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(54) **A WASHING MACHINE PROVIDING EFFECTIVE WASHING**

(57) The present invention relates to a washing machine (1) which provides effective washing by ensuring the direct and quick penetration of washing agents such as detergent, softener, etc. into the laundry. The washing machine (1) comprises a body (2); a tub (4) which is disposed in the body (2) and which has a first gap (3); a detergent box (5) which is disposed on the body (2) and which enables at least one type of washing agent to be placed therein; a drum (7) which is arranged so as to

rotate in the tub (4), which has a plurality of holes for allowing the passage of the mixture of water and washing agent therethrough and whereon a first surface (S 1) without any holes thereon, extending continuously, is defined; and a hose (8) which is connected to the detergent box (5) at one end and to the first gap (3) at the other end so as to deliver the mixture of water and washing agent from the detergent box (5) to the tub (4).

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Description

[0001] The present invention relates to a washing machine which provides effective washing by ensuring the direct and quick penetration of washing agents such as detergent, softener, etc. into the laundry.

[0002] In order to allow the effective performance of the laundry cleaning process, the washing machines require the mechanical energy obtained by rotating the drum wherein the laundry is placed, the thermal energy which enables the dirt to be more easily removed from the laundry by heating the water taken and increasing the temperature thereof and the chemical energy which enables the dirt to be removed from the laundry by chemically dissolving the dirt. The washing or energy efficiency is provided by selecting appropriate programs for different dirt intensity, laundry loads and laundry types and using appropriate agents for cleaning. For most types of dirt and stains, mechanical movement and water of appropriate amount and temperature are not enough to obtain effective washing results. In order to provide more effective and clean washing, chemical agents should be used especially to remove heavy stains and also to obtain a feeling of freshness, softness and pleasant smell in the laundry at the end of the washing process.

[0003] Although there are many different types, the most commonly used chemical agents in the laundry process are powder or other types of detergents used for cleaning purposes and softeners which soften the laundry and give it a nice smell after rinsing. Moreover, descaling agents and other washing agents such as bleach are also used.

[0004] Regardless of their type, the chemical agents must be used in the correct dosages and in accordance with their purpose and type of laundry in order to provide the desired results. Furthermore, another important factor is to ensure that the washing agents reach the washing environment as soon as possible and dissolve.

[0005] The washing machines comprise detergent dispensers wherein the detergent or softener is loaded by the user. After the washing program is started and while the washing machine is taking water, the washing agents loaded into the detergent dispenser are mixed with the water to be dissolved and delivered to the washing environment. If there is automatic dosing function in the washing machine, the dosed chemical agents are delivered to the washing environment with the water taken. The detergents are first delivered to the detergent box under the detergent dispenser with the water, and then, from the detergent box to the drum through a preferably elastic component known as the tub inlet hose. After reaching the tub, the detergent-water mixture passes through the holes arranged in the drum and reaches the laundry loaded into the drum.

[0006] One of the biggest problems observed in the state of the art is that the water-detergent mixture filled into the tub hits the areas without holes on the drum and flows over the outer surface of the drum which does not

face the laundry and does not directly meet the laundry in the drum. The detergent or other agents flowing with the water from the said outer surface of the drum, instead of directly penetrating the laundry loaded into the drum, start to accumulate at the lower area of the tub between the base of the drum and the tub. If the washing machine does not comprise detergent saving systems such as ball system, water circulation system, etc. in the relevant area of the tub, the detergent accumulated in the relevant area cannot dissolve effectively during a large part of the washing program, causing the washing efficiency to decrease. Moreover, even if the washing machine comprises the said detergent-saving systems, it takes a certain time for the detergent accumulated in the relevant part of the tub to dissolve quickly and reach the laundry in the drum, which again causes a decrease in the washing efficiency. There is not enough time or temperature for the detergent accumulated in the relevant part of the tub to dissolve, especially in short washing programs and cold washing programs where very low temperatures are used, which leads to a decrease in the washing efficiency. Since the rinsing times are quite short compared to the washing times, the same situation regarding the detergents applies to the softeners. Since the softener accumulates in the relevant part of the tub before reaching the laundry in the drum, the said softeners cannot penetrate the laundry sufficiently, cannot soften the laundry sufficiently or cannot generate a good odor, causing user dissatisfaction.

[0007] Therefore, in the state of the art, there are disadvantages such as the failure to use the agents used in the washing process such as detergents, softeners, etc. to reach the desired washing efficiency, user dissatisfaction due to low performance and environmental damage due to chemical agents which reach the environment without being used effectively. Moreover, in such cases, the users are not satisfied with the washing performance and tend to use a higher amount of detergent and softener, which may cause adverse effects both economically and environmentally.

[0008] In the state of the art European patent document no. EP3795734, a washing machine which enables the water and washing agents coming from the detergent box to be guided directly onto the laundry is disclosed. In the invention disclosed in the said document, the detergent box tub inlet hose component is arranged on a bellows positioned between the tub and the drum instead of the drum. Thus, the washing agents are taken directly into the drum from the bellows area, that is, from the front area of the laundry. However, due to the location of the bellows in the said washing machine, the delivery of the water and washing agents into the drum from the front region cannot provide the desired increase in the laundry washing efficiency since the said washing agents cannot penetrate all the laundry in the drum at the desired level.

