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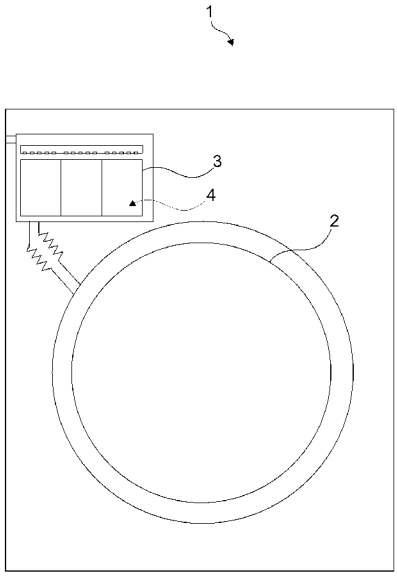
(54) **Title**: A WASHING MACHINE COMPRISING A DISPENSER

Figure 1



(57) **Abstract**: The present invention relates to a washing machine (1) comprising, a drum (2) wherein the laundry to be washed is loaded, a dispenser (3) having at least one compartment (4) wherein the liquid cleaning agent is loaded and a siphon (5) extending upwards from the base of the compartment (4) and having a hollow siphon pipe (6) and a siphon lid (7) formed as a tube with its top closed, mounted on the siphon pipe (6) such that a gap remains therebetween and which provides the water to be sucked into the siphon pipe (6) and discharged by creating siphon effect when the amount of the liquid in the compartment (4) reaches a certain level.

Description

A WASHING MACHINE COMPRISING A DISPENSER

[0001] The present invention relates to a washing machine comprising a dispenser wherein the cleaning agents are loaded.

[0002] Washing machines comprise a dispenser having more than one compartment wherein the cleaning agents are loaded. The powder and liquid cleaning agents are loaded into separate compartments from each other and are transferred to the drum by being mixed with the water taken from the mains during washing. The powder cleaning agents are transferred to the drum by passing through the opening situated behind the compartment after being mixed with the water taken into the compartment. On the other hand, the liquid cleaning agents are preferred to be transferred to the drum by means of siphoning since they, due the their fluid feature, pass directly to the line connected to the drum as soon as they are loaded into the dispenser. Therefore, the rear wall of the compartment wherein the liquid cleaning agents are loaded is closed and the liquid cleaning agent is transferred to the drum by means of a siphon providing the cleaning agent to be discharged together with water when the water filled therein reaches a certain level.

[0003] The passage of the water taken from the mains during the washing is provided by means of the flushing device disposed on the dispenser. The flow rate of the water supplied into the dispenser by means of the flushing device is determined to be enough for effectively sweeping all cleaning agents, mainly the powder cleaning agents. When high-flow rate water is supplied into the compartment wherein the liquid cleaning agents are disposed or when the mains pressure is high, the liquid cleaning agent in the compartment is agitated and hence tends to foam. When foaming occurs in the compartment wherein the liquid cleaning agents are loaded, the foams that occur pass towards the orifice of the siphon pipe during the transfer of the liquid cleaning agent to the drum by being siphoned and clog the siphon pipe. In this situation, the siphoning of the liquid cleaning agent is interrupted and the desired amount of liquid cleaning agent cannot be transferred to the tub by being siphoned. Therefore,

degradations occur in the washing performance.

[0004] In the state of the art European Patent Application No. EP1607510, a washing machine is described, comprising a restrictive element placed in the dispenser in order to prevent the liquid detergent from being agitated. The restrictive element described in the said patent application cannot prevent the occurrence of foaming even though it reduces the amount of agitation of the liquid detergent.

[0005] The aim of the present invention is the realization of a washing machine wherein the whole liquid cleaning agent loaded into the dispenser is provided to be effectively transferred to the drum.

