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(54) A WASHER COMPRISING A CLEANING AGENT FLUSHING UNIT

WASCHMASCHINE MIT EINER REINIGUNGSMITTELSPÜLEINHEIT

APPAREIL DE LAVAGE COMPRENANT UNE UNITÉ DE RINÇAGE À AGENTS DE NETTOYAGE

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(73) Proprietor: **Arçelik Anonim Sirketi**
34950 Istanbul (TR)

(72) Inventors:
- **KURTKAYA, Kagan**
  34950 Istanbul (TR)
- **AYTEN, Serdar**
  34950 Istanbul (TR)
- **CORCHES , Florin Horea**
  34950 Istanbul (TR)
- **TATAR, Hakan**
  34950 Istanbul (TR)
- **TOP, Ahmet Burak**
  34950 Istanbul (TR)

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Description

[0001] The present invention relates to a washer comprising a cleaning agent flushing unit.

[0002] The use of liquid cleaning agent in washers like washing machines and laundry washer/dryers is becoming widespread. Accordingly, in order to provide ease of utilization, automatic dosing units are developed for the liquid cleaning agent to be stored in a receptacle and to be delivered into the wash water controllably as required. In the automatic dosing units, the liquid cleaning agents are transferred into a housing wherein they are mixed into the wash water. In order to transfer the cleaning agents to the housing, pumping systems are used between the receptacle the cleaning agents are stored and the housing, and the connections are realized by means of hoses. Moreover, flushing units are required in order to efficiently flush the cleaning agents transferred into the housing with water. If not mixed into the wash water efficiently, the cleaning agents such as liquid detergent, softener, etc. may form salts and precipitate if mixed with each other. Consequently, the cleaning agents of different types must be flushed with water without mixing with each other and must be mixed into the wash water. In an efficient dosing unit, the cleaning agents of different types transferred into the housing are required to be mixed into the wash water without mixing with each other so as not to leave any residues on the base of the housing.

[0003] In the Patent Application No. EP2331739, a washing machine comprising a flushing unit is disclosed. German Patent Application DE 10 2009 030 329 A1 discloses a washer according to the preamble of claim 1, comprising a dispenser that is movably accommodated in a housing. A detachable fluidic connection between the dispenser and a pump is provided in the space between the rear sides of the dispenser and the housing, and an outlet of a water supply via which the housing can be flushed is disposed at the top of the housing. Moreover, a single outlet of the pump enters in a side wall of the housing for delivering cleaning agent from the dispenser into the housing.

[0004] The aim of the present invention is the realization of a washer wherein the liquid cleaning agents are efficiently mixed into the wash water without leaving residues.

[0005] The washer realized in order to attain the aim of the present invention, explicated in the first claim and the respective claims thereof, comprises a flushing unit that is situated on the upper lid of the housing and that extends to the gap between the dispenser rear wall and the housing rear wall. The flushing unit enables the liquid cleaning agents delivered to the housing base by the dosing unit to be sent to the tub in order to be mixed into the wash water.

[0006] In an embodiment of the present invention, the flushing unit comprises a water supply line, a flushing receptacle and at least one flushing headpiece. The water supply line is connected to the flushing receptacle and fills the water received from the water mains into the flushing receptacle. The flushing headpiece is positioned at the lower side of the flushing receptacle and sprays the water filling into the flushing receptacle. By means of the flushing receptacle situated between the water supply line and the flushing headpiece, the speed of the water sprayed from the flushing headpiece is increased.

[0007] In an embodiment of the present invention, the flushing unit is situated at the upper side of the liquid transfer mechanism that is disposed between the dispenser rear wall and the housing real wall and that provides liquid transfer between the dispenser and the dosing unit. While flushing the liquid cleaning agents, the flushing unit also cleans the liquid transfer mechanism by spraying water onto the liquid transfer mechanism.

[0008] In an embodiment of the present invention, the flushing unit comprises the flushing headpiece that is situated so as to be right above the liquid transfer mechanism. While performing the flushing process, the flushing headpiece also washes the components forming the liquid transfer mechanism and prevents the formation of a cleaning agent layer on the liquid transfer mechanism.

[0009] In an embodiment of the present invention, the flushing headpiece is situated at a level lower than the height of the dispenser. Thus, the water is prevented from leaking into the dispenser during flushing and the cleaning agents in the dispenser are prevented from getting wet, thus preventing waste of the cleaning agents. Another advantage of this embodiment is that the flushing angle can be wider and the flushing can be performed more efficiently with decrease in the distance between the housing base and the headpiece.

[0010] According to the present invention, there is provided at least one barrier that is situated at the base of the housing and that separates the holes at the lower side of the housing from each other. The holes are kept in the same region and close to each other so that the flushing system operates efficiently and the dosed cleaning agents are transferred. By means of the barrier, the cleaning agents of different types passing through the holes are kept separate. Problems such as the cleaning agents of different types mixing with each other, precipitating and closing the holes or the dosed cleaning agents not being able to be flushed with the flushing process, are eliminated. By means of the barrier, undesired residues are prevented and the cleaning agents are enabled to be efficiently mixed into the wash water.

