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(54) **A WASHER/DRYER**

WASCHTROCKNER

LAVE-LINGE/SÈCHE-LINGE

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Description

[0001] The present invention relates to a washer/dryer that comprises a chamber wherein the water condensed during the drying process is collected.

[0002] In washer/dryers, the water condensed during the drying process is collected in a chamber and this chamber is discharged by the user after the drying process is completed. One of the problems encountered during these processes is the irregular flow of water while filling in the chamber and the splattering out of the water. The splattered water can reach unwanted places in the washer/dryer and cause malfunctions. Another problem is splattering of water while carrying to evacuate the chamber and during the evacuating process. Various embodiments are developed in the state of the art for solving these problems.

[0003] In state of the art German Patent Document No DE10023230 a dryer is explained, comprising a tubular shaped flow regulator with a surface whereon water impacts initially during filling in and discharge being without holes, thus attenuating the turbulence of water and the surface facing thereof having holes thereon for allowing water to be filled in and discharged.

[0004] In state of the art European Patent Application No EP1743973, a dryer is explained comprising a stepped shaped flow regulator emplaced at the orifice of the condensate receiver tank in order to prevent splashing and overflowing.

[0005] DE- A- 31, 19, 354 discloses a further prior art.

[0006] However even though these embodiments known in the state of the art are helpful in filling water into the chamber and delivering without splashing, it gives rise to difficulties in the discharging process, causing some amount of water to remain in the chamber.

[0007] The aim of the present invention is the realization of a washer/dryer wherein the water condensed during drying is easily filled in/discharged from the chamber collecting the condensate.

[0008] The washer/dryer realized in order to attain the aim of the present invention, explicated in the first claim and the respective claims thereof, comprises a chamber wherein the water condensed during the drying process is collected, an orifice allowing water to enter into the chamber and a flow regulator disposed in this orifice for regulating water flow during entry/exit of water from the chamber, shaped approximately like a hyperboloid of one sheet, that is widening conically upwards and downwards from the center.

[0009] The flow regulator is inserted into the chamber from the orifice situated thereon and positioned such that the upper end of the hyperboloid corresponds with the orifice.

[0010] The height of the flow regulator is less than the height of the chamber. Therefore when the flow regulator is placed in position, a gap remains between the end of the bottom half (B) and the base of the chamber at least allowing water to pass.

[0011] The water condensed and delivered to the chamber flows down from the walls of the flow regulator and is received into the chamber. In the meantime, the speed of water slows down and the turbulence is attenuated. Thus, water is prevented from splattering while being received into the chamber. Similarly, the turbulence formed while carrying the chamber to be emptied is attenuated by the water impacting the walls of the flow regulator and water is prevented from splashing out by reaching the orifice.

[0012] In an embodiment of the present invention, the flow regulator comprises more than one hole, particularly at the upper half (T) for allowing passage of water. In the preferred version of this embodiment the holes are formed to be grater slot shaped by protrusion.

[0013] In an embodiment of the present invention, a flange each is disposed on the end of the upper half (T) of the flow regulator and at the edges of the orifice, matching each other, for securing the flow regulator after placing in the orifice.

[0014] By means of the flow regulator used in the washer/dryer of the present invention, the water condensed during the drying process is received into the chamber with a regular flow preventing splattering to other sections of the washer/dryer and causing damages. Similarly, carrying the chamber to the place of discharging and the discharging processes are performed safely and easily.

[0015] The washer/dryer realized in order to attain the aim of the present invention is illustrated in the attached figures, where:

[0016] Figure 1 - is the schematic view of a washer/dryer.

[0017] Figure 2 - is the perspective view of a chamber and a flow regulator.

[0018] Figure 3 - is the cross-sectional view of a flow regulator disposed in the chamber.

[0019] Figure 4 - is the perspective view of the flow regulator.

[0020] Figure 5 - is the schematic view of the flow regulator and the chamber during filling in.

[0021] Figure 6 - is the schematic view of the flow regulator and the chamber during discharging.

[0022] The elements illustrated in the figures are numbered as follows:

1. Washer/dryer
2. Chamber
3. Orifice
4. Flow regulator
5. Hole
6. Flange

[0023] The washer/dryer (1) comprises a chamber (2) wherein the water condensed during the drying process is collected, an orifice (3) allowing water entry into the chamber (2) and a flow regulator (4) that placed into the orifice (3), regulates water flow during the filling in/discharging processes (Figures 1 and 2).