[0009] In the state of the art United States patent document no. US2005268669, a washing machine is disclosed, which enables the detergent-water mixture

to be transferred to the laundry from the drum baffle which can be stopped at a specified position in the upper region of the drum. In the invention disclosed in the said patent document, the position of the drum is detected by means of position detection means and the water intake process is started when the drum is aligned with the tub water inlet hole. In embodiments where washing the agents such as detergent, softener, etc. are directly taken into the drum from the drum baffle, the inside of the baffle is almost completely hollowed out to create an empty volume unlike classical drum baffles. Here, the reason is to eliminate the possibility that the rib-like structures normally found inside the baffle may adversely affect the flow coming from the detergent box. Moreover, generally there are small cut-outs on the drum which can receive the claw structures used to fix the drum baffles, and there are no large openings other than the said cut-outs. In other words, the drum sheet metal generally continues under the drum baffle. However, creating an empty volume in the baffle for the flow and opening a large hole by emptying the area which is normally sheet metal for the flow to pass also causes a very important disadvantage. In the said structure, while the drum rotates, the water in the tub is constantly taken into the volume in the drum baffle. While the water entering the drum baffle in the normal case is a small amount, in this case a significant amount of water enters the drum. This causes an extra load on the washing machine motor during the rotation of the drum and hence, the motor is required to spend more power during the operation.

[0010] Therefore, in the state of the art, there is a need for a washing machine which enables the washing agents such as detergent, softener, etc. to directly penetrate the laundry loaded into the drum in the shortest time possible.

[0011] The aim of the present invention is the realization of a washing machine which enables the washing agents such as detergent, softener, etc. to directly penetrate the laundry loaded into the drum in the shortest time possible.

[0012] 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 second gap which is arranged on a first surface without any holes on a drum having a plurality of holes to enable the water and the washing agent filled into the drum to reach the laundry, and a water inlet apparatus which is placed in the second gap so as to enable at least a large portion of the mixture of water and washing agent, which is delivered by a hose starting from a detergent box and extending to a first gap arranged on the tub during the washing process, to be directly and intensively delivered into the drum when aligned with the first hole. During the washing process, the mixture of water and washing agent such as detergent, softener, etc. coming from the detergent box by means of the hose passes through the first gap on the tub to be taken directly into the drum as aligned with the first gap, in other words, through the water inlet

apparatus positioned in front of the first gap with respect to the flow direction of the mixture of water and washing agent. Thus, the mixture of water and washing agent penetrates the laundry in the drum quickly and intensively, improving the washing efficiency.

[0013] In an embodiment of the present invention, the water inlet apparatus comprises a base; a plurality of openings which are arranged on the base and which enable the mixture of water and washing agent to pass therethrough; and a plurality of walls which extend outside the base so as to surround the base to form a volume together with the base. When the water inlet apparatus is aligned with the first gap during the washing process, the mixture of water and washing agent poured from the first gap is collected in the volume and directly delivered into the drum through the openings. Thus, the mixture of water and washing agent penetrates the laundry in the drum quickly and intensively, improving the washing efficiency.

[0014] In an embodiment of the present invention, the water inlet apparatus comprises surfaces which delimit the opening, and guide structures which are arranged on the said surfaces so as to direct the mixture of water and washing agent. In an embodiment of the present invention, the said guide structures are configured to accelerate the flow of the mixture of water and washing agent in a manner similar to nozzle-like structures. By means of the said guide structures, the mixture of water and washing agent is guided directly towards the drum, thus improving the flow.

[0015] In an embodiment of the present invention, the wall rises from the base such that the area defined between the ends thereof fixed to the base is smaller than the area defined between the ends thereof far from the base. By means of the wall extending out from the base in this manner, the water inlet apparatus expands from the drum towards the tub and thus, a larger amount of the mixture of water and washing agent coming from the first gap into the volume defined between the base and the walls is enabled to be taken and delivered directly into the drum.

[0016] In an embodiment of the present invention, the wall is configured to have a height which varies regionally. Thus, the water inlet apparatus takes a shape similar to a funnel and enables a large portion of the mixture of water and washing agent coming from the first gap to be taken into the volume.

[0017] In an embodiment of the present invention, the wall comprises a plurality of openings which are arranged on the regions thereof which enable the mixture of water and washing agent coming from the first gap to be delivered into the drum from the second gap. Thus, a higher amount of the mixture of water and washing agent is directed into the drum per unit time through the openings on the base and the relevant regions of the wall, improving the washing efficiency.

[0018] In an embodiment of the present invention, the openings have an almost hexagonal shape. The said

hexagonal shape of the openings enables the mixture of water and washing agent to flow smoothly and strongly.

[0019] In an embodiment of the present invention, the openings are arranged so as to define a honeycomb-like pattern on the base and/or walls. Thus, the highest number of openings possible is arranged on the base and/or wall, which contributes positively to improving the washing efficiency by means of the high amount of mixture of water and washing agent passing into the drum through the high number of openings.

[0020] In an embodiment of the present invention, the wall comprises a first region which extends with a slope at a certain first angle from the base and at least one second region which extends with a slope at a second angle different from the first angle, starting from the end of the first region which is not fixed to the base. The wall extending with such a changing slope positively affects the flow of the mixture of water and washing agent collected in the volume and enables the water inlet apparatus to be placed on the drum more robustly and safely.

[0021] In an embodiment of the present invention, the water inlet apparatus is manufactured from plastic. By means of the plastic nature thereof, the water inlet apparatus can be manufactured in different colors, thus increasing the visual quality in the drum and the user awareness.

[0022] In an embodiment of the present invention, the water inlet apparatus is grouped with the drum by snap fitting. By means of this embodiment, the water inlet apparatus is enabled to be easily mounted to the drum, thus providing advantages in time and labor.

[0023] In an embodiment of the present invention, the water inlet apparatus is grouped with the drum by means of fixing members such as screws, etc. By means of the said embodiment, the water inlet apparatus and the drum assembly is enabled to be quite robust.

