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(54) CLOTHING TREATMENT EQUIPMENT, WATER SUPPLY CONTROL METHOD, AND COMPUTER-READABLE STORAGE MEDIUM

(57) The present application provides a clothing treatment equipment, a water supply control method, and a computer-readable storage medium. The method comprises : executing first treatment in a first water supply stage, wherein the first treatment comprises supplying water to a clothing containing device through a filter screen by means of a second water supply pipeline; and executing second treatment in a second water supply stage, wherein the second water supply stage follows the first water supply stage, and the second treatment comprises supplying water to the clothing containing device only by means of a first water supply pipeline. According to the technical solution, the filter screen is effectively cleaned in the first water supply stage, and in the second water supply stage, i.e., the final water supply stage before drying, water is supplied by means of the first water supply pipeline rather than the second water supply pipeline, such that water is prevented from flowing through the filter screen to form a water screen. The present invention implements effective cleaning of the filter screen, avoids the drying effect from being affected by the water screen, further maintains the safe operation of a plurality of components including a fan, and prolongs the service life of the plurality of components.

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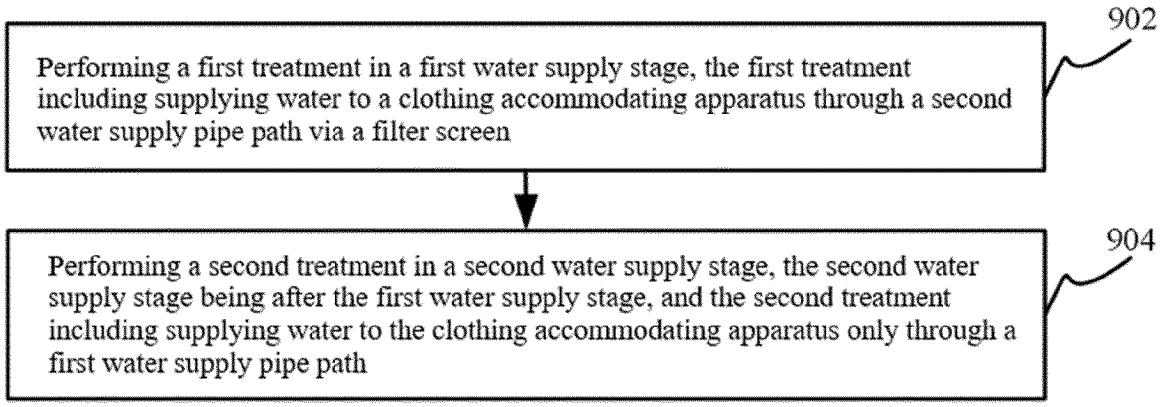
902
Performing a first treatment in a first water supply stage, the first treatment including supplying water to a clothing accommodating apparatus through a second water supply pipe path via a filter screen
904
Performing a second treatment in a second water supply stage, the second water supply stage being after the first water supply stage, and the second treatment including supplying water to the clothing accommodating apparatus only through a first water supply pipe path

FIG. 9

Description

[0001] This application claims priority to Chinese Patent Application No. 202222310919.3 filed on August 31, 2022, PCT International Applications PCT/CN2022/116142 and PCT/CN2022/116387 filed on August 31, 2022, and PCT/CN2023/072664 filed on January 17, 2023, entire contents of which are incorporated herein by reference.

TECHNICAL FIELD

[0002] The present application relates to the field of electric household appliances, and more particularly, to a laundry treatment device, a water supply control method, and a computer-readable storage medium.

BACKGROUND OF THE DISCLOSURE

[0003] With continuous advancement of manufacturing technology and ever-growing daily needs of people, laundry treatment devices have entered thousands of households, becoming one of the most commonly used home appliances. At present, the laundry treatment devices are used to perform various treatment processes on laundry, including washing, rinsing, ironing, and drying, etc.

[0004] When an existing laundry treatment device feeds water into a laundry accommodating apparatus, water flows through a filter screen. The filter screen is used to filter out the lint and impurities generated during a drying process. While the water flow has a cleaning effect on the filter screen, it also tends to form a water film on the surface of the filter screen. When the laundry treatment device is performing drying, the water film affects a ventilation area of the filter screen, resulting in a decrease in the drying air volume and affecting a drying performance.

[0005] Additionally, after drying, when the filter is cleaned, the water flow can easily flow into the laundry accommodating apparatus, which cause the laundry to become damp and further affecting a drying performance.

[0006] Therefore, how to effectively clean the filter screen while ensuring an optimal drying performance has become an urgent technical problem to address.

SUMMARY OF THE DISCLOSURE

[0007] An objective of the present application is to provide a laundry treatment device, a water supply control method and a computer-readable storage medium, which can effectively clean a filter screen while ensuring an optimal drying performance.

[0008] In a first aspect, according to an embodiment of the present application, there is provided a laundry treatment device, including:

a laundry accommodating apparatus, and configured to accommodate laundry to be treated;

a laundry treatment agent dispenser, connected to the laundry accommodating apparatus, and configured to accommodate a laundry treatment agent to be dispensed to the laundry accommodating apparatus,

a first water supply pipe path, connected to the laundry accommodating apparatus via the laundry treatment agent dispenser, and configured to supply water to the laundry accommodating apparatus,

a drying apparatus, connected to the laundry accommodating apparatus, and configured to dry an air flow drawn from the laundry accommodating apparatus;

a filter screen, connected to the laundry accommodating apparatus and the drying apparatus, and configured to filter the air flow;

a second water supply pipe path, connected to the laundry accommodating apparatus via the filter screen, and configured to supply water to the laundry accommodating apparatus via the filter screen; and

a water supply control unit, connected to the first water supply pipe path and the second water supply pipe path, and configured to perform a first treatment in a first water supply stage of a laundry treatment process and perform a second treatment in a second water supply stage of the laundry treatment process, where the first water supply stage is before the second water supply stage, the first treatment includes supplying water to the laundry accommodating apparatus through the second water supply pipe path, and the second treatment includes supplying water to the laundry accommodating apparatus only through the first water supply pipe path.

[0009] Further, the laundry treatment device further includes:

an operation data collecting unit, configured to collect operation data of the laundry treatment device, where the operation data includes at least one of a first load weight of the laundry accommodating apparatus, pulse information of a motor of the laundry treatment device, an internal image of the laundry accommodating apparatus and a user operation instruction; wherein

the water supply control unit is further connected to the operation data collecting unit, and is configured to obtain operation data from the operation data collecting unit, perform the first treatment when the operation data meets a preset condition in the first water supply stage and perform the second treatment when the operation data meets a preset condition in the second water supply stage.

[0010] Further, the operation data collecting unit includes:

a gravity sensor, arranged at a bottom of the laundry accommodating apparatus, connected to the water supply control unit, and configured to collect the first load weight of the laundry accommodating apparatus and send the first load weight to the water supply control unit; wherein
the water supply control unit is further configured to determine that the preset condition is met when the first load weight is lower than a predetermined weight threshold.

[0011] Further, the laundry treatment device further includes:

the motor, configured to power the laundry treatment device;
the operation data collecting unit including:

a Hall sensor, arranged within a magnetic field coverage of the motor, connected to the water supply control unit, and configured to generate pulse information in response to a magnetic field change of the motor and send the pulse information to the water supply control unit; wherein
the water supply control unit is further configured to determine a second load weight of the laundry accommodating apparatus based on the pulse information and a predetermined mapping relationship, and determine that the preset condition is met when the second load weight is lower than a predetermined weight threshold, where the predetermined mapping relationship is used to reflect a correlation between the pulse information and the second load weight of the laundry accommodating apparatus.

[0012] Further, the operation data collecting unit includes:

an image sensor, arranged on a door body of the laundry accommodating apparatus, connected to the water supply control unit, and configured to collect an internal image of the laundry accommodating apparatus and send the internal image to the water supply control unit; wherein
the water supply control unit is further configured to determine that the preset condition is met when laundry to be treated is identified in the internal image, and/or when a water level of the laundry accommodating apparatus in the internal image is lower than a first predetermined water level.

[0013] Further, the operation data collecting unit includes:

a touch operation unit, connected to the water supply control unit, and configured to obtain a user touch operation, generate a user operation instruction based on the user touch operation and send the user operation instruction to the water supply control unit; wherein
the water supply control unit is further configured to determine that the preset condition is met when the user operation instruction is user selection information for a specified laundry treatment mode.

[0014] Further, the first treatment further includes supplying water to the laundry accommodating apparatus through the first water supply pipe path.

[0015] Further, the operation data collecting unit includes:

a water level sensor, arranged in the laundry accommodating apparatus, connected to the water supply control unit, and configured to collect a water level height of the laundry accommodating apparatus and send the water level height to the water supply control unit; wherein
the first water supply stage includes a washing stage, and in the washing stage, when the water level height reaches a second predetermined water level or when the first water supply pipe path has been running for a first duration, water supply of the first water supply pipe path is stopped, and water supply of the second water supply pipe path is started.

[0016] Further, the first water supply stage further includes an initial rinsing stage, and in the washing stage and/or the initial rinsing stage, when the water level height is lower than a third predetermined water level, the first treatment is performed.

[0017] Further, the second water supply stage includes a final rinsing stage, where when entering the final rinsing stage, the water supply of the first water supply pipe path is started, and when a water supply reaches a specified amount or a water supply duration reaches a second duration, the water supply of the first water supply pipe path is stopped.

[0018] Further, in the final rinsing stage, when the water level height is lower than a fourth predetermined water level, the water supply of the first water supply pipe path is started.

[0019] Further, the first water supply pipe path includes:

a first water supply switch, configured to open or close the first water supply pipe path; wherein
the water supply control unit is connected to the first water supply switch, and is configured to control opening or closing of the first water supply switch; and
the second water supply pipe path includes:

a second water supply switch, configured to open and close the second water supply pipe

path; wherein
the water supply control unit is connected to the second water supply switch and is configured to control opening and closing of the second water supply switch.

[0020] In a second aspect, according to an embodiment of the present application, there is provided a water supply control method, applied to the laundry treatment device according to the first aspect, and the water supply method including:

performing a first treatment in a first water supply stage, the first treatment including supplying water to the laundry accommodating apparatus through the second water supply pipe path via the filter screen; and
performing a second treatment in a second water supply stage, the second water supply stage being after the first water supply stage, the second treatment including supplying water to the laundry accommodating apparatus only through the first water supply pipe path.

[0021] Further, the water supply control method further includes:

collecting operation data of the laundry treatment device, where the operation data includes at least one of a first load weight of the laundry accommodating apparatus, pulse information of the motor of the laundry treatment device, an internal image of the laundry accommodating apparatus and a user operation instruction;
the performing the first treatment in the first water supply stage including:

performing the first treatment, when the operation data meets a preset condition in the first water supply stage;
the performing the second treatment in the second water supply stage including:

performing the second treatment, when the operation data meets the preset condition in the second water supply stage;
where the preset condition includes at least one of:

the first load weight is lower than a predetermined weight threshold;
a second load weight determined based on the pulse information and a predetermined mapping relationship is lower than the predetermined weight threshold;
laundry to be treated is identified in the internal image;
a water level height of the laundry accommodating apparatus in the internal image is lower than a first predetermined water level; and
the user operation instruction is user selection information for a specified laundry treatment mode.

[0022] Further, the first treatment further includes:
supplying water to the laundry accommodating apparatus through the first water supply pipe path, wherein, in the first water supply stage, a ratio of a total water supply duration of the first water supply pipe path to a total water supply duration of the second water supply pipe path is greater than or equal to zero.

[0023] Further, the water supply control method further includes:
in the first water supply stage, controlling the first water supply pipe path to pause water supply for a third duration.

[0024] Further, the water supply control method further includes:
in the first water supply stage, if the number of times water supplies through the first water supply pipe path at least two times, setting a time interval between at least one group of adjacent water supplies in the at least two times to the third duration.

[0025] Further, the water supply control method further includes:
in the first water supply stage, when a water supply duration of the first water supply pipe path reaches a fourth duration, performing a laundry treatment agent dispensing operation on the laundry treatment agent dispenser, where an end time of the laundry treatment agent dispensing operation is earlier than an end time of the water supply of the first water supply pipe path in the first water supply stage.

[0026] Further, the performing the first treatment in the first water supply stage includes:
in a washing stage of the first water supply stage, when water is supplied through the first water supply pipe path, if it is detected that a water level height of the laundry accommodating apparatus reaches a second predetermined water level or the first water supply pipe path has been running for a first duration, stopping water supply of the first water supply pipe path, and starting water supply of the second water supply pipe path.

[0027] Further, the water supply control method further includes:
setting the water supply duration of the first water supply pipe path in the washing stage to a fifth duration, and setting a water supply duration of the second water supply pipe path in the washing stage to a sixth duration, where the fifth duration is greater than the sixth duration.

[0028] Further, the first water supply stage further includes an initial rinsing stage, the initial rinsing stage is after the washing stage, and a ratio of the water supply duration of the first water supply pipe path in the initial

rinsing stage to the water supply time of the second water supply pipe path in the initial rinsing stage is greater than or equal to zero.

[0029] Further, the performing the first treatment in the first water supply stage includes:

in the washing stage and/or the initial rinsing stage, performing the first treatment when the water level height is lower than a third predetermined water level.

[0030] Further, the performing the second treatment in the second water supply stage, includes:

when entering the final rinsing stage in the second water supply stage, starting the water supply of the first water supply pipe path; and

when a current amount of water supplied reaches a specified amount or a water supply duration reaches a second duration, stopping the water supply of the first water supply pipe path.

[0031] Further, the performing the second treatment in the second water supply stage includes:

in the final rinsing stage, when the water level height is lower than a fourth predetermined water level, starting the water supply of the first water supply pipe path.

[0032] In a third aspect, according to an embodiment of the present application, there is provided a computer-readable storage medium having computer-executable instructions stored thereon, and the computer-executable instructions are used to execute the method described in the second aspect above.

[0033] In order to effectively clean the filter and ensure an optimal drying performance, the above technical solution proposes to use the second water supply pipe path to supply water in the first water supply stage, and in the second water supply stage, which is a last water supply stage before drying, the second water supply pipe path is not used for water supply, but the first water supply pipe path is used for water supply.

[0034] Specifically, in the first water supply stage, water is supplied to the laundry accommodating apparatus through the second water supply pipe path, and the water flows through the filter screen, which may effectively clean the lint and impurities on the filter screen. Next, before the drying apparatus performs a drying treatment, if the laundry accommodating apparatus is not supplied with water through the second water supply pipe path, no water will flow through the filter screen. In this way, the filter screen will not form a water film, a ventilation area of the filter screen remains unchanged, a circulating air flow passes through the filter screen normally, and the drying performance is not affected.

[0035] Therefore, a water supply process of the laundry treatment device is divided into the first water supply stage and the second water supply stage. The first water supply stage is a water supply stage with a long interval time from the drying treatment, and the second water supply stage is the last water supply stage before the drying treatment.