[0024] The flow regulator (4) used in the washer/dryer (1) of the present invention is configured approximately as a hyperboloid of one sheet. The flow regulator (4) is disposed in the orifice (3) so that it remains in the chamber (2). Accordingly, water flows along the inner surface of the flow regulator (4) that serves almost like a funnel and is received into the chamber (2) with the turbulence attenuated. Moreover, the water spattering resulting from the turbulence formed during carrying of the chamber (2) by the user for the discharging process is prevented from reaching the orifice (3). The splashing water impacts on the walls of the flow regulator (4) and returns into the chamber (2) (Figure 3).

[0025] The hyperboloid shaped flow regulator (4) furthermore comprises more than one hole (5) formed on the upper half (T) for allowing passage of water. Thus, the water reaching the surface of the flow regulator (4) can be received into the chamber (2) easily and without spattering. On the other hand, when the chamber (2) is turned upside down during the discharging process, water will be easily discharged by entering both from the end of the hyperboloid upper half (B) and also from the holes (5) into the flow regulator (4) (Figure 4).

[0026] In the preferred version of this embodiment, the holes (5) are formed by protrusion such that the water is allowed to flow into the chamber (2) during filling in and out of the chamber (2) during discharging. The protrude surfaces forming the holes (5) protrude outward from the flow regulator (4) and partially cover the hole (5). Thus, water can be effectively guided to the intended direction during both filling and discharging processes and flow can be performed regularly (Figures 5 and 6).

[0027] In an embodiment of the present invention, a flange (6) is formed, one each at the end of the upper half (T) of the flow regulator (4) and the edges of the orifice (3) mounted to each other by the bayonet method. Accordingly, the flow regulator (4) can be locked in place by turning after being placed in the orifice (3).

[0028] In an embodiment of the present invention, a cylindrical passage is arranged between the lower half (B) of the flow regulator (4) and the upper half (T). Thus, the turbulence of water received into the flow regulator (4) from the holes (5) on the upper half (T) can be decreased before pouring into the chamber (2).

[0029] In another embodiment of the present invention, the heights and diameters of the upper half (T) and the lower half (B) of the flow regulator (4) are different from each other.

[0030] By means of the flow regulator (4) used in the washer/dryer (1) of the present invention, the water condensed during the drying process is received into the chamber (2) with a regular flow preventing spattering to unwanted sections. On the other hand, spattering of water during carrying the chamber (2) to the place of discharging and harming the user is prevented and the performing of discharging process is enabled easily and effectively.

Claims

1. A washer/dryer (1) that comprises a chamber (2) wherein the water condensed during the drying process is collected, an orifice (3) allowing water entry into the chamber (2) and a flow regulator (4) that placed into the orifice (3), regulates water flow during filling in/discharging processes and **characterized by** the flow regulator (4) that is configured approximately as a hyperboloid of one sheet.
2. A washer/dryer (1) as in Claim 1, **characterized by** the flow regulator (4) that is disposed in the orifice (3) so that it remains in the chamber (2) and serves as a funnel.
3. A washer/dryer (1) as in Claim 1 or 2, **characterized by** the flow regulator (4) that comprises more than one hole (5) formed on the upper half (T) for allowing passage of water.
4. A washer/dryer (1) as in Claim 3, **characterized by** the grater slot shaped holes (5) that are formed by protrusion.
5. A washer/dryer (1) as in any one of the above claims, **characterized by** a flange (6) formed one each at the end of the upper half (T) of the flow regulator (4) and the edges of the orifice (3) mounted to each other by the bayonet method.
6. A washer/dryer (1) as in any one of the above claims, **characterized by** the flow regulator (4) having a cylindrical passage arranged between the lower half (B) and the upper half (T).
7. A washer/dryer (1) as in any one of the above claims, **characterized by** the flow regulator (4) wherein the heights and diameters of the upper half (T) and the lower half (B) are different from each other.

