged horizontally or obliquely, usually has the tub and a box body connected to each other through a door sealing ring to prevent a washing liquid in the tub from entering a gap between the tub and the box body. The door sealing ring has a folded structure to allow proper displacement of the tub relative to the box body. In a washing process, the washing liquid may easily enter but is not easily discharged from the folded structure of the door sealing ring. Especially, foam or the like in the washing process tends to remain in the folded structure. Therefore, a biofilm is easily formed in the folded structure of the door sealing ring, especially at the bottom, causing secondary pollution to clothes. In addition, chemical components in the washing liquid remaining have a long-term corrosive effect on the door sealing ring, shortening the service life of the door sealing ring.

[0003] The washing and drying machine generates hot air in a drying process, which can dry clothes in the tub. However, in the folded structure, due to a lack of air flow and a lower temperature than that in the tub, moisture in the folded structure still cannot be thoroughly alleviated and breeding bacteria cannot be completely killed either.

[0004] An objective of the present invention is to improve an existing door sealing ring so that the above-mentioned defects occurring when the door sealing ring is applied to a washing and drying machine can be effectively alleviated.

[0005] Embodiments of the present invention includes: providing a door sealing ring for a washing and drying machine, including: a sealing part and an air inlet part connected to the sealing part, where the sealing part includes a first wall circumferentially closed, the first wall has a folded structure, to form a groove extending circumferentially, a first passage for a fluid to flow is formed in the groove, the air inlet part includes a second wall, the second wall surrounds a second passage, an outlet of the second passage is located on the first wall, and the second passage is in space communication with the first passage; and further including guiding devices for guiding a part of air in the second passage into the first passage, where the guiding device is at least partially located in a projection of the second passage perpendicular to an air flow direction.

[0006] That the guiding device is at least partially located in a projection of the second passage perpendicular to an air flow direction can be specifically implemented as that the guiding device is located in a flow path of the second passage, or the guiding device faces the outlet of the second passage, so that the air is guided by the second wall and directly enters a path defined by the guiding device in a case of basically unchanging a flow

direction, and then is deflected by a guiding action of the guiding device and enters the first passage. Preferably, at least a part of the guiding device, especially a part near the outlet of the second passage, is in the projection perpendicular to the air flow direction.

[0007] When the door sealing ring is applied to the washing and drying machine, it is advantageous for the air, especially heated air, to enter the second passage from an air inlet part, where part of the air directly enters a guiding region of the guiding device in the flow direction when passing through the second passage or after passing through the second passage, and then is guided to the first passage. Therefore, the air is effectively diverted into the first passage, so as to ventilate a groove of the folded structure, thereby facilitating rapid drying of moisture in the groove and avoiding or reducing production of a biofilm. Entering of the high-temperature air not only facilitates the rapid drying, but also has a bactericidal effect to kill the breeding bacteria.

[0008] In some embodiments, along the air flow direction, an inlet end of the guiding device is located in the second passage.

[0009] In some embodiments, along the air flow direction, an outlet end of the guiding device is close to or connected to the groove.

[0010] In some embodiments, a third passage is formed between the guiding device and the second wall, and an outlet of the third passage faces an inlet of the first passage.

[0011] In some embodiments, the air inlet part is adapted to be connected to an air heating passage of the washing and drying machine. The heated air in the air heating passage can enter the second passage and the first passage through the air inlet part. The hot air entering the first passage can dry and sterilize the first passage, thereby improving hygienic performance of the door sealing ring.

[0012] In some embodiments, the first wall is adapted to be connected to a tub of the washing and drying machine, an axis of the tub is arranged horizontally or obliquely, and when the door sealing ring is connected to the tub, the bottom of the groove in a vertical direction has a hole running through a space inside the tub. Therefore, air can flow out of the hole after entering the first passage, and therefore air can continuously enter the first passage to maintain flow, so as to better improve a hygienic condition of the door sealing ring.

[0013] An optional embodiment further includes that the guiding device, the sealing part, and the air inlet part are manufactured integrally.