[0011] In an embodiment of the present invention, there are provided chambers that are larger than the cross-sections of the hoses providing liquid transfer between the dosing unit and the holes and that are situated just before the holes where the cleaning agents, for example liquid detergent and softener, reach the lower side of the housing. The cleaning agents coming from the dosing unit to the holes interact with the air here. The said chambers are designed so as to facilitate the pumping of the cleaning agents that contacts the air and lose the water therein and that starts turning into jelly. Thus, the

dosing unit can more easily dose the cleaning units that are not used for a long time and that remain inside the hoses from the last use and dry.

[0012] In an embodiment of the present invention, the chambers create an almost 90 degree bend at the point where the chambers join the hose inlets. By means of the said angled connection, the cleaning agents that dry and accumulated at the connection end can be easily dosed.

[0013] In different embodiments of the present invention, the washer of the present invention can be a dishwasher, a washing machine or a laundry washer/dryer.

[0014] In the washer of the present invention, the dosed cleaning agents are enabled to be efficiently mixed into the wash water and thus the undesired formation of residues, deposits is prevented. Thus, the inside of the housing is always kept clean and formation of bad odors and mold is prevented. By means of the flushing receptacle remaining between the dispenser and the housing, the speed of the sprayed water is increased, thus providing a more effective flushing process. By means of the barrier between the holes, the liquid cleaning agents of different types are prevented from mixing with each other. By means of the chambers situated between the hose inlet and the holes and the angled connection between the chambers and the hose inlet, the liquid cleaning agents drying on the line are enabled to be dosed without causing any clogging.

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

Figure 1 - is the front schematic view of a washer.
Figure 2-is the sideways partial schematic view of a flushing unit situated between the dispenser and the housing.
Figure 3 - is the perspective view of the housing and the barrier and the hole that are situated on the hous
Figure 4 - is the perspective view from a different angle of a housing and the barrier and the hole that are situated on the housing.
Figure 5 - is the perspective view of a flushing unit situated on the upper lid of the housing.
Figure 6 - is the perspective view of a dispenser and housing.

[0016] The elements illustrated in the figures are numbered as follows:

1. Washer
2. Body
3. Tub
4. Housing
5. Housing upper lid
6. Dispenser

7,107. Division

8. Dosing unit
9. Liquid transfer mechanism
10. Hose
11. Hole
12. Water supply line
13. Flushing receptacle
14. Flushing headpiece
15. Flushing unit
16. Barrier
17. Chamber

[0017] The washer (1) comprises a body (2), a tub (3) that is disposed within the body (2) and wherein the washing/drying processes are performed, a housing (4) that extends from the outer surface of the body (2) to the interior of the body (2), a housing upper lid (5) that closes over the housing (4), a dispenser (6) that is disposed inside the housing (4) and that has more than one division (7, 107) wherein the cleaning agents are stored, a dosing unit (8) adjacent to the housing (4) with flow connection between the housing (4) and itself, that doses the liquid cleaning agents put into the dispenser (6), and at least one liquid transfer mechanism (9) that is disposed between the dispenser (6) and the dosing unit (8) and that provides flow between the dispenser (6) and the dosing unit (8).

[0018] In the washer (1), the housing (4) is preferably situated at the upper side of the body (2). The dispenser (6) wherein the cleaning agents are stored, is seated into the housing (4) and preferably extends up to the rear side of the body (2). The user partially pulls the dispenser (6) outwards and fills in the cleaning agents. The dispenser (6) comprises at least two divisions (7) extending along the length of the dispenser (6) for liquid cleaning agents such as liquid detergent, softener etc. and at least one division (107) for powder cleaning agents. The dosing unit (8) is situated at the rear side of the housing (4) and behind the dispenser (6). The dispenser (6), when placed into the housing (4), is connected to the dosing unit (8) and the liquid cleaning agents fill into the dosing unit (8) by means of the liquid transfer mechanism (9). The washer (1) furthermore comprises at least one hose (10) that connects the dosing unit (8) and the housing (4) and at least one hole (11) at the housing (4) base to which the hoses (10) are connected. The dosing unit (8) delivers the cleaning agent in the required amount to the housing (4) base by means of the hoses (10) and the holes (11) arranged at the lower side of the housing (4).

[0019] The washer (1) of the present invention comprises a flushing unit (15) that is situated on the housing upper lid (5), that extends towards the gap (B) between the dispenser (6) rear wall and the housing (4) rear wall and that enables the water to be transferred to the housing (4) base through the gap (B) and enable the liquid cleaning agents mixed with water to be delivered to the tub (3) through the outlet opening (A) arranged on the housing (4) base. The flushing unit (15) enables the liquid cleaning agents delivered to the housing (4) base by the dosing unit (8) to be sent to the tub (3) through the outlet opening (A) at the housing (4) base by being flushed with

water in order to be mixed into the wash water.

[0020] In an embodiment of the present invention, the flushing unit (15) comprises a water supply line (12), a flushing receptacle (13) and at least one flushing headpiece (14). The water supply line (12) is connected to the flushing receptacle (13) and fills the flushing receptacle (13) with water. The flushing headpiece (14) is situated at the base of the flushing receptacle (13) and sprays the water filling into the flushing receptacle (13). By means of the flushing receptacle (13), a wide area is flushed at the housing (4) base by spraying water from all flushing headpieces (14) and the liquid cleaning agents are enabled to be efficiently flushed with water.