[0036] The first water supply stage is a long time away from the drying treatment. Even if a water film is formed by supplying water through the second water supply pipe path, the water film will break in a short time, which will not affect passage of the circulating air flow after a long time and will not have a negative impact on the drying performance.

[0037] The second water supply stage is a short time away from the drying treatment. If water is still supplied through the second water supply pipe path to form a water film, the water film will still exist when the circulating air flow passes through. Therefore, in a second drying stage, water is only supplied through the first water supply pipe path. Water flow of the first water supply pipe path does not flow through the filter screen, and the filter screen no longer generates a water film, such that the circulating air flow may pass through the filter screen without hindrance, and the drying performance is not affected.

[0038] In the above technical solution, the filter screen is effectively cleaned in the first water supply stage, and in the second water supply stage, which is the last water supply stage before drying, the second water supply pipe path is not used to supply water, but the first water supply pipe path is used to supply water, so as to avoid the formation of a water film when water flows through the filter screen. This technical solution not only achieves effective cleaning of the filter screen, and protects the drying performance from being affected by the water film, but also maintains the safe operation of multiple components including a fan, thereby extending the service life of these components.

BRIEF DESCRIPTION OF DRAWINGS

[0039] The accompanying drawings herein are incorporated into the specification and constitute a part of this specification, illustrate embodiments consistent with the present disclosure and, together with the specification, serve to explain the principles of the present disclosure. Apparently, the accompanying drawings in the following description show only some embodiments of the present disclosure, and a person of ordinary skill in the art may still derive other drawings from these accompanying drawings without creative efforts.

FIG. 1 illustrates a schematic diagram of a laundry treatment device according to an embodiment of the present application;

FIG. 2 illustrates a schematic diagram of relative positions of a drying apparatus and a laundry accommodating apparatus according to an embodiment of the present application;

FIG. 3 illustrates a top view of the drying apparatus in FIG. 2;

FIG. 4 illustrates a stereoscopic view of the drying apparatus in FIG. 2;

FIG. 5 illustrates a schematic diagram of a mesh

structure of a filter screen according to an embodiment of the present application;

FIG. 6 illustrates a schematic diagram of a filter screen inclined in an air outlet duct according to an embodiment of the present application;

FIG. 7 illustrates a schematic diagram of a laundry treatment device according to another embodiment of the present application;

FIG. 8 illustrates a schematic diagram of a water supply control unit according to an embodiment of the present application;

FIG. 9 illustrates a flow chart of a water supply control method according to an embodiment of the present application; and

FIG. 10 illustrates a schematic diagram of a camera installation position according to an embodiment of the present application.

DETAILED DESCRIPTION

[0040] The technical solutions in the embodiments of the present application will be described clearly and comprehensively below in conjunction with the accompanying drawings. It is evident that the described embodiments are merely a portion of the embodiments of the present application, not all of the embodiments. The components of the embodiments of the present application described and illustrated in the accompanying drawings may typically be arranged and designed in various configurations. Therefore, the following detailed descriptions of the embodiments of the present application provided in the accompanying drawings are not intended to limit the scope of the present application for which protection is sought, but merely represent selected embodiments of the present application, and the features included in different embodiments may be combined with each other. All other embodiments (including new embodiments formed by combining features from different embodiments) obtained by those skilled in the art without creative efforts based on the embodiments of the present application are within the scope of protection of the present application.

[0041] It should be noted that similar reference numerals and letters represent similar items in the accompanying drawings. Therefore, once an item is defined in one drawing, it does not require further definition and explanation in subsequent drawings. Additionally, in the description of the present application, the terms "first", "second", and so on are merely used to distinguish the descriptions and cannot be understood as indicating or implying relative importance.

[0042] According to an embodiment of the present application, there is provided a laundry treatment device 1000, which is used to wash, rinse, iron, and dry laundry etc. The laundry treatment device 1000 includes but is not limited to a washer, a dryer, a washer-dryer machine, etc. It should be noted that although a front-loading washer-dryer machine is shown in the accompanying drawings of the present application to illustrate the laundry treatment device 1000 of the embodiment of the present application, it should be understood that the laundry treatment device 1000 of the embodiment of the present application may be of any type, including but not limited to a front-loading drum washing machine, a top-loading drum washing machine, a pulsator washing machine, an agitator washing machine, a mini washing machine, etc.

[0043] According to an embodiment of the present application, there is provided a laundry treatment device 1000, including: a laundry accommodating apparatus 1100, a laundry treatment agent dispenser 1200, a first water supply pipe path 1300, a drying apparatus 1400, a filter screen 1500, a second water supply pipe path 1600 and a water supply control unit 1700.

[0044] The laundry accommodating apparatus 1100 is configured to accommodate laundry to be treated. The laundry to be treated includes but is not limited to laundry to be washed, rinsed, ironed, or dried. The laundry accommodating apparatus 1100 includes but is not limited to an accommodating drum, an accommodating basket, a drum or the like.

[0045] In an embodiment of the present application, as illustrated in FIG. 1, a door body 1110 is provided on a housing 1800 of the laundry treatment device 1000 at a position corresponding to the laundry accommodating apparatus 1100. The door body 1110 is pivotally connected to the housing 1800. The opening or closing of the door body 1110 may be controlled manually by a user or by an electronic controller including but not limited to a touch operation unit.

[0046] The laundry treatment agent dispenser 1200, connected to the laundry accommodating apparatus 1100, is configured to accommodate a laundry treatment agent to be dispensed into the laundry accommodating apparatus 1100. The laundry treatment agent dispenser 1200 may be arranged on the laundry accommodating apparatus 1100 through a movable connection, such as a slide rail connection, a pivot connection, etc. The laundry treatment agent dispenser 1200 includes a plurality of placement slots, each of which may hold a laundry treatment agent.

[0047] In an embodiment of the present application, a plurality of placement slots may be used to respectively accommodate laundry treatment agents of different types, including but not limited to laundry detergents, laundry powder, softeners, disinfectants, bleaching powder, bleaching agents, etc.

[0048] In an embodiment of the present application, in order to quickly and effectively dispense different laundry treatment agents, the plurality of placement slots are each provided with different features tailored to specific laundry treatment agents, such as different flow path lengths, different flow path cross-sectional widths, different slot surface materials, different slot bottom surface inclination angles, different slot side surface inclination angles and the like.

[0049] The first water supply pipe path 1300, which is

connected to the laundry accommodating apparatus 1100 through the laundry treatment agent dispenser 1200, is configured to supply water to the laundry accommodating apparatus 1100. The first water supply pipe path 1300 includes one or more water supply passages, where at least one water supply passage is connected to a water inlet of the laundry treatment agent dispenser 1200,. Water flows from the water inlet of the laundry treatment agent dispenser 1200 into the laundry treatment agent dispenser 1200 through the water supply passage, and then flows from a water outlet of the laundry treatment agent dispenser 1200 into the laundry accommodating apparatus 1100 connected to the laundry treatment agent dispenser 1200. In this way, water can be supplied to the laundry accommodating apparatus 1100, and the laundry treatment agent in the laundry treatment agent dispenser 1200 can be flushed into the laundry accommodating apparatus 1100, so as to treat the laundry to be treated in the laundry accommodating apparatus 1100.

[0050] The drying apparatus 1400, which is connected to the laundry accommodating apparatus 1100, is configured to dry the air flow drawn from the laundry accommodating apparatus 1100. In an embodiment of the present application, relative positions of the laundry accommodating apparatus 1100 and the drying apparatus 1400 are not fixed, and may be arranged either vertically (one above the other) or oppositely in the front-rear direction.

[0051] In an embodiment of the present application, as shown in FIG. 2, the drying apparatus 1400 is arranged above the laundry accommodating apparatus 1100.

[0052] In another embodiment of the present application, the drying apparatus 1400 is arranged behind the laundry accommodating apparatus 1100, or the drying apparatus 1400 is arranged below the laundry accommodating apparatus 1100, or the drying apparatus 1400 is arranged on the side of the laundry accommodating apparatus 1100.

[0053] The drying apparatus 1400 guides the air flow from the laundry accommodating apparatus 1100 to itself, and the air flow carries moisture from the laundry in the laundry accommodating apparatus 1100. The drying apparatus 1400 dries the air flow to remove the moisture from the laundry.

[0054] In an embodiment of the present application, as shown in FIGs. 3 and 4, the drying apparatus 1400 includes a moisture adsorbing passage, a regenerating passage, a circulating fan 1430, a moisture adsorbing and moisture desorbing component 1440, a moisture adsorbing and moisture desorbing rotary disk driving unit 1450, and a regenerating fan 1460.

[0055] As shown in FIGs. 3 and 4, an air inlet 1411 of the moisture adsorbing passage is connected to an air outlet duct 1900 of the laundry accommodating apparatus 1100. An air outlet 1412 of the moisture adsorbing passage is connected to an air inlet duct of the laundry adsorbing passage 1100.

[0056] Referring to FIGs. 2 and 4, the laundry accommodating apparatus 1100 has an air flow inlet and an air flow outlet. The air flow inlet is a connection between the air inlet duct and the laundry accommodating apparatus 1100. In other words, the air flow inlet on the laundry accommodating apparatus 1100 is connected to the drying apparatus 1400 through the air inlet duct. The air flow outlet is a connection between the air outlet duct 1900 and the laundry accommodating apparatus 1100, or in other words, the air flow outlet on the laundry accommodating apparatus 1100 is connected to the drying apparatus 1400 through the air outlet duct 1900.

[0057] A portion of the moisture adsorbing and moisture desorbing component 1440 is located on the moisture adsorbing passage, and the other portion thereof is located on the regenerating passage, so that the circulating air flow in the moisture adsorbing passage and a moisture desorbing air flow in the regenerating passage both flow through the moisture adsorbing and moisture desorbing component 1440. The moisture adsorbing and moisture desorbing rotary disk driving unit 1450 drives the moisture adsorbing and moisture desorbing component 1440 to move relative to the moisture adsorbing passage and the regenerating passage, such as to rotate. After entering the laundry accommodating apparatus 1100, the circulating air flow will carry moisture from the laundry. During the movement, the moisture adsorbing and moisture desorbing component 1440 adsorbs moisture in the circulating air flow in the moisture adsorbing passage and discharges the moisture through the moisture desorbing air flow.

[0058] In an embodiment of the present application, the moisture adsorbing and moisture desorbing component 1440 may include a moisture adsorbing and moisture desorbing rotary disk, on which a moisture adsorbent for adsorbing moisture is provided. The moisture adsorbent includes but is not limited to zeolite (molecular sieves), alkali metal aluminosilicate (13X molecular sieves), lithium chloride, silica gel, modified silica gel, activated alumina, etc. On this basis, the moisture adsorbing and moisture desorbing rotary disk driving unit 1450 is used to drive the moisture adsorbing and moisture desorbing rotary disk to rotate relative to the moisture adsorbing passage and the regenerating passage. The circulating air flow and the moisture desorbing air flow both flow through the moisture adsorbing and moisture desorbing rotary disk at the same time. A region on the moisture adsorbing and moisture desorbing rotary disk where the circulating air flow passes may become a moisture adsorbing region, and a region where the moisture desorbing air flow passes may become a regenerating region.

[0059] In an embodiment, a moisture adsorbing and moisture desorbing component 1440 is provided with a moisture adsorbent for adsorbing moisture. The moisture adsorbent may be, for example, zeolite, modified/synthetic zeolite, molecular sieves (including but not limited to zeolite molecular sieves, A/X/Y type molecular sieves, ZSM molecular sieves, Beta molecular sieves, etc.),

polymer moisture adsorbent, alkali metal aluminosilicate (13X molecular sieves), lithium chloride, silica gel, modified silica gel, activated alumina and other materials with moisture adsorbing properties. The polymer moisture adsorbent is also referred to as a polymer adsorbent, which has a lower regenerating temperature than traditional silica gel, activated carbon and molecular sieve adsorbents.

[0060] In an embodiment, the moisture adsorbing and moisture desorbing component 1440 may be made of porous materials such as zeolite, molecular sieves, metal organic frameworks (MOFs), covalent organic frameworks (COFs), nanocarbon, silicon dioxide, etc. In an embodiment, the moisture adsorbing and moisture desorbing component 1440 may also be formed by filling granular solids or particles made of at least one porous material mentioned above.

[0061] In an embodiment, the moisture adsorbing and moisture desorbing component 1440 may be a rotary disk with a honeycomb or a corrugation and carrying a moisture adsorbent, which can adsorb and desorb the adsorbed water vapor to achieve repeated desorption and regeneration.

[0062] In an embodiment, the moisture adsorbing and moisture desorbing component 1440 includes an inorganic/organic fiber carrier (such as ceramics, glass fibers, MOFs, COFs, cordierite, etc.). The fiber carrier is coated with a moisture adsorbent such as a molecular sieve, and the molecular sieve is evenly distributed between fiber carriers and on the surface of the fiber carrier to achieve the adsorption of air flow moisture. The molecular sieve may include single crystal molecular sieves or mixed crystal molecular sieves such as an A-type molecular sieve, an X/Y-type molecular sieve, a ZSM molecular sieve, and a Beta molecular sieve, etc.

[0063] Therefore, the introduction of the moisture adsorbing and moisture desorbing component 1440 effectively reduces a drying cost compared to heat pump components used in the related art. At the same time, the moisture adsorbing and moisture desorbing component 1440 primarily operates based on the moisture adsorbing and moisture desorbing properties of its material and/or structure, rather than relying on temperature differences to achieve moisture adsorption and desorption, thereby reducing the sensitivity of the components in the drying apparatus 1400 to ambient temperature, enhancing the adaptability of the components to the ambient temperature, effectively extending the service life of the components, and lowering the risk of malfunction. As a result, the laundry treatment device 1000 can maintain relatively stable energy consumption and drying efficiency in various temperature environments. In addition, compared with the technical solutions of heat pump components used in related technologies, this technical solution further lowers the upper limit of the drying temperature, so as to dry laundry of a wider range of materials while protecting the laundry from damage.

[0064] Furthermore, the drying apparatus 1400 may also include a regeneration heating module 1470 and a condenser 1480 both disposed on the regenerating passage. The regeneration heating module 1470 covers the regenerating region of the moisture adsorbing and moisture desorbing component 1440, and is configured to heat the regenerating region of the moisture adsorbing and moisture desorbing component 1440 to desorb moisture adsorbed by the moisture adsorbing and moisture desorbing component 1440. The condenser 1480 is configured to condense the moisture desorbing air flow flowing out of the regenerating region of the moisture adsorbing and moisture desorbing component 1440 to dry the moisture desorbing air flow.