Patentansprüche

1. Wasch-/Trockenmaschine (1), die eine Kammer (2), in der Wasser, das während des Trocknungsvorgangs kondensiert, aufgefangen wird, eine Mündung (3), die das Eintreten von Wasser in die Kammer (2) gestattet, und einen Durchflussregler (4) umfasst, der in der Mündung (3) angeordnet ist und den Wasserfluss während des Einfüll-/Ablassvorgangs reguliert, und **dadurch gekennzeichnet, dass** der Durchflussregler (4) annähernd wie ein einschaliges Hyperboloid konfiguriert ist.
2. Wasch-/Trockenmaschine (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** der Durchflussregler (4) derart in der Mündung (3) angeordnet ist, dass

- er in der Kammer (2) bleibt und als ein Trichter dient.
3. Wasch-/Trockenmaschine (1) nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** der Durchflussregler (4) mehrere Öffnungen (5) umfasst, die an der oberen Hälfte (T) ausgebildet sind, um den Durchfluss von Wasser zu ermöglichen. 5
 4. Wasch-/Trockenmaschine (1) nach Anspruch 3, **gekennzeichnet durch** die reibblechlochförmigen Öffnungen (5), die **durch** Ausstülpung gebildet sind. 10
 5. Wasch-/Trockenmaschine (1) nach einem der vorangehenden Ansprüche, **gekennzeichnet durch** einen Flansch (6), der an jedem Ende der oberen Hälfte (T) des Durchflussreglers (4) ausgebildet ist, und **dadurch**, dass die Kanten der Mündung (3) mittels Bajonettverfahren aneinander angebracht sind. 15
 6. Wasch-/Trockenmaschine (1) nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** der Durchflussregler (4) einen zylinderförmigen Durchlass aufweist, der zwischen der unteren Hälfte (B) und der oberen Hälfte (T) angeordnet ist. 20
 7. Wasch-/Trockenmaschine (1) nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** die Höhe und der Durchmesser der unteren Hälfte (B) und der oberen Hälfte (T) des Durchflussreglers (4) verschieden voneinander sind. 25 30
 5. Une machine à laver/sécher (1) selon l'une quelconque des revendications précédentes, **caractérisée par** des brides (6), chacune formée à l'extrémité de la moitié supérieure (T) du régulateur d'écoulement (4) et aux bords de l'orifice (3), étant montées l'une à l'autre par le procédé en baïonnette. 5
 6. Une machine à laver/sécher (1) selon l'une quelconque des revendications précédentes, **caractérisée par** le régulateur d'écoulement (4) qui présente un passage cylindrique disposé entre la moitié inférieure (B) et la moitié supérieure (T). 10
 7. Une machine à laver/sécher (1) selon l'une quelconque des revendications précédentes, **caractérisée par** le régulateur d'écoulement (4) où les hauteurs et les diamètres de la moitié supérieure (T) et la moitié inférieure (B) sont différents l'un de l'autre. 15

Revendications

1. Une machine à laver/sécher (1) qui comprend une chambre (2) où l'eau condensée pendant le processus de séchage est accumulée, un orifice (3) qui permet l'entrée d'eau dans la chambre (2), et un régulateur d'écoulement (4) qui est placé dans l'orifice (3) et qui régularise l'écoulement de l'eau pendant les processus d'entrée et d'évacuation et **caractérisée par** le régulateur d'écoulement (4) qui est configuré presque comme un hyperboloïde à une nappe. 35 40
2. Une machine à laver/sécher (1) selon la Revendication 1, **caractérisée par** le régulateur d'écoulement (4) qui est situé dans l'orifice (3) de manière à rester dans la chambre (2) et qui sert d'entonnoir. 45
3. Une machine à laver/sécher (1) selon la Revendication 1 ou 2, **caractérisée par** le régulateur d'écoulement (4) qui comprend plus d'un trou (5) formé sur la moitié supérieure (T) pour permettre le passage d'eau. 50
4. Une machine à laver/sécher (1) selon la Revendication 3, **caractérisée par** des trous en forme de râpe (5) qui sont formés par saillie. 55