[0021] In an embodiment of the present invention, the washer (1) comprises the liquid transfer mechanism (9) that is disposed in the gap (B) between the dispenser (6) rear wall and the housing (4) real wall and the flushing unit (15) that is situated at the upper side of the liquid transfer mechanism (9). Thus, the liquid transfer mechanism (9) is enabled to be washed while flushing the cleaning agents.

[0022] In an embodiment of the present invention, the flushing unit (15) comprises the flushing headpiece (14) that is aligned with the liquid transfer mechanism (9) in the vertical direction and that delivers water directly onto the liquid transfer mechanism (9) during the flushing process. While transferring the liquid cleaning agent from the dispenser (6) to the dosing unit (8), the cleaning agent may accumulate on the liquid transfer mechanism (9); however, by means of the flushing headpiece (14) positioned on the liquid transfer mechanism (9), the cleaning agent residues on the liquid transfer mechanism (9) are cleaned and the user does not encounter any cleaning agent residues when he/she dislodges the dispenser (6)

[0023] In an embodiment of the present invention, the flushing unit (15) has the flushing headpieces (14) that are used for mixing the liquid cleaning agents into the wash water and that are situated at a level lower than the upper edge of the dispenser (6) rear wall. With the flushing headpieces (14) being at a level lower than the dispenser (6) rear wall, the water is prevented from leaking into the dispenser (6) during the flushing process, and the cleaning agents stored in the dispenser (6) are prevented from mixing with water and from frothing in the dispenser (6).

[0024] According to the present invention, the washer (1) comprises a barrier (16) that is disposed between the holes (11) arranged at the housing (4) base and that separates the holes (11) from each other. The barrier (16) prevents the cleaning agents of different types from mixing with each other and precipitating, and thus prevents the effectiveness of the dosing unit (8) from decreasing.

[0025] In an embodiment of the present invention, the washer (1) comprises at least one chamber (17) that is situated on the housing (4) base, at the inlet of the hose (10) carrying the liquid cleaning agents from the dosing unit (8). By means of the chambers (17), some amount of liquid cleaning agent is stored at the entry of the hoses (10) into the housing (4), thus the liquid cleaning agent is prevented from drying, clogging the hose (10) inlet and the clogging is prevented from moving forward through the hose (10).

[0026] In an embodiment of the present invention, the chambers (17) form an almost 90 degree bend at the hose (10) inlet and at the entry into the housing (4) base, thus the cleaning agents that dry up and congeal remain in the chambers (17) and the congealment is prevented from continuing along the hose (10).

[0027] In an embodiment of the present invention, the washer (1) is a washing machine.

[0028] In an embodiment of the present invention, the washer (1) is a laundry washing and drying machine.

[0029] In an embodiment of the present invention, the washer (1) is a dishwasher.

[0030] By means of the simple and low-cost components used in the washer (1) of the present invention, the cleaning agents are enabled to be efficiently mixed into the wash water without accumulating in the housing (4). By means of the flushing unit (15) that is situated at the upper side of the liquid transfer mechanism (9) and that has the flushing receptacle (13) used before the flushing headpiece (14), the speed of the flushing water is increased, the cleaning agent residues on the liquid transfer mechanism (9) are cleaned and the cleaning agents are prevented from being wasted by preventing the cleaning agents from accumulating in the housing (4). The barrier (16) separating the holes (11) prevents the liquid cleaning agents of different types from mixing with each other and precipitating. Moreover, by means of the chambers (17) at the housing (4) base and the angled structure of the chambers (17) with the hose (10) inlet, the problem of the cleaning agents drying and clogging the hose (10) is solved and the dosing unit (8) is enabled to be operated without compromising efficiency. The inside of the housing (4) and the liquid transfer mechanism (9) are washed with the flushing process, thus are cleaned of undesired bad odors and the quality perception of the user is improved.

Claims

1. A washer (1) comprising

- a body (2),
- a tub (3) that is disposed within the body (2) and wherein the washing/drying processes are performed,
- a housing (4) that extends from the outer surface of the body (2) to the interior of the body (2),
- a housing upper lid (5) that closes over the housing (4),
- a dispenser (6) that is disposed inside the housing (4) and that has more than one division (7, 107) wherein the cleaning agents are stored,
- a dosing unit (8) adjacent to the housing (4)

with flow connection between the housing (4) and itself, that doses the liquid cleaning agents put into the dispenser (6),
- at least one liquid transfer mechanism (9) that is disposed between the dispenser (6) and the dosing unit (8) and that provides flow between the dispenser (6) and the dosing unit (8),
- a flushing unit (15) that is situated on the housing upper lid (5), that extends towards the gap (B) between the dispenser (6) rear wall and the housing (4) rear wall and that enables the water to be transferred to the housing (4) base through the gap (B) and to enable the liquid cleaning agents to be mixed with water and delivered to the tub (3) through an outlet opening (A),

characterized by
at least two hoses (10) that connect the dosing unit (8) and the housing (4) base, at least two holes (11) at the housing (4) base to which the hoses (10) are connected, and a barrier (16) situated between the holes (11).

2. A washer (1) as in Claim 1, **characterized in that** the flushing unit (15) comprises a water supply line (12), a flushing receptacle (13) and at least one flushing headpiece (14).

3. A washer (1) as in any one of the above claims, **characterized in that** the liquid transfer mechanism (9) is disposed in the gap (B) between the dispenser (6) rear wall and the housing (4) rear wall and the flushing unit (15) is situated at the upper side of the liquid transfer mechanism (9).

