



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
04.10.2023 Bulletin 2023/40

(51) International Patent Classification (IPC):
D06F 58/04 ^(2006.01) **D06F 58/20** ^(2006.01)

(21) Application number: **23165406.2**

(52) Cooperative Patent Classification (CPC):
D06F 58/04; D06F 58/203

(22) Date of filing: **30.03.2023**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA
Designated Validation States:
KH MA MD TN

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(30) Priority: **01.04.2022 TR 202205167**

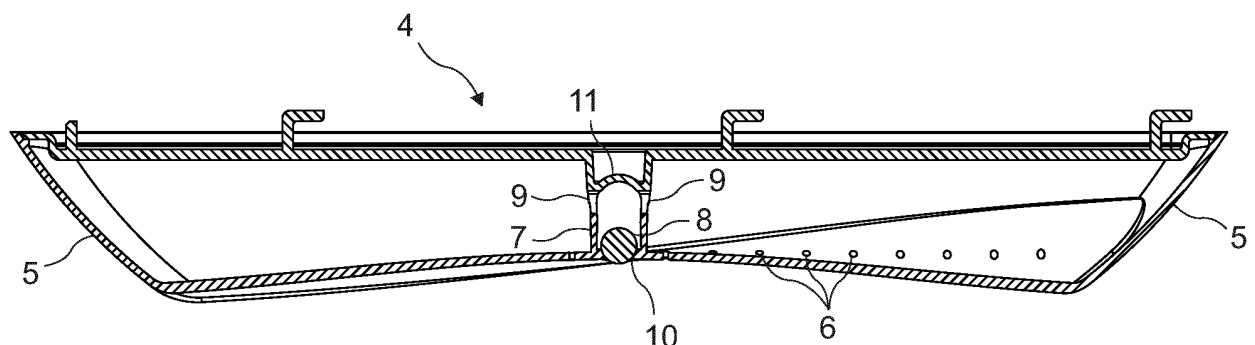
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(54) **A DRYER**

(57) The present invention relates to a dryer (1) comprising a body (2); a drum (3) which is provided in the body (2) and wherein the laundry to be dried is loaded; at least one baffle (4) which is provided on the drum (3) and which enables the laundry to be tumbled; at least one receptacle (5) which is provided on the baffle (4) and which is suitable for storing a fluid therein; and at least

one opening (6) which is arranged on the baffle (4) and which enables the fluid in the receptacle (5) to be delivered into the drum (3), whereby at least one hollow channel (7) is provided on the baffle (4) and at least one impact member (8), which is placed into the channel (7) and slidably moves in the channel with the rotation of the drum (3).

Figure 4



Description

[0001] The present invention relates to a dryer (1) wherein the wrinkles of the laundry placed into the drum are removed.

[0002] In response to increasing user demands in dryers, applications for feeding various fluids such as water, steam, finishing agent, etc. into the drum during the drying process for purposes such as removing wrinkles, increasing hygiene and conditioning of laundry increase day by day. In an example of these applications, there are baffle structures which allow the laundry placed in the drum to be tumbled during the rotation of the drum, which can be fixed to the inner surface of the drum or can be detachable, and which has a receptacle wherein various substances (water, steam, odor, etc.) are stored so as to be fed onto the laundry in a homogeneous and balanced manner. During the drying cycle, the liquid in the receptacle is transferred from the baffle surface to the drum and thus to the laundry in the drum by the rotational movement of the drum in the horizontal axis. Due to the high ambient temperature in the drum, the liquid delivered into the drum evaporates and the evaporated liquid penetrates the laundry, thus providing a wrinkle-removal effect. However, since the liquid in the receptacle in the baffle structure cannot be fed into the drum in a controlled manner, the fluid in the receptacle is quickly and inhomogeneously discharged onto the wet laundry at the very beginning of the drying cycle, without allowing time for the water on the wet laundry to evaporate. This situation causes the laundry wrinkles not to be removed at the desired level and the drying cycle to become inefficient.

[0003] In the state of the art European Patent Application No. EP1495178, a product dispenser for dispensing fabric softener material provided on the inner surface of the drum and a carrier are disclosed.

[0004] In the state of the USA Patent Application No. US9915022, a dryer is disclosed, a laundry tumbling member which is placed around the inner wall of the drum, which has the space for storing the liquid material to be delivered into the laundry drying region and has the body structure in fluid communication with the body.