[0014] An optional embodiment further includes that the first passage has a first inlet and a second inlet in a circumferential direction, the first inlet and the second inlet are respectively close to two sides of the outlet of the second passage, and the guiding devices are disposed near the first inlet and the second inlet respectively. The air enters the first inlet and the second inlet of the first passage respectively from the second passage, flows

relative to each other circumferentially from two directions, and finally converges head-on. Therefore, the air flow in the first passage is more intense, and better effects of sterilization and drying are achieved. In addition, the air in two paths forms severe turbulence at an intersection, which can also enhance the effects of sterilization and drying in the region.

[0015] The first wall is adapted to be connected to the tub of the washing and drying machine, the axis of the tub is arranged horizontally or obliquely, and when the door sealing ring is connected to the tub, the bottom of the groove in the vertical direction has the hole running through the space inside the tub, and the first inlet and the second inlet are located at the top of the groove in the vertical direction. Therefore, the air in the two paths entering the first passage from the first inlet and the second inlet respectively converges near the hole, resulting in the severe turbulence. Generally, the region is located at the bottom of the groove and is a main region where the washing liquid accumulates, and is also a main region where mold is prone to occur. The air flows colliding head-on and converging can wash away the washing liquid remaining, and have better effects of drying and sterilization. At least a part of the air flow can flow out of the hole after converging, so that a continuous circumferential air flow is formed in the first passage.

[0016] The above embodiments can be in an arbitrary combination.

[0017] A second objective of the present invention is to improve a washing and drying machine, and improve hygienic performance of a door sealing ring of the washing and drying machine during use and the service life of the door sealing ring of the washing and drying machine.

[0018] An embodiment of the present invention provides a washing and drying machine, including a tub, an axis of the tub is arranged horizontally or obliquely, an air heating passage provides heated air into the tub, and the door sealing ring in various embodiments above and any arbitrary combination thereof is connected to the air heating passage and the tub, where the air inlet part is connected to the air heating passage, and the sealing part is connected to the tub.

[0019] A heating device and a fan are disposed in the air heating passage, and after the fan is activated, the air flows from the air heating passage to the door sealing ring.

[0020] After the fan is activated, the air can enter the air inlet part from the air heating passage, and then enter the first passage in the folded structure of the door sealing ring and directly enter a space circumferentially surrounded by the first wall, where the space is in communication with the space inside the tub. The air entering the first passage dries and/or sterilizes a part inside the groove of the first wall and then converges and flows into the tub. Therefore, the washing liquid, foam, and the like remaining on the door sealing ring after a washing process of the washing and drying machine is finished can be blown dry by the air. The air heated by the heating

device has a better drying effect and a better sterilization effect.

[0021] In some embodiments, the heating device is not activated, and only the fan is activated to allow the air at a normal temperature to enter the first passage, which can also accelerate the drying in the first passage, thereby making it difficult for bacteria to produce and breed, and reducing a corrosive effect of chemicals in the washing liquid on the door sealing ring.

[0022] Some specific embodiments of the present invention are exemplified below with reference to the accompanying drawings.

FIG. 1 is a schematic side view of a washing and drying machine according to an embodiment;

FIG. 2 is a schematic structural view of a part of a door sealing ring and an air heating passage according to an embodiment;

FIG. 3 is an axial cross-sectional view of the bottom of a door sealing ring;

FIG. 4 is a schematic view of a part of a door sealing ring according to another embodiment; and

FIG. 5 is a schematic view of a projection of a second passage perpendicular to an air flow direction, including a part of a guiding device in the projection.

[0023] As shown in FIG. 1, a washing and drying machine 1 includes a box body 2 and a tub 3 disposed in the box body 2. An axis 30 of the tub 3 is approximately horizontal. In other embodiments, the axis of the tub can alternatively be oblique. The tub 3 has a laundry inlet hole 31 opened at an end in an axial direction and facing the front of the box body 2. The laundry inlet hole 31 is opposite to an opening 21 on the box body 2. A door sealing ring 10 made of an elastic material is connected to the laundry inlet hole 31 and the opening 21 on the box body 2 to prevent a washing liquid from entering the box body 2 in a washing process.

[0024] A drum 4 rotatable and approximately coaxial with the tub 3 is disposed in the tub 3. Clothes are washed or dried in the drum 4.

[0025] The tub 3 is connected to an air circulation passage 5, to form an air loop in the tub 3 and the air circulation passage 5. The air circulation passage 5 includes an air heating passage 51. A heating device 52 and a fan 53 are disposed in the air heating passage 51.