[0065] Specifically, on one hand, the circulating fan 1430, located in the moisture adsorbing passage, and is configured to form a circulating air flow in the laundry accommodating apparatus 1100 and the moisture adsorbing passage. The circulating air flow carries moisture from the damp laundry out of the laundry accommodating apparatus 1100 through the air flow outlet and into the drying apparatus 1400, passes through the moisture-adsorbing passage of the moisture adsorbing and moisture desorbing component 1440, where the moisture is adsorbed, making the air flow relatively dry, and then re-enters the laundry accommodating apparatus 1100 through the air flow inlet. This process repeats continuously, effectively removing moisture from the laundry accommodating apparatus 1100.

[0066] On the other hand, the regenerating fan 1460, located in the regenerating passage, is configured to form a moisture desorbing air flow in the regenerating passage. A heating operation of the regeneration heating module 1470 may desorb the moisture adsorbed by the moisture adsorbing and moisture desorbing component 1440. A moisture desorbing air flow is formed through the operation of the regenerating fan 1460. The condenser 1480 is arranged on the regenerating passage, which is used to cool the moisture desorbing air flow in the regenerating passage to dry the moisture desorbing air flow. In an embodiment of the present application, the condenser 1480 may be arranged in an air inlet section of the regenerating passage, or in an air outlet section of the regenerating passage. Driven by the regenerating fan 1460, the dried moisture desorbing air flow re-enters the regeneration heating module 1470, and desorbs the moisture of the moisture adsorbing and moisture desorbing component 1440 of the regenerating passage again. This process is repeated continuously, effectively drying the moisture adsorbed by the moisture adsorbing and moisture desorbing component 1440.

[0067] Thus, the moisture adsorption of the moisture adsorbing and moisture desorbing component 1440 and the desorption of moisture from the moisture adsorbing and moisture desorbing component 1440 are combined to meet a drying need of the laundry in the laundry accommodating apparatus 1100.

[0068] It should be noted that the above content is only one implementation mode of the drying apparatus 1400.

In actual application scenarios, the drying apparatus 1400 may also be of any other structure that meets the actual laundry drying need.

[0069] The filter screen 1500, connected to the laundry accommodating apparatus 1100 and the drying apparatus 1400, is configured to filter the circulating air flow from the laundry accommodating apparatus 1100 into the drying apparatus 1400. Specifically, the circulating air flow will carry lint and impurities on the laundry. In this regard, the filter screen 1500 is arranged between the laundry accommodating apparatus 1100 and the drying apparatus 1400, which may filter the lint and impurities in the circulating air flow, and prevent the lint and impurities from being brought back to the laundry or entering the drying apparatus 1400 during the air flow circulating process, which would affect the laundry treatment performance.

[0070] In an embodiment of the present application, a mesh structure of the filter screen 1500 is shown in FIG. 5. Of course, the mesh structure of the filter screen 1500 may also be any structure that meets the actual filtering needs, such as a triangular mesh or a hexagonal mesh.

[0071] The drying apparatus 1400 includes an air outlet duct 1900 that provides a circulating air flow which is carrying moisture and flowing from the laundry accommodating apparatus 1100 to the drying apparatus 1400.

[0072] In an embodiment of the present application, the filter screen 1500 is arranged in the air outlet duct 1900.

[0073] In another embodiment of the present application, the filter screen 1500 may be arranged between the air outlet duct 1900 and the drying apparatus 1400, between the air outlet duct 1900 and the laundry accommodating apparatus 1100, or at the connection between the air outlet duct 1900 and the laundry accommodating apparatus 1100.

[0074] In an embodiment of the present application, the filter screen 1500 is arranged to be perpendicular to a flow direction of the air flow.

[0075] In another embodiment of the present application, as shown in FIG. 6 (a black arrow in FIG. 6 indicates the direction of the air flow), the filter screen 1500 is arranged in the air outlet duct 1900, and the filter screen 1500 is arranged obliquely relative to the flow direction of the air flow to increase the cross-sectional area of the filter screen 1500 for filtering the air flow and fully filter out lint and impurities.

[0076] The second water supply pipe path 1600, connected to the laundry accommodating apparatus 1100 through the filter screen 1500, is configured to supply water to the laundry accommodating apparatus 1100 through the filter screen 1500. That is to say, when the second water supply pipe path 1600 supplies water to the laundry accommodating apparatus 1100, the water flows through the filter screen 1500, flushes the lint and impurities, and has a cleaning effect on the filter screen 1500.

[0077] In an embodiment of the present application, the drying apparatus 1400 further includes a flow diverter, which is arranged on the second water supply pipe path. In the drying operation, the flow diverter may control the water flow in the second water supply pipe path to be directly guided out of the laundry treatment device 1000 without passing through the laundry accommodating apparatus 1100.

[0078] In an embodiment of the present application, the laundry treatment device 1000 may include a spraying apparatus, which is specifically a spraying mechanism. The spraying mechanism may move along its length direction so that cleaning fluid can fully cover the filter screen 1500. The cleaning fluid described here may be the water flow of the second water supply pipe path 1600, or may be any other liquid with a cleaning function. In this embodiment, a water spraying amount, a water spraying speed, a water spraying pressure, and a spraying angle of the spraying mechanism may be adjusted, thereby enhancing a cleaning effect of the spraying mechanism on the filter screen 1500.

[0079] In an embodiment of the present application, the first water supply pipe path 1300 and the second water supply pipe path 1600 are fed with water through a same water inlet pipe, and water is supplied to the laundry accommodating apparatus 1100 through a first water outlet pipe and a second water outlet pipe, respectively. Specifically, a first end of the water inlet pipe is connected to a tap water pipe, a second end of the water inlet pipe is connected to a first end of the first water outlet pipe and a first end of the second water outlet pipe respectively, a second end of the first water outlet pipe is connected to the laundry treatment agent dispenser 1200, and a second end of the second water outlet pipe is connected to the air outlet duct 1900. Further, the laundry treatment agent dispenser 1200 and the air outlet duct 1900 are both provided with water inlets. The second end of the first water outlet pipe is connected to the water inlet of the laundry treatment agent dispenser 1200, and the second end of the second water outlet pipe is connected to the water inlet of the air outlet duct 1900. Thus, water may be supplied to the laundry accommodating apparatus 1100 through the first water supply pipe path 1300 and the second water supply pipe path 1600 respectively.

[0080] Thus, through a composite water flow system with one inlet and multiple outlets, on one hand, water is supplied through the air outlet duct 1900 to clean the filter screen 1500, so as to optimize the drying performance and protect the components of the drying apparatus 1400. On the other hand, water is supplied through the laundry treatment agent dispenser 1200, which may facilitate the dispensing and full reaction of the laundry treatment agents and improve the overall laundry washing performance.

[0081] In an embodiment of the present application, on the basis of the above composite water flow system with one inlet and multiple outlets, a third water supply pipe path may also be added. The third water supply pipe path may also be fed with water through the water inlet pipe and supply water to the laundry accommodating appa-

ratus 1100 through a third water outlet pipe. Specifically, the second end of the water inlet pipe is also connected to a water inlet of the condenser 1480, and the water flows through the condenser 1480 arranged on the regenerating region, which helps to cool and liquefy the moisture desorbing air flow flowing out of the regenerating region of the moisture adsorbing and moisture desorbing component 1440 to dry the moisture desorbing air flow.

[0082] Thus, the functionality of the composite water flow system is further enriched, and the water supply requirements of multiple components for optimizing the drying performance and better protecting the drying apparatus 1400 can be met, thereby adapting to the more complete washing and drying requirements.

[0083] In an embodiment of the present application, as shown in FIG. 7, a water supply assembly in the laundry treatment device 1000 includes at least a first water supply pipe path 1300 and a second water supply pipe path 1600. A drum water inlet in the water supply assembly, which is the water inlet of the laundry accommodating apparatus 1100, is connected to the first water supply pipe path 1300, and a water inlet for the filter screen 1500 in the water supply assembly is connected to the second water supply pipe path 1600.

[0084] The water supply control unit 1700, connected to the first water supply pipe path 1300 and the second water supply pipe path 1600, is configured to control the water supply process of the laundry treatment device 1000.

[0085] In an embodiment of the present application, the water supply control unit 1700 is a main board of the laundry treatment device 1000, and controlling the water supply process of the laundry treatment device 1000 is one of the control functions of the main board.

[0086] In another embodiment of the present application, the water supply control unit 1700 is a dedicated control board independent of the main board. As shown in FIG. 8, the water supply control unit 1700 is connected to the first water supply pipe path 1300 and the second water supply pipe path 1600, respectively, for controlling the opening and closing of the first water supply pipe path 1300 and the second water supply pipe path 1600.

[0087] In another embodiment of the present application, the water supply control unit 1700 is a water inlet valve with an autonomous control function, and the water inlet valve is opened and closed to control the start and stop of water supply.

[0088] Based on the above structure, as shown in FIG. 9, the process of a water supply control method according to an embodiment of the present application includes:

Step 902, performing a first treatment in a first water supply stage, the first treatment including supplying water to the laundry accommodating apparatus 1100 through the second water supply pipe path 1600 via the filter screen 1500; and

Step 904, performing a second treatment in a second water supply stage, the second water supply stage being after the first water supply stage, and the second treatment including supplying water to the laundry accommodating apparatus 1100 only through the first water supply pipe path 1300.

[0089] That is, the water supply control unit 1700 performs the first treatment in the first water supply stage of the laundry treatment process and performs the second treatment in the second water supply stage of the laundry treatment process, where the first water supply stage is before the second water supply stage, the first treatment includes supplying water to the laundry accommodating apparatus 1100 through the second water supply pipe path 1600, and the second treatment includes supplying water to the laundry accommodating apparatus 1100 only through the first water supply pipe path 1300.

[0090] When water is supplied through the second water supply pipe path 1600 to the laundry accommodating apparatus 1100, the water flows through the filter screen 1500 to flush the lint and impurities. The inventors found through testing that after the water flows through the filter screen 1500, it is very easy to form a water film on the surface of the filter screen 1500, which negatively affects the drying performance. When the drying apparatus 1400 performs drying treatment through the circulating air flow, the presence of the water film reduces a ventilation area of the filter screen 1500, resulting in a reduction in the circulating air flow passing through the filter screen 1500. At the same time, the heat of the air flow blocked by the water film accumulates, causing a local temperature of the laundry treatment device 1000 to rise, affecting the safe operation and service life of the local components. In addition, the circulating air flow is blocked by the water film, which will also cause the fan load and temperature in the drying apparatus 1400 to be high, affecting the safe operation and service life of the fan.

[0091] In this regard, in the first water supply stage, water is supplied to the laundry accommodating apparatus 1100 through the second water supply pipe path 1600, and the water flows through the filter screen 1500, which may effectively clean the lint and impurities on the filter screen 1500. Next, before the drying apparatus 1400 performs drying treatment, if the laundry accommodating apparatus 1100 is not supplied with water through the second water supply pipe path 1600, no water will flow through the filter screen 1500. In this way, the filter screen 1500 will not form a water film, the ventilation area of the filter screen 1500 remains unchanged, the circulating air flow passes through the filter screen 1500 normally, and the drying performance is not affected.

[0092] Therefore, the water supply process of the laundry treatment device 1000 is divided into a first water supply stage and a second water supply stage. The first water supply stage is earlier than the second water supply stage. A time interval between the first water

supply stage and the drying treatment is longer than that between the second water supply stage and the drying treatment. In an embodiment, the second water supply stage is the last water supply stage before the drying treatment.

[0093] After the filter screen 1500 is cleaned in the first water supply stage, since an interior of the laundry treatment device 1000 is a relatively closed environment, there is still a possibility of forming a water film on the surface of the filter screen 1500. In this regard, when it is detected that the filter screen 1500 is seriously clogged, the second water supply pipe path 1600 can be started to flush the filter screen.

[0094] In an embodiment of the present application, the laundry treatment device 1000 further includes: a water film judging apparatus and a water film removing apparatus.

[0095] The water film judging apparatus is configured to detect changes in system parameters in the laundry treatment device 1000, and determine whether there is a water film on the filter screen according to the changes in the system parameters. The system parameters include one or more of a temperature, a pressure, and a current. The water film removing apparatus is configured to remove the water film on the filter screen 1500.

[0096] In an embodiment of the present application, the water film judging apparatus is a temperature sensor, which is arranged at the air flow outlet of the laundry accommodating apparatus 1100, and is configured to detect the temperature near the air flow outlet of the laundry accommodating apparatus 1100, and judge whether there is a water film on the filter screen 1500 based on the temperature near the air flow outlet of the laundry accommodating apparatus 1100.

[0097] In an embodiment of the present application, the water film judging apparatus is a temperature sensor, which is arranged at the air inlet of the condenser 1480 and/or the air outlet of the condenser 1480, and is configured to detect the temperature of the air inlet of the condenser 1480 and/or the air outlet of the condenser 1480, and judge whether there is a water film on the filter screen 1500 based on the temperature change of the air inlet of the condenser 1480 and/or the air outlet of the condenser 1480.

[0098] In an embodiment of the present application, the water film judging apparatus is a load current detector, which is configured to detect a magnitude of the load current of the circulating fan 1430.

[0099] In an embodiment of the present application, the water film judging apparatus is a pressure sensor, which is arranged in the air outlet duct 1900 between the filter screen 1500 and the drying apparatus 1400.

[0100] In an embodiment of the present application, the water film removing apparatus is a filter screen vibrator, which is connected to the filter screen 1500 and is configured to remove the water film by controlling a vibration frequency of the filter screen vibrator.

[0101] In an embodiment of the present application, the water film removing apparatus is a power applicator, which includes: a power generating module and at least one power ball. The power generating module, connected to the at least one power ball, is configured to generate power of different frequencies. When the power applicator is turned on, the power ball has a moment of contact with the surface of the filter screen 1500, and is configured to transmit power of different frequencies to the filter screen 1500, so as to break the water film by vibration.

[0102] In an embodiment of the present application, when the water film judgment apparatus detects that there is a water film on the filter screen 1500, the circulating fan 1430 in the laundry treatment device 1000 is configured to operate in a water film removing operation mode. In the water film removing operation mode, the circulating fan 1430 makes the air flow in a predetermined direction, which is a circulating direction of the air flow passing through the laundry accommodating apparatus 1100, the filter screen 1500, the drying apparatus 1400, and the laundry accommodating apparatus 1100 in sequence.

[0103] In an embodiment of the present application, when the water film judging apparatus detects that there is a water film on the filter screen 1500, the regeneration heating module 1470 in the laundry treatment device 1000 is configured to operate in the water film removing operation mode. In the water film removing operation mode, the regeneration heating module 1470 may be configured to heat the moisture adsorbing and moisture desorbing component 1440.

[0104] In an embodiment of the present application, the laundry treatment device further includes: a heater configured to heat water in the laundry accommodating apparatus 1100. When the water film judging apparatus detects that there is a water film on the filter screen 1500, the heater and/or the regeneration heating module 1470 are configured to operate in the water film removing operation mode. In the water film removing operation mode, the heater and/or the regeneration heating module 1470 operate at a higher power or a maximum power.

