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(54) **WASHING METHOD OF HANDHELD WASHING MACHINE AND HANDHELD WASHING MACHINE**

WASCHVERFAHREN FÜR HANDGEHALTENE WASCHMASCHINE SOWIE HANDGEHALTENE
WASCHMASCHINE

PROCÉDÉ DE LAVAGE DE MACHINE À LAVER PORTATIVE ET MACHINE À LAVER PORTATIVE

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Description

[0001] This invention relates to the field of handheld washing machine technologies, and in particular to a washing method of a handheld washing machine for washing laundry of the generic type as defined in the generic part of the respective independent claim attached and a handheld washing machine capable of performing such washing method.

[0002] Documents EP 2 811 062 A1 discloses a washing method of the generic type as defined above and a related handheld washing machine.

[0003] Specifically, EP 2 811 062 A1 discloses a portable laundry treating apparatus comprising a portable body, a supply tank including a tank body provided at the portable body, a water chamber provided in the tank body to store water therein, a detergent chamber provided in the tank body to store detergent therein, a suction tank including a suction chamber provided at the portable body to provide a space to store liquid therein, and a liquid transferring part for supplying liquid stored in the supply tank and the detergent chamber to the laundry and for transferring the liquid remaining in the laundry to the suction tank.

[0004] US 4,926,514 A discloses a method of and apparatus for removing stains from soiled areas of a planar textile article, wherein an area which is to be cleaned is initially subjected to a pulsating jet of a liquid which penetrates through the area and which liquid contains a cleaning agent. Thereafter the area is rinsed by a pulsating jet of water which also penetrates through the area.

[0005] US 2015/0292139 A1 discloses a handheld laundry treating apparatus including a portable body formed in the shape of a bar having a predetermined length for washing a localized portion of a laundry item placed on a vertical plane or a horizontal plane while being in contact with the laundry item, and a water tank mounted at a middle part of the portable body at an angle to the portable body for supplying wash water to the portable body and, at the same time, for collecting and storing contaminated water generated from the localized portion of the laundry item according to a use state of the portable body when washing the localized portion of the laundry item placed on the vertical plane or the horizontal plane.

[0006] A handheld washing machine is a relatively common laundry tool in our daily life. The handheld washing machine generally includes several components such as a washing portion, a water storage box, a material storage box, and a power pump. The handheld washing machine pumps water or a detergent to the washing portion through the power pump, sprays the water or the detergent to to-be-washed laundry, and slaps the laundry through vibration of the washing portion, to wash the laundry.

[0007] However, during laundry washing, the handheld washing machine in the related art merely slaps laundry through the vibration of the washing portion to wash the laundry. For some penetrating stains in the laundry, the

washing portion cannot enable the detergent to penetrate the laundry desirably to implement deep washing, resulting in a relatively weak washing capability for penetrating stains and stubborn stains.

[0008] In view of this, this invention provides a washing method of a handheld washing machine and a handheld washing machine, to resolve the problem in the related art that a handheld washing machine has a poor washing effect.

[0009] Specifically, the present invention provides a washing method of a handheld washing machine of the generic type as defined above and according to the respective independent claim attached.

[0010] Further, the present invention provides a handheld washing machine according to the respective independent claim attached.

[0011] Preferred embodiments of the present invention are defined in dependent claims attached.

[0012] With reference to the foregoing technical solutions, the beneficial effects of this invention are analyzed as follows:

The washing method of a handheld washing machine provided in this invention includes a main washing step. In the main washing step, a detergent is sprayed to laundry through the handheld washing machine, then a mechanical force is outputted to the laundry through the handheld washing machine to continuously wash the laundry, and during the continuous washing, the handheld washing machine intermittently blows an airflow to the laundry.

[0013] Compared with the method in the related art in which a handheld washing machine, during laundry washing, merely slaps laundry through vibration of a washing portion to wash the laundry, in the washing method of a handheld washing machine provided in this invention, during continuous washing, an airflow is intermittently blown to the laundry through the handheld washing machine to enable a detergent to better soak the laundry, thereby further improving the washing effect of the handheld washing machine.

[0014] In addition, this invention further provides a handheld washing machine. The handheld washing machine may perform the foregoing washing method of a handheld washing machine, and includes a washing portion, a water supply portion, a feeding portion, an air supply portion, and a controller. The washing portion may output a continuous mechanical force to wash laundry. The water supply portion may output clean water to the laundry. The feeding portion may output a detergent to the laundry. The air supply portion may output an airflow to the laundry. The controller is configured to be electrically connected to the washing portion, the water supply portion, the feeding portion, and the air supply portion respectively, and may control the washing portion to output the mechanical force to the laundry to continuously wash the laundry, control the water supply portion to spray the clean water to the laundry, control the feeding portion to spray the detergent to the laundry, and control

the air supply portion to intermittently blow the airflow to the laundry.

[0015] When the handheld washing machine performs the main washing step in the foregoing washing method of a handheld washing machine, the controller first controls the feeding portion to spray the detergent to the laundry; then, the controller controls the washing portion to output the mechanical force to the laundry to continuously wash the laundry; meanwhile, the controller controls the air supply portion to intermittently blow the airflow to the laundry, so that the detergent may better soak the laundry, to further improve the washing effect of the handheld washing machine.

[0016] Other features and advantages of the embodiments of this invention are described in a subsequent specification, and are partially apparent from the specification, or are understood by implementing the embodiments of this invention. An objective and other advantages of the embodiments of this invention are achieved and obtained in structures that are specially pointed out in the specification and the accompanying drawings.

FIG. 1 is a schematic flowchart of a handheld washing machine washing method according to an embodiment of this invention.

FIG. 2 is a first schematic structural diagram of a handheld washing machine according to an embodiment of this invention.