[0026] After the fan 53 and the heating device 52 are activated, air can be heated and then enter the tub 3. The air at a normal temperature can be provided into the tub 3 by simply activating the fan 53.

[0027] In other embodiments, for example, a vented washing and drying machine does not include an air circulation passage, but still includes an air heating passage to provide heated air into the tub.

[0028] The air heating passage 51 is connected to the door sealing ring 10, and therefore is in fluid communication with the tub 3.

[0029] As shown in FIG. 1 to FIG. 3, the door sealing

ring 10 includes a sealing part 11 and an air inlet part 12 connected to the sealing part 11. The sealing part 11 is connected to the laundry inlet hole 31 of the tub 3 and the opening 21 of the box body 2, and the air inlet part 12 is connected to the air heating passage 51.

[0030] The sealing part 11 includes a first wall 111 circumferentially closed. The first wall 111 has a folded structure, to form a groove 112 extending circumferentially, and a first passage 113 for a fluid to flow is formed in the groove 112.

[0031] The air inlet part 12 includes a second wall 121. The second wall 121 surrounds a second passage 122. An outlet 123 of the second passage is located on the first wall 111, and the second passage 122 is in space communication with the first passage 113.

[0032] In a mounted state, the first wall 111 is connected to the laundry inlet hole 31 of the tub 3 and the opening 21 of the box body 2, the air inlet part 12 is roughly connected to the top of the first wall 111 in a vertical direction, and the bottom of the groove 112 formed by the first wall 111 in the vertical direction has a hole 114 running through the space inside the tub 3. The bottom of the groove 112 in the vertical direction does not refer to a partial bottom of the groove 112, but a lower position in an entire circumferential direction relative to the overall groove 112. As shown in FIG. 1 to FIG. 3, especially as shown in FIG. 3, the hole 114 may be partially located on one side of the groove 112.

[0033] The first passage 113 is not circumferentially continuous or closed, but is disconnected at a position of the outlet 123 of the second passage 122, and has a first inlet 115 and a second inlet 116 on two sides close to the outlet 123 of the second passage respectively. The first inlet 115 and the second inlet 116 are separated along a circumferential direction of the groove 112.

[0034] Guiding devices 13 are respectively disposed near the first inlet 115 and the second inlet 116 to guide a part of air in the second passage 122 into the first passage 113. Therefore, after the fan 53 is activated, the air can enter the air inlet part 12 from the air heating passage 51. First partial air A1 in the air flowing through the second passage 122 directly enters a space circumferentially surrounded by the first wall 111, where the space is in communication with the space inside the tub 3; and second partial air A2 enters the first passage 113 first under the guidance of the guiding device 13, and then enters the tub 3. The second partial air A2 enters the first inlet 115 and the second inlet 116 of the first passage 113 from the second passage 122 respectively, flows relative to each other circumferentially from two directions, and finally converges head-on. A converging position is roughly close to the hole 114. Subsequently, the second partial air A2 has at least a part entering the space inside the tub 3 from the hole 114, and an other part entering the space inside the tub 3 through a gap of the groove 112. A ventilation effect of the air flow makes the inside of the groove 112 dry quickly. The air from the air heating passage 51 heated by the heating device 52 can achieve

better effects of drying and sterilization.

[0035] As shown in FIG. 5, with reference to a projection of the second passage 122 perpendicular to an air flow direction, especially a projection of a part of the second passage near the outlet 123 perpendicular to the air flow direction, at least a part of the guiding device 13 is located inside the projection of the second passage 122 perpendicular to the air flow direction. Therefore, at least a part of the air guided by the second wall 121 directly enters a path defined by the guiding device 13 in a case of basically unchanging a flow direction, and then is deflected by a guiding action of the guiding device and enters the first passage 113.

[0036] In an embodiment shown in FIG. 2, along the air flow direction, an inlet end 131 of the guiding device 13 is located in the second passage 122, and an outlet end 132 of the guiding device 13 is bent toward the first passage 113, and is close to the groove 112, or may be directly connected to the groove 112. A third passage 133 is formed between the guiding device 13 and the second wall 121.

[0037] An outlet of the third passage 133 faces the inlets 115 and 116 of the first passage 113. The second partial air A2 in the air flowing through the second passage 122 enters the third passage 133, and then is guided by the guiding device 13 to enter the first passage 113.