[0005] In the state of the art Korean Patent Document No. KR100712271, a dryer is disclosed, comprising a lift which is mounted into the drum and which stores softener and cleaning agents to be delivered into the drum.

[0006] The aim of the present invention is the realization of a dryer wherein the wrinkles on the laundry are removed in an efficient and cost-efficient manner.

[0007] The dryer realized in order to attain the aim of the present invention, explicated in the first claim and the respective claims thereof, comprises a baffle which is placed onto a drum provided in the body and wherein the laundry to be dried is loaded; at least one receptacle which is provided on the baffle and which is suitable for storing fluids therein; at least one opening which enables the fluid in the receptacle to be poured into the drum; at

least one channel in the form of a hollow tube which is provided on the channel; and at least one impact member which is suitable to slidably move in the gap in the baffle so as to hit the walls of the channel with the rotational movement of the drum. Thus, when the baffle moves to the upper region of the drum with the rotational movement of the drum, it is provided that the fluid falls into the drum through the openings due to gravity and the fluid scatters into the drum in the form of droplets as the impact member hits on the surfaces in the channel. Thereby, the amount of fluid sent into the drum and its distribution on the laundry are mechanically controlled by the rotational movement of the drum. Consequently, by enabling fluid to be regularly sent into the drum during the entire cycle, the dryer's wrinkle removal performance is increased in a cost-effective and efficient manner.

[0008] In an embodiment of the present invention, the channel has at least one delivery opening which opens into the receptacle so as to transfer the fluid into the receptacle and at least one port which opens into the drum. Thus, without the need for a separate fluid delivery line opening to the receptacle, it becomes possible to fill the receptacle with fluid through the channel. Consequently, the channel is enabled to also serve as a fluid delivery line which allows the fluid to be fed onto the laundry to be filled into the receptacle.

[0009] In another embodiment of the present invention, the openings have a diameter between 1 mm to 5 mm. By collecting the fluid sent into the drum at the openings and sending the same into the drum through the openings as the impact member hits the channel surfaces, the wrinkle removal performance is maximized. As a result of the tests, it is determined that the diameter values of the openings should be between 1 mm and 5 mm in order for the fluid in the receptacle to adhere to the openings with the effect of adhesion and cohesion, and to scatter with the impact effect and to be sent on the laundry in maximum homogeneity. Thus, the wrinkle removal efficiency is increased.

[0010] In another embodiment of the present invention, the impact member has a spherical form. The impact member, which has a spherical form, moves in the channel so as to roll and slide. Thus, the impact effect provided by the impact member is increased.

[0011] In another embodiment of the present invention, the port has a circular form. Consequently, by enabling the spherical impact member to fit more comfortably into the port with the effect of gravity when the baffle is at the top of the drum, fluid is prevented from spilling into the drum through the port.

[0012] In another embodiment of the present invention, the port has a diameter smaller than the diameter of the impact member. Thus, the impact member sitting onto the port is prevented from getting stuck in the port.

[0013] In an embodiment of the present invention, in the channel, there is at least one stopper which limits the movement of the impact member. The stopper is configured to match the form of the impact member, for example

configured to be in a semi-spherical form.

[0014] In an embodiment of the present invention, the dryer comprises the baffle having a baffle body which is fixed onto the inner surface of the drum facing the laundry and on which the receptacles are detachably attached. By means of the detachable structure of the receptacle, ease of use is provided.

[0015] By means of the present invention, a dryer is realized, wherein a fluid, preferably water, is transferred in a cost-effective, regular and homogeneous manner onto the laundry in the drum from the start of the drying cycle to the end thereof such that the wrinkles in the laundry are efficiently removed.

[0016] The dryer realized in order to attain the aim of the present invention is illustrated in the attached figures, where:

Figure 1 - is the view of the dryer related to an embodiment of the present invention.

Figure 2 - is the view of the baffle related to another embodiment of the present invention.

Figure 3 - is the top view of the baffle related to another embodiment of the present invention.

Figure 4 - is the cross-sectional view of the baffle related to another embodiment of the present invention.