FIG. 3 is a second schematic structural diagram of the handheld washing machine according to an embodiment of this invention.

Reference Numerals:

[0017]

- 1-washing portion;
- 11- nozzle;
- 12-brush head;
- 2-water supply portion;
- 21-water storage box;
- 22-first electronic control valve;
- 3-feeding portion;
- 31-material storage box;
- 32-second electronic control valve;
- 4-air supply portion;

- 41-air inlet;
- 42-connecting pipe;
- 43-power pump;
- 44-third electronic control valve;
- S0-pre-washing step;
- S1-main washing step;
- S2-rinsing step; and
- S3-blowing step.

[0018] The accompanying drawings, which are incorporated herein and constitute a part of this specification, illustrate embodiments consistent with this invention and, together with the specification, serve to explain the principles of this invention.

[0019] To better understand the technical solutions of this invention, the embodiments of this invention application are described below in detail with reference to the accompanying drawings.

[0020] It should be clear that the described embodiments are merely some but not all of the embodiments of this invention. All other embodiments obtained by a person of ordinary skill in the art based on the embodiments of this invention without creative efforts shall fall within the protection scope of this invention.

[0021] The terms used in the embodiments of this invention are merely for describing specific embodiments, but are not intended to limit this invention. The terms "a", "said" and "the" of singular forms used in the embodiments and the appended claims of this invention are also intended to include plural forms, unless otherwise specified in the context clearly.

[0022] The term "and/or" used in this specification describes only an association relationship for describing associated objects and represents that three relationships may exist. For example, A and/or B may represent the following three cases: Only A exists, both A and B exist, and only B exists. In addition, the character "/" in this specification generally indicates an "or" relationship between the associated objects.

[0023] It should be noted that nouns of locality such as "above", "below", "left", and "right" described in the embodiments of this invention are described from the perspective shown in the accompanying drawings, and should not be construed as a limitation to the embodiments of this invention. In addition, in the context, it is further understood that when an element is described as being connected "on" or "under" another element, the element may be not merely connected "on" or "under" another element, but also indirectly connected "on" or "under" another element through an intermediate element.

[0024] The following describes specific embodiments according to a washing method of a handheld washing machine and a structure of the handheld washing machine provided in the embodiments of this invention.

[0025] FIG. 1 is a schematic flowchart of a washing method of a handheld washing machine according to an embodiment of this invention; FIG. 2 is a first schematic structural diagram of a handheld washing machine according to an embodiment of this invention; and FIG. 3 is a second schematic structural diagram of the handheld washing machine according to an embodiment of this invention.

[0026] As shown in FIG. 1, this embodiment of this invention provides a handheld washing machine of a washing method. The washing method of a handheld washing machine includes a main washing step S1. In the main washing step S1, a detergent is sprayed to laundry through the handheld washing machine, then a mechanical force is outputted to the laundry through the handheld washing machine to continuously wash the laundry, and during the continuous washing, the handheld washing machine intermittently blows an airflow to the laundry.

[0027] Compared with the method in the related art in which a handheld washing machine, during laundry washing, merely slaps laundry through vibration of a washing portion to wash the laundry, in the washing method of a handheld washing machine provided in this invention, during continuous washing, an airflow is intermittently blown to the laundry through the handheld washing machine to enable a detergent to better soak the laundry, thereby further improving the washing effect of the handheld washing machine.

[0028] In addition, this invention further provides a handheld washing machine. The handheld washing machine may perform the foregoing washing method of a handheld washing machine, and includes a washing portion 1, a water supply portion 2, a feeding portion 3, an air supply portion 4, and a controller 5. The washing portion 1 may output a continuous mechanical force to wash laundry. The water supply portion 2 may output clean water to the laundry. The feeding portion 3 may output a detergent to the laundry. The air supply portion 4 may output an airflow to the laundry. The controller 5 is configured to be electrically connected to the washing portion 1, the water supply portion 2, the feeding portion 3, and the air supply portion 4 respectively, and may control the washing portion 1 to output the mechanical force to the laundry to continuously wash the laundry, control the water supply portion 2 to spray the clean water to the laundry, control the feeding portion 3 to spray the detergent to the laundry, and control the air supply portion 4 to intermittently blow the airflow to the laundry.

[0029] When the handheld washing machine performs the main washing step S1 in the foregoing washing method of a handheld washing machine, the controller 5 first controls the feeding portion 3 to spray the detergent to the laundry; then the controller 5 controls the washing portion 1 to output the mechanical force to the laundry

to continuously wash the laundry; meanwhile, the controller 5 controls the air supply portion 4 to intermittently blow the airflow to the laundry, so that the detergent may better soak the laundry, to further improve the washing effect of the handheld washing machine.

[0030] In an optional solution of the washing method of a handheld washing machine in this embodiment, during the continuous washing, the handheld washing machine blows an airflow that lasts a time period ΔT_1 to the laundry at intervals of a time period T_1 .

[0031] Specifically, as shown in FIG. 1, for example, the time period T_1 may be specifically set to, but is not limited to 10 seconds. The time period ΔT_1 may be specifically set to, but is not limited to 2 seconds. In this way, during the continuous washing, an airflow that lasts 2 seconds blown by the air supply portion 4 to the laundry at intervals of 10 seconds enables the detergent to gradually soak the laundry during washing. This not only ensures that stains on the laundry are cleaned, but also ensures that deep stains in the laundry are cleaned.

[0032] It should be noted that the controller 5 may be specifically configured to be, but is not limited to a PLC. A timing control instruction is preset through the PLC, so that the air supply portion 4 may be controlled to blow the airflow that lasts a time period ΔT_1 to the laundry at intervals of a time period T_1 .

[0033] In the optional solution of the washing method of a handheld washing machine in this embodiment, the main washing step S1 may be cyclically performed for a plurality of times.