[0038] In another embodiment shown in FIG. 4, the guiding device 13 is not located in the second passage 122, but faces the outlet 123 of the second passage 122. Therefore, at least a part of the air guided by the second wall 121 can directly enter the path defined by the guiding device 13 in a case of basically unchanging a flow direction.

[0039] A relatively advantageous embodiment includes that the guiding device 13, the sealing part 11, and the air inlet part 12 are manufactured integrally, for example, formed integrally by injection molding by using an elastic material.

[0040] The various specific implementations described above and shown in the accompanying drawings are only used to illustrate the present invention.

Claims

1. A door sealing ring for a washing and drying machine, comprising a sealing part (11) connectable to a tub and an air inlet part (12) connected to the sealing part, wherein the sealing part comprises a first wall (111) circumferentially closed, the first wall has a folded structure, to form a groove (112) extending circumferentially, a first passage (113) for a fluid to flow is formed in the groove, the air inlet part comprises a second wall (121), the second wall surrounds a second passage (122), an outlet (123) of the second passage is located on the first wall, and

the second passage is in space communication with the first passage; and **characterized by** further comprising guiding devices (13) for guiding a part of air in the second passage into the first passage, wherein the guiding device is at least partially located in a projection of the second passage perpendicular to an air flow direction.

2. The door sealing ring according to claim 1, **characterized in that:** along the air flow direction, an inlet end (131) of the guiding device is located in the second passage. 10
3. The door sealing ring according to claim 1, **characterized in that:** along the air flow direction, an outlet end (132) of the guiding device is close to or connected to the groove. 15
4. The door sealing ring according to claim 1, **characterized in that:** a third passage (133) is formed between the guiding device and the second wall, and an outlet of the third passage faces inlets (115, 116) of the first passage. 20
5. The door sealing ring according to claim 1, **characterized in that:** the air inlet part (12) is adapted to be connected to an air heating passage (51) of the washing and drying machine. 25
6. The door sealing ring according to claim 1, **characterized in that:** the first wall (111) is adapted to be connected to a tub (3) of the washing and drying machine, an axis of the tub is arranged horizontally or obliquely, and when the door sealing ring (10) is connected to the tub, the bottom of the groove in a vertical direction has a hole (114) running through a space inside the tub. 30 35
7. The door sealing ring according to claim 1, **characterized in that:** the guiding device, the sealing part, and the air inlet part are manufactured integrally. 40
8. The door sealing ring according to claim 1, **characterized in that:** the first passage (113) has a first inlet (115) and a second inlet (116) in a circumferential direction, the first inlet and the second inlet are respectively close to two sides of the outlet (123) of the second passage, and the guiding devices (13) are respectively disposed near the first inlet and the second inlet. 45 50
9. The door sealing ring according to claim 8, **characterized in that:** the first wall is adapted to be connected to a tub of the washing and drying machine, an axis of the tub is arranged horizontally or obliquely, and when the door sealing ring is connected to the tub, the bottom of the groove in a vertical direction has a hole running through a space inside the tub, 55

and the first inlet and the second inlet are located at the top of the groove in the vertical direction.

10. A washing and drying machine, comprising a tub (3), wherein an axis of the tub is arranged horizontally or obliquely, and an air heating passage (51) provides heated air into the tub, **characterized in that:** the door sealing ring (10) according to any one of claims 1 to 9 is connected to the air heating passage and the tub, wherein the air inlet part (12) is connected to the air heating passage, and the sealing part of the sealing ring (10) (11) is connected to the tub.
11. The washing and drying machine according to claim 10, **characterized in that:** a heating device (52) and a fan (53) are disposed in the air heating passage (51), and after the fan is activated, air flows from the air heating passage to the door sealing ring (10).