4. A washer (1) as in Claim 1, **characterized in that** the flushing unit (15) has at least one flushing headpiece (14) that is aligned with the liquid transfer mechanism (9) in the vertical direction and that delivers water directly onto the liquid transfer mechanism (9) during the flushing process.

5. A washer (1) as in any one of the above claims, **characterized in that** the flushing unit (15) has a flushing headpiece (14) that is situated at a level lower than the upper edge of the dispenser (6) rear wall.

6. A washer (1) as in any one of the above claims, **characterized in that** at least one chamber (17) is disposed on the housing (4) base, at the hose (10) inlet.

7. A washer (1) as in claim 6, **characterized in that** the chamber (17) forms an almost 90 degree bend at the hose (10) inlet and at the entry into the housing (4) base.

8. A washer (1) as in any one of the above claims, which is a washing machine.

9. A washer (1) as in any one of the Claims 1 to 7, which is a laundry washing and drying machine.

10. A washer (1) as in any one of the Claims 1 to 7, which is a dishwasher.

Patentansprüche

1. Eine Waschanlage (1) mit

- einem Körper (2),
- einem Wanne (3), die innerhalb des Körpers (2) angeordnet ist und wobei der Wasch-/Trocknungsprozess durchgeführt ist,
- einem Gehäuse (4), das sich von der Außenfläche des Körpers (2) zum Inneren des Körpers (2) erstreckt,
- einem oberen Deckel (5) des Gehäuses, der über dem Gehäuse (4) verschließt.
- einem Spender (6), der in dem Gehäuse (4) angeordnet ist und mehr als eine Aufteilung (7, 107) aufweist, worin die Waschmittel gelagert ist.
- einer Dosiereinheit (8) benachbart zum Gehäuse (4) mit einer Durchflussverbindung zwischen dem Gehäuse (4) und sich selbst, die in den Spender (6) gegebenen flüssigen Waschmittel dosiert,
- zumindest einem Flüssigkeitstransfermechanismus (9), das zwischen dem Spender (6) und der Dosiereinheit (8) angeordnet ist und zwischen dem Spender (6) und der Dosiereinheit (8) einen Durchfluss bietet,
- einer Spüleinheit (15), die sich an dem oberen Deckel (5) des Gehäuses befindet, die sich zum Spalt (B) zwischen hinterer Wand des Spenders (6) und hinterer Wand des Gehäuses (4) erstreckt und den Transfer des Wassers durch den Spalt (B) zum Gehäuse (4) und somit die Aktivierung der Mischung vom flüssigen Waschmittel mit Wasser und die Lieferung durch eine Auslassöffnung (A) zur Wanne (3) ermöglicht,

gekennzeichnet, durch zumindest zwei Schläuche (10), die die Dosiereinheit (8) und das Gehäuse (4) verbindet; zumindest zwei Löcher (11) am Gehäuse (4), zu den die Schläuche (10) verbunden ist; und eine Schranke (16), die zwischen die Löcher (11) gelegen ist.

2. Eine Waschanlage (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** die Spüleinheit (15) eine Wasserzuleitung (12), einen Spülungsbehälter (13) und zumindest ein Spülungskopfstück (14) umfasst.

3. Eine Waschanlage (1) nach einem der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** das

Flüssigkeitstransfermechanismus (9) im Spalt (B) zwischen hinterer Wand des Spenders (6) und hinterer Wand des Gehäuses (4) angeordnet ist und die Spüleinheit (15) an der Oberseite des Flüssigkeitstransfermechanismus (9) angeordnet ist.

4. Eine Waschanlage (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** die Spüleinheit (15) zumindest ein Spülungskopfstück (14) hat, das mit dem Flüssigkeitstransfermechanismus (9) in vertikaler Richtung gefluchtet ist und beim Spülvorgang Wasser unmittelbar auf das Flüssigkeitstransfermechanismus (9) liefert.

5. Eine Waschanlage (1) nach einem der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** die Spüleinheit (15) ein Spülungskopfstück (14) aufweist, das sich auf einer niedrigeren Ebene als die Oberkante der hinteren Wand des Spenders (6) befindet.

6. Eine Waschanlage (1) nach einem der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** zumindest eine Kammer (17) an dem Unterteil des Gehäuses (4), am Eingang des Schlauchs (10) angeordnet ist.

7. Eine Waschanlage (1) nach Anspruch 6, **dadurch gekennzeichnet, dass** die Kammer (17) am Eingang des Schlauchs (10) und am Zugang zum Boden des Gehäuses (4) fast eine 90 gradige Kurve bildet.

8. Eine Waschanlage (1) nach einem der vorstehenden Ansprüche, welcher eine Waschmaschine ist.

9. Eine Waschanlage (1) nach einem der Ansprüche 1 bis 7, welcher eine Waschmaschine und Trockenmaschine für die Wäsche ist.

