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(54) **WASHING MACHINE**

WASCHMASCHINE

MACHINE À LAVER

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Description

[0001] The present invention relates to a washing machine, which includes a laundry treatment compartment, a treatment agent distributing apparatus for distributing a treatment agent to the laundry treatment compartment, and a treatment agent transfer channel in fluid connection with the treatment agent distributing apparatus and the laundry treatment compartment.

[0002] Patent application publication DE102009030290A1 discloses a washing machine according to the preamble of claim 1.

[0003] Patent application publication CN105463783 discloses a washing machine comprising a treatment agent distributing apparatus which allows both automatic and manual treatment agent supply.

[0004] The patent application No. CN102741472A discloses a laundry treatment agent automatic dosing system for a washing machine. The automatic dosing system includes one manual dosing compartment and two storage compartments. The two storage compartments are each provided with a sinking pump. A treatment agent in the storage compartment is pumped out by using the sinking pump and then enters an output pipe. To flush a treatment agent in the manual dosing compartment or the output pipe into a laundry treatment drum, a water supply line separately supplies water to the manual dosing compartment or the output pipe.

[0005] A disadvantage of the automatic dosing system is: Usually, water from a water supply line can be input into only either the manual dosing compartment or the output pipe according to a program setting. Therefore, a setting of the water supply line is bound to be relatively complex. For example, one water passage is configured for each of the manual dosing compartment and the output pipe, and one water valve is configured for each water passage. Alternatively, the water supply line is provided with a water passage switching mechanism. Disposed in such a manner, the automatic dosing system has not only a complex structure but also relatively high costs. In addition, because the top of the output pipe is covered by a cover, it is inconvenient for cleaning, and a health hazard is easily caused after long-term use.

[0006] An objective of the present invention is to overcome or reduce the foregoing disadvantage in the prior art, thereby simplifying a laundry treatment agent automatic dosing system, and facilitating cleaning of the laundry treatment agent automatic dosing system.

[0007] For the foregoing objective, the present invention provides a washing machine according to claim 1.

[0008] Because an automatically dosed treatment agent and a manually added treatment agent are both added to the manual adding compartment before entering the treatment compartment, the water supply channel needs only one outlet in communication with the manual adding compartment. Therefore, a structure is simple, and costs are saved. In addition, the manual adding compartment is open, and therefore is convenient for clean-

ing.

[0009] Preferably, triggering and a quantity of distributed agents of the distributing apparatus are controlled by the control apparatus.

[0010] According to the invention, the treatment agent distributing apparatus includes two storage compartments, which respectively store a detergent and a softener, and each storage compartment is provided with the distributing apparatus. The two distributing apparatuses can sequentially output the detergent and the softener to the manual adding compartment according to control of the control apparatus.

[0011] To control water supply, the water supply channel is provided with a water valve controlled by the control apparatus. After either of the two distributing apparatuses outputs the detergent or the softener to the manual adding compartment, the control apparatus opens the water valve, so that water flows to the manual adding compartment through the water supply channel and is mixed with the detergent or the softener in the manual adding compartment, and the mixture is flushed into the laundry treatment compartment through the treatment agent transfer channel.

[0012] Preferably, the control apparatus is provided with multiple treatment programs, and the distributing apparatus is controlled according to a treatment program selected by a user.

[0013] Preferably, the manual adding compartment is disposed adjacent to the storage compartment. Therefore, it is convenient to output the treatment agent to the manual adding compartment by the distributing apparatus.

[0014] Further, the treatment agent distributing apparatus includes a first storage compartment and a second storage compartment, which are respectively are located on two sides of the manual adding compartment or are disposed by at least partially surrounding the manual adding compartment.

[0015] The present invention is further described below with reference to the accompanying drawings.

FIG. 1 is a schematic plan view of a treatment agent distributing apparatus; and

FIG. 2 is a schematic diagram of connections of partial means of a washing machine.