[0034] Specifically, as shown in FIG. 1, the number of cycles of the main washing step S1 may be preset through a PLC cycle instruction. In this way, the handheld washing machine, when executing a complete washing procedure, may perform the main washing step S1 for a plurality of times, to ensure that stubborn stains penetrating the laundry can be fully cleaned.

[0035] In an optional solution of the washing method of a handheld washing machine in this embodiment, the washing method of a handheld washing machine further includes a rinsing step S2 after the main washing step S1. In the rinsing step S2, clean water is sprayed to the laundry through the handheld washing machine, then a mechanical force is outputted to the laundry through the handheld washing machine to continuously rinse the laundry, and during the continuous rinsing, the handheld washing machine intermittently blows an airflow to the laundry.

[0036] Specifically, as shown in FIG. 1, when the rinsing step S2 is performed, the controller 5 first controls the water supply portion 2 to spray the clean water to the laundry; then the controller 5 controls the washing portion 1 to output the mechanical force to the laundry to continuously rinse the laundry; meanwhile, the controller 5 controls the air supply portion 4 to intermittently blow the airflow to the laundry, so that the clean water may better soak the laundry during rinsing, to further improve the rinsing effect of the handheld washing machine.

[0037] In an optional solution of the washing method of a handheld washing machine in this embodiment, during the continuous rinsing, the handheld washing machine blows an airflow that lasts a time period ΔT_2 to the laundry at intervals of a time period T_2 .

[0038] Specifically, as shown in FIG. 1, for example, the time period T_2 may be specifically set to, but is not limited to 12 seconds. The time period ΔT_2 may be specifically set to, but is not limited to 3 seconds. In this way, during the continuous washing, the air supply portion 4 blows an airflow that lasts 3 seconds to the laundry at intervals of 12 seconds, to enable the clean water to gradually soak the laundry during rinsing. This ensures an effect of rinsing both the surface of the laundry and the depths of the laundry.

[0039] In an optional solution of the washing method of a handheld washing machine in this embodiment, the rinsing step S2 may be cyclically performed for a plurality of times.

[0040] In the same way, the number of cycles of the rinsing step S2 may be preset through a PLC cycle instruction. In this way, the handheld washing machine, when executing a complete washing procedure, may perform the rinsing step S2 for a plurality of times, to ensure that the laundry is fully rinsed.

[0041] In an optional solution of the washing method of a handheld washing machine in this embodiment, the washing method of a handheld washing machine further includes a blowing step S3 after the rinsing step S2. In the blowing step S3, a high-pressure airflow is continuously blown to the laundry through the handheld washing machine.

[0042] Specifically, as shown in FIG. 1, when the blowing step S3 is performed, the controller 5 controls the air supply portion 4 to continuously blow an airflow to the laundry. Moisture in the laundry after the rinsing may be blown out through the blowing step S3, to dry the laundry. Especially, when the handheld washing machine is used for partially washing the laundry, wet parts of the laundry may be dried through the blowing step S3, to facilitate drying the laundry.

[0043] In an optional solution of the washing method of a handheld washing machine in this embodiment, the washing method of a handheld washing machine further includes a pre-washing step S0 before the main washing step S1. In the pre-washing step S0, the handheld washing machine sprays clean water to the laundry to wet the laundry.

[0044] Specifically, as shown in FIG. 1, when the pre-washing step S0 is performed, the controller 5 controls the water supply portion 2 to spray clean water to the laundry. In the pre-washing step S0, the laundry may be wetted, to help the detergent to better dissolve and penetrate in the subsequent main washing step S1, to further improve an effect of cleaning stains.

[0045] In an optional solution of the handheld washing machine in this embodiment, the air supply portion 4 includes an air inlet 41, a connecting pipe 42, and a power

pump 43 disposed on the connecting pipe 42, and the air inlet 41 is connected to a nozzle 11 through the connecting pipe 42.

[0046] Specifically, as shown in FIG. 2, the air supply portion 4 is designed to include the air inlet 41, the connecting pipe 42, and the power pump 43. The air inlet 41 is connected to the nozzle 11 through the connecting pipe 42. An operating state of the power pump 43 on the connecting pipe 42 is controlled through the controller 5, to implement the function of controlling the nozzle 11 to intermittently blow an airflow, thereby achieving beneficial effects of a simple structure and convenient use.

[0047] In an optional solution of the handheld washing machine in this embodiment, the washing portion 1 includes a brush head 12 and a driving device (not shown) that drives the brush head 12 to perform washing, and the nozzle 11 is disposed on the brush head 12.

[0048] Specifically, as shown in FIG. 2, the nozzle 11 may be specifically disposed in a central part of the brush head 12. In this way, the structure of the handheld washing machine may be simplified. When the brush head 12 rotates to wash or vibrates to slap and wash the laundry, the nozzle 11 may spray an airflow to the laundry at the same time, so that the detergent may better penetrate the laundry.

[0049] Certainly, the nozzle 11 may alternatively be disposed on another part of the handheld washing machine provided that the normal function of blowing an airflow to laundry is not affected.

[0050] In an optional solution of the handheld washing machine in this embodiment, the water supply portion 2 includes a water storage box 21, a connecting pipe 42, and a power pump 43 disposed on the connecting pipe 42; and the feeding portion 3 includes a material storage box 31, a connecting pipe 42, and a power pump 43 disposed on the connecting pipe 42, where at least one of the connecting pipes 42 in the water supply portion 2 and the feeding portion 3 is connected to the nozzle 11, so that the nozzle 11 further externally outputs the clean water or the detergent.

