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(71) Applicants:
- **Qingdao Haier Washing Machine Co., Ltd.**
  Qingdao, Shandong 266101 (CN)
- **HAIER SMART HOME CO., LTD.**
  Laoshan District
  Qingdao
  Shandong 266101 (CN)

(72) Inventors:
- **WANG, Guangfeng**
  Qingdao
  Shandong 266101 (CN)
- **LI, Wenwei**
  Qingdao
  Shandong 266101 (CN)
- **WU, Jun**
  Qingdao
  Shandong 266101 (CN)
- **PAN, Guanghui**
  Qingdao
  Shandong 266101 (CN)
- **NIU, Yanjuan**
  Qingdao
  Shandong 266101 (CN)
- **YU, Mingliang**
  Qingdao
  Shandong 266101 (CN)

(74) Representative: **Ziebig & Hengelhaupt Patent- und Rechtsanwaltskanzlei PartG mbB**
Leipziger Straße 49
10117 Berlin (DE)

(54) CONTROL METHOD FOR CLOTHES PROCESSING DEVICE

(57) Disclosed is a control method of a laundry treatment apparatus. The laundry treatment apparatus includes a first laundry treatment device (2), a second laundry treatment device (3), a drying and filtering device (6) and a flushing water passage (4) for flushing the drying and filtering device (6). The control method includes that the laundry treatment apparatus, according to operating states of the two laundry treatment devices (2, 3), controls the flushing water passage (4) to flush the drying and filtering device (6). The laundry treatment apparatus is configured to match the operating states of the two laundry treatment devices (2, 3) to select time suitable for flushing the drying and filtering device, thereby achieving the purposes of facilitating drainage of flushing water, saving time and energy and improving the flushing and laundry drying effects.

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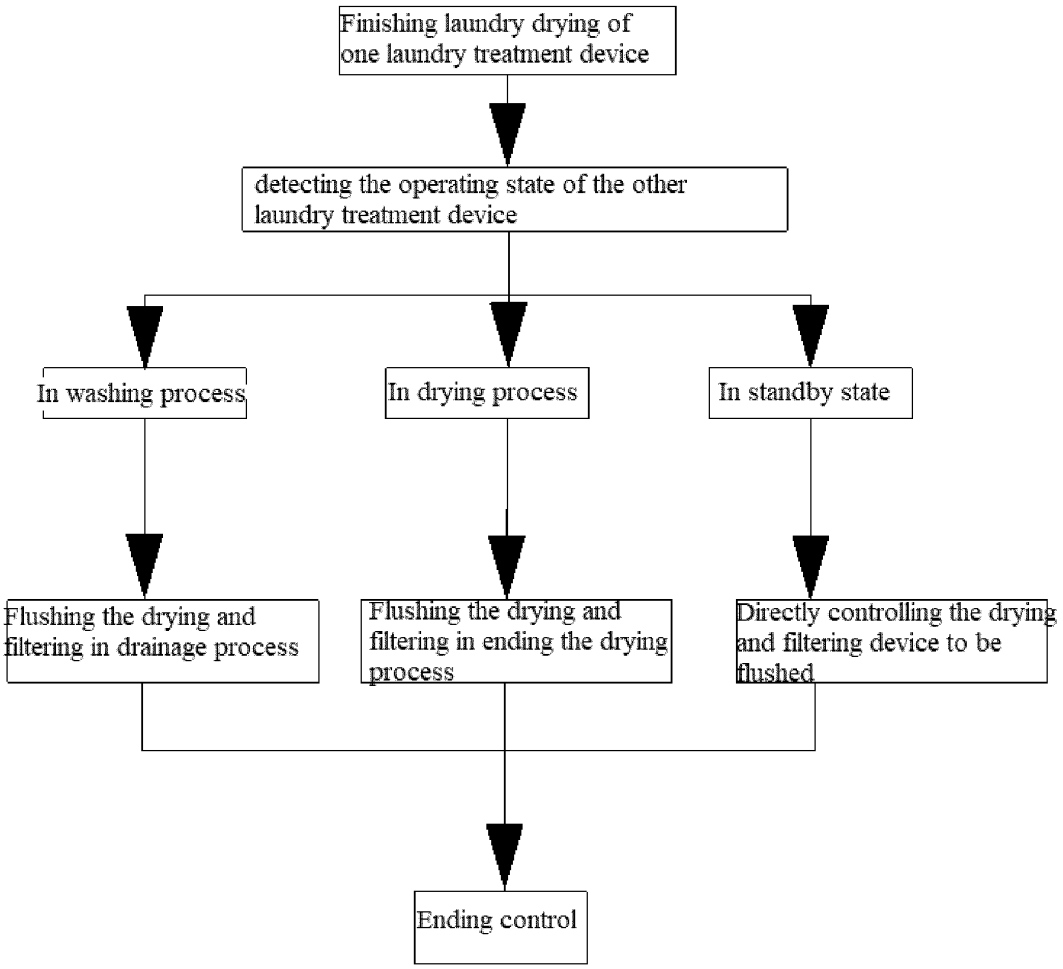
Finishing laundry drying of one laundry treatment device
detecting the operating state of the other laundry treatment device
In washing process
In drying process
In standby state
Flushing the drying and filtering in drainage process
Flushing the drying and filtering in ending the drying process
Directly controlling the drying and filtering device to be flushed
Ending control

Figure 2

Description

TECHNICAL FIELD

[0001] The present application relates to the technical field of laundry washing and drying apparatus, in particular to a control method of a laundry treatment apparatus.

BACKGROUND

[0002] Serving as a household appliance, a washing machine gradually becomes an indispensable part in the life of people. With the improvement of the living standard, the daily needs of people cannot be met by quick laundry washing, and sometimes, people need to wear the clothes in the shortest time after the clothes are washed, so that a laundry dryer serving as a laundry drying apparatus increasingly involves in people's homes.