[0017] The elements illustrated in the figures are numbered as follows:

- 1- Dryer
- 2- Body
- 3- Drum
- 4- Baffle
- 5- Receptacle
- 6- Opening
- 7- Channel
- 8- Impact member
- 9- Delivery opening
- 10- Port
- 11- Stopper
- 12- Baffle body

[0018] The dryer (1) comprises a body (2); a drum (3) which is provided in the body (2) and wherein the laundry to be dried is loaded; at least one baffle (4) which is provided on the drum (3) and which enables the laundry to be tumbled; at least one receptacle (5) which is provided on the baffle (4) and which is suitable for storing a fluid therein; and at least one opening (6) which is arranged on the baffle (4) and which enables the fluid in the receptacle (5) to be delivered into the drum (3). During the drying cycle, the drum is rotated around a horizontal axis of rotation. The baffles (4) are disposed on the drum (3) in order to better tumble the laundry in the drum (3). The

fluid, for example water, to be sent onto the laundry with the effect of gravity through the openings (6) arranged on the surface of the baffle (4) facing the inside of the drum (3) is stored in the receptacle (5) provided in the baffle (4). The fluid evaporating due to the ambient temperature in the drum (3) enables the wrinkles in the laundry to be removed.

[0019] The dryer (1) of the present invention comprises at least one hollow channel (7) which is provided on the baffle (4) and at least one impact member (8) which is placed into the channel (7) and which slidably moves in the channel (7) with the rotational movement of the drum (3). When the baffle (4) moves to a position at the lower side of the drum (3) as the drum (3) is rotated, the fluid (water, etc.) stored in the receptacle (5) moves away from the openings (6) with the effect of gravity and the fluid is not transferred into the drum (3). As the drum (3) rotates around the axis of rotation, the baffle (4) moves towards the upper side of the drum (3) and the fluid stored in the receptacle (5) is delivered into the drum (3) with the effect of gravity and the impact member (8) slides in the channel (7) and hits the surfaces of the channel (7), and with the impact, the fluid at the openings (6) pour through so as to scatter into the drum (3). Thus, the fluid delivered into the drum (3) without the need for an electronic control is distributed more homogeneously on the laundry, and the amount of fluid can be controlled. Thereby, the wrinkles in the laundry are enabled to be removed at the optimum level in a cost-effective manner.

[0020] In an embodiment of the present invention, the channel (7) has at least one delivery opening (9) which opens into the receptacle (5) so as to allow the fluid to be filled into the receptacle (5) and at least one port (10) which opens into the drum (3). Before the drying cycle is started, the baffle (4) is brought to the position where the port (10) faces upwards and the impact member (8) slides away from the port (10) in the channel (7) with the effect of gravity, thus leaving the port (10) open such that fluid is added to the receptacle (5). The fluid entering the port (10) passes through the channel (7) and goes around the impact member (8) and fills the receptacle (5) through the delivery opening (9). Thus, fluid is added to the receptacle (5) without the need for an additional channel to realize fluid communication.

[0021] In another embodiment of the present invention, the opening (6) has a diameter between 1 mm to 5 mm. As a result of the tests, it is determined that the most suitable opening (6) diameter should be between 1 mm and 5 mm in order for the fluid, especially water, flowing from the receptacle (5) to the openings (6) to accumulate at the openings (6) with the effect of adhesion and cohesion, and to more efficiently scatter with the impact effect provided by the impact member (8) on the laundry. Thus, the wrinkle removal efficiency of the dryer (1) is improved.

[0022] In another embodiment of the present invention, the impact member (8) is in the form of a sphere. Thus, the movement of the impact member (8) in the channel (7) is made more fluid. Moreover, the spherical impact

member (8) facilitates the fluid transfer to the receptacle (5).

[0023] In another embodiment of the present invention, the baffle (4) has the port (10) in circular form. Thus, when the baffle (4) reaches the topmost part of the drum (3), the impact member (8) is enabled to form fit onto the port (10) so as to completely cover the port (10). Consequently, the fluid is enabled to reach the interior of the drum (3) only through the openings (6).

[0024] In another embodiment of the present invention, the port (10) has a diameter smaller than the diameter of the impact member (8). Thus, the impact member (8) is prevented from falling out of the channel (7) or from getting stuck in the port (10).

[0025] In another embodiment of the present invention, in the channel (7), there is at least one stopper (11) which limits the movement of the impact member (8) in the channel (7). When the baffle (4) reaches the bottom of the drum (3) during the rotation of the drum (3), the impact member (8) hits the stopper (11) and creates an impact effect which allows the fluid accumulated at the openings (6) to return to the receptacle (5). The stopper (11) is preferably configured in a concave form. Thus, by increasing the contact surface between the stopper (11) and the impact member (8), the impact effect the impact member (8) creates upon hitting the stopper (11) is increased. Consequently, when the impact member (8) sits on the stopper (11), fluid transfer from the delivery opening (9) to the receptacle (5) is enabled to be performed easily.