[0051] Specifically, as shown in FIG. 3, the at least one of the connecting pipes 42 in the water supply portion 2 and the feeding portion 3 is connected to the nozzle 11, so that the water supply portion 2, the feeding portion 3, and the air supply portion 4 may share one connecting pipe 42. The controller 5 controls operating states of the respective power pumps 43 of the water supply portion 2, the feeding portion 3, and the air supply portion 4, to implement the function of spraying the clean water, the detergent, or the airflow through the nozzle 11 to laundry.

[0052] Through the foregoing structure, functions of controlling an airflow, a detergent and clean water to be separately conveyed and sprayed may be implemented through one connecting pipe 42 and one nozzle 11, thereby achieving beneficial effects of a simple structure and convenient use.

[0053] Certainly, each of the water supply portion 2 and the feeding portion 3 may alternatively be provided

with a dedicated water supply pipe, a dedicated feeding pipe, a dedicated water spraying nozzle, a dedicated material spraying nozzle, provided that the conveying and spraying functions can be implemented.

[0054] In an optional solution of the handheld washing machine in this embodiment, the water supply portion 2, the feeding portion 3, and the air supply portion 4 are further correspondingly provided with a first electronic control valve 22, a second electronic control valve 32, and a third electronic control valve 44 on the respective connecting pipes 42. The water supply portion 2, the feeding portion 3, and the air supply portion 4 share the same power pump 43. The controller 5 is electrically connected to the first electronic control valve 22, the second electronic control valve 32, and the third electronic control valve 44 respectively, and may control on and off states of the first electronic control valve 22, the second electronic control valve 32, and the third electronic control valve 44, so that the power pump 43 may separately pump the airflow, the clean water, or the detergent.

[0055] Specifically, as shown in FIG. 3, the water supply portion 2, the feeding portion 3, and the air supply portion 4 are configured to share one power pump 43, and the controller 5 is electrically connected to the first electronic control valve 22, the second electronic control valve 32, and the third electronic control valve 44 in the water supply portion 2, the feeding portion 3, and the air supply portion 4 respectively. The function of spraying clean water, a detergent, or an airflow separately to laundry by the nozzle 11 may be implemented by using one power pump 43 and controlling the on and off states of the first electronic control valve 22, the second electronic control valve 32, and the third electronic control valve 44 through the controller 5, thereby achieving beneficial effects of simplifying the structure of the handheld washing machine, and reducing manufacturing costs.

[0056] Certainly, a dedicated water supply pipe and a dedicated feeding pipe may alternatively be disposed separately, and a power pump 43 may be separately disposed on each pipe respectively. The function of separately supplying the clean water, the detergent, and the airflow may alternatively be implemented by controlling an operating state of each power pump 43 through the controller 5.

[0057] The foregoing descriptions are merely exemplary embodiments of this invention, but are not intended to limit this application.

[0058] It should be noted that features of dependent claims may be combined with each other in any manner and combined with the features of independent claims without departing from the concept of this invention.

Claims

1. A washing method of a handheld washing machine for washing laundry, comprising the following steps: a pre-washing step (S0): spraying clean water to the

laundry to wet the laundry:

a main washing step (S1): spraying a detergent to laundry through the handheld washing machine, then outputting a mechanical force to the laundry through the handheld washing machine to continuously wash the laundry, **characterized by**

during the continuous washing, controlling a power pump (43) to intermittently blow an airflow to the laundry by a nozzle (11), and outputting the mechanical force to the laundry by a brush head (12) driven by a driving device, wherein the nozzle (11) is disposed on the brush head (12).

2. The washing method of a handheld washing machine according to claim 1, **characterized in that** during the continuous washing, the handheld washing machine blows an airflow that lasts a time period L1T1 to the laundry at intervals of a time period T1.
3. The washing method of a handheld washing machine according to claim 2, **characterized in that** the main washing step (S1) can be cyclically performed for a plurality of times.
4. The washing method of a handheld washing machine according to claim 1, **characterized by** further comprising a rinsing step (S2) after the main washing step (S1):
the rinsing step (S2): spraying clean water to the laundry through the handheld washing machine, then outputting a mechanical force to the laundry through the handheld washing machine to continuously rinse the laundry, and during the continuous rinsing, intermittently blowing an airflow to the laundry by the handheld washing machine.
5. The washing method of a handheld washing machine according to claim 4, **characterized in that** during the continuous rinsing, the handheld washing machine blows an airflow that lasts a time period L1T2 to the laundry at intervals of a time period T2.
6. The washing method of a handheld washing machine according to claim 5, **characterized in that** the rinsing step (S2) can be cyclically performed for a plurality of times.
7. The washing method of a handheld washing machine according to claim 4, **characterized by** further comprising a blowing step (S3) after the rinsing step (S2):
the blowing step (S3): continuously blowing a high-pressure airflow to the laundry through the handheld washing machine.

8. A handheld washing machine, capable of performing the washing method of a handheld washing machine according to any one of claims 1 to 7, **characterized by** comprising:

a washing portion (1), outputting a continuous mechanical force to wash laundry; a water supply portion (2), outputting clean water to the laundry;
 a feeding portion (3), outputting a detergent to the laundry;
 an air supply portion (4), outputting an airflow to the laundry; and
 a controller (5), configured to be electrically connected to the washing portion (1), the water supply portion (2), the feeding portion (3), and the air supply portion (4) respectively, and configured to control the washing portion (1) to output the mechanical force to the laundry to continuously wash the laundry, control the water supply portion (2) to spray the clean water to the laundry, control the feeding portion (3) to spray the detergent to the laundry, **characterized in that** the controller (5) is also configured to control the air supply portion (4) to intermittently blow the airflow to the laundry during continuously washing the laundry;
 the washing portion (1) comprises a brush head (12) and a driving device that drives the brush head (12) to output the mechanical force to perform washing;
 the air supply portion (4) comprises an air inlet (41), a connecting pipe (42), and a power pump (43) disposed on the connecting pipe (42), and the air inlet (41) is connected to a nozzle (11) through the connecting pipe (42); and
 the nozzle (11) is disposed on the brush head (12).