[0006] The washing machine realized in order to attain the aim of the present invention, explicated in the first claim and the respective claims thereof, comprises a dispenser having at least one compartment wherein the liquid cleaning agents are loaded and a siphon that is situated in the compartment, that provides the liquid cleaning agent to be transferred to the drum by being sucked together with the water when the water taken into the compartment reaches a certain level and that has a siphon pipe and the siphon lid inserted onto the siphon pipe. The washing machine furthermore comprises a defoaming means which is held in a suspended position over the compartment and which extinguishes the foams in the compartment during the siphoning of the liquid mixture in the compartment. Thus, foam is prevented from entering between the siphon pipe and the siphon lid.

[0007] By means of the defoaming means, the whole liquid cleaning agent in the compartment is provided to be transferred into the drum by being sucked into the siphon pipe without any problem by preventing air bubbles from entering between the siphon pipe and the siphon lid.

[0008] In an embodiment of the present invention, the compartment is configured as a chamber independent of the dispenser. The compartment is placed in the dispenser by loading liquid cleaning agent into the compartment. Thus, the liquid cleaning agent is provided to be loaded into the compartment more easily.

[0009] In another embodiment of the present invention, the base of the

compartment is in inclined form. Thus, while the mixture of the liquid cleaning agent and the water is sucked into the siphon pipe, some of the foams in the compartment is dampened by itself by impacting the higher portion of the inclination of the base of the compartment.

[0010] In another embodiment of the present invention, the defoaming means is produced to be one-piece with the siphon lid. When the siphon lid is mounted onto the siphon pipe, the defoaming means, which is connected to the siphon lid, is held in a suspended position in the compartment.

[0011] In another embodiment of the present invention, the defoaming means is configured so as to be detachably mounted to the compartment. Thus, the defoaming means cleaning process is facilitated.

[0012] In a version of this embodiment, the defoaming means is hung on two opposite side walls of the compartment.

[0013] In another version of the said embodiment, the defoaming means remains at a suspended position over the compartment by being mounted on the siphon lid. Thus, the capability of the defoaming means to prevent air bubbles from entering into the siphon pipe is improved and the process of siphoning the liquid mixture in the compartment is made more effective.

[0014] By means of the present invention, air bubbles are prevented from entering between the siphon pipe and the siphon lid by dampening the foams in the compartment by means of the defoaming means during the transfer of the liquid cleaning agent to the drum. Thus, the whole liquid detergent agent is transferred into the drum and hence, the cleaning efficiency of the washing machine is increased.

[0015] The washing machine 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 washing machine.

[0017] Figure 2 – is the perspective view of a dispenser and a defoaming means related to an embodiment of the present invention.

[0018] Figure 3 – is the cross-sectional view of the dispenser and the defoaming means related to an embodiment of the present invention.

[0019] Figure 4 – is the perspective view of the compartment and the defoaming means related to another embodiment of the present invention.

[0020] Figure 5 – is the partial perspective view of the compartment and the defoaming means related to an embodiment of the present invention.

[0021] Figure 6 – is the cross-sectional view of the compartment and the defoaming means related to an embodiment of the present invention.

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

1. Washing machine
2. Drum
3. Dispenser
4. Compartment
5. Siphon
6. Siphon pipe
7. Siphon lid
8. Defoaming means

[0023] The washing machine (1) comprises

- a drum (2) wherein the laundry to be washed is loaded,
- a dispenser (3) having at least one compartment (4) wherein the liquid cleaning agent is loaded,
- a siphon (5) extending upwards from the base of the compartment (4) and having a hollow siphon pipe (6) and a siphon lid (7) formed as a tube with its top closed, mounted on the siphon pipe (6) such that a gap remains therebetween and which provides the water to be sucked into the siphon pipe (6) and discharged by creating siphon effect when the amount of the liquid in the compartment (4) reaches a certain level.

[0024] When the liquid cleaning agent is desired to be transferred into the drum (2) during the washing process, water is taken into the compartment (4) and thus the amount of the liquid in the compartment (4) is provided to reach a certain level. As a result of the siphon effect occurring between the siphon pipe (6) and the siphon lid (7) at this level, the liquid cleaning agent in the compartment (4) is sucked into the siphon pipe (6) and is delivered to the drum (2) from there.