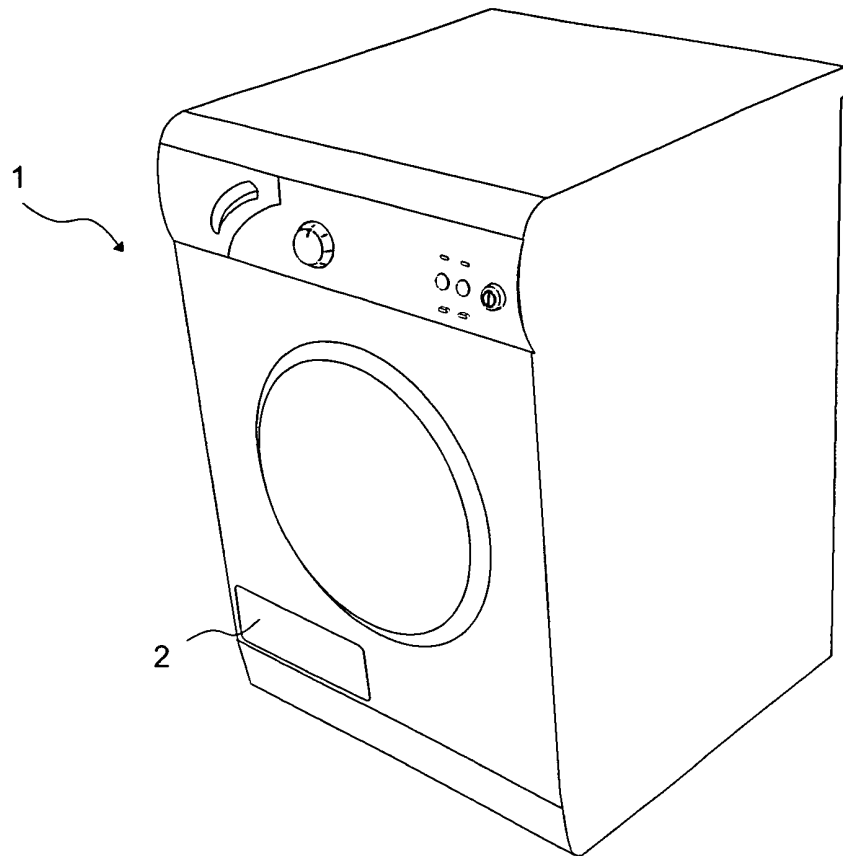


Fig. 1

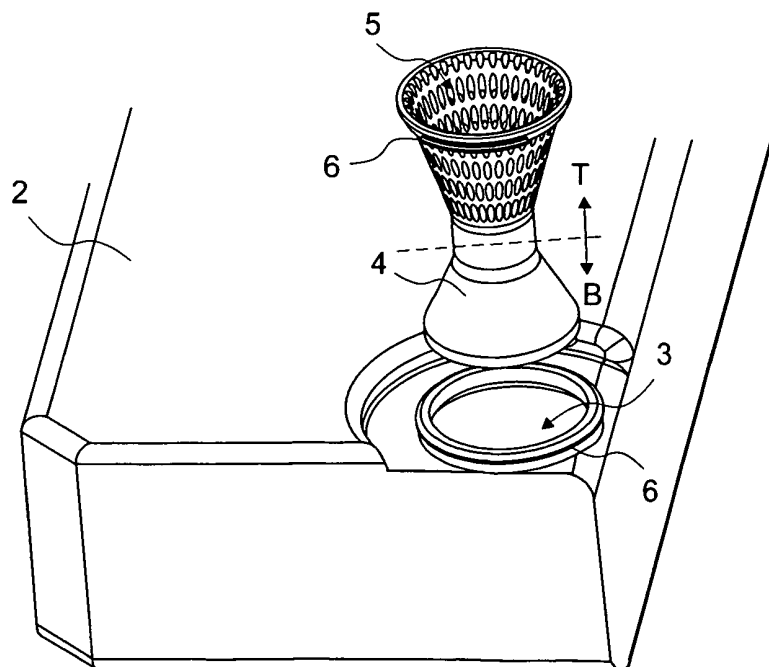


Fig. 2

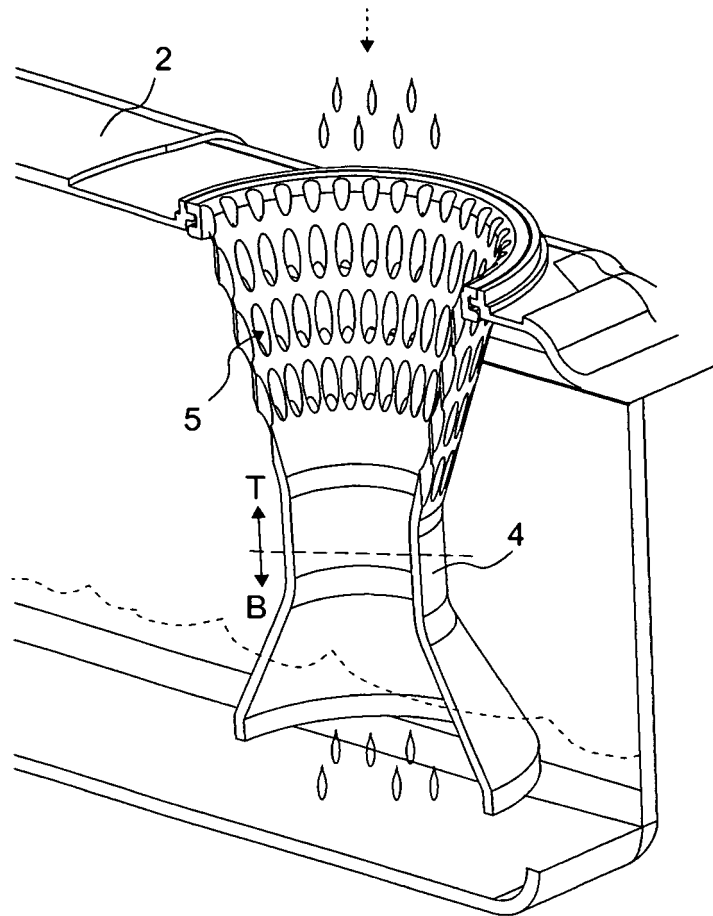