[0016] As shown in FIG. 1 and FIG. 2, a washing machine has a laundry treatment compartment 2, and a treatment agent distributing apparatus 4 for distributing a treatment agent to the laundry treatment compartment 2 is in fluid connection with the laundry treatment compartment 2 through a treatment agent transfer channel 6. A water supply channel 8 is in fluid connection with the treatment agent distributing apparatus 4, to supply water to the treatment agent distributing apparatus 4, so that a treatment agent added to the treatment agent distributing apparatus 4 is flushed into the treatment compartment 2 through the transfer channel 6.

[0017] The treatment agent distributing apparatus 4 has a first storage compartment 41 for storing a detergent, a second storage compartment 42 for storing a softener, and a manual adding compartment 43 into which a treatment agent is manually added. The first storage compartment 41 and the second storage compartment 42 are disposed adjacent to the manual adding compartment 43, and surround two sides and a rear side of the manual adding compartment 43. A front side refers to a side close to a direction in which a user approaches. The top of the first storage compartment 41 and the top of the second storage compartment 42 are covered by a cover 40 and are respectively provided with a first treatment agent adding opening 44 and a second treatment agent adding opening 45 through which treatment agents available for use of multiple times are added. The manual adding compartment 43 is open at the top.

[0018] An outlet 46 is provided at the bottom of the manual adding compartment 43 and is in communication with the treatment agent transfer channel 6. A first distributing apparatus 47 is disposed in the first storage compartment 41, and a second distributing apparatus 48 is disposed in the second storage compartment 42. The first distributing apparatus 47 and the second distributing apparatus 48 are pumps. An outlet 470 of the first distributing apparatus 47 and an outlet 480 of the second distributing apparatus 48 are both in fluid connection with the manual adding compartment 43. Therefore, a detergent extracted from the first distributing apparatus 47 and a softener extracted from the second distributing apparatus 48 both flow into the manual adding compartment 43.

[0019] To supply the treatment agent in the manual adding compartment 43 into the treatment compartment 2, the water supply channel 8 is in fluid connection with the manual adding compartment 43. To control water supply, the water supply channel 8 is provided with a water valve 81.

[0020] The first distributing apparatus 47, the second distributing apparatus 48, and the water valve 81 are all controlled by a control apparatus 10.

[0021] The control apparatus 10 is provided with multiple treatment programs. For different programs, settings of whether to automatically pour a treatment agent from the first storage compartment 41 and the second storage compartment 42, and settings of a quantity of treatment agents are different. In addition, whether to automatically pour the treatment agent is further controlled by the user. The user may set in advance whether to automatically pour the treatment agent. A quantity of treatment agents that are automatically poured is also different due to a material and a quantity of laundry. The control apparatus 10 controls triggering and quantities of distributed agents of the first distributing apparatus 47 and the second distributing apparatus 48.

[0022] If a treatment program selected by the user is by default not automatically pouring the treatment agent, or the user sets a treatment program to not automatically

pouring the treatment agent, the user manually adds a detergent to the manual adding compartment 43 before washing is started. After the program starts running, the control apparatus 10 opens the water valve 81. The water supply channel 8 supplies water to the manual adding compartment 43. The detergent in the manual adding compartment 43 is flushed into the treatment compartment by the water, and the program enters a main washing stage. After the main washing stage ends, the program pauses, and prompts the user to put a softener in. After the user puts the softener into the manual adding compartment 43, the program enters a rinsing stage and an eventual water extracting stage, and finally, the program ends.

[0023] If a treatment program selected by the user is by default automatically pouring the treatment agent, or the user sets a treatment program to automatically pouring the treatment agent, after the program starts, the control apparatus 10 triggers the first distributing apparatus 47 to supply a detergent to the manual adding compartment 43, and then the control apparatus 10 opens the water valve 81. The water supply channel 8 supplies water to the manual adding compartment 43. The detergent in the manual adding compartment 43 is flushed into the treatment compartment 2 by the water, and the program enters a main washing stage. After the main washing stage ends, the control apparatus 10 triggers the second distributing apparatus 48 to supply a detergent to the manual adding compartment 43, and then the control apparatus 10 opens the water valve 81. The water supply channel 8 supplies water to the manual adding compartment 43. A softener in the manual adding compartment 43 is flushed into the treatment compartment 2 by the water, and the program enters a rinsing stage.