[0105] In an embodiment of the present application, the second water supply stage includes a last water supply before the drying treatment.

[0106] The first water supply stage is a long time away from the drying treatment. Even if a water film is formed by supplying water through the second water supply pipe path 1600, the water film will break in a short time, which will not affect passage of the circulating air flow after a long time, and will not have a negative impact on the drying performance.

[0107] The second water supply stage is a short time away from the drying treatment. If water is still supplied through the second water supply pipe path 1600 to form a water film, the water film still exists when the circulating air flow passes through. Therefore, in a second drying stage, water is only supplied through the first water supply pipe path 1300. Water flow of the first water supply

pipe path 1300 does not flow through the filter screen 1500, and the filter screen 1500 no longer generates a water film, such that the circulating air flow may pass through the filter screen 1500 without hindrance, and the drying performance is not affected.

[0108] In the above technical solution, the filter screen 1500 is effectively cleaned in the first water supply stage, and in the second water supply stage, which is the last water supply stage before drying, the second water supply pipe path 1600 is not used to supply water, but the first water supply pipe path 1300 is used to supply water, so as to avoid the formation of a water film when water flows through the filter screen 1500. This technical solution not only achieves effective cleaning of the filter screen 1500, and protects the drying performance from being affected by the water film, but also maintains the safe operation of multiple components including a fan, thereby extending the service life of these components.

[0109] In an embodiment of the present application, in the first water supply stage, a ratio of a total water supply duration of the first water supply pipe path 1300 to a total water supply duration of the second water supply pipe path 1600 is greater than or equal to zero.

[0110] In some laundry treatment scenarios where laundry treatment agents are not required, in the first water supply stage, only the second water supply pipe path 1600 is used to supply water to the laundry accommodating apparatus 1100. At this time, the ratio of the total water supply duration of the first water supply pipe path 1300 to the total water supply duration of the second water supply pipe path 1600 is zero.

[0111] In an embodiment of the present application, the first treatment further includes: supplying water to the laundry accommodating apparatus 1100 through the first water supply pipe path 1300. That is, the first water supply pipe path 1300 and the second water supply pipe path 1600 may be used together to supply water so as to ensure a smooth dispensing of the laundry treatment agent and sufficient amount of water supplied. At this time, the ratio of the total water supply duration of the first water supply pipe path 1300 to the total water supply duration of the second water supply pipe path 1600 is greater than zero.

[0112] In an embodiment of the present application, the total water supply duration of the first water supply pipe path 1300 may be selected as 0s, 29s, 32.5s, 39.5s, 50s and 58s. Of course, the total water supply duration of the first water supply pipe path 1300 may be any value set according to the actual laundry treatment needs, and is not limited to the above examples.

[0113] It should be noted that using the first water supply pipe path 1300 and the second water supply pipe path 1600 together to supply water includes: supplying water through the first water supply pipe path 1300 first, and supplying water through the second water supply pipe path 1600 later; supplying water through the second water supply pipe path 1600 first, and supplying water through the first water supply pipe path 1300 later; supplying water through the first water supply pipe path 1300 and the second water supply pipe path 1600 at the same time; both of supplying water through the first water supply pipe path 1300 and/or the second water supply pipe path 1600 separately, and supplying water through the first water supply pipe path 1300 and the second water supply pipe path 1600 at the same time.

[0114] In an embodiment of the present application, before the step 902, the method further includes: collecting operation data of the laundry treatment device 1000, where the operation data includes at least one of a first load weight of the laundry accommodating apparatus 1100, pulse information of a motor of the laundry treatment device 1000, an internal image of the laundry accommodating apparatus 1100 and a user operation instruction.

[0115] On this basis, the step 902 includes: performing the first treatment when the operation data meets a preset condition in the first water supply stage; and the step 904 includes: performing the second treatment when the operation data meets the preset condition in the second water supply stage.

[0116] The preset condition includes at least one of: the first load weight is lower than a predetermined weight threshold; a second load weight determined based on the pulse information and a predetermined mapping relationship is lower than the predetermined weight threshold; laundry to be treated is identified in the internal image; a water level height of the laundry accommodating apparatus 1100 in the internal image is lower than a first predetermined water level, the user operation instruction is user selection information for a specified laundry treatment mode.

[0117] In this regard, an operation data collecting unit may be provided in the laundry treatment device 1000 for collecting the operation data of the laundry treatment device 1000, where the operation data includes at least one of the first load weight of the laundry accommodating apparatus 1100, the pulse information of the motor of the laundry treatment device 1000, the internal image of the laundry accommodating apparatus 1100, and the user operation instruction.

[0118] As shown in FIG. 8, the water supply control unit 1700, further connected to an operation data collecting unit 170a, is configured to obtain operation data from the operation data collecting unit 170a, and perform the first treatment when the operation data meets the preset condition in the first water supply stage, and perform the second treatment when the operation data meets the preset condition in the second water supply stage.

[0119] When the operation data of the laundry treatment device 1000 meets the preset conditions, water supply is performed, and water supply may be adapted to the actual operation requirements of the laundry treatment device 1000, thereby improving the practicality of laundry treatment.

[0120] In an embodiment of the present application, the operation data collecting unit 170a includes: a gravity

sensor, which is arranged at a bottom of the laundry accommodating apparatus 1100 and connected to the water supply control unit 1700, is configured to collect the first load weight of the laundry accommodating apparatus 1100 and send the first load weight to the water supply control unit 1700. The water supply control unit 1700 is further configured to determine that the preset condition is met when the first load weight is lower than the predetermined weight threshold.

[0121] The predetermined weight threshold is a required amount of water in the laundry accommodating apparatus 1100 when the laundry treatment condition is met. If the first load weight is lower than the predetermined weight threshold, it means that the amount of water in the laundry accommodating apparatus 1100 is insufficient and water supply is required.

[0122] In an embodiment of the present application, the predetermined weight threshold is a minimum amount of water in the laundry accommodating apparatus 1100 when the laundry treatment condition is met.

[0123] In this regard, in the first water supply stage, if the first load weight is lower than the predetermined weight threshold, the first treatment may be performed to supply water through the second water supply pipe path 1600, or to supply water through the first water supply pipe path 1300 and the second water supply pipe path 1600. In the second water supply stage, if the first load weight is lower than the predetermined weight threshold, the second treatment may be performed to supply water only through the first water supply pipe path 1300, and not through the second water supply pipe path 1600, so as to avoid the formation of a water film on the filter screen 1500 due to the water supply and ensure the drying treatment after the second water supply stage.

[0124] In an embodiment of the present application, the laundry treatment device 1000 includes: a motor configured to power the laundry treatment device 1000. The operation data collecting unit 170a includes: a Hall sensor, which is arranged within a magnetic field coverage of the motor and connected to the water supply control unit 1700 and is configured to generate pulse information in response to a magnetic field change of the motor and send the pulse information to the water supply control unit 1700. The water supply control unit 1700 is further configured to determine a second load weight of the laundry accommodating apparatus 1100 based on the pulse information and a predetermined mapping relationship, and determine that the preset condition is met when the second load weight is lower than a predetermined weight threshold. The predetermined mapping relationship is used to reflect a correlation between the pulse information and the second load weight of the laundry accommodating apparatus 1100.

[0125] The Hall sensor can sense the magnetic field change of the motor and generate pulse information accordingly, and the pulse information can reflect a weight level of the content driven by the motor. In the present application, the motor drives the laundry accommodating apparatus 1100 to move to achieve the treatment of laundry. Accordingly, the motor generates a magnetic field during the process of driving the laundry accommodating apparatus 1100, and the magnetic field excites pulse information. The pulse information can reflect the weight level of the laundry accommodating apparatus 1100 to a certain extent.

[0126] In this regard, the predetermined mapping relationship between the pulse information and the second load weight of the laundry accommodating apparatus 1100 may be predetermined. After the pulse information is obtained, the second load weight may be obtained according to the pulse information and the predetermined mapping relationship. In the first water supply stage, if the second load weight is lower than the predetermined weight threshold, the first treatment may be performed, to supply water through the second water supply pipe path 1600, or through both the first water supply pipe path 1300 and the second water supply pipe path 1600. In the second water supply stage, if the second load weight is lower than the predetermined weight threshold, the second treatment may be performed, to supply water only through the first water supply pipe path 1300, and not through the second water supply pipe path 1600, so as to avoid the drying treatment after the second water supply stage being affected by the formation of a water film on the filter screen 1500 due to the water supply of the second water supply pipe path 1600.

[0127] In an embodiment of the present application, the operation data collecting unit 170a includes: an image sensor.

[0128] A door body 1110 is provided on a housing 1800 of the laundry treatment device 1000 at a position corresponding to the laundry accommodating apparatus 1100, and the door body 1110 is pivotally connected to the housing 1800. The image sensor, which is arranged on the door body 1110 of the laundry accommodating apparatus 1100 and connected to the water supply control unit 1700, is configured to collect the internal image of the laundry accommodating apparatus 1100 and send the internal image to the water supply control unit 1700. The water supply control unit 1700 is further configured to determine that the preset condition is met when no laundry to be treated is identified in the internal image, and/or when the water level height of the laundry accommodating apparatus 1100 in the internal image is lower than the first predetermined water level.

[0129] In an embodiment of the present application, the image sensor has a waterproof layer, which is a shell or a coating.

[0130] In an embodiment of the present application, the image sensor is arranged on a door seal at the connection between the door body 1110 and the housing 1800, and the door seal is used to seal the connection between the door body 1110 and the housing 1800.

[0131] In an embodiment of the present application, the door seal includes a first part and/or a second part, the first part is arranged around an edge of the door body

1110, and the second part is arranged on the housing 1800 at a position corresponding to the edge of the door body 1110.

[0132] Optionally, if the number of image sensors is one, the image sensor is arranged in the first part or the second part. For example, as shown in FIG. 10, a camera 1120 is used as an image sensor, which is arranged in the second part of the door seal, and is located at a position on the housing 1800 corresponding to an edge of the door body 1110.

[0133] Optionally, in order to prevent a single sensor from being blocked and being unable to effectively obtain the internal image, multiple image sensors may be arranged at different positions of the first part and/or the second part.

[0134] The first predetermined water level refers to a required water level in the laundry accommodating apparatus 1100 when the laundry treatment condition is met. If the water level height of the laundry accommodating apparatus 1100 in the internal image is lower than the first predetermined water level, it means that the water in the laundry accommodating apparatus 1100 is insufficient and water supply needs to be started. In an embodiment of the present application, the first predetermined water level refers to the lowest water level in the laundry accommodating apparatus 1100 when the laundry treatment condition is met.

[0135] Therefore, in the first water supply stage, if it is detected that the water level height of the laundry accommodating apparatus 1100 in the internal image is lower than the first predetermined water level, the first treatment may be performed to supply water through the second water supply pipe path 1600, or through both the first water supply pipe path 1300 and the second water supply pipe path 1600. In the second water supply stage, if it is detected that the water level height of the laundry accommodating apparatus 1100 in the internal image is lower than the first predetermined water level, the second treatment may be performed to supply water only through the first water supply pipe path 1300, and not through the second water supply pipe path 1600, so as to avoid the drying treatment after the second water supply stage being affected by the formation of a water film on the filter screen 1500 due to the water supply of the second water supply pipe path 1600.

[0136] In an embodiment of the present application, if no laundry to be treated is identified in the internal image, flushing of the filter screen 1500 may be directly started. Specifically, if no laundry to be treated is identified in the internal image, the first treatment may be directly performed, so that the filter screen 1500 can be cleaned to avoid lint and impurities clogging the filter screen 1500 and affecting the drying performance, and the laundry may be prevented from getting wet due to cleaning of the filter screen when the laundry is already dried.

[0137] In an embodiment of the present application, the operation data collecting unit 170a includes: a touch operation unit, which is connected to the water supply control unit 1700, and is configured to obtain a user touch operation, generate a user operation instruction based on the user touch operation, and send the user operation instruction to the water supply control unit 1700. The water supply control unit 1700 is further configured to: determine that the preset condition is met when the user operation instruction is user selection information for a specified laundry treatment mode.

[0138] The touch operation unit is configured to receive the user touch operation, including but not limited to any electronic controller that can be manually operated by the user, such as a touch screen and a touch button.

[0139] In another embodiment of the present application, the operation data collecting unit 170a includes: an information receiving unit, which is connected to the water supply control unit 1700, and is configured to receive a user operation instruction from an external device and send the user operation instruction to the water supply control unit 1700. The water supply control unit 1700 is further configured to: determine that the preset condition is met when the user operation instruction is user selection information for a specified laundry treatment mode.

[0140] The information receiving unit is connected to the external device in a wired or wireless manner. Optionally, the information receiving unit includes but is not limited to an antenna, an infrared sensor, etc. Optionally, the external device is a remote controller, or may be any electronic device that may be manually operated by a user, such as a mobile phone, a tablet, a wearable device, etc.

[0141] In addition, the user operation instruction may be an instruction that needs to be executed in real time, or an instruction that needs to be executed at a specified moment.

[0142] The specified laundry treatment mode includes any laundry treatment mode involving drying treatment, such as a washing mode, a rinsing mode, a spinning-drying mode, and a barrel self-cleaning mode. In other words, as long as the user operation instruction is to select a specified laundry treatment mode, it means that the laundry treatment device needs to perform a drying operation, which requires cleaning the filter screen 1500 and avoids the formation of a water film on the filter screen 1500. At this time, the above water supply method of the present application may be adopted, and the first treatment is performed in the first water supply stage to achieve the cleaning of the filter screen 1500, and the second treatment is performed in the second water supply stage to avoid the formation of a water film when the water flows through the filter screen 1500. In this way, the filter screen 1500 is effectively cleaned, and the drying performance may be protected from the impact of the water film.

[0143] In an embodiment of the present application, the operation data collecting unit 170a includes: a water level sensor, which is arranged in the laundry accommodating apparatus 1100, connected to the water supply

control unit 1700, and configured to collect the water level information of the laundry accommodating apparatus 1100 and send the water level information to the water supply control unit 1700. In this way, the water supply control unit 1700 may control the water supply based on the water level information of the laundry accommodating apparatus 1100.

[0144] Specifically, the first water supply stage includes a washing stage, in which, when water is supplied through the first water supply pipe path 1300, when the water level height indicated by the water level information reaches the second predetermined water level or when the first water supply pipe path 1300 runs for a first time, water supply of the first water supply pipe path 1300 is stopped, and water supply of the second water supply pipe path 1600 is started.

[0145] In an embodiment of the present application, the first duration may be selected as 15s. Of course, the first duration may be any value set according to the actual laundry treatment needs, and is not limited to the above example.