10. Eine Waschanlage (1) nach einem der Ansprüche 1 bis 7, welcher ein Geschirrspüler ist.

Revendications

1. Rondelle (1) comprenant

- un corps (2),
- une cuve (3) disposée dans le corps (2) et dans laquelle les processus de lavage / séchage sont effectués,
- un boîtier (4) qui s'étend de la surface externe du corps (2) à l'intérieur du corps (2),
- un couvercle supérieur de boîtier (5) qui se ferme sur le boîtier (4),
- un distributeur (6) qui est disposé à l'intérieur du boîtier (4) et qui comporte plus d'une division (7, 107) dans laquelle les agents de nettoyage sont stockés,
- une unité de dosage (8) adjacente au boîtier (4) avec une connexion d'écoulement entre le boîtier (4) et lui-même, qui dose les agents de nettoyage liquides placés dans le distributeur (6),
- au moins un mécanisme de transfert de liquide (9) qui est disposé entre le distributeur (6) et l'unité de dosage (8) et qui assure l'écoulement entre le distributeur (6) et l'unité de dosage (8),
- une unité de rinçage (15) située sur le couvercle supérieur du boîtier (5), qui s'étend vers l'écart (B) entre la paroi arrière du distributeur (6) et la paroi arrière du boîtier (4) et qui permet de transférer l'eau vers la base du boîtier (4) à travers l'écart (B) et de permettre au liquide des agents de nettoyage à mélanger avec de l'eau et délivrés dans la cuve (3) à travers une ouverture de sortie (A),

caractérisée par
au moins deux tuyaux (10) reliant l'unité de dosage (8) et la base du boîtier (4), au moins deux trous (11) sur la base du boîtier (4) auxquels sont reliés les tuyaux (10), et une barrière (16) situé entre les trous (11).

2. Rondelle (1) selon la revendication 1, **caractérisée en ce que** l'unité de rinçage (15) comprend une conduite d'alimentation en eau (12), un récipient de rinçage (13) et au moins une tête de rinçage (14).

3. Rondelle (1) selon l'une quelconque des revendications précédentes, **caractérisée en ce que** le mécanisme de transfert de liquide (9) est disposé dans l'écart (B) entre la paroi arrière du distributeur (6) et la paroi arrière du boîtier (4) et l'unité de rinçage (15) est située sur le côté supérieur du mécanisme de transfert de liquide (9).

4. Rondelle (1) selon la revendication 1, **caractérisée en ce que** l'unité de rinçage (15) comporte au moins une buse de rinçage (14) alignée avec le mécanisme de transfert de liquide (9) dans le sens vertical et qui envoie de l'eau directement sur le mécanisme de transfert de liquide (9) pendant le rinçage.

5. Rondelle (1) selon l'une quelconque des revendications précédentes, **caractérisée en ce que** l'unité de rinçage (15) comporte une tête de rinçage (14) située à un niveau inférieur au bord supérieur de la paroi arrière du distributeur (6).

6. Rondelle (1) selon l'une quelconque des revendications précédentes, **caractérisée en ce qu'**au moins une chambre (17) est disposée sur la base du boîtier (4), à l'entrée du tuyau (10).

7. Rondelle (1) selon la revendication 6, **caractérisée en ce que** la chambre (17) forme un coude de près de 90 degrés à l'entrée du tuyau (10) et à l'entrée dans la base du boîtier (4).