[0024] Various specific embodiments described in the foregoing and shown in accompanying drawings are only used for illustrating the present invention, and are not considered as the entirety of the present invention. Within the scope of the claims, any types of modifications for the present invention can be made by persons ordinarily skilled in the art.

Claims

1. A washing machine (1), comprising: a laundry treatment compartment (2), a treatment agent distributing apparatus (4) for distributing a treatment agent to the laundry treatment compartment (2), and a treatment agent transfer channel (6) in fluid connection with the treatment agent distributing apparatus (4) and the laundry treatment compartment (2), wherein: the treatment agent distributing apparatus (4) comprises: two storage compartments (41, 42), which respectively store a detergent and a softener, and a manual adding compartment (43) into which a treatment agent is manually added, wherein an outlet (46) is provided at the bottom of the manual adding com-

partment (43) and is in communication with the treatment agent transfer channel (6), wherein each storage compartment (41, 42) is provided with a distributing apparatus (47, 48) disposed therein and the two distributing apparatuses (47, 48) can sequentially output the detergent and the softener to the manual adding compartment (43) according to the control of a control apparatus (10), and an outlet (470, 480) of each of the distributing apparatuses (47, 48) is in fluid connection with the manual adding compartment (43), and a water supply channel (8) is in fluid connection with the manual adding compartment (43), **characterized in that** the first distributing apparatus (47) is disposed in the first storage compartment (41), and the second distributing apparatus (48) is disposed in the second storage compartment (42), wherein the first distributing apparatus (47) and the second distributing apparatus (48) are pumps, wherein the outlet (470) of the first distributing apparatus (47) and the outlet (480) of the second distributing apparatus (48) are both in fluid connection with the manual adding compartment (43), wherein the top of the first storage compartment (41) and the top of the second storage compartment (42) are covered by a cover (40) and are respectively provided with a first treatment agent adding opening (44) and a second treatment agent adding opening (45) through which treatment agents available for use of multiple times can be added, wherein the manual adding compartment (43) is open at the top.

2. The washing machine (1) according to claim 1, **characterized in that:** triggering and a quantity of distributed agents of the distributing apparatus (4) are controlled by the control apparatus (10).
3. The washing machine (1) according to claim 1, **characterized in that:** the water supply channel (8) is provided with a water valve (81) controlled by the control apparatus (10), and after either of the two distributing apparatuses (47, 48) outputs the detergent or the softener to the manual adding compartment (43), the control apparatus (10) opens the water valve (81), so that water flows to the manual adding compartment (43) through the water supply channel (8) and is mixed with the detergent or the softener in the manual adding compartment (43), and the mixture is flushed into the laundry treatment compartment (2) through the treatment agent transfer channel (6).
4. The washing machine (1) according to claim 1, **characterized in that:** the control apparatus (10) is provided with multiple treatment programs, and the distributing apparatus (4) is controlled according to a treatment program selected by a user.
5. The washing machine (1) according to claim 1, **char-**

acterized in that: the manual adding compartment (43) is disposed adjacent to the two storage compartments (41,42).

- 5 6. The washing machine (1) according to claim 5, **characterized in that:** the first storage compartment (41) and the second storage compartment (42), are respectively located on two sides of the manual adding compartment (43) or are disposed by at least partially surrounding the manual adding compartment (43).