[0146] The second predetermined water level is a water level reached after the required amount of water required for effective dispensing of a laundry treatment agent enters the laundry accommodating apparatus 1100. If the water level height indicated by the water level information reaches the second predetermined water level, it means that the laundry treatment agent has been effectively dispensed. For the cleaning effect of the filter screen 1500, the water supply of the first water supply pipe path 1300 may be stopped, and the water supply of the second water supply pipe path 1600 may be started, and the filter screen 1500 may be washed while supplying water for the washing treatment. Thus, on the basis of ensuring the effective dispensing of the laundry treatment agent, the cleaning effect of the filter screen 1500 may also be improved.

[0147] In an embodiment of the present application, the second predetermined water level is a water level reached after the minimum amount of water required for the effective dispensing of the laundry treatment agent enters the laundry accommodating apparatus 1100.

[0148] In another embodiment of the present application, a difference generated by subtracting an amount of water required for flushing the filter screen 1500 in the washing stage from the required amount of water for the washing treatment may be obtained, and the second predetermined water level is the water level height corresponding to the amount of water of the difference or the water level reached after the amount of water of the above difference enters the laundry accommodating apparatus 1100. The water level reached after the laundry enters the laundry accommodating apparatus 1100 is determined after considering the water adsorption effect of the laundry in the laundry accommodating apparatus 1100. In the context of the present application, when determining any water level such as the first predetermined water level and the second predetermined water level, the water adsorption effect of the laundry in the laundry accommodating apparatus 1100 has been taken into consideration, to obtain more accurate water level data, thereby improving the laundry treatment performance.

[0149] In summary, it may be determined whether to supply water to the laundry accommodating apparatus 1100 based on the operation data collected by the operation data collecting unit 170a. When water supply is needed, in the first water supply stage, the first water supply pipe path 1300 may be used for water supply, or the second water supply pipe path 1600 may be used for water supply, or both the first water supply pipe path 1300 and the second water supply pipe path 1600 may be used together for water supply. In the second water supply stage, only the first water supply pipe path 1300 can be used for water supply to avoid the formation of a water film on the filter screen 1500.

[0150] It should be noted that the water supply described in the present application includes water storage in the laundry treatment device 1000 during a laundry treatment preparation process, water storage during the laundry treatment process, and water replenishment when the amount of water is insufficient during the laundry treatment process.

[0151] In an embodiment of the present application, the water supply duration of the first water supply pipe path 1300 in the washing stage is set to a fifth duration, and the water supply duration of the second water supply pipe path 1600 in the washing stage is set to a sixth duration, where the fifth duration is greater than the sixth duration.

[0152] In an embodiment of the present application, the fifth duration may be selected as 20s and the sixth duration may be selected as 15s. Alternatively, the fifth duration may be selected as 29s, and the sixth duration may be selected as 20s. Alternatively, the fifth duration may be selected as 25s, and the sixth duration may be selected as 15s. Of course, the fifth duration and the sixth duration may be any value set according to the actual laundry treatment needs, and are not limited to the above examples.

[0153] That is to say, in the washing stage, the water supply duration of the first water supply pipe path 1300 is longer than the water supply duration of the second water supply pipe path 1600. Thus, the water supply duration of the first water supply pipe path 1300 is ensured to be long enough to completely flush the laundry treatment agent dispenser 1200 and ensure the effect of dispensing the laundry treatment agent, so as to avoid the inability to effectively flush the laundry treatment agent into the laundry accommodating apparatus 1100 due to a small amount of water flowing through the laundry treatment agent dispenser 1200.

[0154] In an embodiment of the present application, in the first water supply stage, the first water supply pipe path 1300 is controlled to pause water supply for the third duration. When laundry is treated in the first water supply

stage, the required amount of water to be supplied is often fixed. By pausing the water supply of the first water supply pipe path 1300 for the third duration, while increasing the time for the laundry treatment agent to fully react with the laundry, the third duration may be added to the water supply duration of the second water supply pipe path 1600 to ensure the amount of water supplied by the second water supply pipe path 1600 and provide more water for flushing the filter screen.

[0155] In an embodiment of the present application, the amount of water supplied by the second water supply pipe path 1600 may be further increased based on an originally required amount of water. The first water supply pipe path 1300 supplies water to a certain water level. During a pause of the first water supply pipe path 1300, the laundry to be treated fully adsorbs water, so that the water level in the laundry accommodating apparatus 1100 drops. In this way, when water is supplied through the second water supply pipe path 1600, the amount of water may be increased based on the original amount of water to make up for the amount of water adsorbed by the laundry to be treated and provide more water for flushing the filter screen. As a result, the amount of water supplied by the second water supply pipe path 1600 is increased, that is, the amount of water for flushing the filter screen 1500 is increased, which may improve the cleaning effect of the filter screen 1500.

[0156] In an embodiment of the present application, the third duration is 10s. Of course, the third duration may be any value set according to the actual laundry treatment needs, and is not limited to the above example.

[0157] Further, in the first water supply stage, if the first water supply pipe path 1300 supplies water at least two times, a time interval of at least one group of adjacent water supplies in the at least two times is set to the third duration.

[0158] The pause of the first water supply pipe path 1300 may be set between any two adjacent water supplies of the first water supply pipe path 1300. Optionally, it may be set between two water supplies before and after the laundry treatment agent is dispensed. The water supply before dispensing is used to wet the first water supply pipe path 1300, to prevent the laundry treatment agent from adhering to the first water supply pipe path 1300 and prepare for a subsequent dispensing of the laundry treatment agent. The water supply after dispensing is used to completely flush the laundry treatment agent in the laundry treatment agent dispenser 1200, so that the laundry treatment agent is dispensed the laundry accommodating apparatus 1100.

[0159] In an embodiment of the present application, in the first water supply stage, when the water supply duration of the first water supply pipe path 1300 reaches the fourth duration, a laundry treatment agent dispensing operation is performed on the laundry treatment agent dispenser 1200. The fourth duration is a water supply duration required to wet the first water supply pipe path 1300. In an embodiment, the fourth duration may be a minimum water supply duration required to wet the first water supply pipe path 1300. Before the laundry treatment agent is dispensed, the water supply duration of the first water supply pipe path 1300 reaches the fourth duration, so that the first water supply pipe path 1300 may be effectively wetted to prevent the laundry treatment agent from adhering to the first water supply pipe path 1300.

[0160] An end time of the laundry treatment agent dispensing operation is earlier than an end time of the water supply of the first water supply pipe path 1300 in the first water supply stage. That is to say, the first water supply pipe path 1300 will continue to supply water after the laundry treatment agent is dispensed. In this way, after the laundry treatment agent is dispensed, the laundry treatment agent in the laundry treatment agent dispenser 1200 may be completely flushed and cleaned by water supply, so that the laundry treatment agent is fully dispensed into the laundry accommodating apparatus 1100.

[0161] In an embodiment of the present application, the fourth duration is 5s. Of course, the fourth duration may be any value set according to the actual laundry treatment needs, and is not limited to the above example.

[0162] Further, the first water supply stage further includes an initial rinsing stage. The initial rinsing stage is after the washing stage. A ratio of a water supply duration of the first water supply pipe path 1300 in the initial rinsing stage to a water supply duration of the second water supply pipe path 1600 in the initial rinsing stage is greater than or equal to zero.

[0163] If the ratio is zero, it means that only the second water supply pipe path 1600 is used to supply water in the initial rinsing stage. If the ratio is greater than zero, it means that both the first water supply pipe path 1300 and the second water supply pipe path 1600 may be used to supply water in the initial rinsing stage.

[0164] Further, the second water supply stage includes a final rinsing stage. When entering the final rinsing stage, water supply of the first water supply pipe path 1300 is started. When the amount of water supplied reaches a specified amount or the water supply duration reaches the second duration, water supply of the first water supply pipe path 1300 is stopped.

[0165] In an embodiment of the present application, the specified amount is 2L and the second duration is 35s. Of course, the specified amount and the second duration may be any value set according to the actual laundry processing needs, and are not limited to the above example.

[0166] The final rinsing stage is the last water supply stage before the drying treatment. In the final rinsing stage, the second water supply pipe path 1600 is not used to supply water, but the first water supply pipe path 1300 is used to supply water to avoid the water flow passing through the filter screen 1500 to form a water film. The specified amount refers to an amount of water required for a normal operation of the laundry treatment

device in the final rinsing stage, and the second duration refers to a water intake duration required for the laundry treatment device to obtain the amount of water required for a normal operation in the final rinsing stage. When a current amount of water supplied reaches the specified amount or the water supply duration reaches the second duration, it means that the amount of water required for the final rinsing stage is sufficient, and water supply of the first water supply pipe path 1300 may be stopped.

[0167] In the washing stage and/or the initial rinsing stage, when the water level is lower than a third predetermined water level, the first treatment is performed. The third predetermined water level is a required amount of water for the normal operation of the laundry treatment device 1000 in the washing stage and/or the initial rinsing stage. If the water level at this time is lower than the third predetermined water level, it means that water replenishment is required. The first treatment is performed, that is, water supply is started, so as to achieve the purpose of water replenishment.

[0168] In an embodiment of the present application, the third predetermined water level is a minimum amount of water required for the normal operation of the laundry treatment device 1000 in the washing stage and/or the initial rinsing stage.

[0169] Similarly, in the final rinsing stage, when the water level is lower than a fourth predetermined water level, water supply of the first water supply pipe path 1300 is started. The third predetermined water level is a required amount of water for the normal operation of the laundry treatment device 1000 in the final rinsing stage. If the water level at this time is lower than the fourth predetermined water level, it means that the water is insufficient and water replenishment is required. The second treatment is performed, that is, water supply is started, so as to achieve the purpose of water replenishment. At the same time, only the first water supply pipe path 1300 is used for water supply during the second treatment, which will not cause the filter screen 1500 to form a water film, protecting the subsequent drying operation from being affected.

[0170] In an embodiment of the present application, the third predetermined water level is the minimum amount of water required for the normal operation of the laundry treatment device 1000 in the final rinsing stage.

[0171] In an embodiment of the present application, the third predetermined water level is 18 cm. Of course, the third predetermined water level may be any value set according to the actual laundry treatment needs, and is not limited to the above example.

[0172] In an embodiment of the present application, the fourth predetermined water level is 22 cm. Of course, the fourth predetermined water level may be any value set according to the actual laundry treatment needs, and is not limited to the above example.

[0173] In an embodiment of the present application, the first water supply pipe path 1300 includes: a first water supply switch configured to open and close the first water supply pipe path 1300. The water supply control unit 1700 is connected to the first water supply switch and is configured to control the opening and closing of the first water supply switch. The second water supply pipe path 1600 includes: a second water supply switch configured to open and close the second water supply pipe path 1600. The water supply control unit 1700 is connected to the second water supply switch and is configured to control the opening and closing of the second water supply switch.

[0174] Optionally, the first water supply switch and the second water supply switch are water inlet valves.

[0175] In a specific application scenario of the present application, in the first water supply stage, a gravity sensor is configured to determine whether the first load weight of the laundry accommodating apparatus 1100 is less than 3 kg. If the first load weight is less than 3 kg, it means that the amount of water supplied does not reach the level required for laundry treatment, so water supply is started. Further, the specific water supply method in the first water supply stage is as below:

[0176] When entering the washing stage, first, water is supplied through the first water supply pipe path 1300 for 5s and then stopped. This water supply is used to wet the first water supply pipe path 1300, to prevent the laundry treatment agent from adhering to the first water supply pipe path 1300 and prepare for subsequent dispensing of the laundry treatment agent. Then, water supply of the first water supply pipe path 1300 is paused for 10 seconds. During these 10 seconds, the user is allowed to open the laundry treatment agent dispenser 1200 and add the laundry treatment agent. Then, the first water supply pipe path 1300 supplies water for 10 seconds and then stops. This water supply is used to completely flush the laundry treatment agent in the laundry treatment agent dispenser 1200 so that the laundry treatment agent is fully dispensed into the laundry accommodating apparatus 1100. At this time, the Hall sensor is configured to determine whether the second load weight of the laundry accommodating apparatus 1100 is less than 5 kg. If the second load weight is less than 5 kg, it means that after the first water supply pipe path 1300 supplies water for 15 seconds, the amount of water of the laundry accommodating apparatus 1100 still cannot meet the needs of this washing treatment. Therefore, water supply of the second water supply pipe path 1600 may be started. The water supply of the second water supply pipe path 1600 not only increases the amount of water required for washing, but also plays a role in flushing the filter screen 1500. It should be noted that the washing stage includes one or more washing treatments, and the water supply method in this paragraph may be used for water supply during each washing treatment.

[0177] In addition, during each washing treatment in the washing stage, the internal image of the laundry accommodating apparatus 1100 is captured by the image sensor. If the water level of the laundry accommo-

dating apparatus 1100 in the internal image is lower than 18 cm, it means that the amount of water in the laundry accommodating apparatus 1100 is insufficient, and a reason thereof includes but is not limited to the water adsorption by the laundry, resulting in a drop in the water level. At this time, in order to ensure the washing effect, the first water supply pipe path 1300 is started to supply water until the water level of the laundry accommodating apparatus 1100 reaches 18 cm.

[0178] Next, before each rinsing treatment in the initial rinsing stage, the second water supply pipe path 1600 is used to supply water for 32 seconds and then stopped. During each rinsing treatment, the water level sensor determines whether the water level of the laundry accommodating apparatus 1100 is lower than 18 cm. If the water level is lower than 18 cm, it means that the current amount of water is insufficient to complete effective rinsing or to effectively flush the filter screen 1500. At this time, the second water supply pipe path 1600 may be started to supply water until the water level reaches 18 cm.

[0179] Finally, before the final rinsing treatment in the final rinsing stage, water is supplied through the first water supply pipe path 1300 for 35 seconds and then stopped. In the final rinsing treatment, the water level sensor determines whether the water level of the laundry accommodating apparatus 1100 is lower than 22 cm. If the water level is lower than 22 cm, it means that the current amount of water is insufficient to complete effective rinsing. At this time, the first water supply pipe path 1300 may be started to supply water until the water level reaches 22 cm.

[0180] In the above specific application scenarios, the gravity sensor may be replaced by the Hall sensor for weight detection, and the Hall sensor may be replaced by the gravity sensor for weight detection. The image sensor may be replaced by a water level sensor for water level detection, and the water level sensor can be replaced by the image sensor for water level detection. In addition, whether water supply needs to be started once can be determined by combining multiple pieces of operation information collected by the operation data collecting unit 170a. In short, the multiple pieces of operation information collected by the operation data collecting unit 170a may be used alone or in combination as the basis for determining whether to start water supply.

[0181] In addition, a variety of numerical values are given in the above specific application scenarios. In practical applications, in order to meet diverse laundry treatment requirements, a variety of numerical values may be set, and are not limited to the examples given in the above specific application scenarios.

[0182] In any of the above embodiments of the present application, any of the multiple features involved may be combined with each other to improve the drying performance.