[0025] The washing machine (1) of the present invention furthermore comprises a perforated defoaming means (8) which is held at a suspended position over the compartment (4) and which provides the foams that occur in the

compartment (4) to be dampened by impacting. The defoaming means (8) is positioned at a certain height from the base of the compartment (4). During the transfer of the water taken from the mains into the drum (2) by being mixed with the liquid cleaning agent in the compartment (4), the foams that occur in the compartment (4) due to the structure of the liquid cleaning agent remain on the defoaming means (8). The air bubbles, which move downwards together with the liquid level that decreases as the liquid mixture in the compartment (4) is sucked into the siphon pipe (6), burst by impacting the defoaming means (8) and vanish by being dampened. Thus, the air bubbles are prevented from entering between the siphon pipe (6) and the siphon lid (7). Consequently, the problem of vacuum occurring that is caused by the air bubbles that can enter between the siphon pipe (6) and the siphon lid (7) is prevented. Since the occurrence of vacuum between the siphon pipe (6) and the siphon lid (7) prevents the sucking of the liquid mixture in the compartment (4), the whole liquid mixture in the compartment (4) is provided to be effectively sucked by means of the defoaming means (8). Thus, the siphon effect is prevented from being adversely affected while the liquid cleaning agent loaded into the compartment (4) is transferred to the drum (2). The washing performance of the washing machine (1) is improved by transferring the whole liquid cleaning agent in the compartment (4) to the drum (2).

[0026] In an embodiment of the present invention, the compartment (4) is of detachable configuration. The user loads the liquid cleaning agent outside the dispenser (3), independently of the dispenser (3) and places the compartment (4) into the dispenser (3). Thus, the process of loading of the liquid cleaning agent by the user is facilitated.

[0027] In another embodiment of the present invention, the base of the compartment (4) is in inclined form. Thus, while water is delivered to the drum (2) from the inside of the compartment (4), some of the air bubbles, which form in the compartment (4) as the level of the liquid cleaning agent-water mixture decreases, is provided to be dampened by impacting the base of the compartment (4).

[0028] In another embodiment of the present invention, the defoaming means (8) is integrated with the compartment (4). Thus, the production of the defoaming means (8) is facilitated.

[0029] In another embodiment of the present invention, the defoaming means (8) is integrated with the siphon lid (7). When the siphon lid (7) is mounted onto the siphon pipe (6), the defoaming means (8) is held at a suspended position in the compartment (4). By means of the said embodiment, the defoaming means (8) is enabled to be mounted and dismounted together with the siphon lid (7).

[0030] In another embodiment of the present invention, the defoaming means (8) is of detachable configuration. Thus, the defoaming means (8) is provided to be dismounted and cleaned by the user and again mounted in place.

[0031] In a version of this embodiment, the defoaming means (8) is mounted to the side wall of the compartment (4). Thus, the process of mounting and dismounting the defoaming means (8) is facilitated.

[0032] In a version of this embodiment, the defoaming means (8) is mounted on the siphon lid (7). The defoaming means (8) is hung on the siphon lid (7) by passing the opening, which is located on the defoaming means (8) and the width of which is almost equal to the width of the siphon lid (7), over the siphon lid (7). Stoppers, which provide the defoaming means (8) to remain in the fixed position and prevent the defoaming means (8) from sliding downwards, are disposed on the siphon lid (7). By means of providing the defoaming means (8) to surround the siphon lid (7), the passage of air bubble from around the siphon lid (7) is prevented.

[0033] In the washing machine (1) of the present invention, the whole liquid cleaning agent is provided to be transferred to the drum (2) by preventing the occurrence of problems in the siphoning process during the transfer of the liquid cleaning agent into the drum (2). Thus, the washing performance of the laundry is improved.

[0034] It is to be understood that the present invention is not limited to the embodiments disclosed above and a person skilled in the art can easily introduce different embodiments. These should be considered within the scope of the protection postulated by the claims of the present invention.