8. Rondelle (1) selon l'une quelconque des revendications précédentes, qui est une machine à laver.

9. Rondelle (1) selon l'une quelconque des revendications 1 à 7, qui est une machine à laver et à sécher le linge.

10. Rondelle (1) selon l'une quelconque des revendications 1 à 7, qui est un lave-vaisselle.

Figure 1

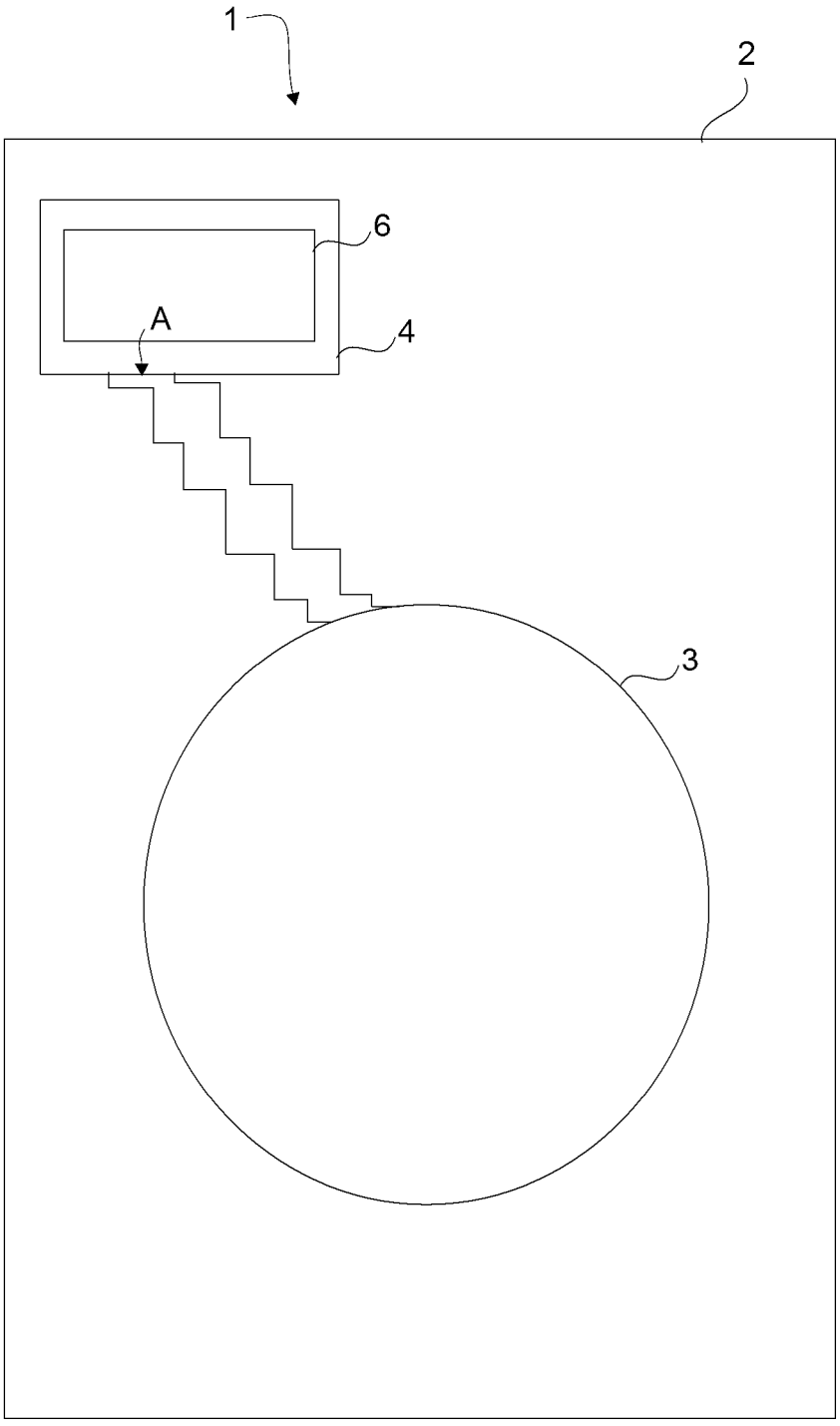


Figure 2

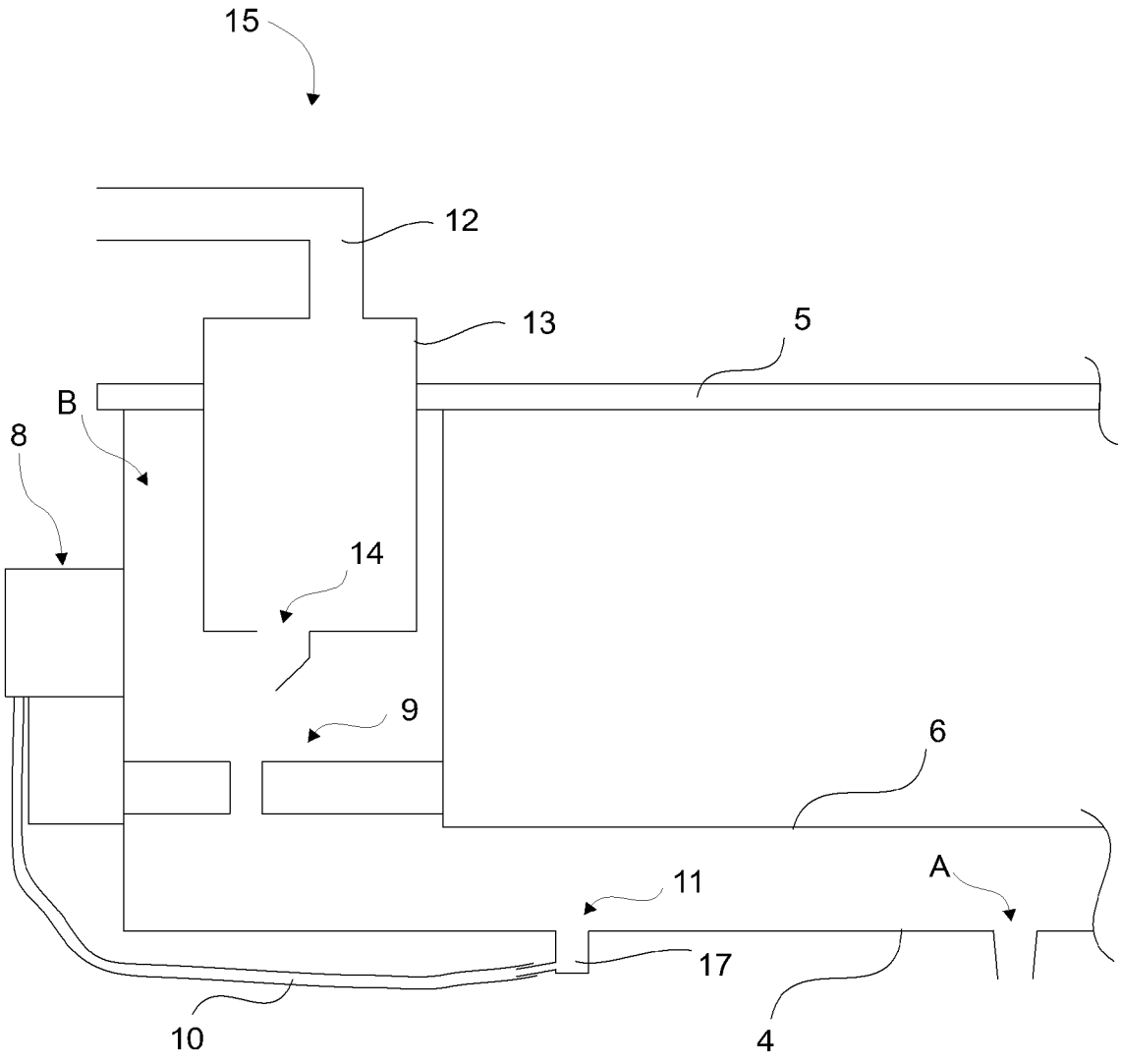


Figure 3

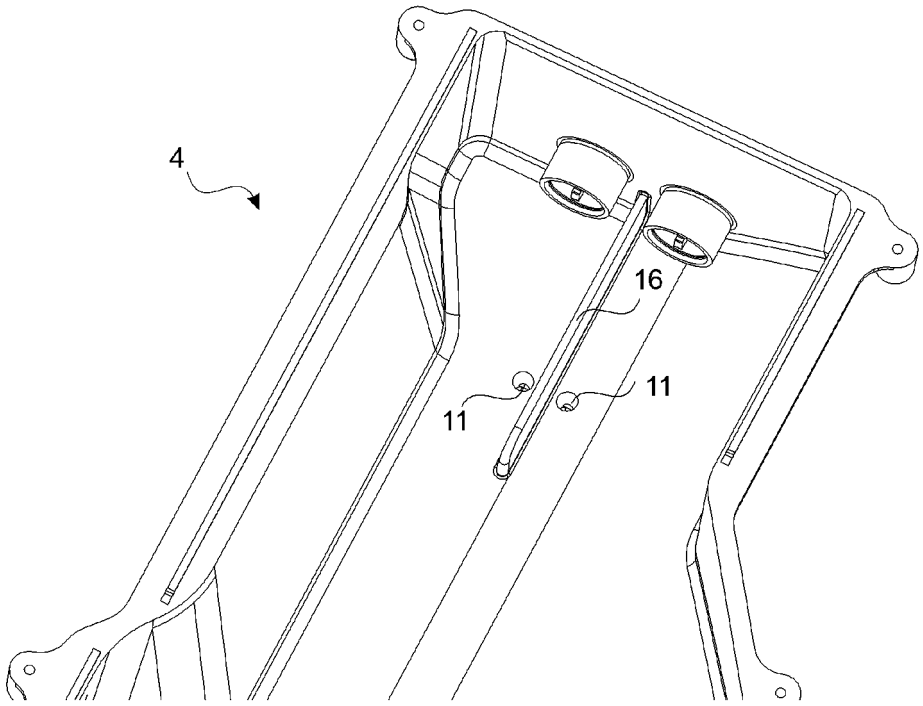


Figure 4

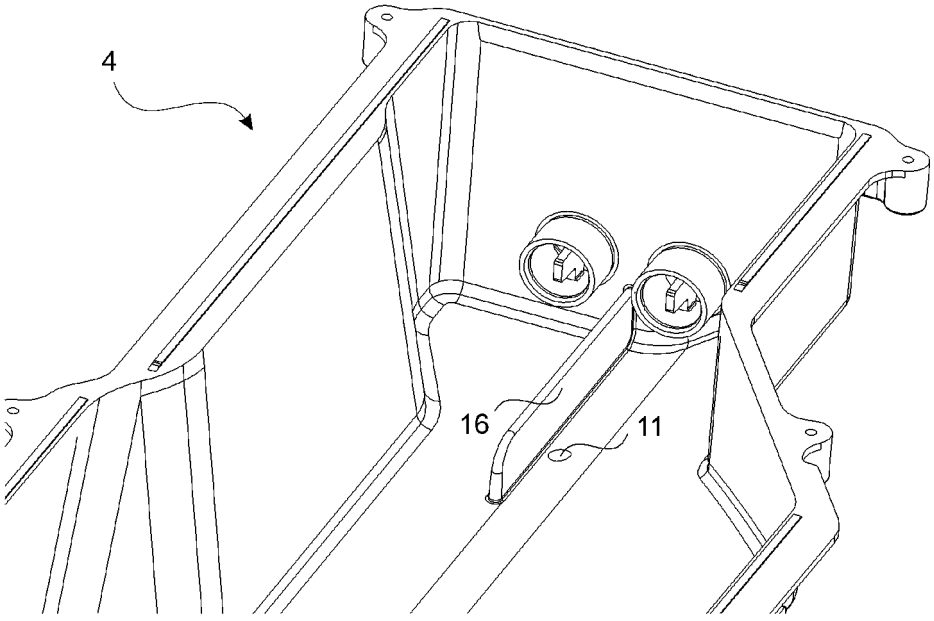