[0003] However, if a washing machine and a laundry dryer are placed at home, not only a large space is occupied, but also people need to transfer laundry washed by the washing machine into the laundry dryer. Due to the fact that the capacity of the laundry dryer is generally smaller than that of the washing machine, the laundry washed at a time cannot be treated in the laundry dryer at one time and need to be treated twice or even multiple times respectively. In addition, there is a roller washing machine with a drying function at present, but the capacity of the washing machine is generally limited due to the fact that the roll washing machine needs to conduct drying, and the whole laundry washing and drying process lasts for a long time.

[0004] As the prior art, Chinese utility model patent with the application number of 201220157731.3 filed on April 16, 2012 and entitled a combined type laundry washing and drying machine, discloses a washing machine including a main frame, wherein a washing machine is installed in a lower frame of the main frame, a laundry dryer is installed in an upper frame of the main frame. An upper portion of the washing machine is connected with an electric appliance control panel through a second isolation layer. An upper portion of the electric appliance control panel is connected with the laundry dryer through a first isolation layer. A washing machine working door is arranged on the washing machine, and a laundry dryer working door is arranged on the laundry dryer. According to the combined type laundry washing and drying machine, the well-known washing machine and laundry dryer are combined together to be manufactured, manufacturing materials can be saved, the manufacturing cost can be reduced. Due to combined manufacturing, the occupied ground space is small in a using process, and due to the fact that the laundry dryer forms the working height on the upper portion, the use is convenient.

[0005] According to the above utility model patent, the laundry dryer and the washing machine are combined, so that the problems of washing and drying laundry at the same time are solved, but the washing machine and the laundry dryer are not integrated due to different working processes of the washing machine and the laundry dryer, resulting in waste of the resources of the washing machine and the laundry dryer.

[0006] For example, according to a washing and drying machine with two laundry treatment devices, the two laundry treatment devices share the same one drying and filtering device. After drying work, thread scraps and sundries adhere to the drying and filtering device, thereby affecting the circulation of drying air. After one laundry treatment device dries laundry, a large amount of thread scraps adhere to the drying and filtering device. If the other laundry treatment device starts to work again at the moment, the thread scraps on the drying and filtering device hinder the circulation of drying air, thereby being adverse to improving the drying effect.

[0007] In view of this, on the basis of the washing and drying machine, the problem of flushing the drying and filtering device is solved according to the working features of the washing machine/laundry dryer and the laundry dryer.

SUMMARY

[0008] In order to solve the above problems, a first objective of the present application is to provide a control method of a laundry treatment apparatus, and particularly, the following technical solution is adopted.

[0009] A control method of a laundry treatment apparatus is provided. The laundry treatment apparatus includes a first laundry treatment device, a second laundry treatment device, a drying and filtering device and a flushing water passage for flushing the drying and filtering device. The control method includes that the laundry treatment apparatus, controls the flushing water passage to flush the drying and filtering device according to operating states of the two laundry treatment devices.

[0010] In the above solution, the two laundry treatment devices are arranged, and the laundry treatment apparatus is configured to match the operating states of the two laundry treatment devices to select time suitable for flushing the drying and filtering device, thereby achieving the purposes of facilitating drainage of flushing water, saving time and energy and improving the flushing and laundry drying effects.

[0011] In one embodiment, the laundry treatment apparatus includes an inflow water passage and a drainage water passage, the flushing water passage is communicated with the inflow water passage, and the drying and filtering device is communicated with the drainage water passage through a connecting pipe. The laundry treatment apparatus controls the flushing water passage to be conductive to flush the drying and filtering device when the second/first laundry treatment device drains water, after being detected that the first/second laundry treatment device finishes laundry drying and the second/first laundry treatment device conducts a laundry washing process.

[0012] In the above embodiments, the flushing water passage of the laundry treatment apparatus is directly connected with the inflow water passage of the laundry treatment apparatus, and the drying and filtering device of the laundry treatment apparatus is directly connected with the drainage water passage. When the other laundry treatment device is in a laundry washing state, it is determined that a washing time point is in a drainage stage; and when the operation of the laundry washing process of the laundry treatment device is in the drainage stage, the laundry treatment apparatus controls the flushing water passage to be conductive to flush the drying and filtering device. Water after flushing can be drained together with drained water of the laundry treatment devices conducting the laundry washing process.

[0013] In one embodiment, the laundry washing process includes a plurality of drainage stages. The laundry treatment apparatus selects a target drainage stage from the drainage stages. When the laundry washing process enters the target drainage stage, the drying and filtering device is controlled to be flushed.

[0014] In the above solution, a laundry washing process may include multiple times of drainage stages, for example, drainage after washing and drainage after rinsing. In order to complete the laundry drying process as soon as possible, the laundry treatment apparatus can select the latest drainage stage according to the current stage of the laundry washing process and time sequence information of the laundry washing process, and controls the drying and filtering device to be flushed in the drainage stage. Of course, the laundry treatment apparatus may also control the drying and filtering device to be flushed when the other laundry treatment device is in the last time of drainage after washing process is complete.

[0015] Further, after one laundry treatment device finishes laundry drying, the laundry treatment apparatus is detected that the other laundry treatment device conducts the laundry washing process. The number of subsequent remaining drainage stages in the laundry washing process is judged according to the current stage of the laundry washing process, and the target drainage stage is selected from the drainage stages.

[0016] In one embodiment, when one laundry treatment device finishes laundry drying, the laundry treatment apparatus is detected that the other laundry treatment device conducts a laundry treatment process including laundry washing and laundry drying. The drying and filtering device is controlled to be flushed in the laundry washing process of the laundry treatment process.

[0017] In the above solution, the laundry treatment apparatus preferably flushes the drying and filtering device in the laundry washing process of the laundry treatment process, so that when the laundry drying process of the laundry treatment process is in operation, the drying and filtering device has been flushed, thereby improving the laundry drying effect.

[0018] Besides, if it is detected that the laundry drying process of the laundry treatment process is in operation, the laundry treatment apparatus conducts the flushing of the drying and filtering device when the operation of the laundry drying process is finished. Thereby when laundry drying is conducted next time, the drying and filtering device is clean and the laundry drying efficiency is high.