Fig. 3

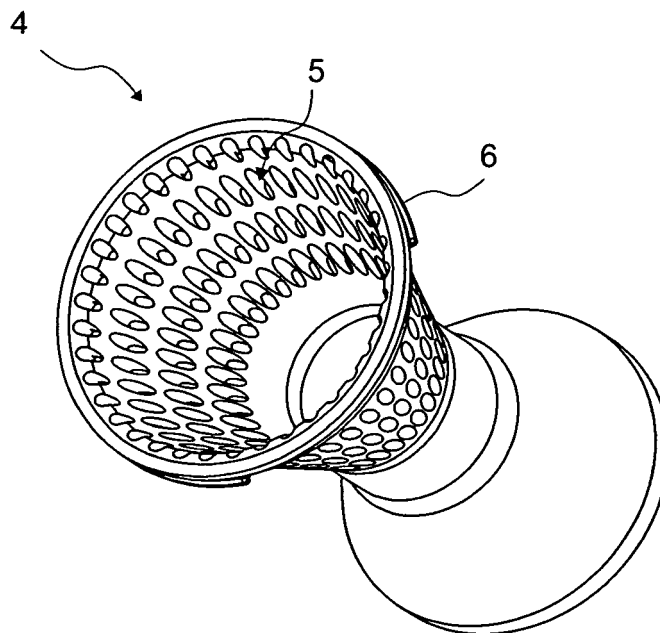


Fig. 4

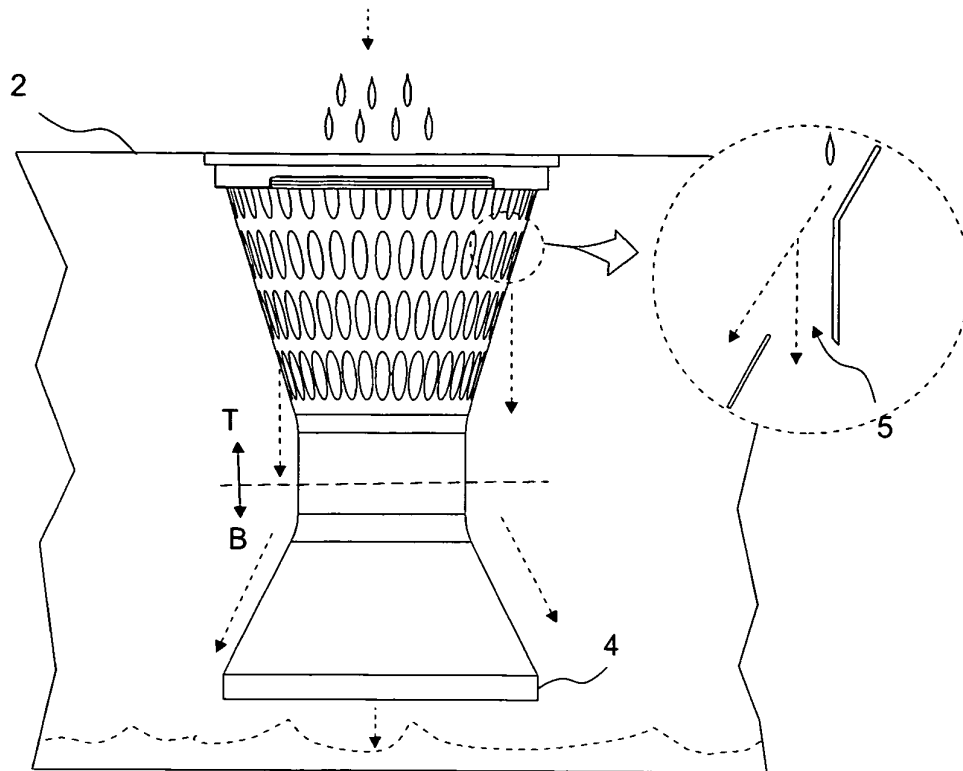


Fig. 5