[0024] In an embodiment of the present invention, the water inlet apparatus is manufactured from metal. By manufacturing both the drum and the water inlet apparatus from metal, continuity is provided between the drum and the water inlet apparatus.

[0025] In an embodiment of the present invention, the washing machine comprises at least one location identifier which is disposed on the drum, at least one sensor which is positioned on any fixed component so as to see the location identifier arranged on the drum and which is configured to detect the location of the location identifier, and at least one control unit which is configured to control the movement of the drum according to the location detected by the sensor. In this embodiment, the control unit controls the movement of the drum according to the position of the location identifier received from the sensor during the washing process.

[0026] In an embodiment of the present invention, the control unit is configured to control the movement of the drum such that the water inlet apparatus is aligned with the first gap. In this embodiment, the mixture of water and

washing agent, such as detergent, softener, etc., which provides a more effective washing by contacting the laundry, enters the drum through the water inlet apparatus so as to quickly penetrate the laundry. This also enables the washing efficiency to be significantly improved.

[0027] In an embodiment of the present invention, the control unit is configured to control the movement of the drum such that the water inlet apparatus is not aligned with the first gap. In this embodiment, the mixture of water and washing agent such as bleach, etc., which may damage the laundry in case of direct contact with the laundry, is not directly delivered into the drum through the water inlet apparatus, but is first poured into the tub through the first gap and then enters the drum through the holes. This also prevents the laundry from being damaged during the relevant washing process.

[0028] By means of the present invention, a washing machine is realized, which enables the mixture of water and washing agent to be delivered directly and intensively into the drum during the washing process through a water inlet apparatus disposed in a second gap arranged on a first surface without any holes on the drum such that the mixture of water and washing agent penetrates the laundry quickly and the washing efficiency is improved.

[0029] The washing machine realized in order to attain the aim of the present invention is illustrated in the attached figures, where:

Figure 1 - is the schematic side view of an embodiment of the washing machine of the present invention.

Figure 2 - is the perspective view of an embodiment of the drum provided in the washing machine of the present invention.

Figure 3 - is the perspective view of an embodiment of a drum provided in the washing machine of the present invention.

Figure 4 - is the front view of an embodiment of the drum provided in the washing machine of the present invention.

Figure 5 - is the perspective view of an embodiment of the water inlet apparatus provided in the washing machine of the present invention.

Figure 6 - is the top view of an embodiment of the water inlet apparatus provided in the washing machine of the present invention.

Figure 7 - is the cross-sectional view along the line A-A in Figure 6 of the water inlet apparatus provided in the washing machine of the present invention.

[0030] The elements illustrated in the figures are num-

bered as follows:

- 1- Washing machine
- 2- Body
- 3- First gap
- 4- Tub
- 5- Detergent box
- 6- Hole
- 7- Drum
- 8- Hose
- 9- Second gap
- 10- Water inlet apparatus
- 11- Opening
- 12- Base
- 13- Wall
- S 1. First surface
- V. Volume
- P1. Wall first region
- P2. Wall second region

[0031] The washing machine (1) comprises a body (2); a tub (4) which is disposed in the body (2) and which has a first gap (3); a detergent box (5) which is disposed on the body (2) and which enables at least one type of washing agent to be placed therein; a drum (7) which is arranged so as to rotate in the tub (4), which has a plurality of holes (6) for allowing the passage of the mixture of water and washing agent therethrough and whereon a first surface (S1) without any holes is defined; and a hose (8) which is connected to the detergent box (5) at one end and to the first gap (3) at the other end so as to deliver the mixture of water and washing agent from the detergent box (5) to the tub (4). On the drum, there are a plurality of holes (6) and/or patterns which enable the mixture of water and washing agent filled in the tub (4) to enter the drum (7). The drum (7) also has at least one first surface (S 1) without any holes thereon. The first surface (S 1) preferably extends continuously. The first surface (S 1) is preferably defined on a part of the drum (7) known as the expand region. While the washing process is performed in the washing machine (1), the water taken into the detergent box (5) sweeps the washing agent stored

therein and the mixture of water and washing agent flows through the hose (8) to reach the first gap (3) on the tub (4). The said mixture of water and washing agent pours into the tub (4) from the said first gap (3) and passes through the holes (6) on the drum (7) during the washing process to reach the laundry loaded into the drum (7).

[0032] The washing machine (1) of the present invention comprises a second gap (9) which is arranged on the first surface (S 1) of the drum (7), and a water inlet apparatus (10) which is disposed in the second gap (9) so as to guide a large portion or all of the mixture of water and washing agent coming from the detergent box (5) through the hose (8) directly into the drum (7) when aligned with the first gap (3). During the washing process, the mixture of water and washing agent coming from the detergent box (5) through the hose (8) passes through the first gap (3) on the tub (4) and directly enters the drum (7) through the water inlet apparatus (10) positioned in alignment with the first gap (3). Thus, the mixture of water and washing agent is taken into the drum (7) quickly and intensively, improving the washing efficiency. Since the second gap (9) wherein the water inlet apparatus (10) is disposed is provided on the first surface (S1) of the drum (7) without any holes (6) thereon, the said second gap (9) is prevented from distort the drum (7) pattern and the hole (6) pattern, thus eliminating possible problems which may arise due to this distortion, including decrease in washing performance.