Patentansprüche

1. Türdichtungsring für einen Waschtrockner, der einen mit einem Laugenbehälter verbindbaren Dichtungsteil (11) und einen mit dem Dichtungsteil verbundenen Lufteinlassteil (12) umfasst, wobei der Dichtungsteil eine in Umfangsrichtung geschlossene erste Wand (111) von gefalteter Konstruktion umfasst, die eine in Umfangsrichtung verlaufende Nut (112) bildet, wobei in der Nut ein erster Durchgang (113) für ein strömendes Fluid ausgebildet ist, der Lufteinlassteil eine zweite Wand (121) umfasst, die einen zweiten Durchgang (122) umgibt, an der ersten Wand ein Auslass (123) des zweiten Durchgangs liegt und der zweite Durchgang räumlich mit dem ersten Durchgang verbunden ist, und **dadurch gekennzeichnet, dass** er ferner Leitvorrichtungen (13) zum Leiten eines Teils von Luft in dem zweiten Durchgang in den ersten Durchgang umfasst, wobei die Leitvorrichtung zumindest teilweise in einem Vorsprung des zweiten Durchgangs liegt, der senkrecht zu einer Luftströmungsrichtung verläuft.
2. Türdichtungsring nach Anspruch 1, **dadurch gekennzeichnet, dass:** ein Einlassende (131) der Leitvorrichtung in Luftströmungsrichtung in dem zweiten Durchgang liegt.
3. Türdichtungsring nach Anspruch 1, **dadurch gekennzeichnet, dass:** sich ein Auslassende (132) der Leitvorrichtung in Luftströmungsrichtung in der Nähe der Nut befindet oder damit verbunden ist.
4. Türdichtungsring nach Anspruch 1, **dadurch gekennzeichnet, dass:** zwischen der Leitvorrichtung

und der zweiten Wand ein dritter Durchgang (133) ausgebildet ist und ein Auslass des dritten Durchgangs Einlassen (115, 116) des ersten Durchgangs zugewandt ist.

5. Türdichtungsring nach Anspruch 1, **dadurch gekennzeichnet, dass:** der Lufteinlassteil (12) so ausgelegt ist, dass er sich mit einem Lufterwärmungsdurchgang (51) des Waschtrockners verbinden lässt.

6. Türdichtungsring nach Anspruch 1, **dadurch gekennzeichnet, dass:** die erste Wand (111) so ausgelegt ist, dass sie sich mit einem Laugenbehälter (3) des Waschtrockners verbinden lässt, wobei eine Achse des Laugenbehälters horizontal oder schräg angeordnet ist und sich, wenn der Türdichtungsring (10) mit dem Laugenbehälter verbunden ist, am Grund der Nut in vertikaler Richtung ein Loch (114) befindet, das durch einen Raum in dem Laugenbehälter hindurch verläuft.

7. Türdichtungsring nach Anspruch 1, **dadurch gekennzeichnet, dass:** die Leitvorrichtung, der Dichtungsteil und der Lufteinlassteil einstückig hergestellt sind.

8. Türdichtungsring nach Anspruch 1, **dadurch gekennzeichnet, dass:** der erste Durchgang (113) in Umfangsrichtung einen ersten Einlass (115) und einen zweiten Einlass (116) aufweist, die sich jeweils in der Nähe von zwei Seiten des Auslasses (123) des zweiten Durchgangs befinden, und die Leitvorrichtungen (13) jeweils in der Nähe des ersten beziehungsweise des zweiten Einlasses angeordnet sind.

9. Türdichtungsring nach Anspruch 8, **dadurch gekennzeichnet, dass:** die erste Wand so ausgelegt ist, dass sie sich mit einem Laugenbehälter des Waschtrockners verbinden lässt, eine Achse des Laugenbehälters horizontal oder schräg angeordnet ist und sich, wenn der Türdichtungsring mit dem Laugenbehälter verbunden ist, am Grund der Nut in vertikaler Richtung ein Loch befindet, das durch einen Raum in dem Laugenbehälter hindurch verläuft, und der erste und der zweite Einlass in vertikaler Richtung oben an der Nut liegen.

10. Waschtrockner, der einen Laugenbehälter (3) umfasst, wobei eine Achse des Laugenbehälters horizontal oder schräg angeordnet ist und ein Lufterwärmungsdurchgang (51) dem Laugenbehälter erwärmte Luft zuführt, **dadurch gekennzeichnet, dass:** der Türdichtungsring (10) nach einem der Ansprüche 1 bis 9 mit dem Lufterwärmungsdurchgang und dem Laugenbehälter verbunden ist, wobei der Lufteinlassteil (12) mit dem Lufterwärmungsdurchgang und der Dichtungsteil des Dichtungsring

(10) (11) mit dem Laugenbehälter verbunden ist.