Claims

1. A washing machine (1) comprising
   - a drum (2) wherein the laundry to be washed is loaded,
   - a dispenser (3) having at least one compartment (4) wherein the liquid cleaning agent is loaded,
   - a siphon (5) extending upwards from the base of the compartment (4) and having a hollow siphon pipe (6) and a siphon lid (7) formed as a tube with its top closed, mounted on the siphon pipe (6) such that a gap remains therebetween and which provides the water to be sucked into the siphon pipe (6) and discharged by creating siphon effect when the amount of the liquid in the compartment (4) reaches a certain level,

   characterized by

   - a perforated defoaming means (8) which is held at a suspended position over the compartment (4) and which provides the foams that occur in the compartment (4) to be dampened by impacting.
2. A washing machine (1) as in Claim 1, **characterized by** the compartment (4) which is of detachable configuration.
3. A washing machine (1) as in Claim 1 or 2, **characterized by** the compartment (4) the base of which is in inclined form.
4. A washing machine (1) as in any one of the Claims 1 to 3, **characterized by** the defoaming means (8) which is integrated with the compartment (4).
5. A washing machine (1) as in any one of the Claims 1 to 3, **characterized by** the defoaming means (8) which is integrated with the siphon lid (7).
6. A washing machine (1) as in any one of the Claims 1 to 3, **characterized by** the defoaming means (8) which is of detachable configuration.
7. A washing machine (1) as in Claim 6, **characterized by** the defoaming means (8) which is mounted to the side wall of the compartment (4).
8. A washing machine (1) as in Claim 6, **characterized by** the defoaming means (8) which is mounted on the siphon lid (7).