[0033] In an embodiment of the present invention, the water inlet apparatus (10) comprises a base (12) having a plurality of openings (11) allowing only the passage of the mixture of water and washing agent, and at least one wall (13) which surrounds the base (12) and extends outward from the base (12) so as to form a volume (V) together with the. Since the size of the openings (11) arranged on the base (12) allows only the passage of the mixture of water and washing agent, small-sized laundry such as baby gloves, socks, etc. is prevented from moving from the drum (7) into the tub (4). Moreover, the structure of the said openings (11) prevents the laundry in the drum (7) from being damaged. The said openings (11) may have different geometric shapes or patterns, but are preferably dimensioned and shaped so as to enable the mixture of water and washing agent to be easily taken into the drum (7) and to prevent the laundry in the drum (7) from being damaged. The said openings (11) do not have any sharp edges or protrusions extending towards the laundry in the drum (7).

[0034] In an embodiment of the present invention, the water inlet apparatus (10) comprises surfaces which are arranged around the opening so as to limit the opening (11) and which have guide structures thereon enabling the mixture of water and washing agent to be directed to the drum (7). By means of the guide structures on the said surfaces, the mixture of water and washing agent is guided directly towards the drum (7), thus improving the flow.

[0035] In an embodiment of the present invention, the

wall (13) extends outward from the base (12) such that the area defined between the ends thereof not fixed to the base (12) is larger than the area of the base (12). In this embodiment, the water inlet apparatus (10) extends in the second gap (9) so as to expand from the drum (7) to the tub (4) such that the mixture of water and washing agent coming from the first gap (3) is taken into the volume (V) in a larger amount to be delivered directly into the drum (7) through the openings (11), thus improving the washing efficiency.

[0036] In an embodiment of the present invention, the water inlet apparatus (10) comprises the walls (13) with different heights. Thus, the water inlet apparatus (10) takes a shape similar to a funnel and enables a large portion of the mixture of water and washing agent coming from the first gap to be taken into the volume (V). Thus, the washing efficiency is improved.

[0037] In an embodiment of the present invention, the wall (13) comprises a plurality of openings (11) in the regions aligned with the second gap (9). In this embodiment, the amount of mixture of water and washing agent taken into the drum (7) per unit time is increased by means of the presence of openings (11) in the regions where the walls (13) are also aligned with the second gap (9), in other words, in the regions which enable the mixture of water and washing agent coming from the first gap (3) to be delivered to the second gap (9). Thus, the washing efficiency is improved.

[0038] In an embodiment of the present invention, the openings (11) are hexagonal. The said hexagonal shape of the openings (11) enables the mixture of water and washing agent entering the volume (V) from the first gap (3) to flow smoothly and strongly. This also contributes positively to increasing the washing efficiency.

[0039] In an embodiment of the present invention, the openings (11) are arranged so as to define a honeycomb-like pattern on the base (12) and/or the walls (13). Thus, the openings (11) are arranged in the most optimum layout on the base (11) and/or the wall (13) such that the highest possible number of openings (11) is achieved. The high number of openings (11) also contributes positively to increasing the washing efficiency.

[0040] In an embodiment of the present invention, the wall (13) comprises a first region (P1) which extends at an angle from the base (12) with a certain first angle value with the extension axis of the base (12) and at least a second region (P2) which extends at an angle from the base (12) with a second angle value different from the first angle value with the extension axis of the base (12) starting from the end of the first region (P1) which is not connected to the base (12). The presence of different regions (P1, P2) of the walls (13) with different slopes with respect to the base (12) positively affects the flow of the mixture of water and washing agent entering the volume (V) from the first gap (3) and enables the water inlet apparatus (10) to be placed much more firmly and safely on the first surface (S 1) defined on the drum (7).

[0041] In an embodiment of the present invention, the

water inlet apparatus (10) is manufactured from plastic. The said water inlet apparatus (10) is manufactured by using the plastic injection method in an embodiment. By means of the plastic nature thereof, the water inlet apparatus (10) can be manufactured in different colors, thus increasing the visual quality in the drum (7) and the user awareness.

[0042] In an embodiment of the present invention, the water inlet apparatus (10) is mounted to the drum (7) by snap fitting. In an example of this embodiment, there are protrusions, for example in the form of claws, on the base (12) and/or the walls (13) and there are housings which are arranged around the second gap (9) on the drum (7) which receive the said protrusions. By means of this embodiment, the water inlet apparatus (10) is enabled to be easily grouped with the drum (7), thus providing advantages in time and labor.

[0043] In an embodiment of the present invention, the water inlet apparatus (10) is mounted to the drum (7) by means of fixing members such as screws, etc. By means of the said embodiment, the water inlet apparatus (10) and the drum (7) group is enabled to be quite robust. Moreover, in case of any damage to the water inlet apparatus (10), the fixing members can be easily and quickly removed to repair the damage to the water inlet apparatus (10) or to replace the same with another undamaged water inlet apparatus (10).

[0044] In an embodiment of the present invention, the water inlet apparatus (10) is manufactured from metal. In the said embodiment, the water inlet apparatus (10) is preferably mounted to the drum (7) by welding, and since both the water inlet apparatus (10) and the drum (7) are metal and are welded together, continuity is provided between the drum (7) and the water inlet apparatus (10).

[0045] In an embodiment of the present invention, the washing machine (1) comprises at least one location identifier (not shown in the figures) which is disposed on the drum (7), at least one sensor (not shown in the figures) which is positioned on any fixed component so as to see the location identifier arranged on the drum (7) and which is configured to detect the location of the location identifier, and at least one control unit (not shown in the figures) which is configured to control the movement of the drum according to the location detected by the sensor. The said sensor can be arranged in any place which does not move during the operation of the washing machine (1) such as the tub (4), a bellows-like structure arranged between the tub (4) and the drum (7), etc. and which is suitable for detecting the position of the location identifier on the drum (7). The control unit controls the movement of the drum (7) according to the position of the location identifier received from the sensor during the washing process.