[0026] In another embodiment of the present invention, the baffle (4) has a baffle body (12) which is fixed to the drum (3) and which is detachably attached onto the receptacle (5). Thus, the user can more easily transfer the fluid into the receptacle (5).

[0027] By means of the present invention, the fluid stored in the receptacle (5) on the baffle (4) is enabled to be shared and poured into the drum in a balanced manner from the start of the drying cycle to the end thereof. Consequently, a dryer (1) is realized, wherein the wrinkles in the laundry are removed in an efficient and low-cost manner. Moreover, in case chemicals such as fabric softener, perfume, etc. are used as fluids, by means of the baffle (4) structure having the impact member (8), the fluid is distributed little by little throughout the entire drying cycle and sent onto the laundry, thus preventing the laundry from being damaged.

which is arranged on the baffle (4) and which enables the fluid in the receptacle (5) to be delivered into the drum (3), **characterized by** at least one hollow channel (7) which is provided on the baffle (4) and at least one impact member (8) which is placed into the channel (7) and which slidably moves in the channel (7) with the rotational movement of the drum (3).

2. A dryer (1) as in Claim 1, **characterized by** the channel (7) which has at least one delivery opening (9) which opens into the receptacle (5) so as to allow the fluid to be filled into the receptacle (5) and at least one port (10) which opens into the drum (3).
3. A dryer (1) as in Claim 1 or Claim 2, **characterized by** the opening (6) which has a diameter between 1 mm to 5 mm.
4. A dryer (1) as in any one of the above claims, **characterized by** the impact member (8) which has a spherical form.
5. A dryer (1) as in any one of Claim 2 to Claim 4, **characterized by** the port (10) which has a circular form.
6. A dryer (1) as in Claim 5 or 6, **characterized by** the port (10) which has a diameter smaller than the diameter of the impact member (8).
7. A dryer (1) as in any one of the above claims, **characterized by** at least one stopper (11) which limits the movement of the impact member (8) in the channel (7).
8. A dryer (1) as in any one of the above claims, **characterized by** the baffle (4) which has a baffle body (12) which is fixed to the drum (3) and which is detachably attached onto the receptacle (5).

Claims

1. A dryer (1) **comprising** a body (2); a drum (3) which is provided in the body (2) and wherein the laundry to be dried is loaded; at least one baffle (4) which is provided on the drum (3) and which enables the laundry to be tumbled; at least one receptacle (5) which is provided on the baffle (4) and which is suitable for storing a fluid therein; and at least one opening (6)