Patentansprüche

- 15 1. Waschmaschine (1), die Folgendes umfasst: ein Wäschebehandlungsfach (2), eine Behandlungsmittelverteilvorrichtung (4) zum Verteilen eines Behandlungsmittels an das Wäschebehandlungsfach (2) und einen Behandlungsmittelleitungskanal (6), der mit der Behandlungsmittelverteilvorrichtung (4) und dem Wäschebehandlungsfach (2) in Fluidverbindung steht, wobei: die Behandlungsmittelverteilvorrichtung (4) Folgendes umfasst: zwei Aufbewahrungsfächer (41, 42), in denen ein Waschmittel beziehungsweise ein Weichspüler aufbewahrt wird, und ein Zugabefach (43), in das manuell ein Behandlungsmittel geschüttet wird, wobei unten am Zugabefach (43) ein Auslass (46) vorgesehen ist, der mit dem Behandlungsmittelleitungskanal (6) in Verbindung steht, wobei jedes Aufbewahrungsfach (41, 42) mit einer darin angeordneten Verteilvorrichtung (47, 48) versehen ist und die beiden Verteilvorrichtungen (47, 48) der Steuerung durch eine Steuervorrichtung (10) entsprechend nacheinander das Waschmittel und den Weichspüler in das Zugabefach (43) abgeben können, und ein Auslass (470, 480) jeder der Verteilvorrichtungen (47, 48) und ein Wasserversorgungskanal (8) mit dem Zugabefach (43) in Fluidverbindung stehen,
dadurch gekennzeichnet, dass die erste Verteilvorrichtung (47) in dem ersten Aufbewahrungsfach (41) und die zweite Verteilvorrichtung (48) in dem zweiten Aufbewahrungsfach (42) angeordnet ist, wobei es sich bei der ersten Verteilvorrichtung (47) und der zweiten Verteilvorrichtung (48) um Pumpen handelt, wobei der Auslass (470) der ersten Verteilvorrichtung (47) und der Auslass (480) der zweiten Verteilvorrichtung (48) beide mit dem Zugabefach (43) in Fluidverbindung stehen, wobei die Oberseite des ersten Aufbewahrungsfachs (41) und des zweiten Aufbewahrungsfachs (42) mit einem Deckel (40) abgedeckt und mit einer ersten Behandlungsmittelzugabeöffnung (44) beziehungsweise einer zweiten Behandlungsmittelzugabeöffnung (45) versehen sind, über die mehrmals verwendbare Behandlungsmittel eingeschüttet werden können, wobei das Zugabefach (43) oben offen ist.

2. Waschmaschine (1) nach Anspruch 1, **dadurch gekennzeichnet, dass**: das Einleiten und eine Menge verteilter Mittel der Verteilvorrichtung (4) von der Steuervorrichtung (10) gesteuert wird.
3. Waschmaschine (1) nach Anspruch 1, **dadurch gekennzeichnet, dass**: der Wasserversorgungskanal (8) mit einem von der Steuervorrichtung (10) gesteuerten Wasserventil (81) versehen ist und die Steuervorrichtung (10), wenn eine der beiden Verteilvorrichtungen (47, 48) das Waschmittel oder den Weichspüler an das Zugabefach (43) abgegeben hat, das Wasserventil (81) öffnet, so dass über den Wasserversorgungskanal (8) Wasser in das Zugabefach (43) fließt und mit dem Waschmittel oder dem Weichspüler in dem Zugabefach (43) vermischt und das Gemisch über den Behandlungsmittelleitungskanal (6) in das Wäschebehandlungsfach (2) gespült wird.
4. Waschmaschine (1) nach Anspruch 1, **dadurch gekennzeichnet, dass**: die Steuervorrichtung (10) mit mehreren Behandlungsprogrammen versehen ist und die Verteilvorrichtung (4) einem von einem Benutzer ausgewählten Behandlungsprogramm entsprechend gesteuert wird.
5. Waschmaschine (1) nach Anspruch 1, **dadurch gekennzeichnet, dass**: das Zugabefach (43) neben den beiden Aufbewahrungsfächern (41, 42) angeordnet ist.
6. Waschmaschine (1) nach Anspruch 5, **dadurch gekennzeichnet, dass**: sich das erste Aufbewahrungsfach (41) und das zweite Aufbewahrungsfach (42) jeweils auf zwei Seiten des Zugabefachs (43) befinden oder so angeordnet sind, dass sie das Zugabefach (43) zumindest teilweise umgeben.