[0183] In an embodiment of the present application, there is provided a laundry treatment device, including: a laundry accommodating apparatus, a laundry treatment agent dispenser, a first water supply pipe path, a drying apparatus, a filter screen, a second water supply pipe path, a memory, and a processor communicatively connected to the memory, the memory storing instructions executable by the processor, and the instructions being configured to execute the solution described in any of the above embodiments. The laundry treatment device has the same technical effect as any of the above embodiments, which will not be repeated here.

[0184] In an embodiment of the present application, there is provided an electronic device, including: a communication module, a memory, and a processor communicatively connected to the memory, where the memory stores instructions executable by the processor, the instructions are configured to control the laundry treatment device 1000 to execute the solution described in any of the above embodiments, and the communication module is used to be connected to the laundry treatment device 1000 by wire or wirelessly. The electronic device has the same technical effect as any of the above embodiments, which will not be repeated here.

[0185] The electronic devices in the embodiments of the present application exist in various forms, including but not limited to:

(1) Mobile communication devices: These devices are characterized by having a mobile communication function and having a main goal of providing voice and data communication. Such terminals include: a smart phone (e.g., iPhone), a multimedia phone, a functional phone, and a low-end phone.

(2) Ultra-mobile personal computer devices: These devices belong to the category of personal computers, have computing and processing functions, and generally also have mobile Internet access features. Such terminals include but are not limited to: PDAs, MIDs, and UMPC devices, such as iPad.

(3) Portable entertainment devices: These devices may display and play multimedia content. Such devices include but are not limited to: a wearable device, an audio and video player (such as iPod), a handheld game console, an e-book, as well as a smart toy and a portable car navigation device.

(4) Servers: Devices that provide computing services. The server consists of a processor, a hard disk, a memory, a system bus, etc. The server has a similar architecture as a general computer, but because of the needs to provide highly reliable services, the server has higher requirements in terms of processing power, stability, reliability, security, scalability, and manageability.

(5) Other electronic devices with data interaction functions.

[0186] In addition, according to an embodiment of the present application, there is provided a computer-readable storage medium having computer-executable in-

structions stored thereon, where the computer-executable instructions are used to perform steps of: performing a first treatment in a first water supply stage, where the first treatment includes supplying water to the laundry accommodating apparatus through a second water supply pipe path via a filter screen; performing a second treatment in a second water supply stage, where the second water supply stage is after the first water supply stage, and the second treatment includes supplying water to the laundry accommodating apparatus only through the first water supply pipe path.

[0187] It should be noted that, for the functions or steps that can be implemented by the computer-readable storage medium or the electronic device mentioned above, please refer to the relevant descriptions in the aforementioned method embodiments, and will not be described one by one here to avoid repetition.

[0188] The technical solution of the present application is described in detail above in conjunction with the accompanying drawings. Through the technical solution of the present application, the filter screen is effectively cleaned in the first water supply stage, and in the second water supply stage, which is the last water supply stage before drying, the second water supply pipe path is not used to supply water, but the first water supply pipe path is used to supply water, so as to avoid water flow passing through the filter screen to form a water film. It not only achieves effective cleaning of the filter screen, and protects the drying performance from the impact of the water film, but also maintains the safe operation of multiple components including the fan, and improves the service life of these components.

[0189] It should be understood that the term "and/or" used herein is only a description of the association relationship of the associated objects, indicating that there may be three relationships. For example, A and/or B may represent: A exists alone, A and B exist at the same time, or B exists alone. In addition, the character "/" herein generally indicates that the associated objects before and after this character are in an "or" relationship.

[0190] Depending on the context, the word "if" as used herein may be interpreted as "at the time of" or "when" or "in response to determining that ... " or "in response to detecting that ... ". Similarly, depending on the context, the phrase "if it is determined that ..." or "if (a stated condition or event) is detected" may be interpreted as "when it is determined that ..." or "in response to determining that ... " or "when (a stated condition or event) is detected that ... " or "in response to detecting that ... (a stated condition or event)".

[0191] The terms used in the embodiments of the present application are only for the purpose of describing specific embodiments, and are not intended to limit the present application. The singular forms "a", "said" and "the" used in the embodiments of the present application and the appended claims are also intended to include the plural forms, unless the context clearly indicates other meanings.

[0192] In several embodiments provided in the present application, it should be understood that the disclosed systems, apparatuses and methods may be implemented in other ways. For example, the apparatus embodiments described above are only schematic. For example, the division of the units is only a logical function division, and there may be other division methods in actual implementation. For example, multiple units or components may be combined or integrated into another system, or some features may be ignored or not executed Another point is that the mutual coupling or direct coupling or communicative connection shown or discussed may be implemented through some interfaces, and indirect coupling or communicative connection of devices or units may be electrical, mechanical or in other forms.

[0193] Those of ordinary skill in the art may understand that all or part of the processes in the methods according to the above embodiments may be implemented by instructing the relevant hardware through a computer program. The computer program may be stored in a non-volatile computer-readable storage medium. When executed, the computer program may include the processes of the methods according to the above embodiments. Any reference to memory, storage, database or other media used in the embodiments provided in the present application may include a non-volatile memory and/or a volatile memory. The non-volatile memory may include a read-only memory (ROM), a programmable ROM (PROM), an electrically programmable ROM (EPROM), an electrically erasable programmable ROM (EEPROM) or a flash memory. The volatile memory may include a random-access memory (RAM) or an external cache memory. As an illustration and not limitation, the RAM is available in many forms, such as a static RAM (SRAM), a dynamic RAM (DRAM), a synchronous DRAM (SDRAM), a double data rate SDRAM (DDRSDRAM), an enhanced SDRAM (ESDRAM), a Synchlink DRAM (SLDRAM), a Rambus direct RAM (RDRAM), a direct Rambus dynamic RAM (DRDRAM), and a Rambus dynamic RAM (RDRAM).

[0194] The above-described embodiments are provided solely to illustrate the technical solutions of the present application and are not intended to limit the same. Although the present disclosure has been described in detail with reference to the aforementioned embodiments, those skilled in the art should understand that modifications can still be made to the technical solutions described in these embodiments, or certain technical features can be equivalently replaced. Such modifications or replacements do not deviate from the essence of the corresponding technical solutions from the spirit and scope of the technical solutions of the embodiments of the present disclosure, and should all fall within the protection scope of the present disclosure.

Claims

1. A laundry treatment device, comprising:

a laundry accommodating apparatus, configured to accommodate laundry to be treated;
a laundry treatment agent dispenser, connected to the laundry accommodating apparatus, and configured to accommodate a laundry treatment agent to be added to the laundry accommodating apparatus;
a first water supply pipe path, connected to the laundry accommodating apparatus via the laundry treatment agent dispenser, and configured to supply water to the laundry accommodating apparatus;
a drying apparatus, connected to the laundry accommodating apparatus, and configured to dry an air flow drawn from the laundry accommodating apparatus;
a filter screen, connected to the laundry accommodating apparatus and the drying apparatus, and configured to filter the air flow;
a second water supply pipe path, connected to the laundry accommodating apparatus via the filter screen, and configured to supply water to the laundry accommodating apparatus via the filter screen; and
a water supply control unit, connected to the first water supply pipe path and the second water supply pipe path, and configured to perform a first treatment in a first water supply stage of a laundry treatment process and perform a second treatment in a second water supply stage of the laundry treatment process, wherein the first water supply stage is before the second water supply stage, the first treatment comprises supplying water to the laundry accommodating apparatus through the second water supply pipe path, and the second treatment comprises supplying water to the laundry accommodating apparatus only through the first water supply pipe path.

2. The laundry treatment device according to claim 1, further comprising:

an operation data collecting unit, configured to collect operation data of the laundry treatment device, wherein the operation data comprises at least one of a first load weight of the laundry accommodating apparatus, pulse information of a motor of the laundry treatment device, an internal image of the laundry accommodating apparatus and a user operation instruction;
wherein, the water supply control unit is further connected to the operation data collecting unit, and is configured to obtain operation data from the operation data collecting unit, perform the first treatment when the operation data meets a preset condition in the first water supply stage, and perform the second treatment when the operation data meets a preset condition in the second water supply stage.

3. The laundry treatment device according to claim 2, wherein the operation data collecting unit comprises:

a gravity sensor, arranged at a bottom of the laundry accommodating apparatus, connected to the water supply control unit, and configured to collect the first load weight of the laundry accommodating apparatus and send the first load weight to the water supply control unit;
wherein, the water supply control unit is further configured to determine that the preset condition is met when the first load weight is lower than a predetermined weight threshold.

4. The laundry treatment device according to claim 2, further comprising:

the motor, configured to power the laundry treatment device;
wherein, the operation data collecting unit comprises:

a Hall sensor, arranged within a magnetic field coverage of the motor and connected to the water supply control unit, and configured to generate pulse information in response to a magnetic field change of the motor and send the pulse information to the water supply control unit;
and wherein, the water supply control unit is further configured to determine a second load weight of the laundry accommodating apparatus based on the pulse information and a predetermined mapping relationship, and determine that the preset condition is met when the second load weight is lower than a predetermined weight threshold, wherein the predetermined mapping relationship is used to reflect a correlation between the pulse information and the second load weight of the laundry accommodating apparatus.

5. The laundry treatment device according to claim 2, wherein the operation data collecting unit comprises:

an image sensor, arranged on a door body of the laundry accommodating apparatus, connected to the water supply control unit, and configured to collect an internal image of the laundry accommodating apparatus and send the internal

image to the water supply control unit;
wherein, the water supply control unit is further configured to determine that the preset condition is met when no laundry to be treated is identified in the internal image, and/or when a water level of the laundry accommodating apparatus in the internal image is lower than a first predetermined water level.

6. The laundry treatment device according to claim 2, wherein the operation data collecting unit comprises:

a touch operation unit, connected to the water supply control unit, and configured to obtain a user touch operation, generate a user operation instruction based on the user touch operation, and send the user operation instruction to the water supply control unit;
and wherein, the water supply control unit is further configured to determine that the preset condition is met when the user operation instruction is user selection information for a specified laundry treatment mode.

7. The laundry treatment device according to claim 2, wherein the first treatment further comprises supplying water to the laundry accommodating apparatus through the first water supply pipe path.

8. The laundry treatment device according to claim 7, wherein the operation data collecting unit comprises:

a water level sensor, arranged in the laundry accommodating apparatus, connected to the water supply control unit, and configured to collect water level information of the laundry accommodating apparatus and send the water level information to the water supply control unit;
wherein the first water supply stage comprises a washing stage, and
in the washing stage, when a water level height indicated by the water level information reaches a second predetermined water level or when the first water supply pipe path has been running for a first duration, a water supply of the first water supply pipe path is stopped, and a water supply of the second water supply pipe path is started.

9. The laundry treatment device according to claim 8, wherein the first water supply stage further comprises an initial rinsing stage, and
in the washing stage and/or the initial rinsing stage, when the water level height is lower than a third predetermined water level, the first treatment is performed.

10. The laundry treatment device according to claim 9, wherein the second water supply stage comprises a final rinsing stage, and
when entering the final rinsing stage, the water supply of the first water supply pipe path is started, and when a water supply reaches a specified amount or a water supply duration reaches a second duration, the water supply of the first water supply pipe path is stopped.

11. The laundry treatment device according to claim 10, wherein,
in the final rinsing stage, when the water level height is lower than a fourth predetermined water level, the water supply of the first water supply pipe path is started.

12. The laundry treatment device according to claim 1, wherein the first water supply pipe path comprises:

a first water supply switch, configured to open or close the first water supply pipe path;
and wherein, the water supply control unit is connected to the first water supply switch and configured to control opening or closing of the first water supply switch;
the second water supply pipe path comprises:

a second water supply switch, configured to open or close the second water supply pipe path;
and wherein, the water supply control unit is connected to the second water supply switch and configured to control opening or closing of the second water supply switch.

13. A water supply control method, applied to the laundry treatment device according to any one of claims 1 to 12, and comprising:

performing a first treatment in a first water supply stage, the first treatment comprising supplying water to the laundry accommodating apparatus through the second water supply pipe path via the filter screen; and
performing a second treatment in a second water supply stage, the second water supply stage being after the first water supply stage, the second treatment comprising supplying water to the laundry accommodating apparatus only through the first water supply pipe path.

14. The water supply control method according to claim 13, further comprising:

collecting operation data of the laundry treatment device, wherein the operation data comprises at least one of a first load weight of the laundry accommodating apparatus, pulse infor-

mation of a motor of the laundry treatment device, an internal image of the laundry accommodating apparatus and a user operation instruction;
wherein, the performing the first treatment in the first water supply stage, comprises:

performing the first treatment, when the operation data meets a preset condition in the first water supply stage;
the performing the second treatment in the second water supply stage, comprises:

performing the second treatment, when the operation data meets the preset condition in the second water supply stage;
and wherein, the preset condition comprises at least one of:

the first load weight being lower than a predetermined weight threshold;
a second load weight determined based on the pulse information and a predetermined mapping relationship being lower than the predetermined weight threshold;
laundry to be treated being identified in the internal image;
a water level height of the laundry accommodating apparatus in the internal image being lower than a first predetermined water level; and
the user operation instruction being user selection information for a specified laundry treatment mode.

15. The water supply control method according to claim 14, wherein the first treatment further comprises:
supplying water to the laundry accommodating apparatus through the first water supply pipe path, wherein, in the first water supply stage, a ratio of a total water supply duration of the first water supply pipe path to a total water supply duration of the second water supply pipe path is greater than or equal to zero.

16. The water supply control method according to claim 15, further comprising:
in the first water supply stage, controlling the first water supply pipe path to pause water supply for a third duration.

17. The water supply control method according to claim 16, further comprising:
in the first water supply stage, if the number of times water supplies through the first water supply pipe path is at least two times, setting a time interval between at least one group of adjacent water supplies in the at least two times to the third duration.

18. The water supply control method according to claim 15, further comprising:
in the first water supply stage, when a water supply duration of the first water supply pipe path reaches a fourth duration, performing a laundry treatment agent adding operation on the laundry treatment agent dispenser, wherein an end time of the laundry treatment agent adding operation is earlier than an end time of the water supply of the first water supply pipe path in the first water supply stage.

19. The water supply control method according to claim 15, wherein the performing the first treatment in the first water supply stage, comprises:
in a washing stage of the first water supply stage, when water is supplied through the first water supply pipe path, if it is detected that a water level height of the laundry accommodating apparatus reaches a second predetermined water level or the first water supply pipe path has been running for a first duration, stopping water supply of the first water supply pipe path, and starting water supply of the second water supply pipe path.

20. The water supply control method according to claim 19, further comprising:
setting the water supply duration of the first water supply pipe path in the washing stage to a fifth duration, and setting a water supply duration of the second water supply pipe path in the washing stage to a sixth duration, wherein the fifth duration is greater than the sixth duration.