Figure 1

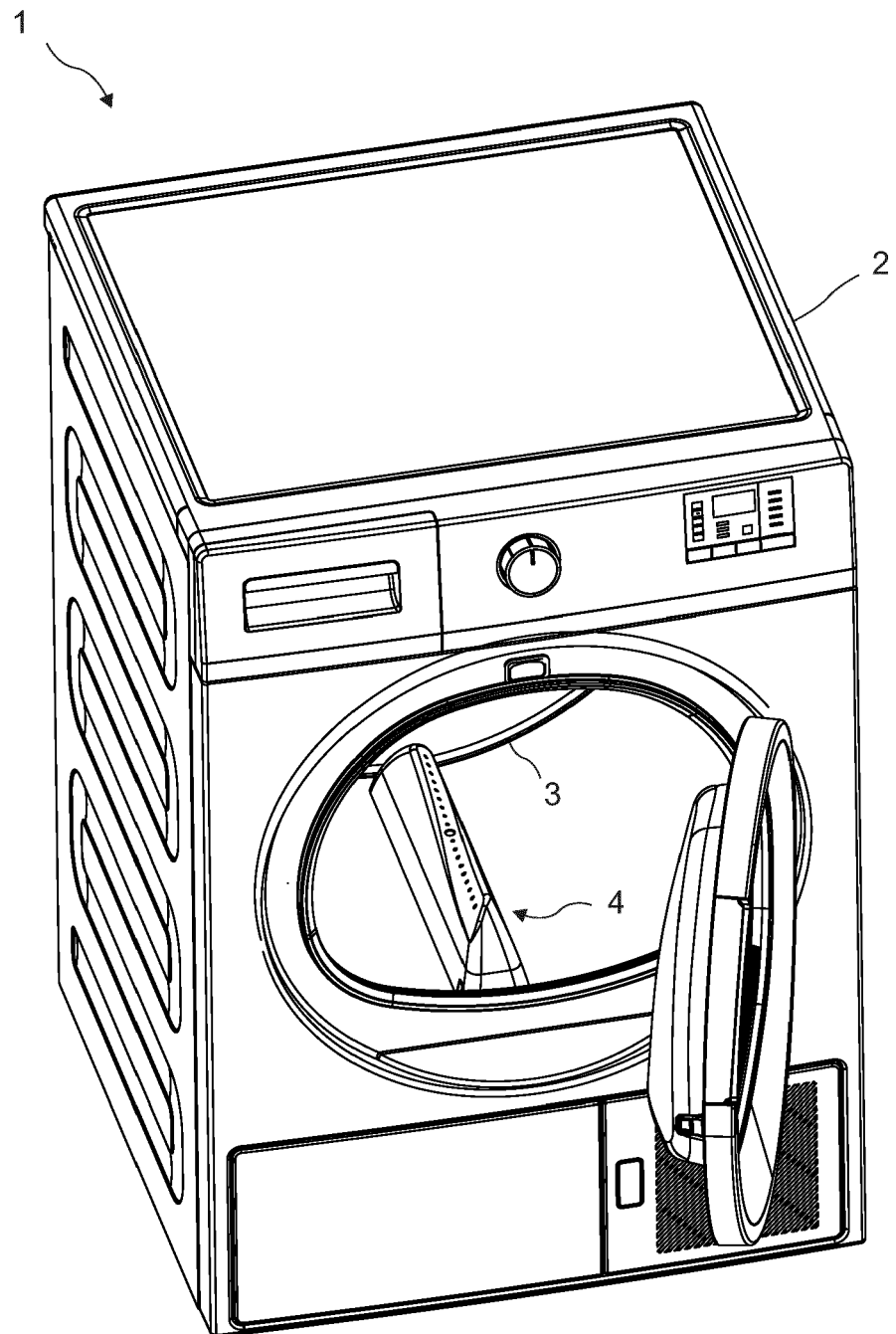


Figure 2

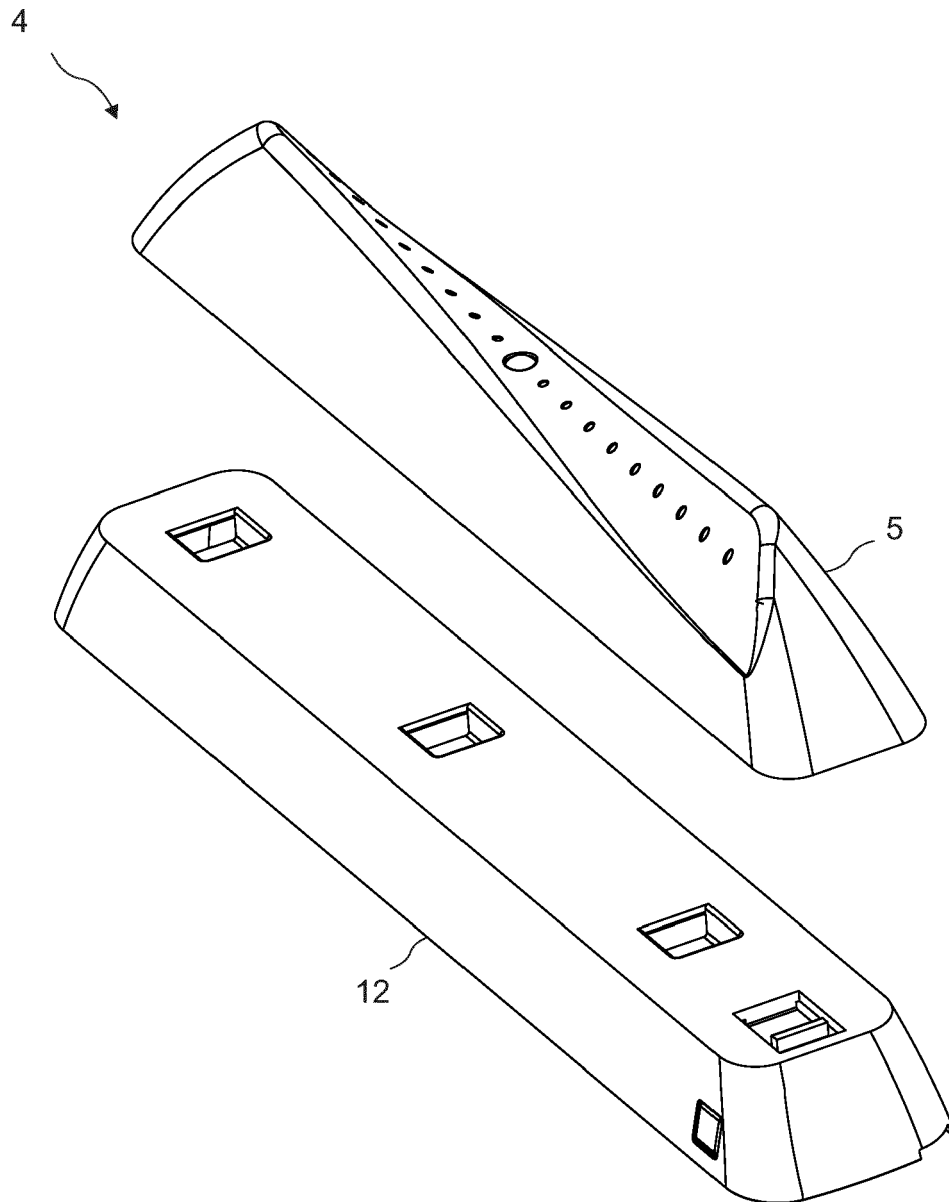


Figure 3