[0019] In one embodiment, the laundry treatment apparatus is detected that the first laundry treatment device finishes laundry drying and the second laundry treatment device conducts the drying process; or the second laundry treatment device finishes laundry drying and the first laundry treatment device conducts the drying process. The drying and filtering device is controlled to be flushed when the drying process is finished.

[0020] In the above solution, the laundry treatment apparatus conducts the flushing of the drying and filtering device after the other laundry treatment device finishes the operation of the drying process. The drying and filtering device is only flushed once during twice the laundry drying processes. The drying and filtering device is clean when laundry drying is conducted next time, and the laundry drying efficiency is high.

[0021] Alternatively, the laundry treatment apparatus controls the drying process to be suspended, and the drying and filtering device is flushed.

[0022] In the above solution, when the laundry drying process of one laundry treatment device is finished, the drying and filtering device is directly controlled to be flushed, and then the other laundry treatment device is controlled to conduct the laundry drying process. The drying and filtering effects of the laundry treatment device conducting the laundry drying process later are keeping good.

[0023] In one embodiment, when the two laundry treatment devices both conduct the drying process, the two laundry treatment devices operate alternately. The laundry treatment apparatus controls the drying and filtering device to be flushed when switching the operating laundry treatment device.

[0024] In the above solution, when the two laundry treatment devices both conduct the drying process, the laundry treatment apparatus controls the two laundry treatment devices to operate alternately. The drying effect of each laundry treatment device is good. When the operating laundry treatment device is switched, the drying and filtering device is flushed; thereby the drying effect of the switched laundry treatment device is good.

[0025] In one embodiment, the laundry treatment apparatus includes a drying fan, and in the process of flushing the drying and filtering device, the laundry treatment apparatus controls the drying fan to suspend working.

[0026] In the above solution, when the laundry treatment devices being in operation are switched, the drying and filtering device is flushed. If the drying fan keeps working, flushing water can be blown into a drying air duct by the drying fan to be adverse to drying laundry. Therefore, the drying fan is controlled to suspend working to prevent the influence on the drying process.

[0027] In one embodiment, when both conducting the

drying process, the two laundry treatment devices operate alternately. When a laundry treatment barrel of the first/second laundry treatment device suspends/finishes rotation, the laundry treatment barrel of the second/first laundry treatment device starts rotation, the drying fan suspends working, and the laundry treatment apparatus controls the drying and filtering device to be flushed. When flushing the drying and filtering device is finished, the laundry treatment apparatus controls the drying fan to work.

[0028] In the above solution, after the laundry treatment device is switched, the laundry treatment barrel of the switched laundry treatment device rotates, but the drying fan does not operate. At the moment, the drying and filtering device is flushed. After flushing the drying and filtering device is completed, the drying fan is controlled to operate. In the process, although the switched laundry treatment barrel is not dried immediately, a shaking process is conducted firstly to make the laundry fluffy, and the drying effect can be improved when the drying fan is in operation.

[0029] In one embodiment, the laundry treatment apparatus is detected that the first laundry treatment device finishes laundry drying and the second laundry treatment device is in a standby state, or the second laundry treatment device finishes laundry drying and the first laundry treatment device is in a standby state. In this time the drying and filtering device is directly controlled to be flushed.

[0030] In the above solution, when one laundry treatment device finishes laundry drying and the other laundry treatment device does not work, the flushing water passage can be directly controlled to be conductive to flush the drying and filtering device.

[0031] In one embodiment, the laundry treatment apparatus includes the first laundry treatment device and the second laundry treatment device which are sequentially arranged from top to bottom. The second laundry treatment device is connected with the drainage water passage, and a drainage control device is arranged on the drainage water passage. The drying and filtering device is connected with the drainage water passage through a connecting pipe and located at the upstream or downstream of the drainage control device.

[0032] In one embodiment, the drainage control device is a drainage valve. The connecting pipe is connected with the drainage water passage and located at the upstream of the drainage valve. When the drying and filtering device is flushed, the laundry treatment apparatus controls the drainage valve to be switched on. Alternatively the connecting pipe is connected with the drainage water passage and located at the downstream of the drainage valve. When the first laundry treatment device finishes laundry drying, the laundry treatment apparatus directly controls the drying and filtering device to be flushed.

[0033] In one embodiment, the drainage control device is a drainage pump. The connecting pipe is connected with the drainage water passage and located at the upstream or downstream of the drainage pump. When finishing the flushing of the drying and filtering device, the laundry treatment apparatus controls the drainage pump to be started.

[0034] In the present invention, the laundry treatment apparatus includes the first laundry treatment device, the second laundry treatment device, the drying and filtering device and the flushing water passage for flushing the drying and filtering device. The control method includes: controlling the flushing water passage to flush the drying and filtering device by the laundry treatment apparatus, according to the operating states of the two laundry treatment devices. In the present invention, the two laundry treatment devices are arranged. The laundry treatment apparatus is configured to match the operating states of the two laundry treatment devices to select the time suitable for flushing the drying and filtering device, thereby achieving the purposes of facilitating drainage of flushing water, saving time and energy and improving the flushing and laundry drying effects.

BRIEF DESCRIPTION OF THE DRAWINGS

[0035]

Figure 1 is a schematic structural diagram of a laundry treatment apparatus; and

Figure 2 is a control step chart of the laundry treatment apparatus.

[0036] 1, housing; 2, first laundry treatment device; 3, second laundry treatment device; 4, flushing water passage; 5, drainage water passage; 6, drying and filtering device; 7, connecting pipe; 8, drainage control device; and 9, water inlet valve.

DETAILED DESCRIPTION

[0037] In order to make the purpose, the technical solution and the advantages of embodiments of the present invention clearer, the technical solutions in the embodiments are clearly and completely described in combination with accompanying drawings in the embodiments of the present invention. The following embodiments are used for illustrating the embodiments of the present invention, but are not used for limiting the scope of the embodiments of the present invention.

[0038] In the description of the present invention, the orientation or position relation indicated by terms "upper", "lower", "inner", "outer" and the like is based on the orientation or position relation shown in the accompanying drawings, and is only used for conveniently describing the present invention and simplifying the description, instead of indicating or implying that the indicated device or element has a specific orientation and is constructed and operated in the specific orientation, so that the terms cannot be understood as the limitation on the present

invention.