9. The handheld washing machine according to claim 8, **characterized in that** the water supply portion (2) comprises a water storage box (21), a connecting pipe (42), and a power pump (43) disposed on the connecting pipe (42); and

the feeding portion (3) comprises a material storage box (31), a connecting pipe (42), and a power pump (43) disposed on the connecting pipe (42),
 wherein at least one of the connecting pipes (42) in the water supply portion (2) and the feeding portion (3) is connected to the nozzle (11), so that the nozzle (11) further externally outputs the clean water or the detergent.

10. The handheld washing machine according to claim 8, **characterized in that** the water supply portion (2), the feeding portion (3), and the air supply portion

(4) are further correspondingly provided with a first electronic control valve (22), a second electronic control valve (32), and a third electronic control valve (44) on the respective connecting pipes (42);

the water supply portion (2), the feeding portion (3), and the air supply portion (4) share the same power pump (43); and
 the controller (5) is electrically connected to the first electronic control valve (22), the second electronic control valve (32), and the third electronic control valve (44) respectively, and controls on and off states of the first electronic control valve (22), the second electronic control valve (32), and the third electronic control valve (44) to enable the power pump (43) to separately pump the airflow, the clean water, or the detergent.

Patentansprüche

1. Waschverfahren für eine tragbare Waschmaschine zum Waschen von Wäsche, das folgende Schritte umfasst:

einen Vorwaschschritt (S0): Sprühen von sauberem Wasser auf die Wäsche zum Befeuchten der Wäsche,
 einen Hauptwaschschritt (S1): Sprühen eines Waschmittels auf Wäsche in der tragbaren Waschmaschine, dann Ausüben einer mechanischen Kraft auf die Wäsche in der tragbaren Waschmaschine zum stetigen Waschen der Wäsche, **gekennzeichnet durch** derartiges Steuern einer Motorpumpe (43) beim stetigen Waschen, dass sie periodisch über eine Düse (11) einen Luftstrom auf die Wäsche bläst, und Ausüben der mechanischen Kraft auf die Wäsche über einen von einer Antriebsvorrichtung angetriebenen Bürstenkopf (12), wobei die Düse (11) an dem Bürstenkopf (12) angeordnet ist.

2. Waschverfahren für eine tragbare Waschmaschine nach Anspruch 1, **dadurch gekennzeichnet, dass** die tragbare Waschmaschine beim stetigen Waschen in Abständen von einer Zeitspanne T1 einen Luftstrom auf die Wäsche bläst, der eine Zeitspanne L1T1 andauert.
3. Waschverfahren für eine tragbare Waschmaschine nach Anspruch 2, **dadurch gekennzeichnet, dass** der Hauptwaschschritt (S1) zyklisch mehrmals durchgeführt werden kann.
4. Waschverfahren für eine tragbare Waschmaschine nach Anspruch 1, **dadurch gekennzeichnet, dass**

es nach dem Hauptwaschschritt (S1) ferner einen Spülschritt (S2) umfasst:

der Spülschritt (S2): Sprühen von sauberem Wasser auf die Wäsche in der tragbaren Waschmaschine, dann Ausüben einer mechanischen Kraft auf die Wäsche in der tragbaren Waschmaschine zum stetigen Spülen der Wäsche und beim stetigen Spülen periodisches Blasen eines Luftstroms auf die Wäsche durch die tragbare Waschmaschine.

5. Waschverfahren für eine tragbare Waschmaschine nach Anspruch 4, **dadurch gekennzeichnet, dass** die tragbare Waschmaschine beim stetigen Spülen in Abständen von einer Zeitspanne T2 einen Luftstrom auf die Wäsche bläst, der eine Zeitspanne L1T2 andauert.

6. Waschverfahren für eine tragbare Waschmaschine nach Anspruch 5, **dadurch gekennzeichnet, dass** der Spülschritt (S2) zyklisch mehrmals durchgeführt werden kann.

7. Waschverfahren für eine tragbare Waschmaschine nach Anspruch 4, **dadurch gekennzeichnet, dass** es ferner nach dem Spülschritt (S2) einen Blasschritt (S3) umfasst:
der Blasschritt (S3): stetiges Blasen eines Hochdruckluftstroms auf die Wäsche in der tragbaren Waschmaschine.

8. Tragbare Waschmaschine, die in der Lage ist, das Waschverfahren für eine tragbare Waschmaschine nach einem der Ansprüche 1 bis 7 durchzuführen, **dadurch gekennzeichnet, dass** sie Folgendes umfasst:

einen Waschabschnitt (1), der zum Waschen von Wäsche eine stetige mechanische Kraft ausübt,
einen Wasserzuleitabschnitt (2), der sauberes Wasser auf die Wäsche abgibt,
einen Zuführabschnitt (3), der ein Waschmittel auf die Wäsche abgibt,
einen Luftzuleitabschnitt (4), der einen Luftstrom auf die Wäsche abgibt, und
eine Steuerung (5), die so konfiguriert ist, dass sie sich elektrisch mit dem Waschabschnitt (1), dem Wasserzuleitabschnitt (2), dem Zuführabschnitt (3) beziehungsweise dem Luftzuleitabschnitt (4) verbinden lässt und dass sie den Waschabschnitt (1) so steuert, dass er zum stetigen Waschen der Wäsche die mechanische Kraft auf die Wäsche ausübt, den Wasserzuleitabschnitt (2) so steuert, dass er das saubere Wasser auf die Wäsche sprüht, den Zuführabschnitt (3) so steuert, dass er das Waschmittel auf die Wäsche sprüht, **dadurch gekennzeichnet, dass**