Figure 1

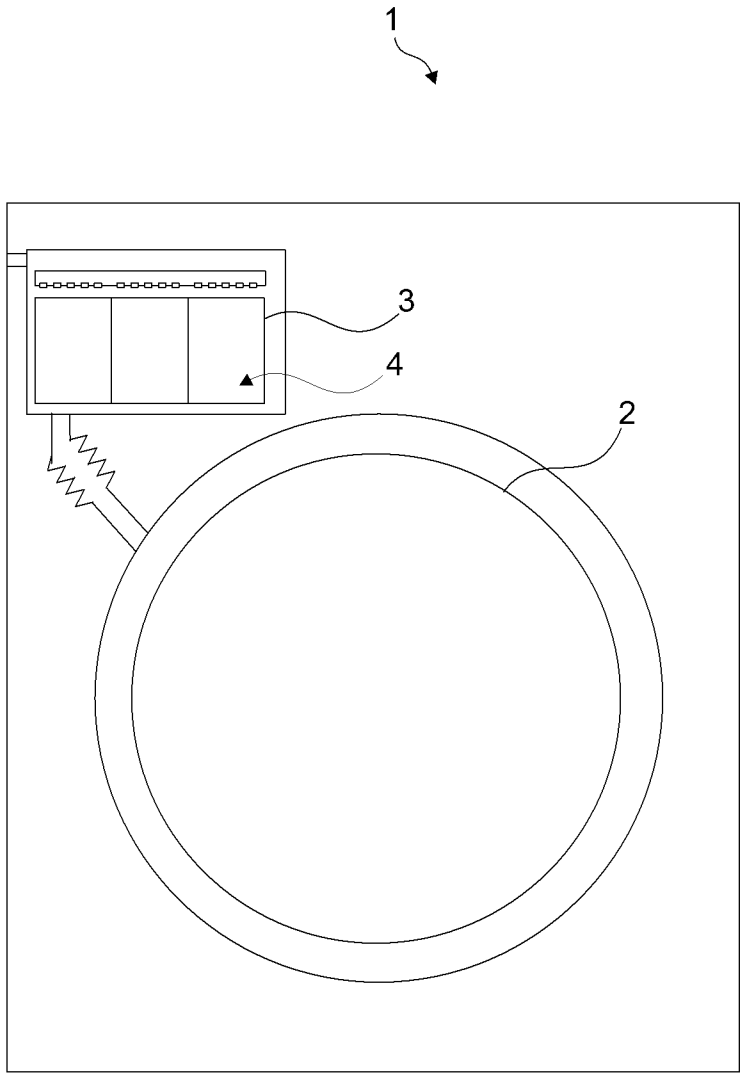


Figure 2

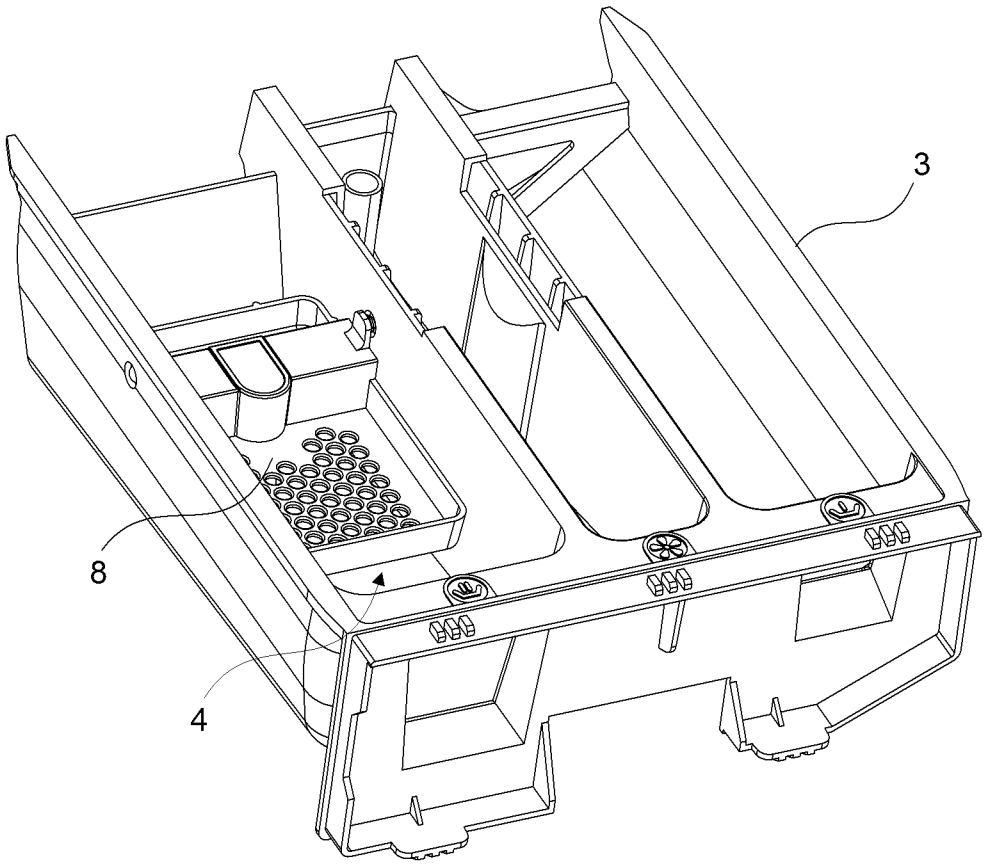


Figure 3