[0039] In the description of the present invention, it should be noted that the terms "installation" and "connection" should be interpreted in a broad sense unless otherwise clearly defined and restricted. For example, the connection may be a fixed connection, a detachable connection, or an integrated connection; may be a mechanical connection or an electric connection; and may be a direct connection, and an indirect connection through an intermediate medium. For those of ordinary skill in the art, the specific meanings of the above terms in the present invention can be understood in specific situations.

[0040] The present invention provides a control method of a laundry treatment apparatus. As shown in Figure 1, the laundry treatment apparatus includes:

a housing 1;
a first laundry treatment device 2 and a second laundry treatment device 3 arranged in the housing 1.

[0041] Each of the first laundry treatment device 2 and the second laundry treatment device 3 includes a laundry treatment barrel. The first laundry treatment device 2 and the second laundry treatment device 3 may both be used for drying laundry. Or one of the two laundry treatment devices is used for drying laundry, the other one is used for washing laundry. Alternatively one of the two laundry treatment devices is used for drying laundry, and the other one is used for washing and drying laundry. Or each of the two laundry treatment devices is used for washing and drying laundry.

[0042] The two laundry treatment devices share a drying and filtering device 6 for filtering drying air.

[0043] The laundry treatment apparatus further includes a flushing water passage 4, an inflow water passage and a public drainage water passage 5. One end of the flushing water passage 4 is connected with the inflow water passage, the other end of the flushing water passage 4 is communicated to the drying and filtering device 6, and a flushing control device (on-off valve) is arranged on the flushing water passage 4. The inflow water passage includes a water inlet valve 9 and a water inlet pipe, one end of the water inlet pipe is connected with the water inlet valve 9, and the other end of the water inlet pipe is externally connected with a faucet. The flushing water passage 4 is connected with the water inlet valve 9 or the water inlet pipe.

[0044] In a connecting structure, the water inlet pipe is connected with a three-way pipe, the three-way pipe is communicated with the water inlet valve 9 and the flushing water passage 4 respectively, in this way, the flushing water passage 4 is communicated with an external water source through the water inlet pipe. The flushing water passage 4 can be realized to be blocked and connective by controlling the on and off of the flushing control device (for example, the on-off valve) on the flushing water passage 4.

[0045] The drying and filtering device 6 is connected to the drainage water passage 5 through a connecting pipe 7. At least one of the two laundry treatment devices can be used for washing, and the laundry treatment device capable of being used for washing is connected with the drainage water passage 5. As shown in Figure 1, a U-shaped pipeline is arranged on the connecting pipe 7, and a siphon structure is formed by the U-shaped pipeline, which is conducive to completely draining flushing water.

[0046] The control method of the present invention includes that the laundry treatment apparatus, according to operating states of the two laundry treatment devices, controls the flushing water passage to flush the drying and filtering device.

[0047] Preferably, when one laundry treatment device finishes laundry drying, the laundry treatment apparatus detects the operating state of the other laundry treatment device. A time point, at which the flushing water passage 4 is controlled to flush the drying and filtering device 6, is determined according to the operating state. The two laundry treatment devices are arranged. When the drying and filtering device 6 needs to be flushed after one laundry treatment device finishes laundry drying, the laundry treatment apparatus selects time suitable for flushing the drying and filtering device on the basis of the operating state of the other laundry treatment device, thereby achieving the purposes of facilitating drainage of flushing water, saving and energy and improving the flushing and laundry drying effects.

Embodiment I

[0048] In the embodiment, when the laundry treatment apparatus is detected that the first/second laundry treatment device finishes laundry drying and the second/first laundry treatment device conducts a laundry washing process, the flushing water passage is controlled to be conductive to flush the drying and filtering device 6 when the second/first laundry treatment device is a process of draining water. The flushing water passage 4 of the laundry treatment apparatus is directly connected with the inflow water passage of the laundry treatment apparatus, and the drying and filtering device 6 of the laundry treatment apparatus is directly connected with the drainage water passage 5. When the other laundry treatment device is in a laundry washing process, it is determined that the washing time point is in a drainage stage. The laundry treatment apparatus controls the flushing water passage 4 to be conductive to flush the drying and filtering device 6 when the laundry washing process of the other laundry treatment device is in the drainage stage. Water after flushing the drying and filtering device can be drained along with water used in the laundry washing process of the other laundry treatment device.

[0049] Specifically, the laundry washing process includes a plurality of drainage stages. The laundry treatment apparatus selects a target drainage stage from the

drainage stages. When the laundry washing process is in the target drainage stage, the drying and filtering device 6 is controlled to be flushed.

[0050] It should be noted that generally, laundry washing process may include multiple times of drainage, for example, drainage after washing and drainage after rinsing. In one laundry washing process, there are more than one time of drainage for washing and drainage for rinsing. In order to complete the laundry drying process as soon as possible, the laundry treatment apparatus can select the latest drainage stage according to the current stage of the laundry washing process and time sequence information of the laundry washing process, and control the drying and filtering device 6 to be flushed in the latest drainage stage. Of course, the laundry treatment apparatus may also control the drying and filtering device 6 to be flushed when the other laundry treatment device finishes the last time of drainage for washing. The drainage water passage is provided with a drainage valve, and the drying and filtering device 6 may be connected to the drainage water passage through the connecting pipe 7 and located at the upstream or downstream of the drainage valve. When the connecting pipe 7 is connected to the drainage water passage and located at the upstream of the drainage valve, the above technical solution needs to be adopted. That is, when the drainage valve is switched on in the drainage stage, the drying and filtering device needs to be controlled to be flushed.