11. Waschtrockner nach Anspruch 10, **dadurch gekennzeichnet, dass:** in dem Lufterwärmungsdurchgang (51) eine Heizvorrichtung (52) und ein Gebläse (53) angeordnet sind und, wenn das Gebläse eingeschaltet wurde, Luft aus dem Lufterwärmungsdurchgang zum Türdichtungsring (10) strömt.

Revendications

1. Bague d'étanchéité de porte pour un lave-linge séchant, comprenant une partie d'étanchéité (11) pouvant être connectée à une cuve et une partie d'entrée d'air (12) raccordée à la partie d'étanchéité, dans laquelle :

la partie d'étanchéité comprend une première paroi (111) fermée circonférentiellement, la première paroi possède une structure pliée, pour former une rainure (112) s'étendant circonférentiellement,

un premier passage (113) pour l'écoulement d'un fluide est formé dans la rainure,

la partie d'entrée d'air comprend une deuxième paroi (121),

la deuxième paroi entoure un deuxième passage (122),

une sortie (123) du deuxième passage est située sur la première paroi, et le deuxième passage est en communication spatiale avec le premier passage, et

caractérisée en ce qu'elle comprend en outre des dispositifs de guidage (13) destinés à guider une partie de l'air dans le deuxième passage jusque dans le premier passage, dans laquelle le dispositif de guidage est au moins en partie situé dans une saillie du deuxième passage perpendiculaire à une direction d'écoulement d'air.

2. Bague d'étanchéité de porte selon la revendication 1, **caractérisée en ce que**, dans la direction d'écoulement d'air, une extrémité d'entrée (131) du dispositif de guidage est située dans le deuxième passage.

3. Bague d'étanchéité de porte selon la revendication 1, **caractérisée en ce que**, dans la direction d'écoulement d'air, une extrémité de sortie (132) du dispositif de guidage est située tout près de ou reliée à la rainure.

4. Bague d'étanchéité de porte selon la revendication 1, **caractérisée en ce qu'un** troisième passage (133) est formé entre le dispositif de guidage et la deuxième paroi, et une sortie du troisième passage

fait face à des entrées (115, 116) du premier passage.

5. Bague d'étanchéité de porte selon la revendication 1, **caractérisée en ce que** la partie d'entrée d'air (12) est adaptée pour être reliée à un passage de chauffage d'air (51) du lave-linge séchant. 5
6. Bague d'étanchéité de porte selon la revendication 1, **caractérisée en ce que** la première paroi (111) est adaptée pour être reliée à une cuve (3) du lave-linge séchant, un axe de la cuve est disposé horizontalement ou obliquement, et lorsque la bague d'étanchéité de porte (10) est reliée à la cuve, le fond de la rainure dans une direction verticale présente un trou (114) s'étendant à travers un espace à l'intérieur de la cuve. 10 15
7. Bague d'étanchéité de porte selon la revendication 1, **caractérisée en ce que** le dispositif de guidage, la partie d'étanchéité et la partie d'entrée d'air sont fabriqués d'un seul tenant. 20
8. Bague d'étanchéité de porte selon la revendication 1, **caractérisée en ce que** le premier passage (113) comprend une première entrée (115) et une deuxième entrée (116) dans une direction circonférentielle, la première entrée et la deuxième entrée sont respectivement proches de deux côtés de la sortie (123) du deuxième passage, et les dispositifs de guidage (13) sont disposés respectivement à côté de la première entrée et de la deuxième entrée. 25 30
9. Bague d'étanchéité de porte selon la revendication 8, **caractérisée en ce que** la première paroi est adaptée pour être reliée à une cuve du lave-linge séchant, un axe de la cuve est disposé horizontalement ou obliquement, et lorsque la bague d'étanchéité de porte est reliée à la cuve, le fond de la rainure dans une direction verticale présente un trou s'étendant à travers un espace à l'intérieur de la cuve, et la première entrée et la deuxième entrée sont situées au niveau du haut de la rainure dans la direction verticale. 35 40 45
10. Lave-linge séchant, comprenant une cuve (3),
 dans lequel un axe de la cuve est disposé horizontalement ou obliquement, et un passage de chauffage d'air (51) fournit de l'air chauffé dans la cuve, 50
caractérisé en ce que la bague d'étanchéité de porte (10) selon l'une quelconque des revendications 1 à 9 est reliée au passage de chauffage d'air et à la cuve, 55
 dans lequel la partie d'entrée d'air (12) est reliée au passage de chauffage d'air, et la partie d'étanchéité (11) de la bague d'étanchéité (10) est

reliée à la cuve.