Revendications

1. Lave-linge (1), comprenant : un compartiment de traitement du linge (2), un appareil de distribution d'agent de traitement (4) pour distribuer un agent de traitement au compartiment de traitement du linge (2) et un conduit de transfert d'agent de traitement (6) en connexion fluïdique avec l'appareil de distribution d'agent de traitement (4) et le compartiment de traitement du linge (2), dans lequel : l'appareil de distribution d'agent de traitement (4) comprend : deux compartiments de stockage (41, 42) qui stockent respectivement un détergent et un adoucissant, et un compartiment d'ajout manuel (43) dans lequel un agent de traitement est ajouté manuellement, dans lequel une sortie (46) est prévue au bas du compartiment d'ajout manuel (43) et est en communication avec le conduit de transfert d'agent de traitement (6), dans lequel chaque compartiment de stockage (41, 42) est doté d'un appareil de distribution (47, 48) disposé à l'intérieur de celui-ci et les deux appareils de distribution (47, 48) peuvent délivrer séquentiellement le détergent et l'adoucissant à destination du compartiment d'ajout manuel (43) selon la commande d'un appareil de commande (10), et une sortie (470, 480) de chacun des appareils de distribution (47, 48) est en connexion fluïdique avec le compartiment d'ajout manuel (43), et un conduit d'alimentation en eau (8) est en connexion fluïdique avec le compartiment d'ajout manuel (43), **caractérisé en ce que** le premier appareil de distribution (47) est disposé dans le premier compartiment de stockage (41) et le deuxième appareil de distribution (48) est disposé dans le deuxième compartiment de stockage (42), dans lequel le premier appareil de distribution (47) et le deuxième appareil de distribution (48) sont des pompes, dans lequel la sortie (470) du premier appareil de distribution (47) et la sortie (480) du deuxième appareil de distribution (48) sont toutes deux en connexion fluïdique avec le compartiment d'ajout manuel (43), dans lequel le dessus du premier compartiment de stockage (41) et le dessus du deuxième compartiment de stockage (42) sont couverts par un couvercle (40) et sont respectivement dotés d'un premier orifice d'ajout d'agent de traitement (44) et d'un deuxième orifice d'ajout d'agent de traitement (45) à travers lesquels des agents de traitement disponibles pour de multiples utilisations peuvent être ajoutés, dans lequel le compartiment d'ajout manuel (43) est ouvert sur le dessus.

2. Lave-linge (1) selon la revendication 1, **caractérisé en ce que** : le déclenchement et une quantité d'agents distribués de/par l'appareil de distribution (4) sont commandés par l'appareil de commande (10).
3. Lave-linge (1) selon la revendication 1, **caractérisé en ce que** : le conduit d'alimentation en eau (8) est doté d'une soupape à eau (81) commandée par l'appareil de commande (10), et après que l'un ou l'autre parmi les deux appareils de distribution (47, 48) délivre le détergent ou l'adoucissant à destination du compartiment d'ajout manuel (43), l'appareil de commande (10) ouvre la soupape à eau (81) de sorte que l'eau s'écoule vers le compartiment d'ajout manuel (43) à travers le conduit d'alimentation en eau (8) et est mélangée avec le détergent ou l'adoucissant dans le compartiment d'ajout manuel (43), et le mélange est déversé dans le compartiment de traitement du linge (2) via le conduit de transfert d'agent de traitement (6).
4. Lave-linge (1) selon la revendication 1, **caractérisé en ce que** : l'appareil de commande (10) est doté

de programmes de traitement multiples et l'appareil de distribution (4) est commandé selon un programme de traitement sélectionné par un utilisateur.