[0051] Besides, when the connecting pipe 7 is connected to the drainage water passage and located at the downstream position of the drainage valve, the control method can also be as follows. When one laundry treatment device finishes laundry drying and the laundry treatment apparatus is detected that the other laundry treatment device conducts the laundry washing process, the flushing water passage 4 is directly controlled to be conductive to flush the drying and filtering device 6. The drying and filtering device 6 is connected to the drainage water passage 5 through the connecting pipe 7 and located at the downstream of the drainage valve. In this way, part of the flushing water to be drained may be remained in the drainage water passage 5. So, when the drying and filtering device 6 is flushed in the drainage stage, the flushing water containing a large amount of thread scraps can flow out of the laundry treatment apparatus along with the drained water during washing.

Embodiment II

[0052] In the embodiment II, the laundry treatment devices can conduct a laundry treatment process including laundry washing and laundry drying. When one laundry treatment device finishes laundry drying and the laundry treatment apparatus is detected that the other laundry treatment device conducts the laundry treatment process including laundry washing and laundry drying, the drying and filtering device 6 is controlled to be flushed in the laundry washing process of the laundry treatment process.

[0053] The laundry treatment apparatus preferably flushes the drying and filtering device 6 in the laundry washing process of the laundry treatment process. So, when the laundry drying process of the laundry treatment process is in operation, the drying and filtering device 6 has been flushed, thereby improving the laundry drying effect.

[0054] In addition, there is a situation that when one laundry treatment device finishes laundry drying and the laundry treatment apparatus is detected that the laundry drying process of the other laundry treatment process is in operation, the laundry treatment apparatus conducts the flushing of the drying and filtering device 6 after the operation of the laundry drying process is finished. So, when laundry drying is conducted next time, the clean drying and filtering device 6 and the laundry drying efficiency are ensured.

Embodiment III

[0055] In the embodiment III, when the laundry treatment apparatus is detected that the first/second laundry treatment device finishes laundry drying and the second/first laundry treatment device conducts the drying process, the drying and filtering device 6 is controlled to be flushed when the drying process is finished. In the solution, the laundry treatment apparatus conducts the flushing of the drying and filtering device 6 after the other laundry treatment device finishes the operation of the drying process. Thus the drying and filtering device 6 is only flushed once during two times of laundry drying. The drying and filtering device has been cleaned by flushing and thus the laundry drying efficiency is ensured when laundry drying is conducted next time.

[0056] Alternatively, it also may be that when the laundry treatment apparatus is detected that the first/second laundry treatment device finishes laundry drying and the second/first laundry treatment device conducts the drying process, the laundry treatment apparatus controls the drying process to be suspended and the drying and filtering device 6 is flushed firstly. After the drying and filtering device 6 is flushed, the laundry treatment device is controlled to continue conducting the drying process. In the solution, when the laundry drying process of one laundry treatment device is finished, the drying and filtering device 6 is directly controlled to be flushed, and then the other laundry treatment device is controlled to conduct the laundry drying process. Thereby the drying and filtering effects of the laundry treatment device conducting the laundry drying process later are ensured.

Embodiment IV

[0057] In the embodiment IV, the two laundry treatment devices both conduct the drying process, the two laundry treatment devices operate alternately the drying process. The laundry treatment apparatus controls the drying and

filtering device 6 to be flushed when switching the operation of the laundry treatment device.

[0058] In the above solution, when the two laundry treatment devices both conduct the drying process, the laundry treatment apparatus controls the two laundry treatment devices to operate alternately the drying process. The drying effect of each laundry treatment device is ensured. When the operation of the laundry treatment device is switched, the drying and filtering device 6 is flushed, and thus the drying effect of the switched laundry treatment device is ensured.

[0059] The laundry treatment apparatus can conducting flushing of the drying and filtering device 6 once when the two laundry treatment devices are switched to work every time. Thus the drying effect of the switched laundry treatment device is ensured. Alternatively the laundry treatment apparatus can control the drying and filtering device 6 to be flushed once every N times of switching to work for two treatment devices, so that the drying efficiency of the whole apparatus is ensured.

[0060] The laundry treatment apparatus includes a drying air duct, and a drying fan arranged in the drying air duct. The laundry treatment apparatus controls the drying fan to suspend working in the process of flushing the drying and filtering device 6. In the solution, when the laundry treatment device being working is switched, the drying and filtering device is flushed. If the drying fan keeps working, flushing water can be blown into the drying air duct by the drying fan, which is adverse to drying laundry. Therefore the drying fan is controlled to suspend working to prevent the influence on the drying process.

[0061] Preferably, when the two laundry treatment devices both conduct the drying process, the two laundry treatment devices operate alternately the drying process. When a laundry treatment barrel of the first/second laundry treatment device suspends or finishes rotation, the laundry treatment barrel of the second/first laundry treatment device starts rotation. The drying fan suspends working, and the laundry treatment apparatus controls the drying and filtering device 6 to be flushed. When flushing the drying and filtering device is finished, the laundry treatment apparatus controls the drying fan to work. In the solution, after the laundry treatment device is switched, the laundry treatment barrel of the switched laundry treatment device rotates, but the drying fan does not operate. At the moment, the drying and filtering device 6 is flushed. After flushing the drying and filtering device is completed, the drying fan is controlled to operate. In the process, although the laundry treatment barrel to be switched is not dried immediately, a shaking process is conducted firstly to make the laundry fluffy. And the drying effect can be improved when the drying fan is in operation.

Embodiments V

[0062] In the embodiment V, when one laundry treatment device finishes laundry drying and the laundry treatment apparatus is detected that the other laundry treatment device is in a standby state, the flushing water passage 4 is directly controlled to be conductive to flush the drying and filtering device 6. The flushing water is drained through the drainage water passage 5. In the solution, when one laundry treatment device finishes laundry drying and the other laundry treatment device does not work, the flushing water passage 4 can be directly controlled to be conductive to flush the drying and filtering device 6.

Embodiment VI

[0063] In the embodiment VI, the laundry treatment apparatus includes the first laundry treatment device 2 and the second laundry treatment device 3 which are sequentially arranged from top to bottom. The first laundry treatment device 2 is used for drying laundry, the second laundry treatment device 3 can be used for drying and washing laundry, and the second laundry treatment device 3 is connected with the drainage water passage 5. A drainage control device 8 is arranged on the drainage water passage 5, and the drying and filtering device 6 is connected to the drainage water passage 5 through the connecting pipe 7 and located at the upstream or downstream of the drainage control device 8.