21. The water supply control method according to claim 19, wherein the first water supply stage further comprises an initial rinsing stage, the initial rinsing stage is after the washing stage, and a ratio of the water supply duration of the first water supply pipe path in the initial rinsing stage to the water supply time of the second water supply pipe path in the initial rinsing stage is greater than or equal to zero.

22. The water supply control method according to claim 21, wherein the performing the first treatment in the first water supply stage comprises:
in the washing stage and/or the initial rinsing stage, performing the first treatment when the water level height is lower than a third predetermined water level.

23. The water supply control method according to claim 22, wherein the performing the second treatment in

the second water supply stage comprises:

when entering the final rinsing stage in the second water supply stage, starting the water supply of the first water supply pipe path; and
when a current amount of water supplied reaches a specified amount or a water supply duration reaches a second duration, stopping the water supply of the first water supply pipe path.

24. The water supply control method according to claim 23, wherein the performing the second treatment in the second water supply stage comprises:
in the final rinsing stage, when the water level height is lower than a fourth predetermined water level, starting the water supply of the first water supply pipe path.

25. A computer-readable storage medium having a computer program stored on, wherein the computer program, when executed by a processor, implements the water supply control method according to any one of claims 13 to 24.

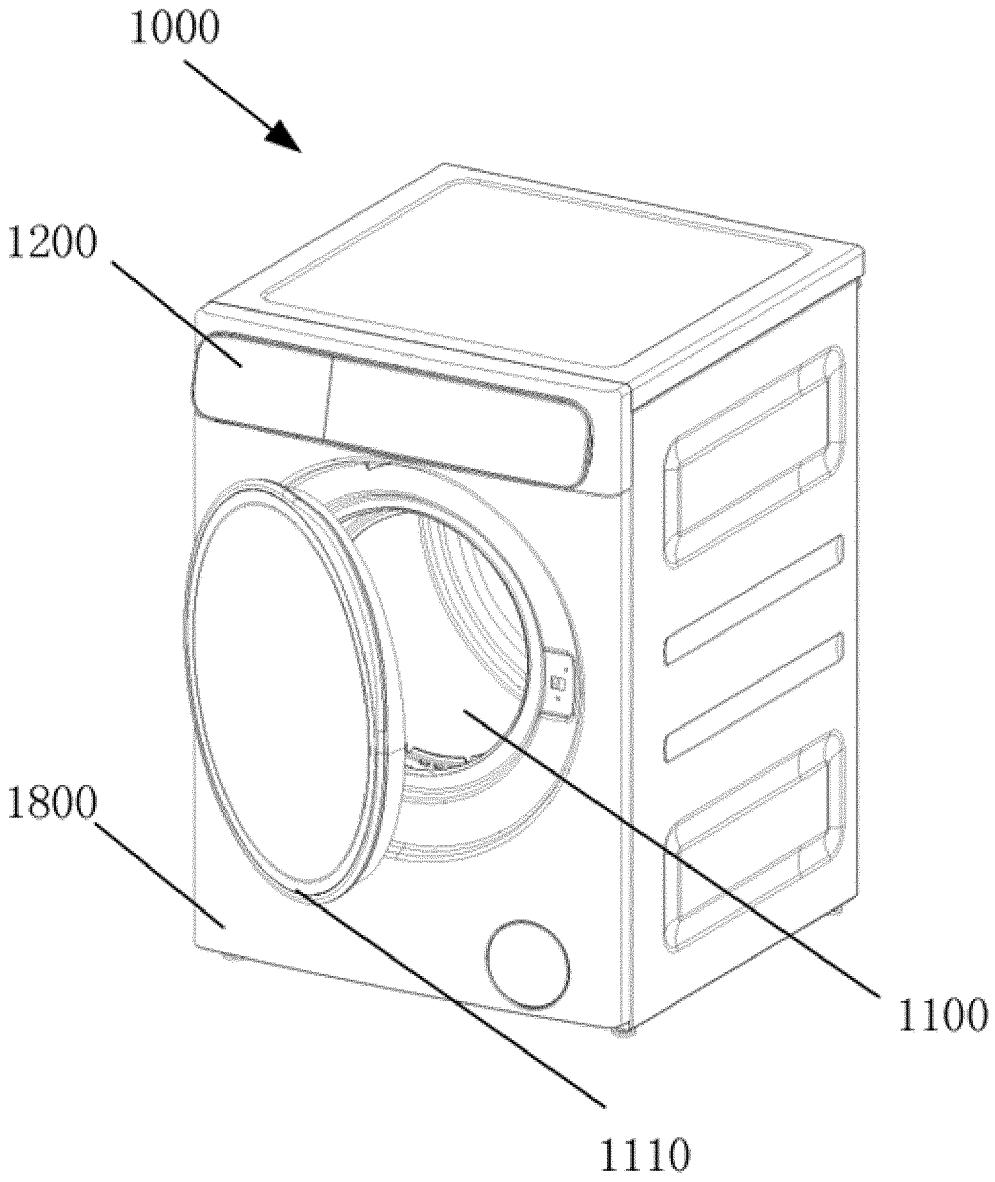

FIG. 1

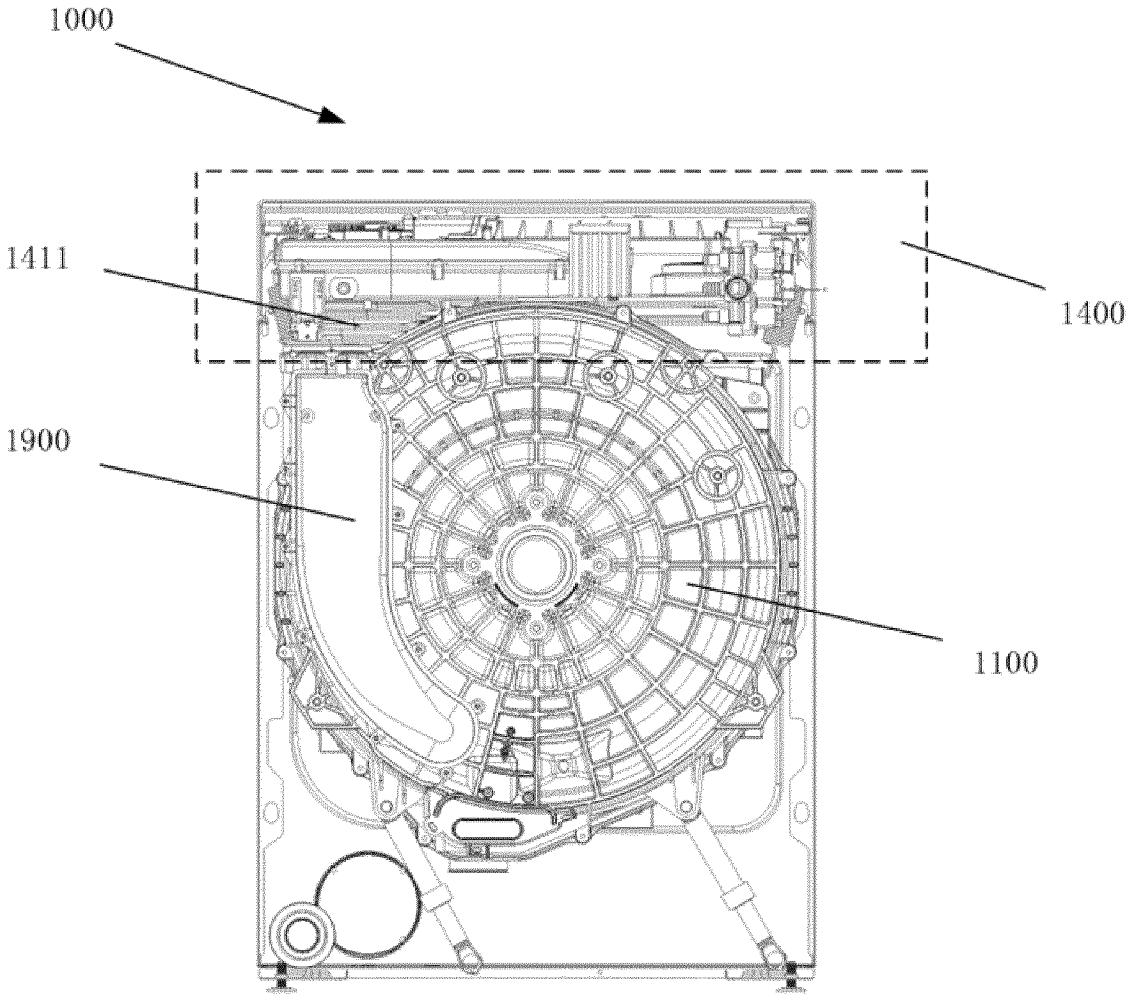

FIG. 2

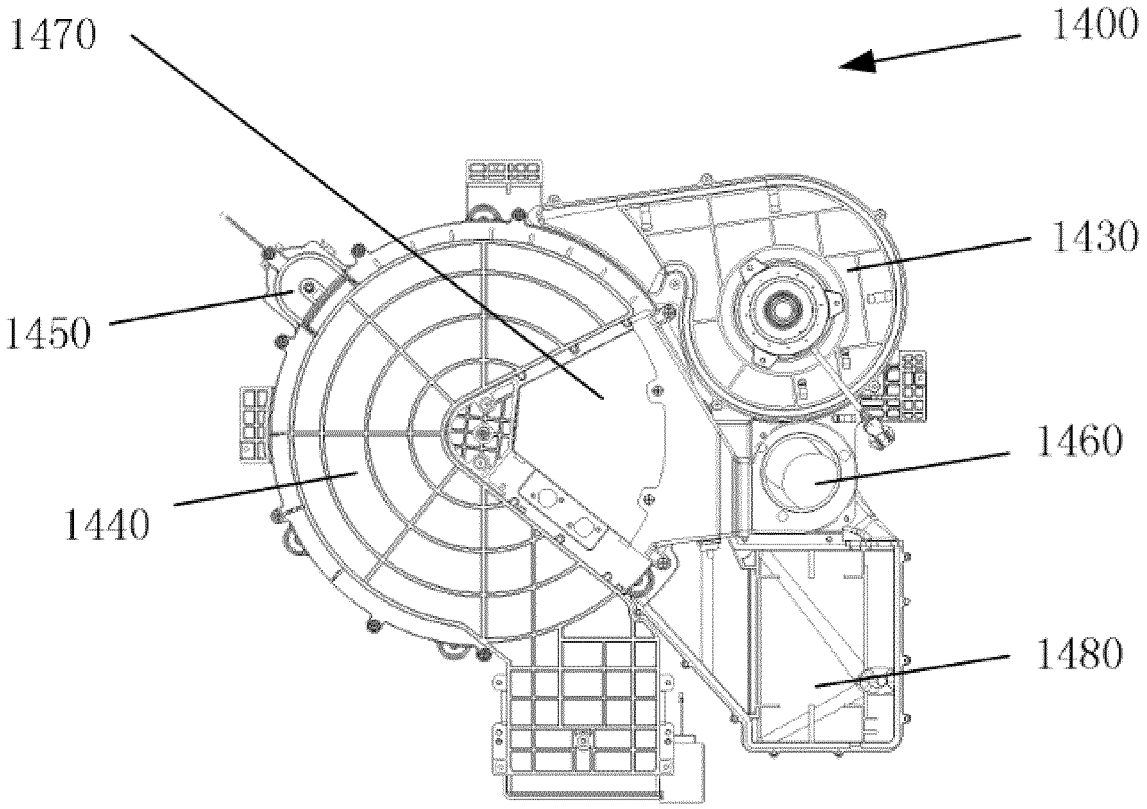

FIG. 3

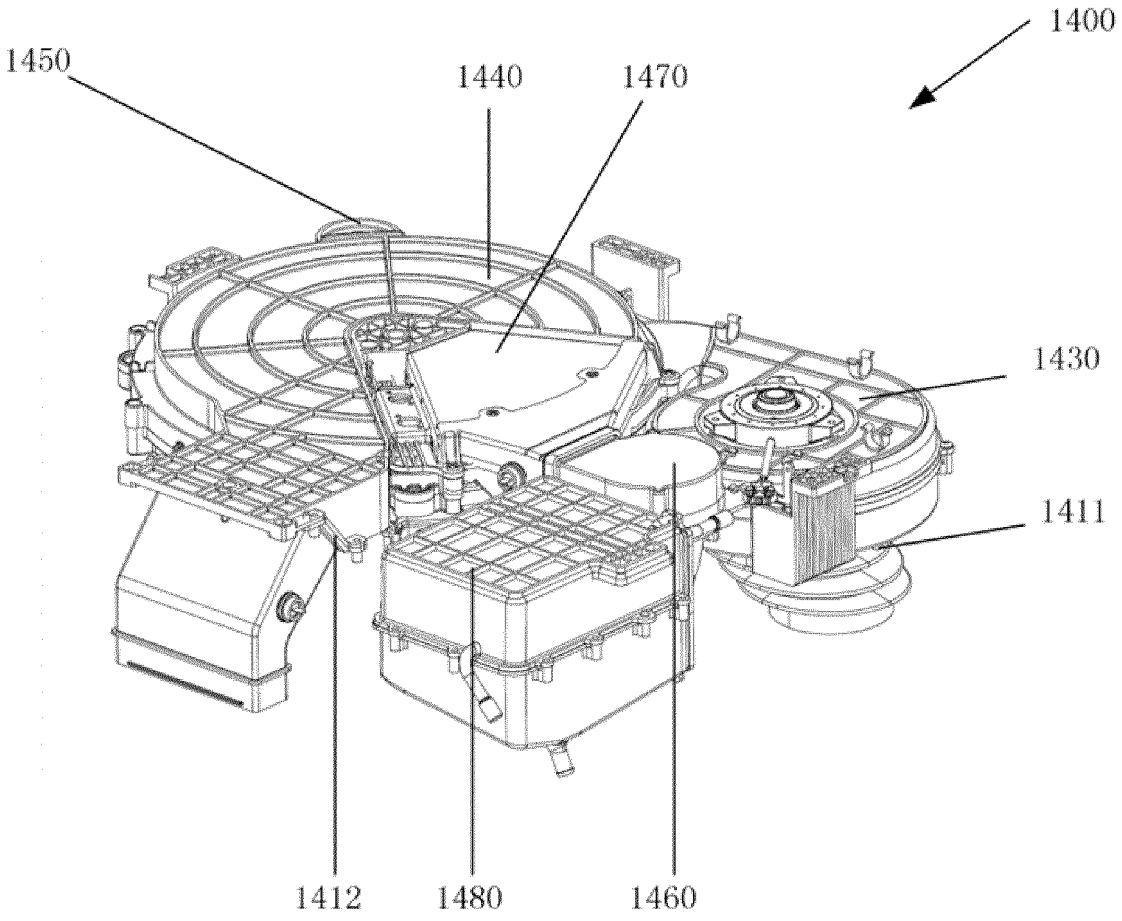

FIG. 4

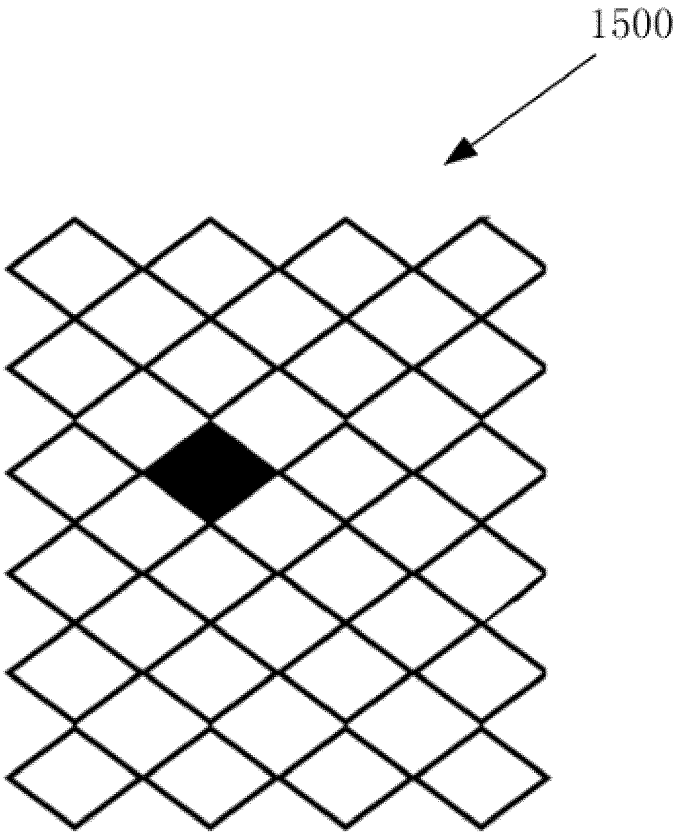

FIG. 5

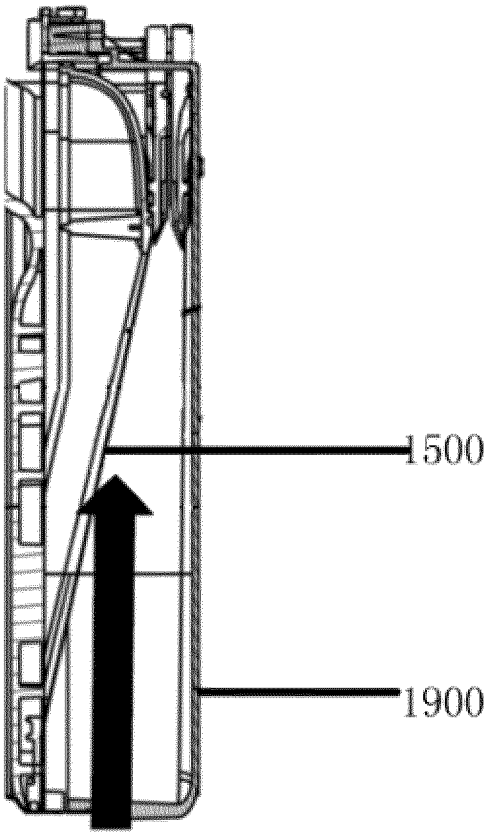

FIG. 6

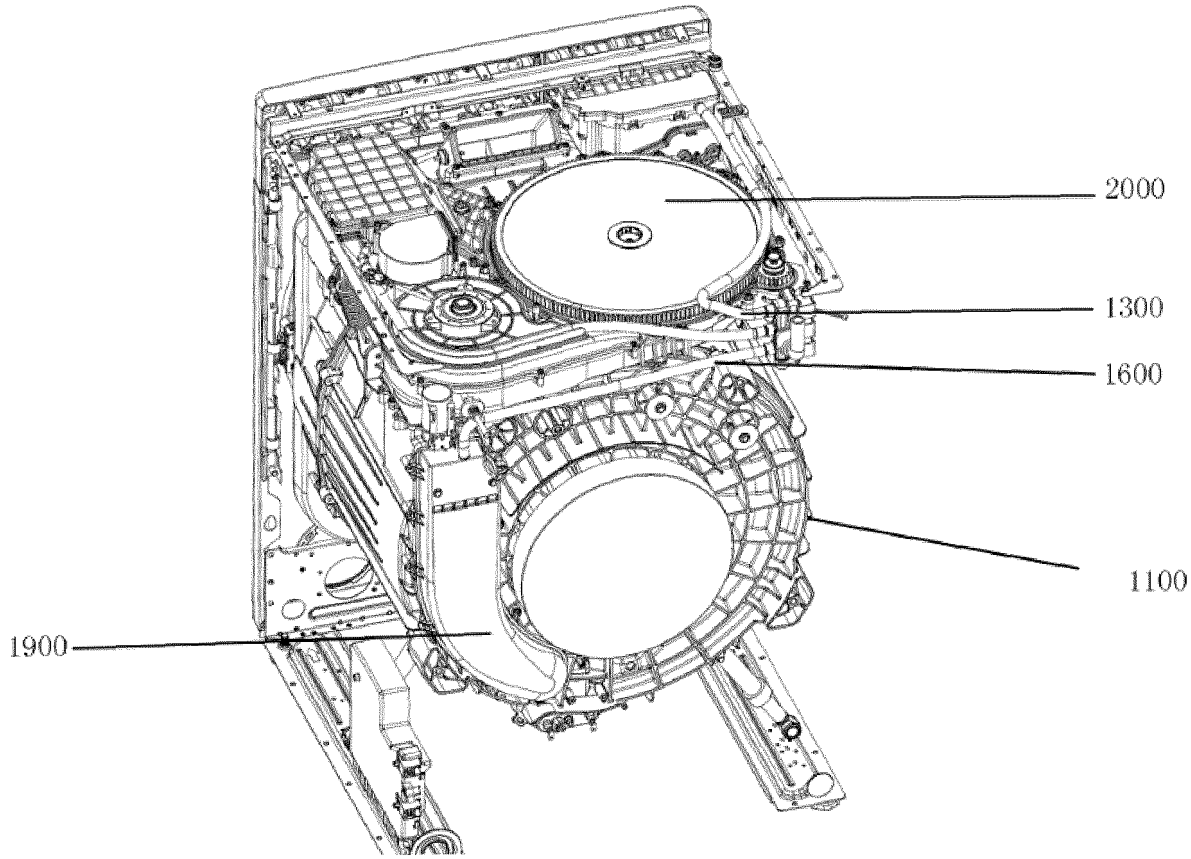
2000
1300
1600
1100
1900

FIG. 7

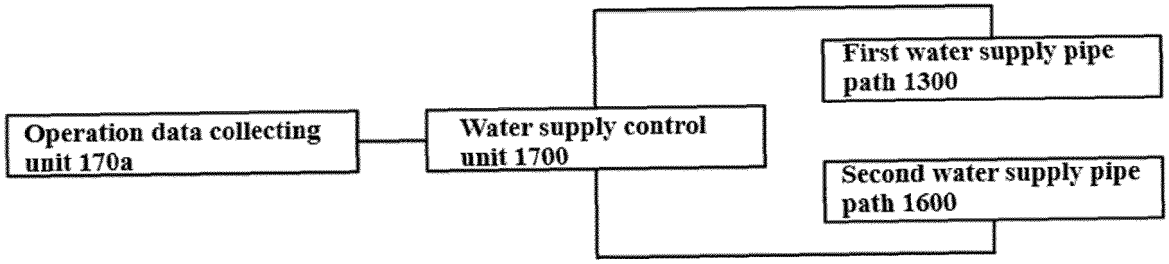
Operation data collecting unit 170a
Water supply control unit 1700
First water supply pipe path 1300
Second water supply pipe path 1600

FIG. 8

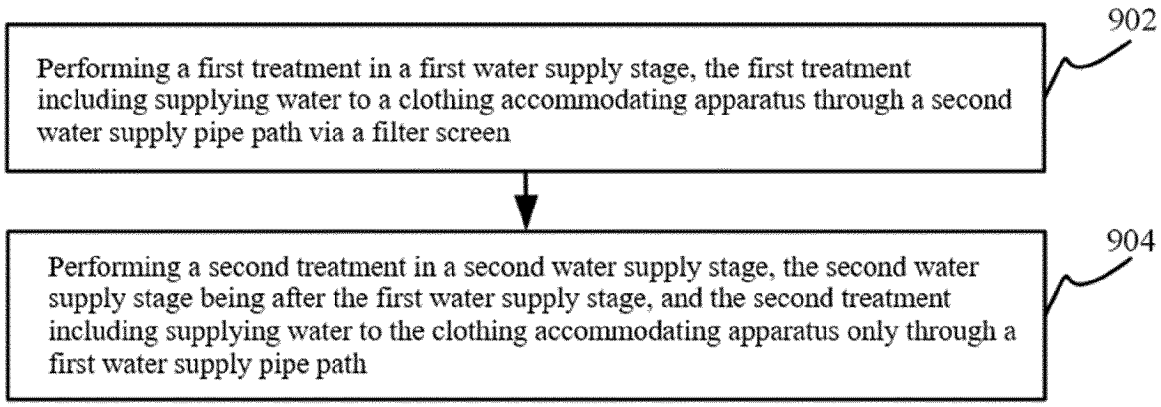
902
Performing a first treatment in a first water supply stage, the first treatment including supplying water to a clothing accommodating apparatus through a second water supply pipe path via a filter screen
904
Performing a second treatment in a second water supply stage, the second water supply stage being after the first water supply stage, and the second treatment including supplying water to the clothing accommodating apparatus only through a first water supply pipe path