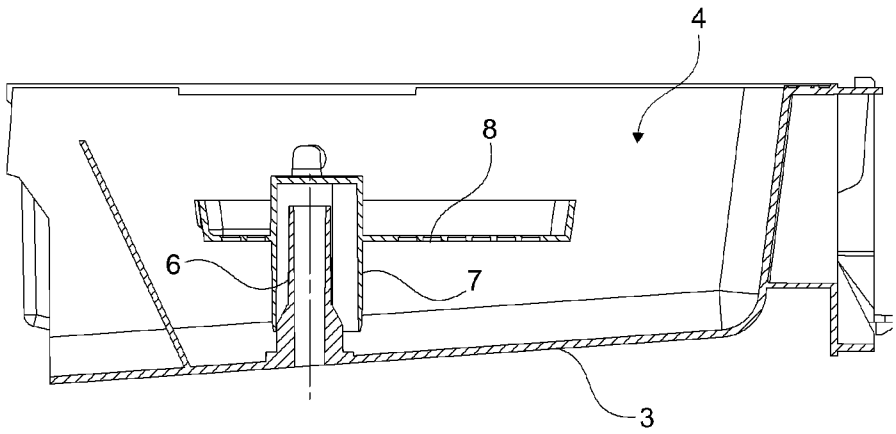


Figure 4

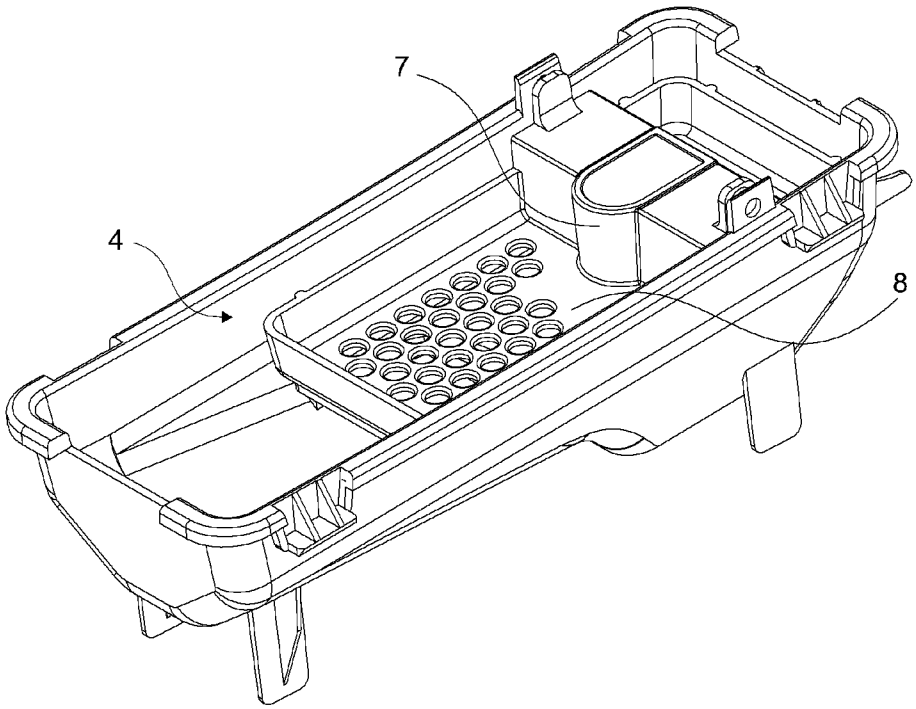


Figure 5

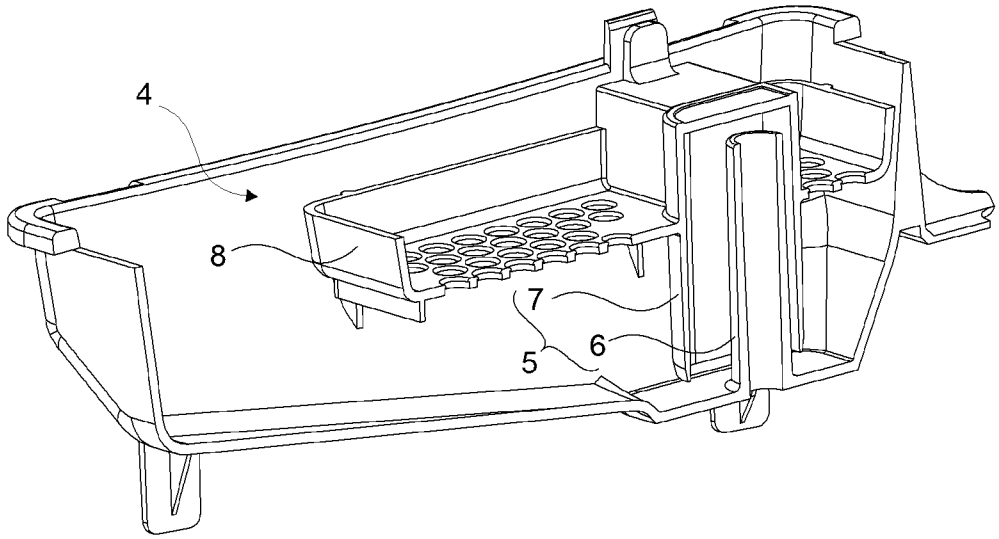


Figure 6