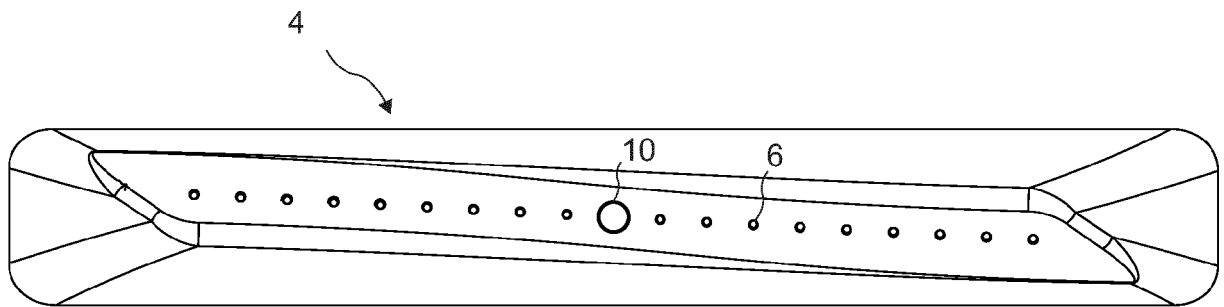
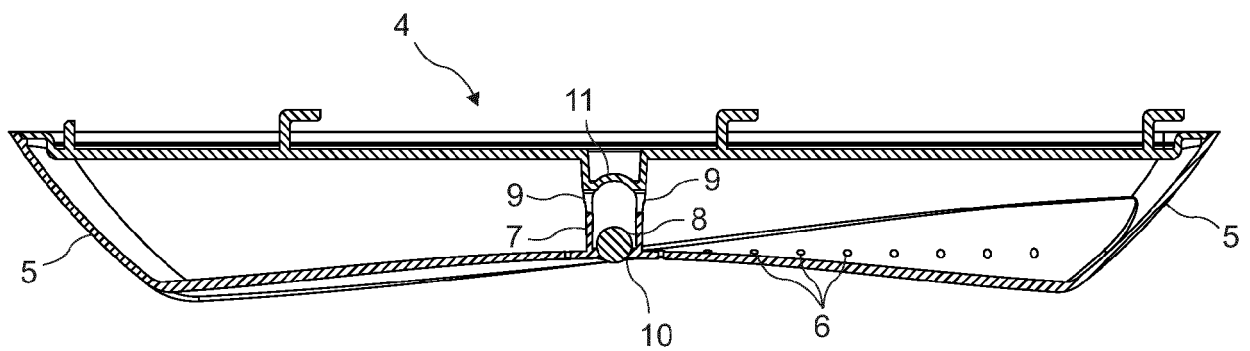


Figure 4





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