die Steuerung (5) auch so konfiguriert ist, dass sie den Luftzuleitabschnitt (4) so steuert, dass er beim stetigen Waschen der Wäsche periodisch den Luftstrom auf die Wäsche bläst, der Waschabschnitt (1) einen Bürstenkopf (12) und eine Antriebsvorrichtung umfasst, die bewirkt, dass der Bürstenkopf (12) die mechanische Kraft zum Durchführen des Waschens ausübt,
der Luftleitabschnitt (4) einen Lufteinlass (41), einen Verbindungsschlauch (42) und eine an dem Verbindungsschlauch (42) angeordnete Motorpumpe (43) umfasst und der Lufteinlass (41) über den Verbindungsschlauch (42) mit einer Düse (11) verbunden ist, und
die Düse (11) an dem Bürstenkopf (12) angeordnet ist.

9. Tragbare Waschmaschine nach Anspruch 8, **dadurch gekennzeichnet, dass** der Wasserzuleitabschnitt (2) einen Wasserspeicherbehälter (21), einen Verbindungsschlauch (42) und eine an dem Verbindungsschlauch (42) angeordnete Motorpumpe (43) umfasst und

der Zuführabschnitt (3) einen Materialaufbewahrungsbehälter (31), einen Verbindungsschlauch (42) und eine an dem Verbindungsschlauch (42) angeordnete Motorpumpe (43) umfasst,
wobei mindestens einer der Verbindungsschläuche (42) im Wasserzuleitabschnitt (2) und im Zuführabschnitt (3) mit der Düse (11) verbunden ist, so dass die Düse (11) ferner das saubere Wasser oder das Waschmittel nach außen abgibt.

10. Tragbare Waschmaschine nach Anspruch 8, **dadurch gekennzeichnet, dass** der Wasserzuleitabschnitt (2), der Zuführabschnitt (3) und der Luftzuleitabschnitt (4) an den jeweiligen Verbindungsschläuchen (42) ferner entsprechend mit einem ersten elektronischen Regelventil (22), einem zweiten elektronischen Regelventil (32) und einem dritten elektronischen Regelventil (44) versehen sind,

der Wasserzuleitabschnitt (2), der Zuführabschnitt (3) und der Luftzuleitabschnitt (4) die gleiche Motorpumpe (43) benutzen und
die Steuerung (5) elektrisch mit dem ersten elektronischen Regelventil (22), dem zweiten elektronischen Regelventil (32) beziehungsweise dem dritten elektronischen Regelventil (44) verbunden ist und Ein- und Ausschaltzustände des ersten elektronischen Regelventils (22), des zweiten elektronischen Regelventils (32) und des dritten elektronischen Regelventils (44) steuert und es der Motorpumpe (43) so ermöglicht

licht, den Luftstrom, das saubere Wasser oder das Waschmittel separat zu pumpen.

Revendications

1. Procédé de lavage d'une machine à laver portable permettant de laver du linge, comprenant les étapes suivantes :

une étape de prélavage (S0) : consistant à pulvériser de l'eau propre sur le linge afin d'humidifier le linge ;

une étape de lavage principal (S1) : consistant à pulvériser un détergent sur le linge à travers la machine à laver portable, puis à émettre une force mécanique au linge par le biais de la machine à laver portable afin de laver le linge en continu, **caractérisé en ce que** pendant le lavage continu, une pompe électrique (43) est commandée afin de souffler de manière intermittente un flux d'air sur le linge par le biais d'une buse (11), et d'émettre la force mécanique au linge par une tête de brosse (12) entraînée par un dispositif de commande, dans lequel la buse (11) est disposée sur la tête de brosse (12).

2. Procédé de lavage d'une machine à laver portable selon la revendication 1, **caractérisé en ce que** pendant le lavage continu, la machine à laver portable souffle un flux d'air qui dure un laps de temps L1T1 sur le linge à intervalles d'un laps de temps T1.

3. Procédé de lavage d'une machine à laver portable selon la revendication 2, **caractérisé en ce que** l'étape de lavage principale (S1) peut être réalisée de manière cyclique à plusieurs reprises.

4. Procédé de lavage d'une machine à laver portable selon la revendication 1, **caractérisé en ce qu'il** comprend en outre une étape de rinçage (S2) après l'étape de lavage principale (S1) : l'étape de rinçage (S2) : consistant à vaporiser de l'eau propre sur le linge par le biais de la machine à laver portable, puis à émettre une force mécanique sur le linge par le biais de la machine à laver portable afin de rincer le linge en continu, et pendant le rinçage continu, à souffler par intermittence un flux d'air sur le linge par la machine à laver portable.

5. Procédé de lavage d'une machine à laver portable selon la revendication 4, **caractérisé en ce que** pendant le rinçage continu, la machine à laver portable souffle un flux d'air qui dure un laps de temps L1T2 sur le linge à intervalles d'un laps de temps T2.

6. Procédé de lavage d'une machine à laver portable

selon la revendication 5, **caractérisé en ce que** l'étape de rinçage (S2) peut être réalisée de manière cyclique à plusieurs reprises.

7. Procédé de lavage d'une machine à laver portable selon la revendication 4, **caractérisé en ce qu'il** comprend en outre une étape de soufflage (S3) après l'étape de rinçage (S2) :

l'étape de soufflage (S3) : consistant à souffler en continu un flux d'air à haute pression sur le linge par le biais de la machine à laver portable.