[0046] In an embodiment of the present invention, the control unit is configured to control the movement of the drum (7) such that the water inlet apparatus (10) is aligned with the first gap (3). In this embodiment, for example, in the washing processes performed with

washing agents such as detergent, softener, etc. which do not cause any problems after contacting the laundry, the control unit moves the drum (7) to bring the same to the angular position predetermined and stored in the control unit, wherein the water inlet apparatus (10) is aligned with the first gap (3). Thus, the mixture of water and washing agent coming from the detergent box (5) is enabled to directly enter the drum (7) through the water inlet apparatus (10) and to quickly penetrate the laundry. This also enables the washing efficiency to be significantly improved.

[0047] In an embodiment of the present invention, the control unit is configured to control the movement of the drum (7) such that the water inlet apparatus (10) is not aligned with the first gap (3). In this embodiment, for example, in the washing processes performed with washing agents such as bleach, etc. which may damage the laundry after contacting the laundry, the control unit moves the drum (7) to bring the same to the angular position predetermined and stored in the control unit, wherein the water inlet apparatus (10) is not aligned with the first gap (3). Thus, the mixture of water and washing agents such as bleach, etc., which may damage the laundry in case of direct contact with the laundry, is enabled to be first filled into the tub (4) through the first gap (3) and from there to be taken into the drum (7) through the holes (6). This also prevents the laundry from being damaged during the relevant washing process.

[0048] By means of the present invention, a washing machine (1) is realized, which enables the mixture of water and washing agent to be delivered directly and intensively into the drum (7) during the washing process through a water inlet apparatus (10) disposed in a second gap (9) arranged on a first surface (S 1) without any holes (6) on the drum (7) such that the mixture of water and washing agent penetrates the laundry quickly and the washing efficiency is improved.

Claims

1. A washing machine (1) **comprising** a body (2); a tub (4) which is disposed in the body (2) and which has a first gap (3); a detergent box (5) which is disposed on the body (2) and which enables at least one type of washing agent to be placed therein; a drum (7) which is arranged so as to rotate in the tub (4), which has a plurality of holes (6) for allowing the passage of the mixture of water and washing agent therethrough and whereon a first surface (S 1) without any holes is defined; and a hose (8) which is connected to the detergent box (5) at one end and to the first gap (3) at the other end so as to deliver the mixture of water and washing agent from the detergent box (5) to the tub (4), **characterized by** a second gap (9) which is arranged on the first surface (S 1) of the drum (7), and a water inlet apparatus (10) which is disposed in

the second gap (9) so as to guide a large portion or all of the mixture of water and washing agent coming from the detergent box (5) through the hose (8) directly into the drum (7) when aligned with the first gap (3).

2. A washing machine (1) as in Claim 1, **characterized by** the water inlet apparatus (10) comprising a base (12) having a plurality of openings (11) allowing only the passage of the mixture of water and washing agent, and at least one wall (13) which surrounds the base (12) and extends outward from the base (12) so as to form a volume (V) together with the base (12).
3. A washing machine (1) as in Claim 2, **characterized by** the water inlet apparatus (10) comprising surfaces which are arranged around the opening so as to limit the opening (11) and which have guide structures thereon enabling the mixture of water and washing agent to be directed to the drum (7).
4. A washing machine (1) as in Claim 2 or 3, **characterized by** the wall (13) which extends outward from the base (12) such that the area defined between the ends thereof not fixed to the base (12) is larger than the area of the base (12).
5. A washing machine (1) as in any one of Claims 2 to 4, **characterized by** the walls (13) with different heights.
6. A washing machine (1) as in any one of Claims 2 to 5, **characterized by** the wall (13) comprising a plurality of openings (11) in the regions aligned with the second gap (9).
7. A washing machine (1) as in any one of Claims 2 to 6, **characterized by** the openings (11) which are hexagonal.
8. A washing machine (1) as in any one of Claims 2 to 7, **characterized by** the openings (11) which are arranged so as to define a honeycomb-like pattern on the base (12) and/or the wall (13).
9. A washing machine (1) as in any one of Claims 2 to 8, **characterized by** the wall (13) comprising a first region (P1) which extends at an angle from the base (12) with a certain first angle value with the extension axis of the base (12) and at least a second region (P2) which extends at an angle from the base (12) with a second angle value different from the first angle value with the extension axis of the base (12) starting from the end of the first region (P1) which is not connected to the base (12).
10. A washing machine (1) as in any one of the above claims, **characterized by** the water inlet apparatus

(10) which is manufactured from plastic.

11. A washing machine (1) as in any one of the above claims, **characterized by** the water inlet apparatus (10) which is mounted to the drum (7) by snap fitting. 5
12. A washing machine (1) as in any one of the above claims, **characterized by** the water inlet apparatus (10) which is mounted to the drum (7) by means of fixing members. 10
13. A washing machine (1) as in any one of the above claims, **characterized by** at least one location identifier which is disposed on the drum (7), at least one sensor which is positioned on any fixed component so as to see the location identifier arranged on the drum (7) and which is configured to detect the location of the location identifier, and at least one control unit which is configured to control the movement of the drum (7) according to the location detected by the sensor. 15
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14. A washing machine (1) as in Claim 13, **characterized by** the control unit which is configured to control the movement of the drum (7) such that the water inlet apparatus (10) is aligned with the first gap (3). 25
15. A washing machine (1) as in Claim 13, **characterized by** the control unit which is configured to control the movement of the drum (7) such that the water inlet apparatus (10) is not aligned with the first gap (3). 30