Figure 5

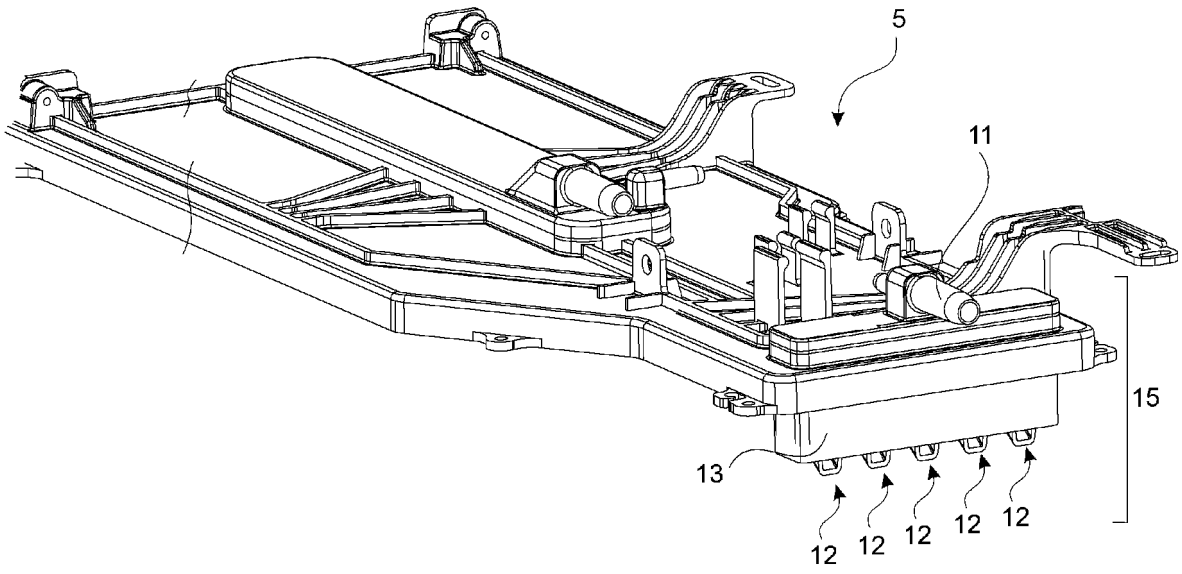
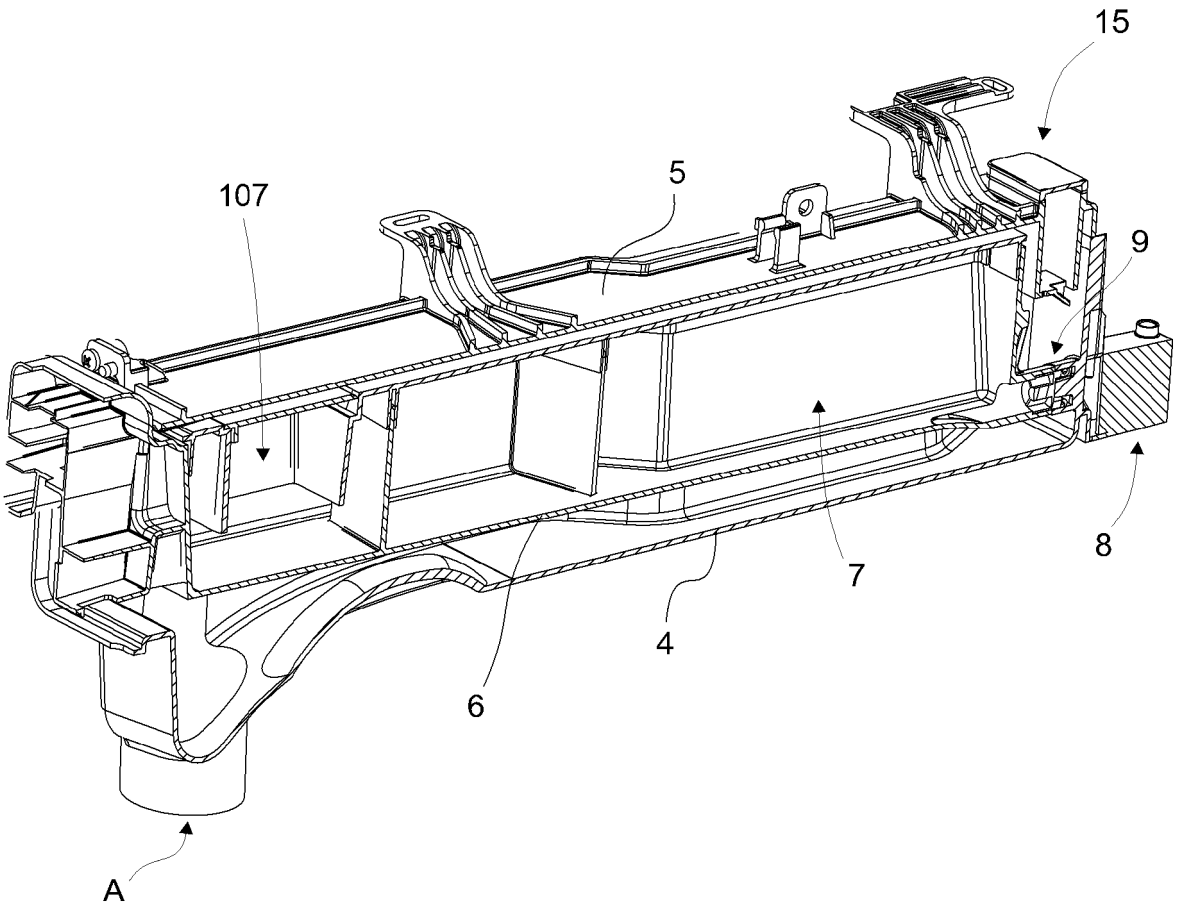


Figure 6



REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 2331739 A **[0003]**
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