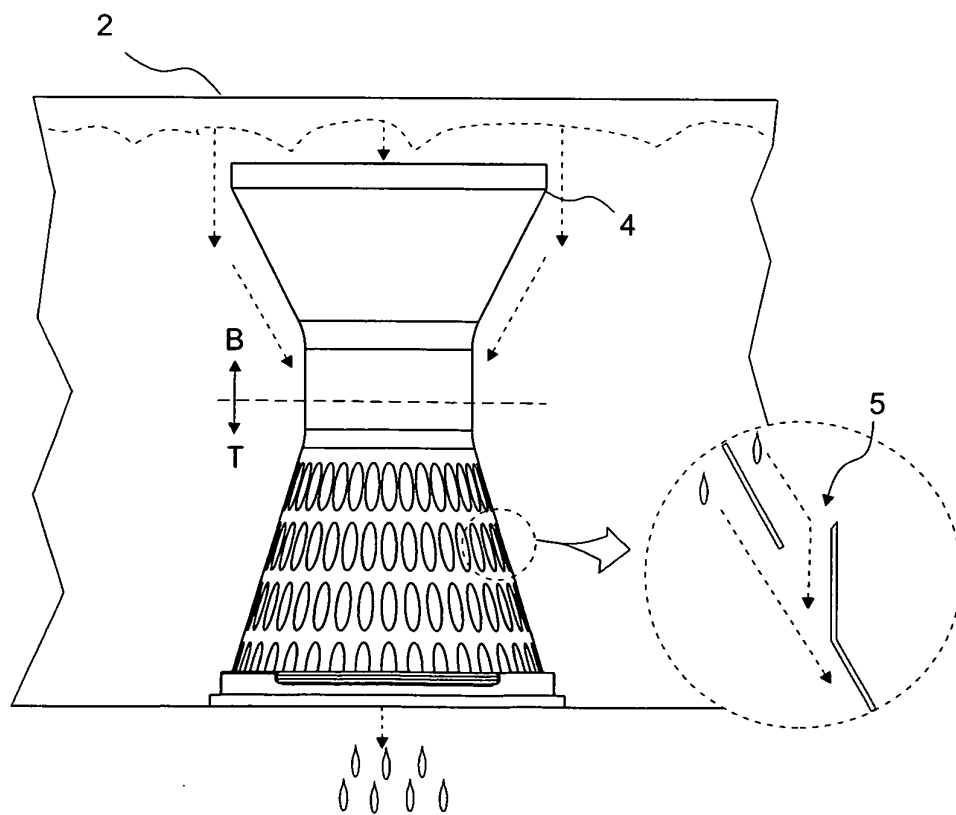


Fig. 6

REFERENCES CITED IN THE DESCRIPTION

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