[0064] In one embodiment, the drainage control device 8 is a drainage valve. When the connecting pipe 7 is connected to the drainage water passage 5 and located at the upstream of the drainage valve, the laundry treatment apparatus needs to control the drainage valve to be switched on to drain water in flushing the drying and filtering device 6. In the process of flushing the drying and filtering device 6, the drainage valve can be switched on to drain washing water and flushing water when the second laundry treatment device 3 is in the drainage process. However, when the connecting pipe 7 is connected to the drainage water passage 5 and located at the downstream of the drainage valve, the drying and filtering device 6 is controlled to be flushed and it is unnecessary the second laundry treatment device 3 is in the drainage process.

[0065] In another embodiment, the drainage control device 8 is a drainage pump. The connecting pipe 7 is connected to the drainage water passage 5 and located at the upstream or downstream of the drainage pump. When flushing the drying and filtering device 6 is finished, the laundry treatment apparatus controls the drainage pump to be started. In the solution, when the drainage control device 8 is the drainage pump, the principle of upward drainage is generally adopted. So the drainage pump needs to be started to pump out flushing water for flushing the drying and filtering device 6 by the laundry treatment apparatus. A drainage valve is further arranged on the drainage water passage 5 and located at the upstream of the drainage pump, thus preventing flushing water from backward flowing.

[0066] As shown in Figure 2, a preferable control step is provided by combining the solutions of the embodi-

ments:

S1, finishing laundry drying of one laundry treatment device;
S2, the laundry treatment apparatus being detected the operating state of the other laundry treatment device,
entering S3 if the other laundry treatment device is in the laundry washing process,
entering S4 if the other laundry treatment device is in the laundry drying process, and
entering S5 if the other laundry treatment device is in the standby state;
S3, the laundry treatment apparatus controlling the drying and filtering device 6 to be flushed in the drainage stage, and entering S6;
S4, the laundry treatment apparatus controlling the drying and filtering device 6 to be flushed when the laundry drying process is finished, and entering S6;
S5, the laundry treatment apparatus directly controlling the drying and filtering device 6 to be flushed, and entering S6; and
S6, ending control.

[0067] The above descriptions are only preferred embodiments of the present invention, but are not aimed at limiting the present invention in any forms. Although the present invention is disclosed above by the preferred embodiments, the preferred embodiments are not aimed at limiting the present invention. Those skilled in the art can make some changes by using the above suggestive technical contents or modify the technical contents as equivalent embodiments of equivalent changes without departing from the scope of the technical solution of the present invention. Any simple alterations, equivalent changes and modifications that are made to the above embodiments according to the technical essence of the present invention without departing from the contents of the technical solution of the present invention should all fall within the scope of the solution of the present invention.

Claims

1. A control method for a laundry treatment apparatus, wherein the laundry treatment apparatus comprises a first laundry treatment device, a second laundry treatment device, a drying and filtering device and a flushing water passage for flushing the drying and filtering device, and
the control method comprises: controlling the flushing water passage to flush the drying and filtering device according to operating states of the first laundry treatment device and the second laundry treatment device by the laundry treatment apparatus.

2. The control method for the laundry treatment apparatus according to claim 1, wherein the laundry treatment apparatus comprises an inflow water passage and a drainage water passage, the flushing water passage is communicated with the inflow water passage, and the drying and filtering device is communicated with the drainage water passage through a connecting pipe; and
the laundry treatment apparatus is detected that the first/second laundry treatment device finishes laundry drying and the second/first laundry treatment device conducts a laundry washing process, and then the flushing water passage is controlled to be conductive to flush the drying and filtering device when the second/first laundry treatment device is in drainage process.

3. The control method for the laundry treatment apparatus according to claim 2, wherein the laundry washing process comprises a plurality of drainage stages, the laundry treatment apparatus selects a target drainage stage from the drainage stages, and
when the laundry washing process enters the target drainage stage, the drying and filtering device is controlled to be flushed.

4. The control method for the laundry treatment apparatus according to any one of claims 1-3, wherein the laundry treatment apparatus is detected that the first/second laundry treatment device finishes laundry drying and the second/first laundry treatment device conducts a drying process, and then
the drying and filtering device is controlled to be flushed when the drying process is finished, or, the laundry treatment apparatus controls the drying process to be suspended and the drying and filtering device is flushed.

5. The control method for the laundry treatment apparatus according to any one of claims 1-3, wherein when both the first laundry treatment device and the second laundry treatment device conduct the drying process, the first laundry treatment device and the second laundry treatment device operate alternately the drying process, and
the laundry treatment apparatus controls the drying and filtering device to be flushed when switching between the operations of the first laundry treatment device and the second laundry treatment device.

6. The control method for the laundry treatment apparatus according to the claim 5, wherein the laundry treatment apparatus comprises a drying fan,
the drying fan is controlled by the laundry treatment apparatus to suspend working in a process of flushing the drying and filtering device.

7. The control method for the laundry treatment apparatus according to claim 6, wherein, during the alter-

native operation of the first laundry treatment device and the second laundry treatment device,

when a laundry treatment barrel of the first/second laundry treatment device suspends or finishes rotation and the laundry treatment barrel of the second/first laundry treatment device starts rotation, the drying fan suspends working, the laundry treatment apparatus controls the drying and filtering device to be flushed, and controls the drying fan to work when flushing the drying and filtering device is finished.

8. The control method for the laundry treatment apparatus according to any one of claims 1-3, wherein the laundry treatment apparatus is detected that the first/second laundry treatment device finishes laundry drying and the second/first laundry treatment device is in a standby state, and then the drying and filtering device is directly controlled to be flushed.