8. Machine à laver portable, capable de réaliser le procédé de lavage d'une machine à laver portable selon l'une quelconque des revendications 1 à 7, **caractérisée en ce qu'elle** comprend :

une partie de lavage (1), qui émet une force mécanique continue afin de laver le linge ;

une partie d'alimentation en eau (2), qui envoie de l'eau propre sur le linge ;

une partie d'alimentation (3), qui envoie du détergent sur le linge ;

une partie d'alimentation en air (4), qui envoie un flux d'air sur le linge ; et

un dispositif de commande (5), configuré afin d'être électriquement raccordé à la partie de lavage (1), la partie d'alimentation en eau (2), la partie d'alimentation (3), et la partie d'alimentation en air (4) respectivement, et configuré afin de commander la partie de lavage (1) pour émettre la force mécanique sur le linge afin de laver le linge en continu, de commander la partie d'alimentation en eau (2) afin de vaporiser l'eau propre sur le linge, de commander la partie d'alimentation (3) afin de vaporiser le détergent sur le linge, **caractérisé en ce que** :

le dispositif de commande (5) est également configuré afin de commander la partie d'alimentation en air (4) afin de souffler par intermittence le flux d'air sur le linge pendant le lavage continu du linge ;

la partie de lavage (1) comprend une tête de brosse (12) et un dispositif de commande qui entraîne la tête de brosse (12) afin d'émettre la force mécanique permettant de réaliser le lavage ;

la partie d'alimentation en air (4) comprend une entrée d'air (41), un tuyau de raccordement (42), et une pompe électrique (43) disposée sur le tuyau de raccordement (42), et l'entrée d'air (41) est raccordée à une buse (11) par le biais du tuyau de raccordement (42) ; et

la buse (11) est disposée sur la tête de brosse (12).

9. Machine à laver portative selon la revendication 8, **caractérisée en ce que** la partie d'alimentation en eau (2) comprend un boîtier de stockage d'eau (21), un tuyau de raccordement (42), et une pompe électrique (43) disposée sur le tuyau de raccordement (42) ; et 5

la partie d'alimentation (3) comprend un boîtier de stockage de matériel (31), un tuyau de raccordement (42), et une pompe électrique (43) disposée sur le tuyau de raccordement (42), dans lequel au moins un des tuyaux de raccordement (42) dans la partie d'alimentation en eau (2) et la partie d'alimentation (3) est raccordé à la buse (11), de sorte que la buse (11) envoie vers l'extérieur l'eau propre ou le détergent. 10 15

10. Machine à laver portative selon la revendication 8, **caractérisée en ce que** la partie d'alimentation en eau (2), la partie d'alimentation (3), et la partie d'alimentation en air (4) sont en outre dotées de manière correspondante d'une première vanne de commande électronique (22), d'une deuxième vanne de commande électronique (32), et d'une troisième vanne de commande électronique (44) sur les conduites de raccordement respectives (42) ; 20 25

la partie d'alimentation en eau (2), la partie d'alimentation (3), et la partie d'alimentation en air (4) partagent la même pompe électrique (43) ; et le dispositif de commande (5) est électriquement raccordé à la première vanne de commande électronique (22), à la deuxième vanne de commande électronique (32), et à la troisième vanne de commande électronique (44) respectivement, et commande les états de marche et d'arrêt de la première vanne de commande électronique (22), de la deuxième vanne de commande électronique (32), et de la troisième vanne de commande électronique (44) afin de permettre à la pompe électrique (43) de pomper séparément le flux d'air, l'eau propre, ou le détergent. 30 35 40

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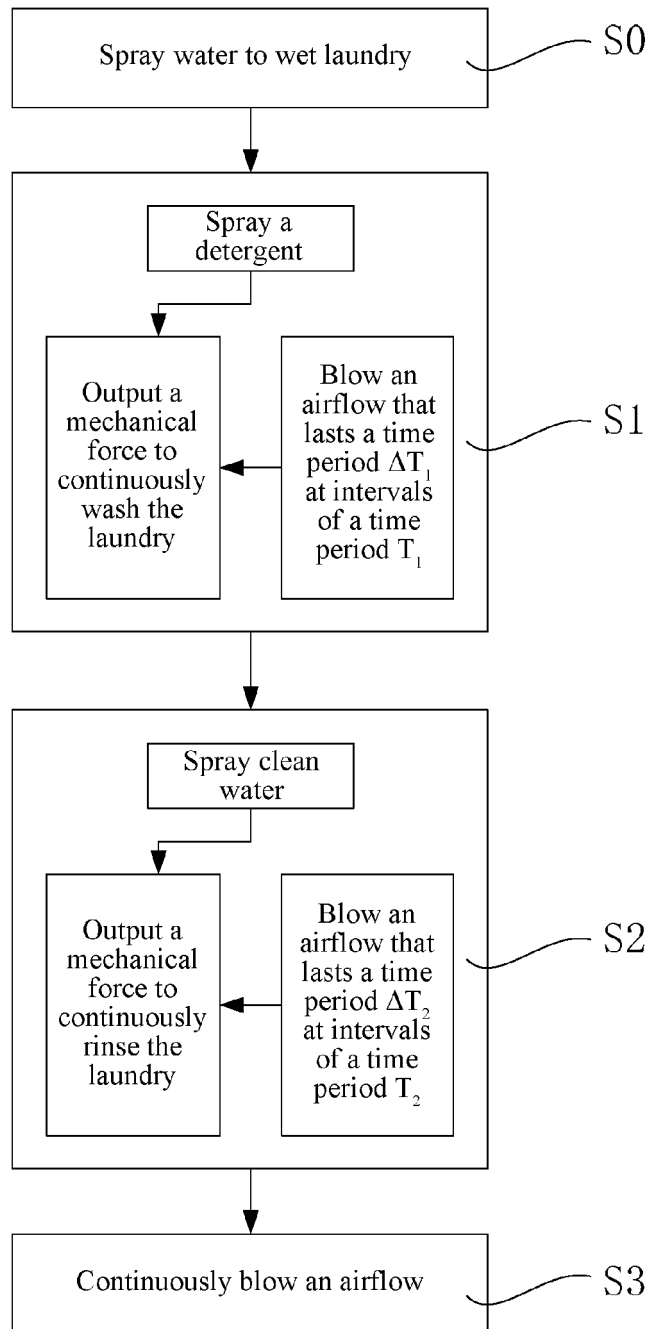