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Figure 1

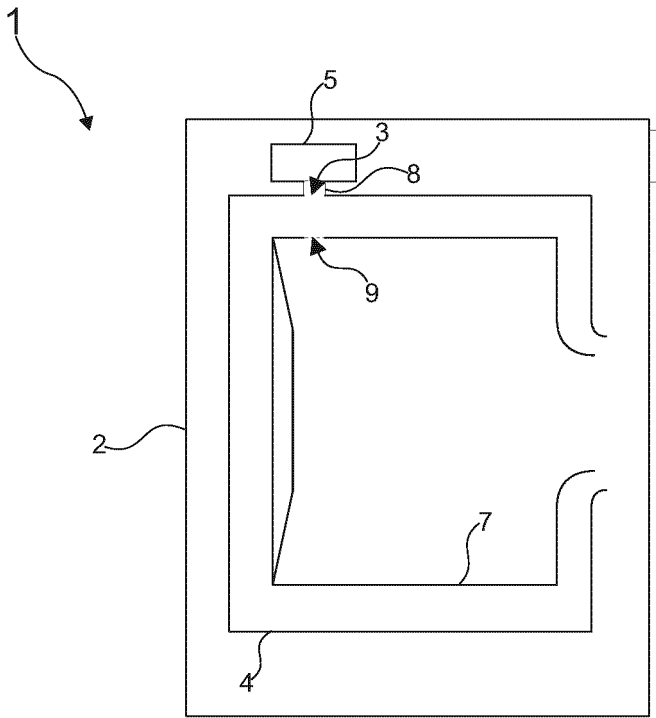


Figure 2

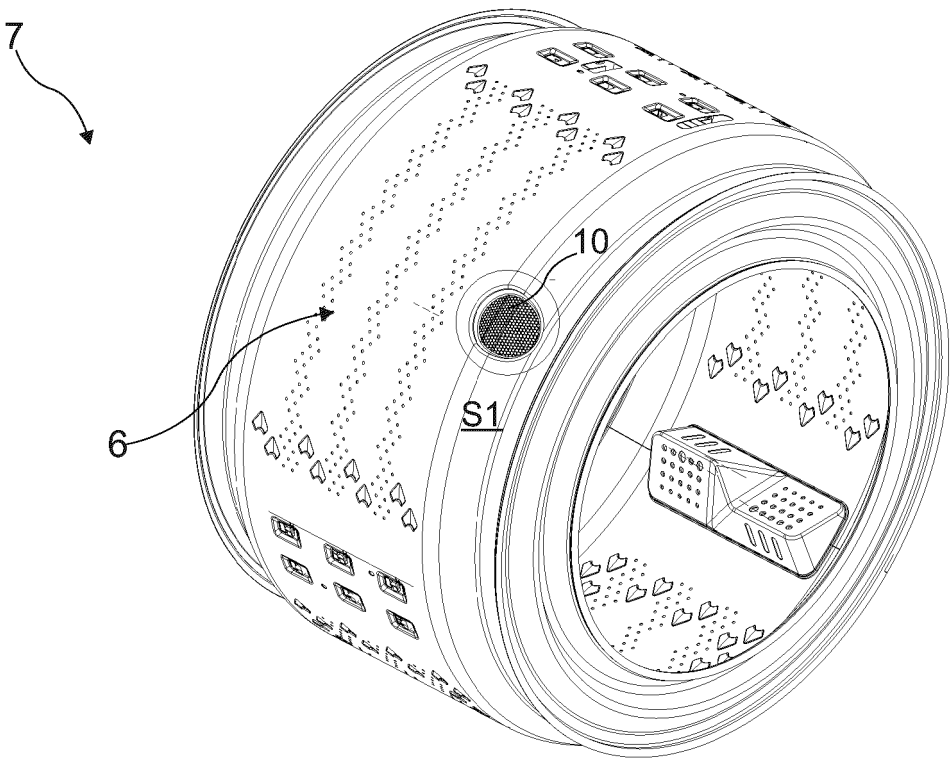


Figure 3

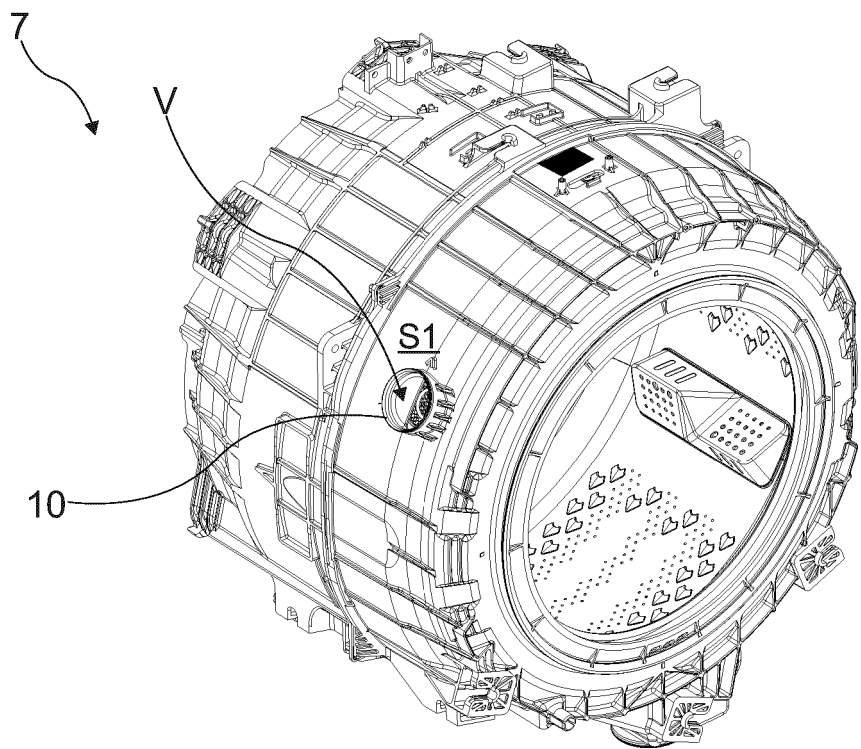


Figure 4

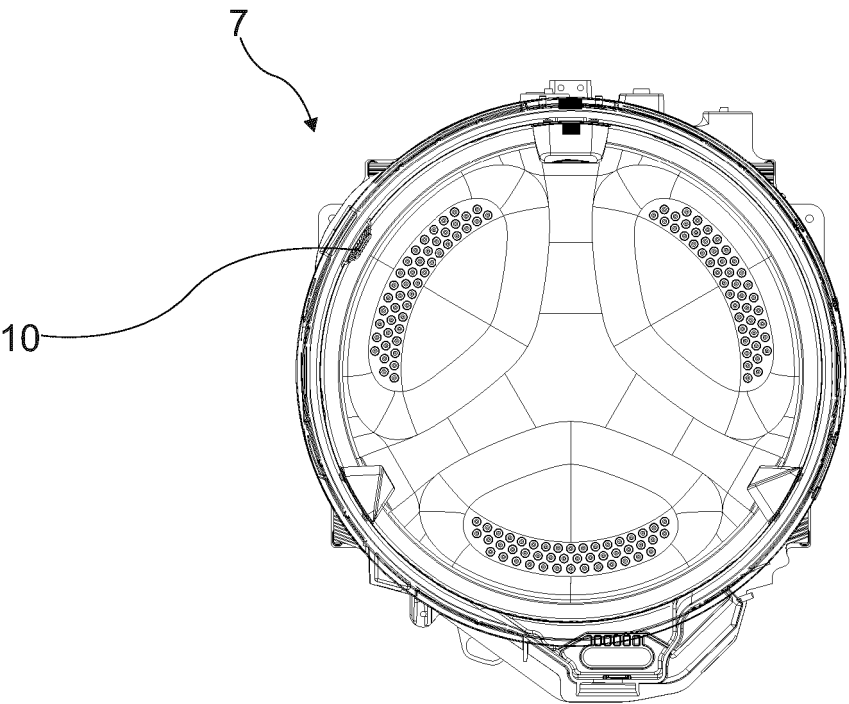