9. The control method for the laundry treatment apparatus according to any one of claims 1-3, wherein the first laundry treatment device and the second laundry treatment device are arranged from top to bottom,

the second laundry treatment device is connected with the drainage water passage, a drainage control device is arranged on the drainage water passage,
the drying and filtering device is connected with the drainage water passage through the connecting pipe and located at the upstream or downstream of the drainage control device; and preferably, the drainage control device is a drainage valve, the connecting pipe is connected with the drainage water passage and located at the upstream of the drainage valve, and the laundry treatment apparatus controls the drainage valve to be switched on when the drying and filtering device is flushed,; or
the connecting pipe is connected with the drainage water passage and located at the downstream of the drainage valve, and the laundry treatment apparatus directly controls the drying and filtering device to be flushed when the first laundry treatment device finishes laundry drying.

10. The control method for the laundry treatment apparatus according to claim 9, wherein the drainage control device is a drainage pump, the connecting pipe is connected with the drainage water passage and located at the upstream or downstream of the drainage pump, and the laundry treatment apparatus controls the drainage pump to be started when flushing the drying and filtering device is finished.

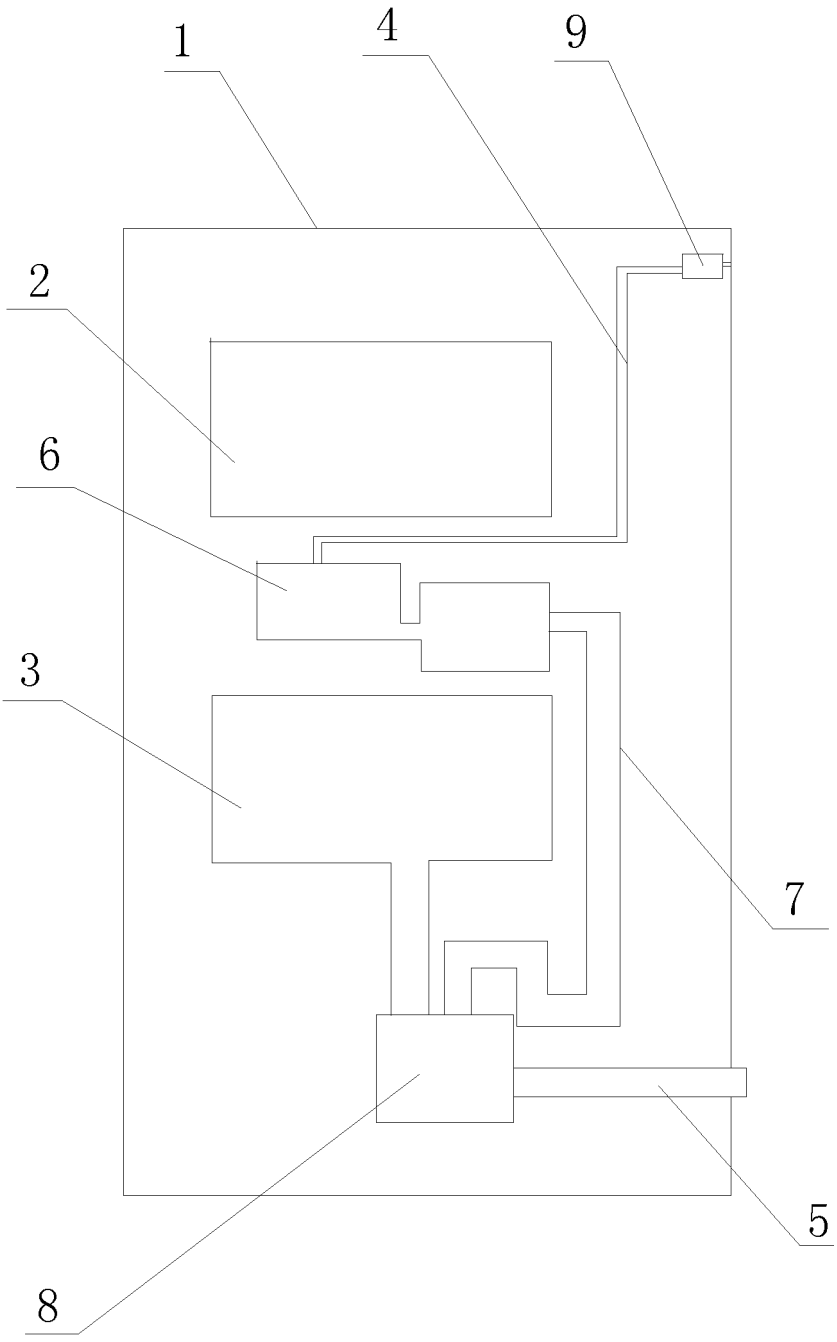

Figure 1

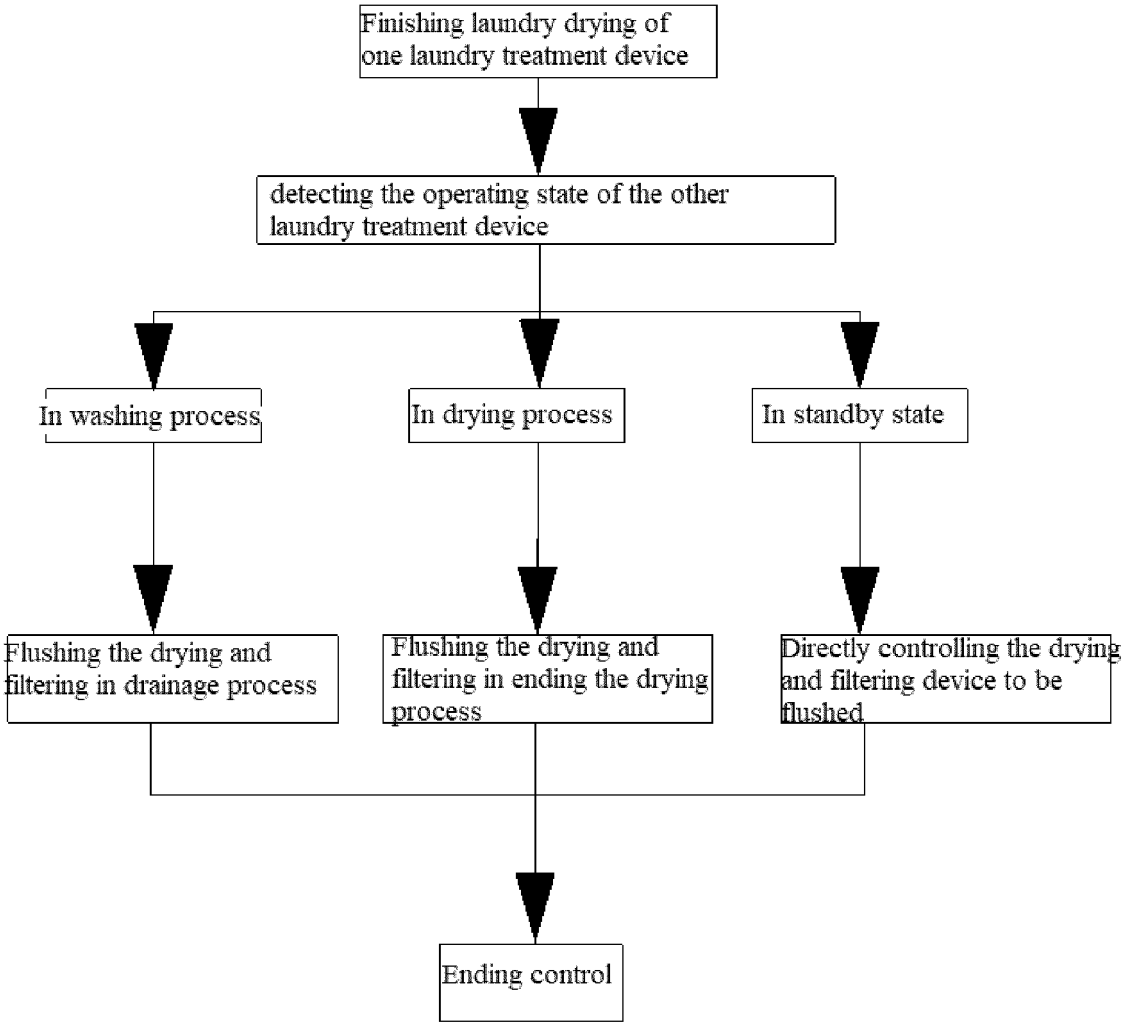
Finishing laundry drying of one laundry treatment device
detecting the operating state of the other laundry treatment device
In washing process
In drying process
In standby state
Flushing the drying and filtering in drainage process
Flushing the drying and filtering in ending the drying process
Directly controlling the drying and filtering device to be flushed
Ending control

Figure 2

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2020/090432

A. CLASSIFICATION OF SUBJECT MATTER

D06F 29/00(2006.01)i; D06F 33/00(2020.01)i; D06F 58/20(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)

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)

EPODOC, WPI, CNPAT, CNKI: 海尔, 洗衣机, 干衣, 干燥, 烘干, 过滤, 水管, 水路, 通道, wash+, dry+, laundry, filt+, pipe?, path, channel

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CN 109518409 A (QINGDAO HAIER DRUM WASHING MACHINE CO., LTD.) 26 March 2019 (2019-03-26) description, specific embodiments 3 and 4, and figures 2 and 3	1-10