FIG. 1

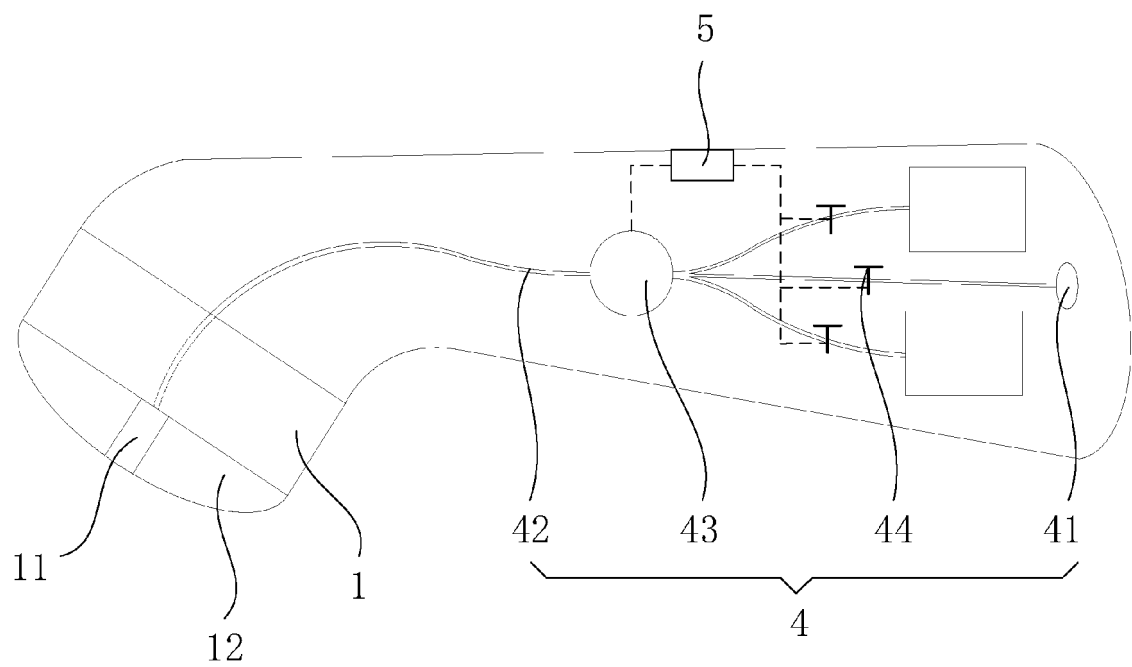


FIG. 2

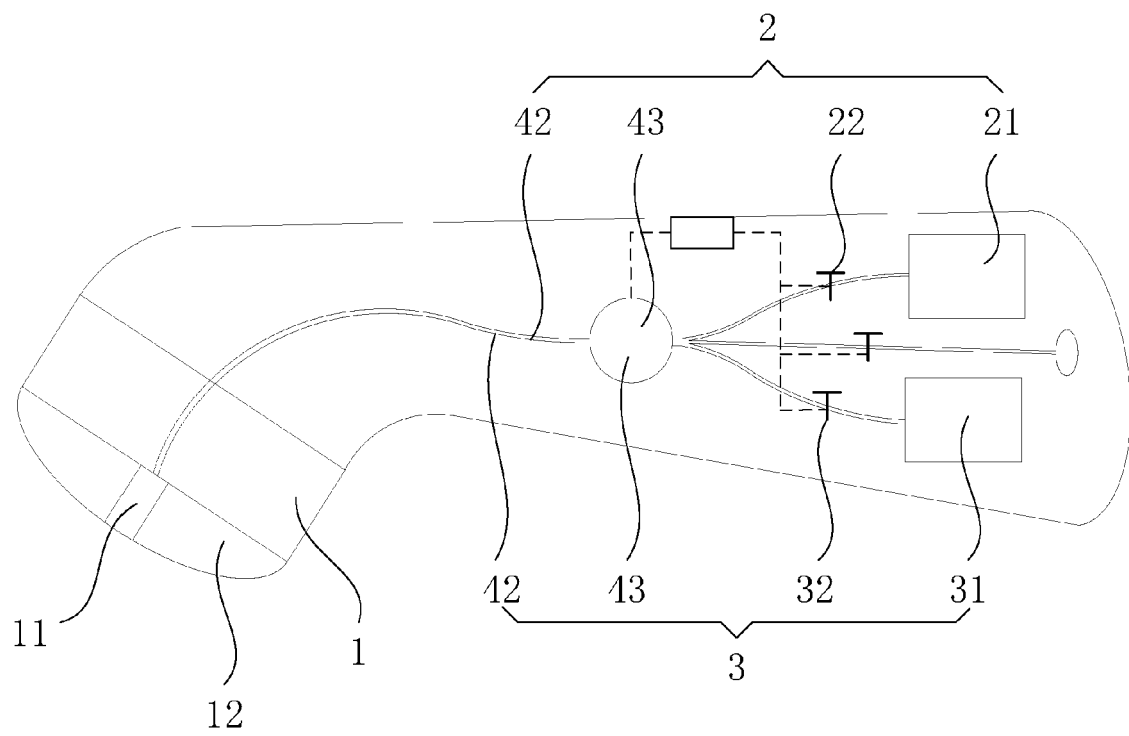


FIG. 3

REFERENCES CITED IN THE DESCRIPTION

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