5. Lave-linge (1) selon la revendication 1, **caractérisé en ce que** : le compartiment d'ajout manuel (43) est disposé de façon adjacente aux deux compartiments de stockage (41,42). 5
6. Lave-linge (1) selon la revendication 5, **caractérisé en ce que** : le premier compartiment de stockage (41) et le deuxième compartiment de stockage (42) sont respectivement situés sur deux côtés du compartiment d'ajout manuel (43) ou sont disposés en entourant au moins partiellement le compartiment d'ajout manuel (43). 10 15

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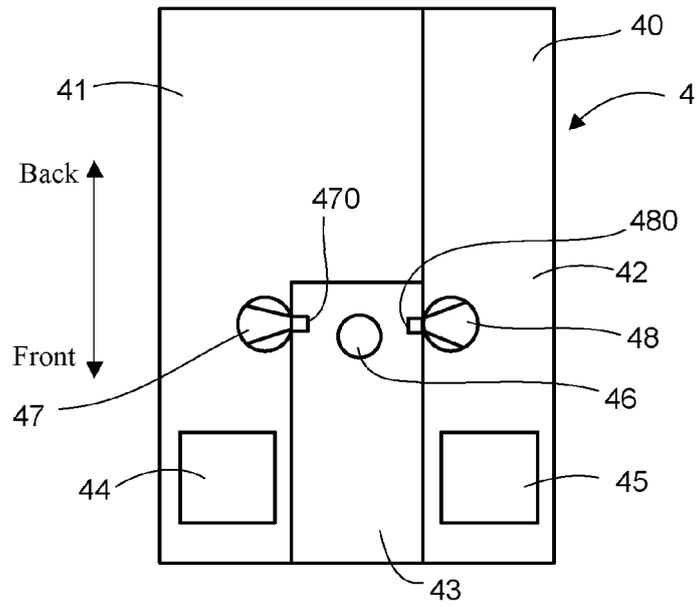


FIG. 1

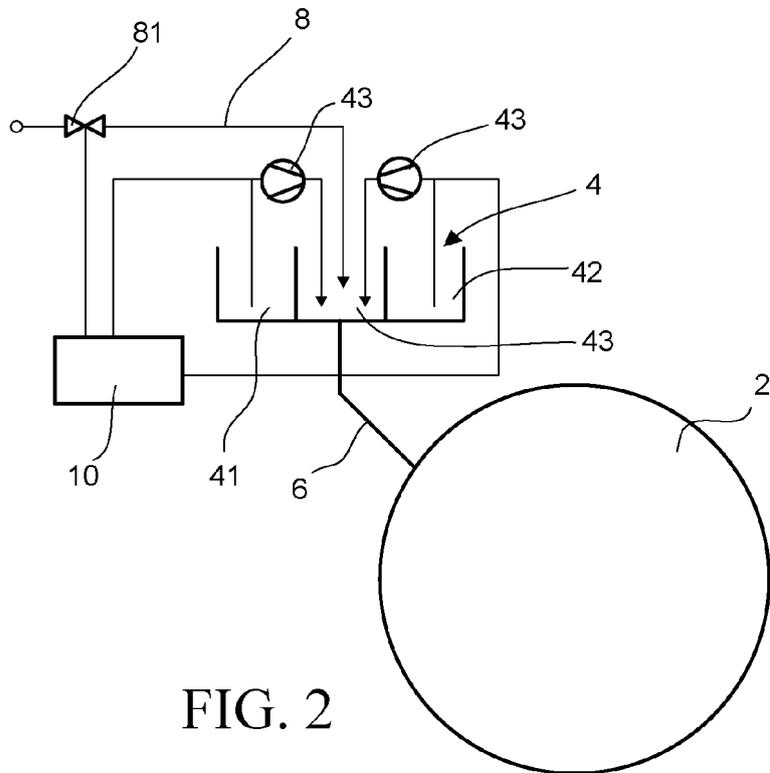


FIG. 2

REFERENCES CITED IN THE DESCRIPTION

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- CN 105463783 **[0003]**
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