Figure 5

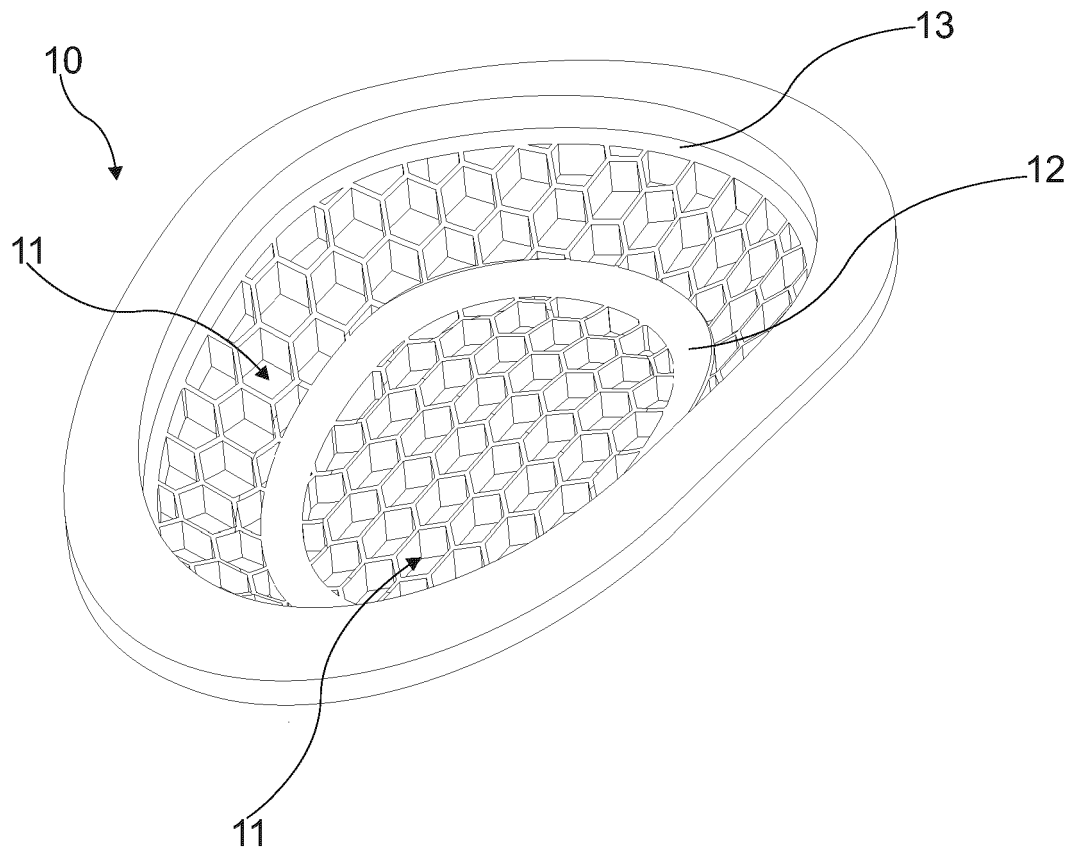


Figure 6

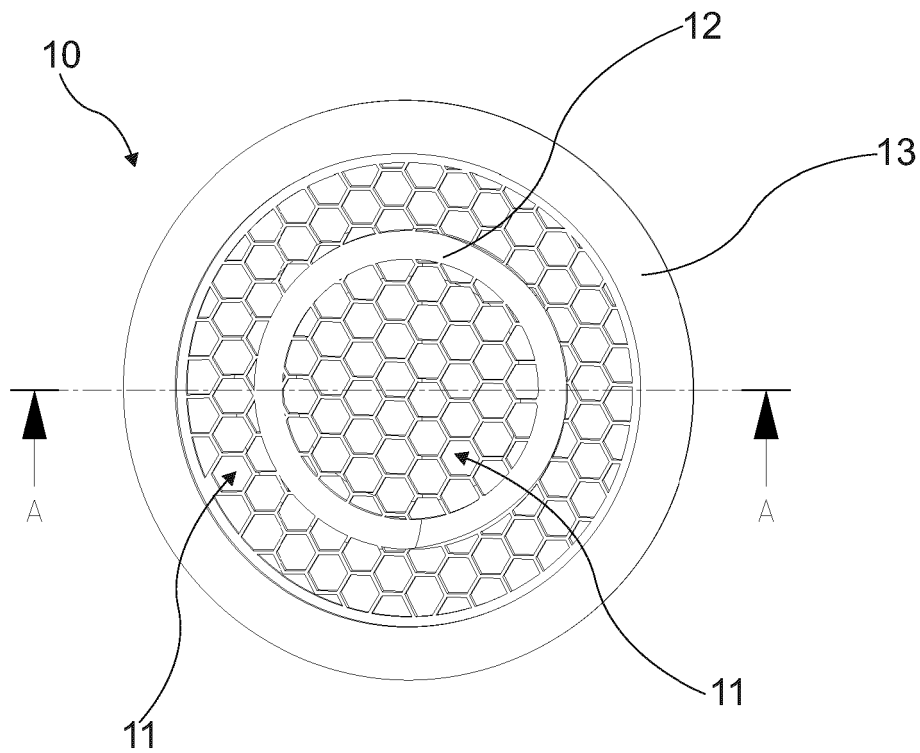
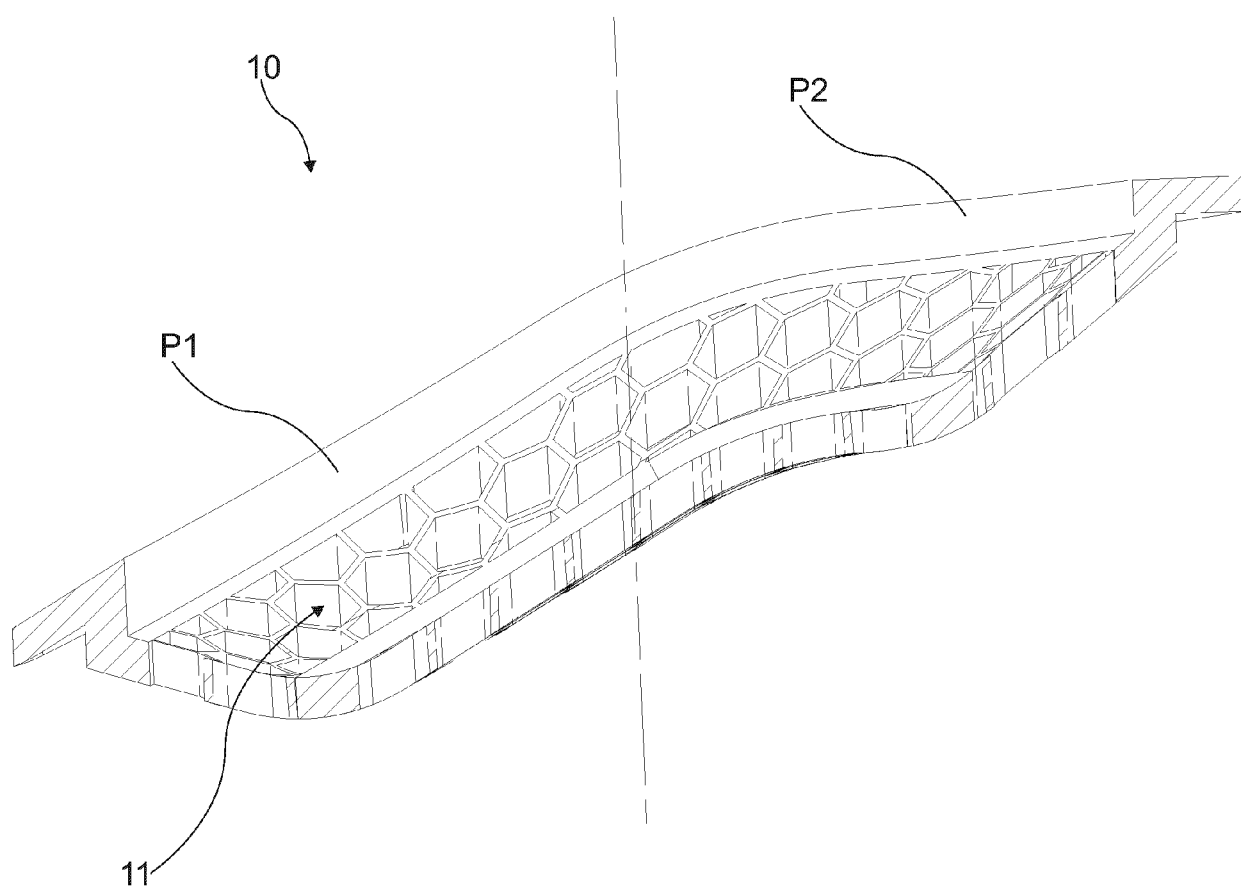


Figure 7





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Application Number

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			D06F
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Place of search		Date of completion of the search	Examiner
Munich		16 April 2025	Sangiorgi, Massimo
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