FIG. 9

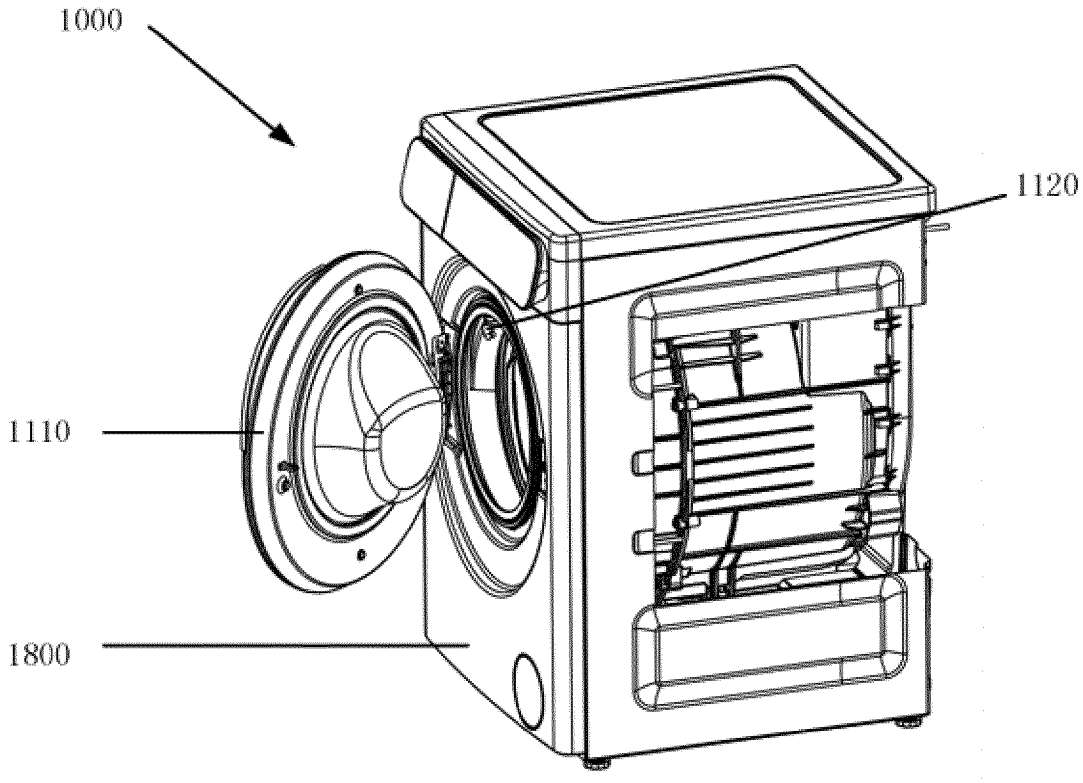
1000
1120
1110
1800

FIG. 10

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2023/096639

A. CLASSIFICATION OF SUBJECT MATTER

D06F58/20(2006.01)i; D06F39/08(2006.01)i; D06F39/10(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC:D06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CNTXT, ENTXTC, WPABSC, VEN, ENTXT: 深圳洛克创新科技有限公司, 过滤, 水膜, 供水, 进水, 堵, 杂, 毛屑, 烘干, 干燥, 冲, 清, 图像, 重量, 质量, 脉冲, lint, filter, supply, water, wash, dry, valve, provid+, feed, clean+

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2012134159 A2 (LG ELECTRONICS INC. et al.) 04 October 2012 (2012-10-04) description, paragraphs 51-124, and figures 2-11	1, 12-13, 25
Y	WO 2012134159 A2 (LG ELECTRONICS INC. et al.) 04 October 2012 (2012-10-04) description, paragraphs 51-124, and figures 2-11	2-11, 14-24
Y	CN 112342732 A (WUXI FILIN ELECTRONICS CO., LTD.) 09 February 2021 (2021-02-09) description, paragraphs 28-89, and figures 1-5	2-11,14-24
A	CN 103080410 A (LG ELECTRONICS INC.) 01 May 2013 (2013-05-01) entire document	1-25
A	CN 103797179 A (LG ELECTRONICS INC.) 14 May 2014 (2014-05-14) entire document	1-25
A	CN 106948148 A (LG ELECTRONICS INC.) 14 July 2017 (2017-07-14) entire document	1-25
A	CN 109629168 A (HITACHI APPLIANCES INC.) 16 April 2019 (2019-04-16) entire document	1-25

☑ Further documents are listed in the continuation of Box C. ☑ See patent family annex.

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"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
24 August 2023	**29 November 2023**
Name and mailing address of the ISA/CN **China National Intellectual Property Administration (ISA/CN)** **China No. 6, Xitucheng Road, Jimenqiao, Haidian District, Beijing 100088**	Authorized officer Telephone No.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2023/096639

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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A	KR 20180027046 A (LG ELECTRONICS INC.) 14 March 2018 (2018-03-14) entire document	1-25

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2023/096639

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		JP 7065026 B2	11 May 2022
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		KR 20170082057 A	13 July 2017
		KR 102515954 B1	30 March 2023
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		EP 3190226 B1	24 May 2023
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		JP 6956582 B2	02 November 2021
CN 113767193 A	07 December 2021	JP 2020178914 A	05 November 2020
		WO 2020216247 A1	29 October 2020
KR 20180027046 A	14 March 2018	None	

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REFERENCES CITED IN THE DESCRIPTION

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