X	CN 109518408 A (QINGDAO HAIER DRUM WASHING MACHINE CO., LTD.) 26 March 2019 (2019-03-26) description, specific embodiments 3 and 4, and figure 2	1-10
X	CN 109518407 A (QINGDAO HAIER DRUM WASHING MACHINE CO., LTD.) 26 March 2019 (2019-03-26) description, specific embodiments 3 and 4, and figures 2 and 3	1-10
X	CN 109518406 A (QINGDAO HAIER DRUM WASHING MACHINE CO., LTD.) 26 March 2019 (2019-03-26) description, specific embodiments 3 and 4, and figures 2 and 3	1-10
X	CN 109518405 A (QINGDAO HAIER DRUM WASHING MACHINE CO., LTD.) 26 March 2019 (2019-03-26) description, specific embodiment, and figures 1-4	1-10

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

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
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"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
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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
16 July 2020	**19 August 2020**
Name and mailing address of the ISA/CN **China National Intellectual Property Administration (ISA/CN)** **No. 6, Xitucheng Road, Jimenqiao Haidian District, Beijing 100088** **China**	Authorized officer
Facsimile No. **(86-10)62019451**	Telephone No.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2020/090432

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CN 101205675 A (HAIER ELECTRONICS GROUP CO., LTD.; QINGDAO HAIER WASHING MACHINE CO., LTD.) 25 June 2008 (2008-06-25) entire document	1-10
A	CN 107523959 A (QINGDAO HAIER WASHING MACHINE CO., LTD.) 29 December 2017 (2017-12-29) entire document	1-10
A	CN 106381646 A (WUXI LITTLE SWAN CO., LTD.) 08 February 2017 (2017-02-08) entire document	1-10
A	CN 108950990 A (QINGDAO HAIER DRUM WASHING MACHINE CO., LTD.) 07 December 2018 (2018-12-07) entire document	1-10
A	JP 2009022346 A (TOSHIBA CORP. et al.) 05 February 2009 (2009-02-05) entire document	1-10

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2020/090432

Patent document cited in search report			Publication date (day/month/year)	Patent family member(s)			Publication date (day/month/year)
CN	109518409	A	26 March 2019	None			
CN	109518408	A	26 March 2019	WO	2019052347	A1	21 March 2019
CN	109518407	A	26 March 2019	WO	2019052345	A1	21 March 2019
CN	109518406	A	26 March 2019	WO	2019052346	A1	21 March 2019
CN	109518405	A	26 March 2019	WO	2019052344	A1	21 March 2019
CN	101205675	A	25 June 2008	None			
CN	107523959	A	29 December 2017	WO	2017219998	A1	28 December 2017
				CN	107523961	A	29 December 2017
CN	106381646	A	08 February 2017	None			
CN	108950990	A	07 December 2018	None			
JP	2009022346	A	05 February 2009	None			

Form PCT/ISA/210 (patent family annex) (January 2015)

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- CN 201220157731 **[0004]**