11. Lave-linge séchant selon la revendication 10, **caractérisé en ce qu'**un dispositif de chauffage (52) et un ventilateur (53) sont disposés dans le passage de chauffage d'air (51), et une fois que le ventilateur est actionné, de l'air s'écoule à partir du passage de chauffage d'air vers la bague d'étanchéité de porte (10).

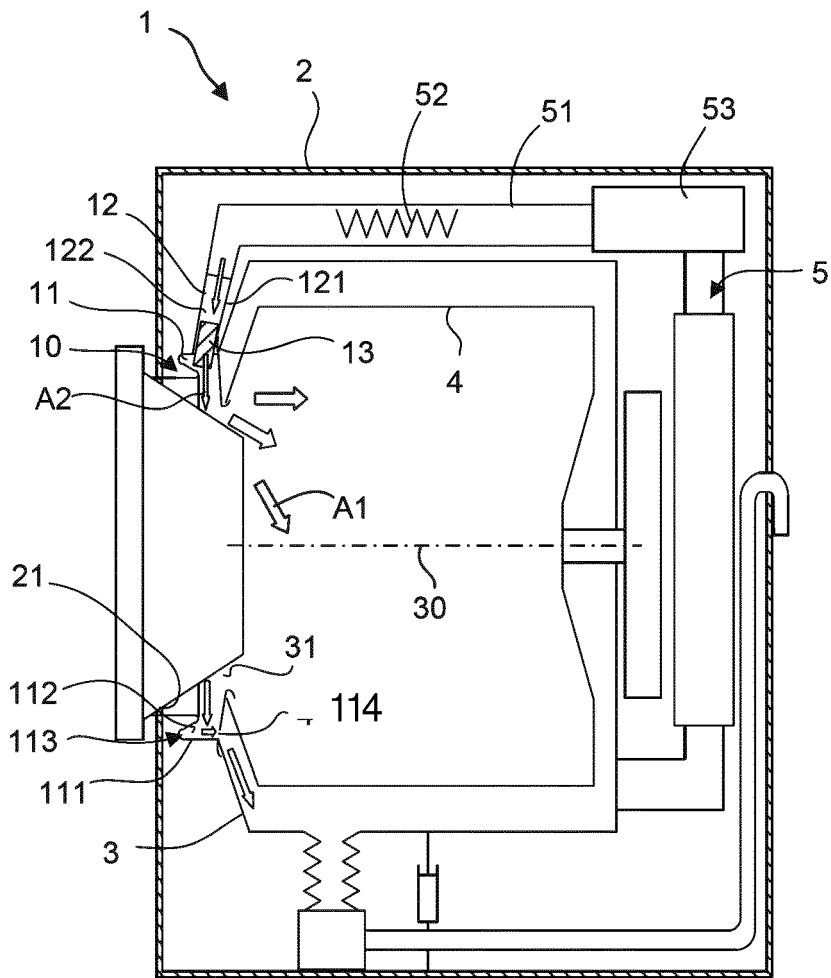


FIG. 1

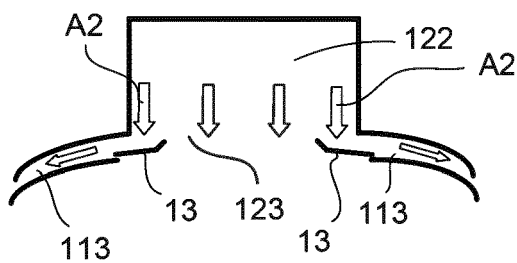


FIG. 4

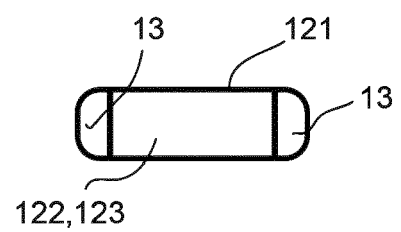


FIG. 5

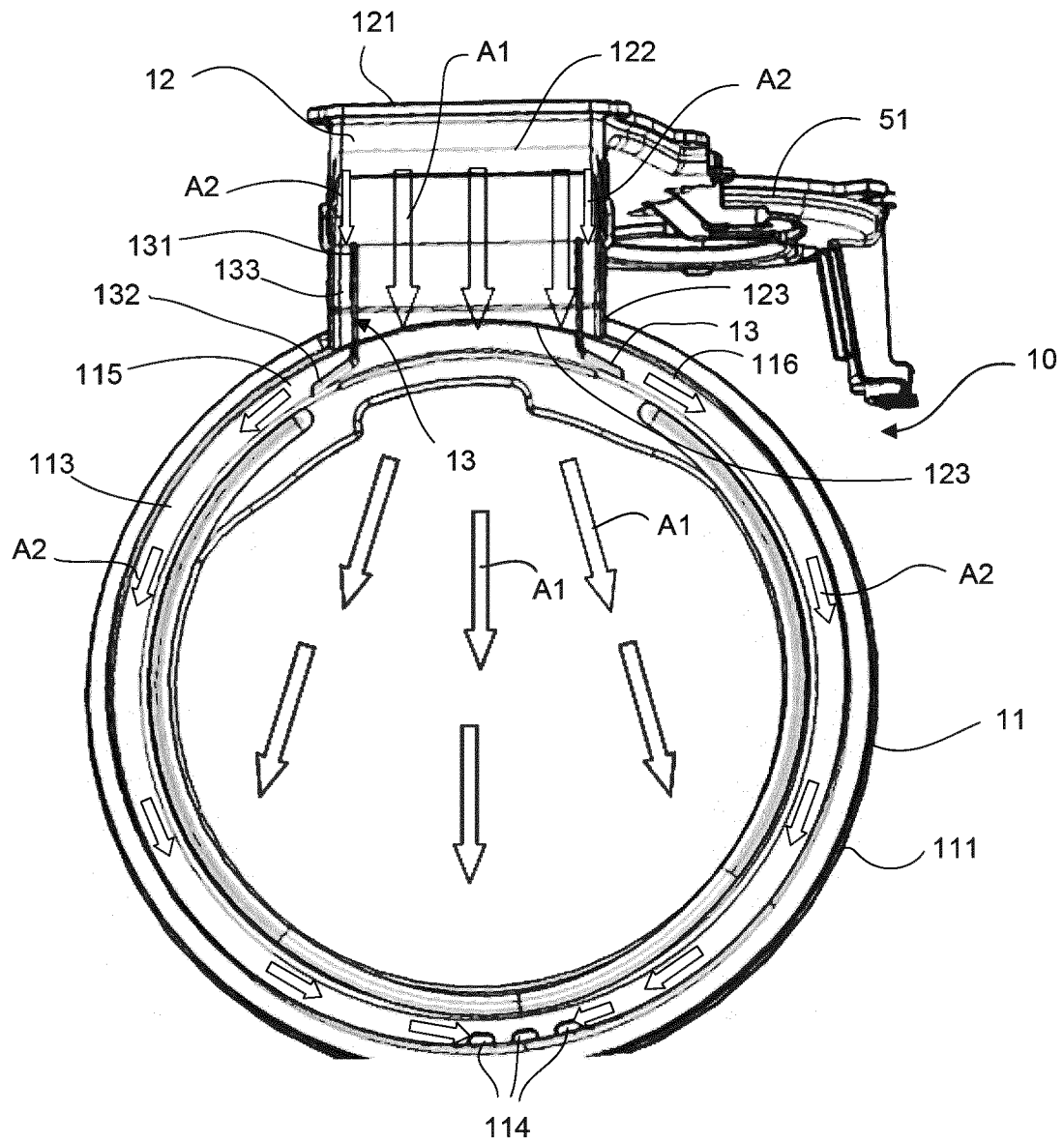


FIG. 2

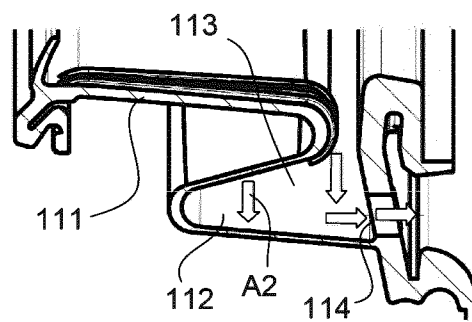


FIG. 3